



WOODLAND  
TRUST



# Space for nature

Landscape-scale action for woodland biodiversity

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In a highly fragmented landscape, activities outside reserves assume a far greater importance  
Photograph: David Lund



# Foreword

This document sets out the Woodland Trust's thoughts on the development of landscape-scale action for woodland biodiversity. The traditional approach taken by most conservation organisations, including the Trust itself, to the conservation of wildlife has been to establish a series of designated sites and reserves. Many designation and reserves strategies focus entirely inward on sites. At best they may look more widely but only on the basis of the status quo in terms of surrounding land use and climate. The dynamic nature of landscapes and ecosystems, combined with potentially rapid change as a result of climatic and other human-induced factors, seems to point to a more holistic and forward-looking strategy. That such an approach has not been adopted generally is not surprising given the complexities of land ownership and management over large parts of the UK and the lowlands in particular.

In a highly fragmented landscape, such as that of the UK, activities outside reserves for the conservation of biodiversity assume a far greater importance than those places with vast tracts of natural habitat that may be contained within individually large reserves. This is particularly relevant in the strongly cultural and densely inhabited landscapes in which we live.

The Woodland Trust has developed an approach based on a number of widely held ecological principles and surrogate measures, which can be monitored over time. Its formulation highlighted the need for habitat creation to buffer and extend semi-natural habitats to increase their core area and thus their ecological resilience, rather than to simply link them. It also suggested that woodland biodiversity has greatest potential to be put on a more sustainable footing in areas where there is a high density of ancient woodland.

In meeting the contemporary challenge of conservation in an era of loss of biodiversity unprecedented in human history, and facing a period of potentially dramatic climate change, reserves need to be much more than areas set aside for wildlife; they need to be a part of ecologically functional landscapes. This will require the creation of further semi-natural habitats, both woodland and open ground, and agriculture that is more sympathetic to wildlife. These landscapes are not at odds with society's needs; they can contribute towards rural development, flood alleviation, recreation and tourism, as well as economic and other benefits that add to quality of life. They can be landscapes that are not only rich in wildlife but that enrich the lives of people.

Reserves need to be a part of ecologically functional landscapes  
Photograph: Woodland Trust Picture Library



# Background

Conservation should enable the widest range of habitats and species to survive and evolve  
 Photographs from top left clockwise: Keith Hugget (1); Woodland Trust Picture Library (3); Richard Smithers (3)



The Woodland Trust's mission is to conserve, restore and re-establish woodland in the UK. We set out a clear vision for the future in our plan for action, *Keeping woodland alive*.<sup>1</sup> Part of the aim is to see the biodiversity of woods restored and improved.

Biodiversity is a concern of global importance and a measure of the quality of the environment in which not only plants and animals live but on which people also depend. The Trust believes that conservation should maintain and enhance biodiversity by enabling the widest range of habitats and species to survive and evolve.<sup>2</sup> However, we appreciate that knowledge of the natural world will always be limited. As a result we have developed a series of simple yet meaningful measures to assess opportunities for future action relevant to:

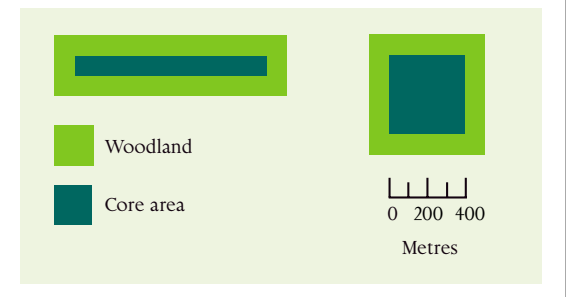
- All habitats and species
- Existing habitats and habitat creation
- Landscapes and individual sites.

We believe that those site features that have greatest influence over woodland biodiversity are:

- Ancient woodland (areas wooded since at least 1600AD)<sup>3</sup>

- Old-growth woodland (stands with more than 200 years' growth<sup>4</sup> with a continuity of old trees reaching back into the past)<sup>5</sup>
- Size
- Core area (area not affected significantly by edge effects from a site's surroundings)<sup>6</sup>: see Figure 1
- Woodland edge adjacent to other semi-natural habitats
- Density of semi-natural habitats
- Linkage of open-ground habitats.

**Figure 1:** Two woods of equal size affected by edge effects from their surroundings to markedly different degrees with core areas of 10 hectares and 16 hectares



<sup>1</sup> The Woodland Trust (2001) *Keeping woodland alive* ([www.woodland-trust.org.uk/policy/publications.htm](http://www.woodland-trust.org.uk/policy/publications.htm))

<sup>2</sup> The Woodland Trust (1999) *Seeing the woods for the trees* ([www.woodland-trust.org.uk/policy/publications.htm](http://www.woodland-trust.org.uk/policy/publications.htm))

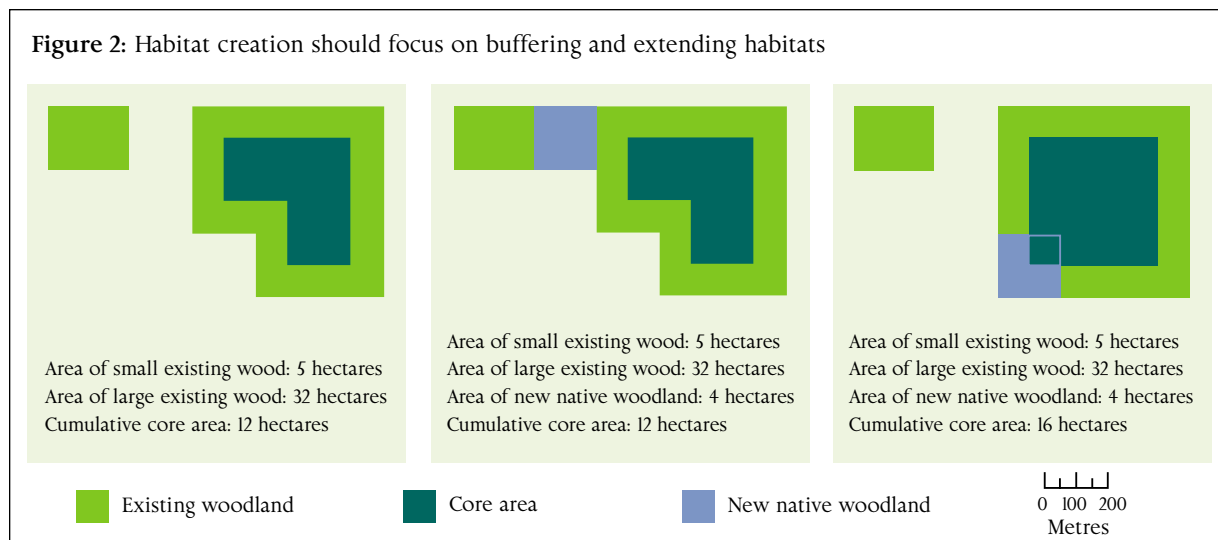
<sup>3</sup> Spencer, J.W. and Kirby, K.J. (1992) 'An inventory of ancient woodland for England and Wales'. *Biological Conservation*, Vol. 62, pp. 77-93  
 Walker, G.J. and Kirby, K.J. (1989) *Inventories of ancient, long-established and semi-natural woodland for Scotland*. Nature Conservancy Council: Research and survey in nature conservation No.22

Our conclusion is that the contribution semi-natural habitats make to woodland biodiversity increases with age and size. In this context we have developed the following surrogate measures of woodland biodiversity:

- Density of ancient-woodland cover
- Percentage of ancient woodland which is semi-natural
- Cumulative core area of semi-natural habitats (area of semi-natural habitats as a whole not affected significantly by edge effects from intensive land use)
- Area of old-growth woodland.

The key features and resultant surrogate measures identified above are described in detail in the Woodland Trust's publication, *Expanding our horizons*.<sup>7</sup>

Development of the biodiversity measures indicated that habitat creation should focus on buffering and extending semi-natural habitats to increase their core area and thus their ecological resilience from external impact, in preference to simple linkage between habitat patches (Figure 2). It also suggested that woodland biodiversity has greatest potential to be placed on a more sustainable footing in areas where there is a high density of ancient woodland.



<sup>4</sup> Peterken, G.F. (1996) *Natural woodland*. Cambridge University Press

<sup>5</sup> Rose F. (1992) 'Temperate forest management: its effects on bryophyte and lichen floras and habitats'. In: Bates, J.W. and Farmer, A.M. (eds). *Bryophytes and lichens in a changing environment*. Oxford University Press

<sup>6</sup> Laurance, W.F. and Yensen, E. (1991) 'Predicting the impact of edge effects in fragmented habitats'. *Biological Conservation*, Vol. 55, pp. 77-92

<sup>7</sup> The Woodland Trust (2000) *Expanding our horizons* ([www.woodland-trust.org.uk/policy/publications.htm](http://www.woodland-trust.org.uk/policy/publications.htm))

**Above:** The contribution semi-natural habitats make to woodland biodiversity increases with age and size

Photograph: Woodland Trust Picture Library

**Below:** Woodland biodiversity has greatest potential to be sustained where there is a high density of ancient woodland

Photograph: Richard Smithers



# Background (continued)

Less mobile species may survive rapid climate change only through chance dispersal  
Photographs: Richard Smithers



Both strategies not only address the fragmentation of semi-natural habitats by intensive land use but may also have much to offer in increasing the degree to which individual sites and whole landscapes welcome the establishment of species when they happen to arrive from a long distance. This is important because chance dispersal may be the only means by which many less mobile species will be able to survive rapid climate change.<sup>8</sup> The frequency with which species are able to move could be enhanced if in addition there is a general reduction in the intensity of land use over the UK as a whole.

<sup>8</sup> Wilkinson, D.M. (1999) Plants on the move. *New Scientist* (Inside Science 119)  
The Woodland Trust (2001) *A midsummer night's nightmare?* The future of UK woodland in the face of climate change ([www.woodland-trust.org.uk/policy/publications.htm](http://www.woodland-trust.org.uk/policy/publications.htm))

# Actions for woodland biodiversity across the UK

In the context of our plan for action, *Keeping woodland alive*, and our biodiversity measures, the Woodland Trust will aim to restore and improve woodland biodiversity by:

- Preventing further loss of ancient woodland
- Seeking the conservation and extension of all areas of old growth
- Seeking restoration of ancient woodland planted with non-native conifers to semi-natural woodland<sup>9</sup>
- Undertaking and promoting the buffering and extension of ancient woodland and existing semi-natural open-ground habitats in areas with a high density of ancient woodland through the creation of new native woodland and other semi-natural habitats
- Undertaking woodland-creation schemes either where the project contributes to a landscape-scale woodland initiative such as the National Forest, South West Forest or Community Forests, or where it contributes to a landscape-scale initiative led by other conservation interests whose focus may be semi-natural open-ground habitats, or where it is adjacent to an existing Trust property and benefits arise from economies of scale, or where it has arisen due to community-led demand

- Supporting the need to protect and maintain semi-natural open-ground habitats
- Supporting the removal of secondary woodland and plantations from important semi-natural open-ground habitats, where sufficient relict features survive to enable their successful restoration
- Seeking a general reduction in the intensity of land use, particularly adjacent to semi-natural habitats.

There should be no further loss of ancient woodland  
Photograph: Woodland Trust Picture Library



<sup>9</sup> Pryor, S.N. and Smith, S. (in press, 2002) *The area and composition of Plantations on Ancient Woodland Sites*. The Woodland Trust

# Areas with a high density of ancient woodland

Although the Trust wants to see improvements for woodland biodiversity across the whole of the UK, this document sets out how targets have been determined specifically with regard to areas with a high density of ancient woodland. While major concentrations of ancient woodland are of paramount importance, local concentrations may also have a key role to play in supporting biodiversity and as stepping stones for the dispersal of species in the face of climate change.

## Identification

The digitised ancient woodland inventories for England, Scotland and Wales (in draft) have been analysed spatially to identify major and local concentrations of ancient woodland (where ancient woodland in neighbouring 5-kilometre squares exceeds 5 per cent cover over 250 square kilometres and 100-250 square kilometres respectively): see Figure 3.

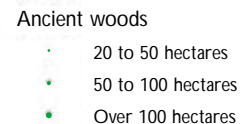
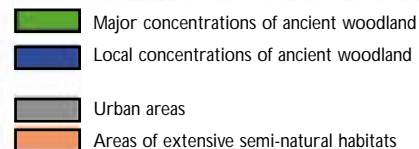
The Land Cover Map of Great Britain, produced from satellite images taken between 1988 and 1991, has been used to exclude all land cover classed as built development from the calculations of ancient-woodland cover. This ensures that the areas identified incorporate urban and urban-fringe areas, where appropriate.

Extensive major concentrations, such as those found in south-east England or Scotland, have been subdivided by Natural Areas in England<sup>10</sup> or super-Natural Areas with common characteristics (e.g. the Weald), by Natural Heritage Zones<sup>11</sup> in Scotland and by Ecological Woodland Units<sup>12</sup> in Wales. Names given to major concentrations in England for the most part reflect those of Natural Areas, and in Wales and Scotland refer to well-known geographic labels. Names of local concentrations are generally more specific.

Mapping has not been undertaken for Northern Ireland due to lack of an ancient woodland inventory.

**Figure 3: Concentrations of ancient woodland** ▶

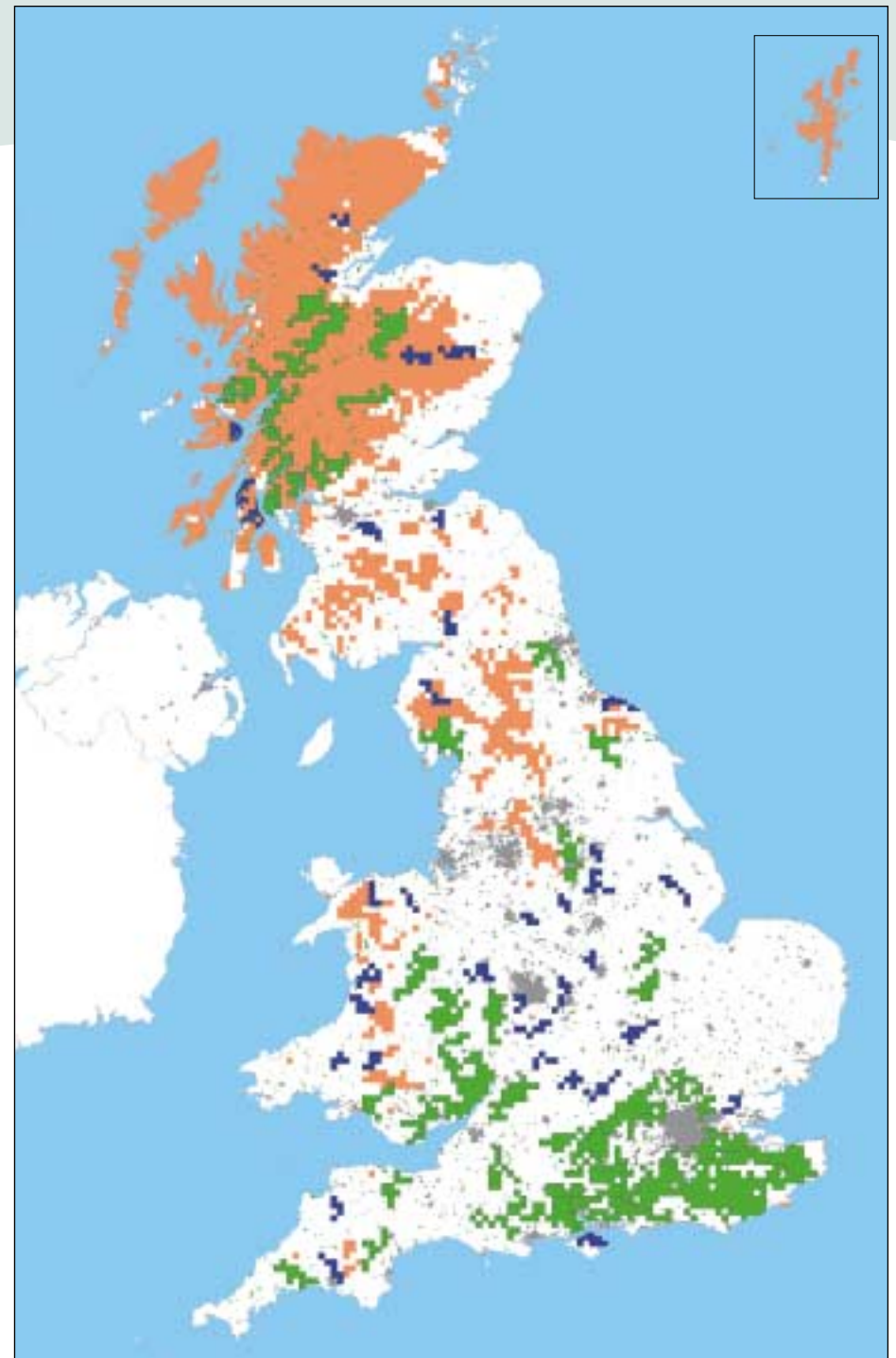
Derived using data from Countryside Council for Wales, English Nature, Natural Environment Research Council (supplied by Centre for Ecology & Hydrology) and Scottish Natural Heritage.  
© Crown copyright

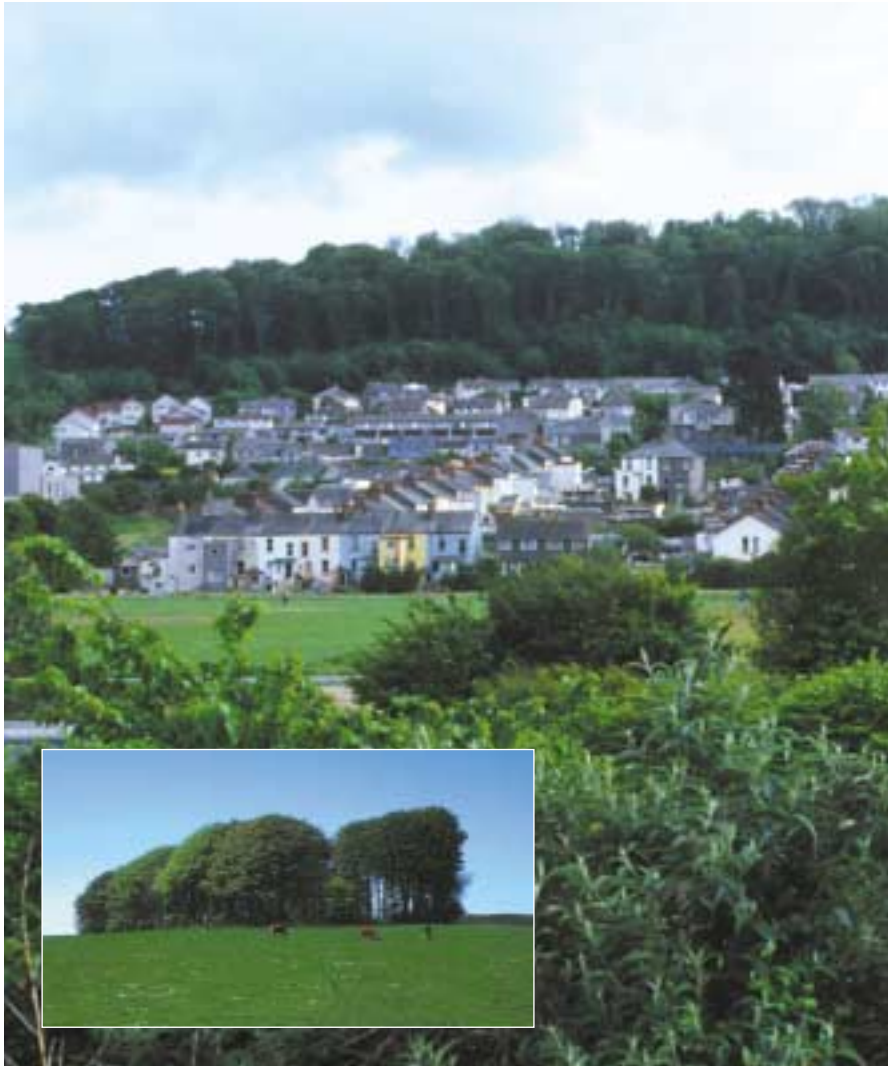


<sup>10</sup> English Nature (1998) *Natural Areas – nature conservation in context*

<sup>11</sup> Scottish Natural Heritage (1999) *Natural Heritage Zones: Planning the Wise Use of Scotland's Natural Diversity*

<sup>12</sup> Latham, J. (2000) *A management framework for woodlands in Wales: principles and progress*. Countryside Council for Wales Natural Science Report No. 00/7/1





**Below left:** Concentrations of ancient woodland incorporate urban areas  
**Inset:** The ancient woodland inventories give very variable coverage of woods less than two hectares  
 Photographs: Woodland Trust Picture Library

## Key features

The key features of each concentration of ancient woodland have been assessed through analysis of a range of digitised data:

- **Ancient woodland inventories**  
 These include the boundaries of all ancient woods of more than 2 hectares and give very variable coverage of ancient woods less than 2 hectares. They have been used to determine the total area, size and density of ancient semi-natural woods and planted ancient woodland sites (Tables 1 and 2).
- **Land Cover Map of Great Britain**  
 This allocates a percentage of land within each 1-kilometre square to one of 25 classes (Tables 3 and 4) and is around 80-85 per cent accurate. These land classes have been combined (Appendix 1) to provide summary details of woodland cover, other semi-natural habitats and intensive land use (Tables 5 and 6).
- **National Inventory of Woods and Trees**  
 This was produced from 1:25,000 aerial photographs taken between 1991 and 1999 and is more accurate than the Land Cover Map of Great Britain. It includes the boundaries of all woods of more than 2 hectares but excludes those less than 2 hectares or 50 metres in width, woods with less than 50 per cent

canopy cover in Scotland and woods with less than 20 per cent canopy cover in England and Wales.

The National Inventory of Woods and Trees shows boundaries between 10 interpreted forest types. These have been combined (Appendix 2) to provide summary details of broadleaved (less than 20 per cent conifer), mixed woodland, conifer plantation (less than 20 per cent broadleaved trees), and semi-natural conifer cover, which have been compared with those derived from the Land Cover Map of Great Britain (Tables 7 and 8).

The National Inventory of Woods and Trees has been overlaid with the ancient woodland inventories to provide a breakdown of woodland cover on planted ancient woodland sites (Tables 9 and 10). The total area of planted ancient woodland sites shown as woodland on the National Inventory of Woods and Trees is less than that represented by the ancient woodland inventories. This may be due to:

- Inaccuracies in the ancient woodland inventories
- The inclusion of land in the ancient woodland inventories with less than the threshold canopy cover in the National Inventory of Woods and Trees

# Areas with a high density of ancient woodland (continued)

Planted ancient woodland sites may be broadleaved, mixed woodland or coniferous

Photograph: Woodland Trust Picture Library



- The inclusion of ancient woods under 2 hectares or less than 50 metres in width in the ancient woodland inventories that would not be covered by the National Inventory of Woods and Trees
- Loss of ancient woodland between the time when the ancient woodland inventories were produced and when the aerial photographs were taken for the National Inventory of Woods and Trees.

The National Inventory of Woods and Trees has also been overlaid with the ancient woodland inventories to identify all ancient semi-natural woodland shown as conifer plantation that should be treated as planted ancient woodland (Tables 9 and 10). These inaccuracies in the ancient woodland inventories may be due to:

- A lack of awareness as to the presence of conifers when the ancient woodland inventories were produced or their only being present as under-planted trees at that time
- Felling and replanting with conifers since the time when the ancient woodland inventories were produced
- Cartographic errors when the ancient woodland inventories were digitised (e.g., in south-east Wales all planted ancient

woodland sites are currently shown as ancient semi-natural woodland on the digitised ancient woodland inventory).

The total area of ancient semi-natural woodland shown as woodland on the National Inventory of Woods and Trees, as for planted ancient woodland sites, is less than that represented by the ancient woodland inventories.

- The Ancient Tree Forum's very provisional data of known concentrations of ancient trees. This has been used to rank areas in terms of their significance for ancient trees (Tables 11 and 12) as very high, high, medium or low (Appendix 3).

Analysis of land classes from the Land Cover Map of Great Britain for major concentrations of ancient woodland suggests that each of them can be placed with other areas that have common characteristics in one of five groups (see Appendix 4).

Major concentrations of ancient woodland cover 10 per cent of Great Britain and contain almost 50 per cent of Great Britain's ancient woodland. Further statistics about ancient woodland and concentrations of ancient woodland by country can be found in Table 13.



Areas have been ranked in terms of their significance for ancient trees  
Photograph: Alison Chapman

## Woodland Ownership

Woodland ownership within each concentration of ancient woodland has been assessed (Tables 14 and 15), as far as possible, using a range of data:

- Forest Enterprise ownership boundary data across Great Britain, which includes accurately all its properties until 2000
- Preliminary data from English Nature on ancient woodland in public or conservation ownership in England, which may provide only a partial picture
- The Woodland Trust's ownership boundary data, which is accurate and up-to-date.

Whether ancient woodland known to be in public or conservation ownership is ancient semi-natural woodland or planted ancient woodland sites has been established (Tables 16 and 17). Forest Enterprise's boundary data has been overlaid with the ancient woodland inventories and the National Inventory of Woods and Trees to determine whether planted ancient woodland sites in its ownership are broadleaved, mixed woodland, conifer plantation or semi-natural conifer. The area of ancient semi-natural woodland owned by Forest Enterprise that is conifer plantation and should therefore be treated as planted ancient woodland has also been determined in the same way (Tables 18 and 19).

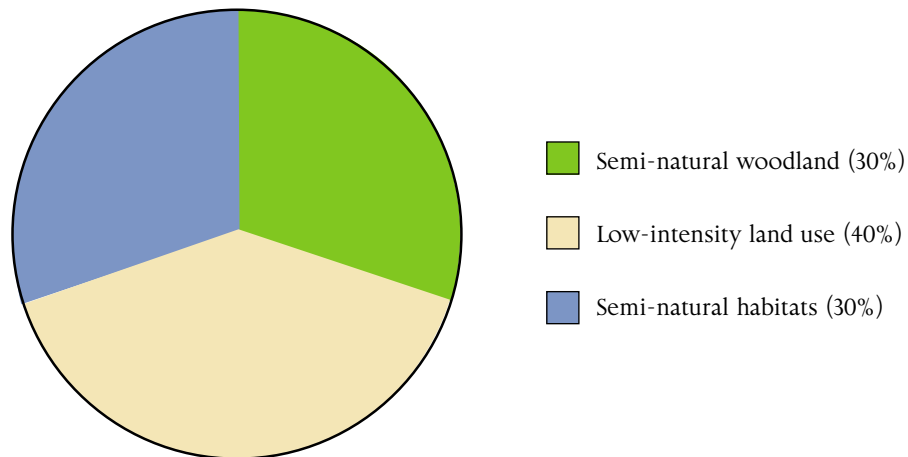
# Areas with a high density of ancient woodland (continued)

## Development of Targets

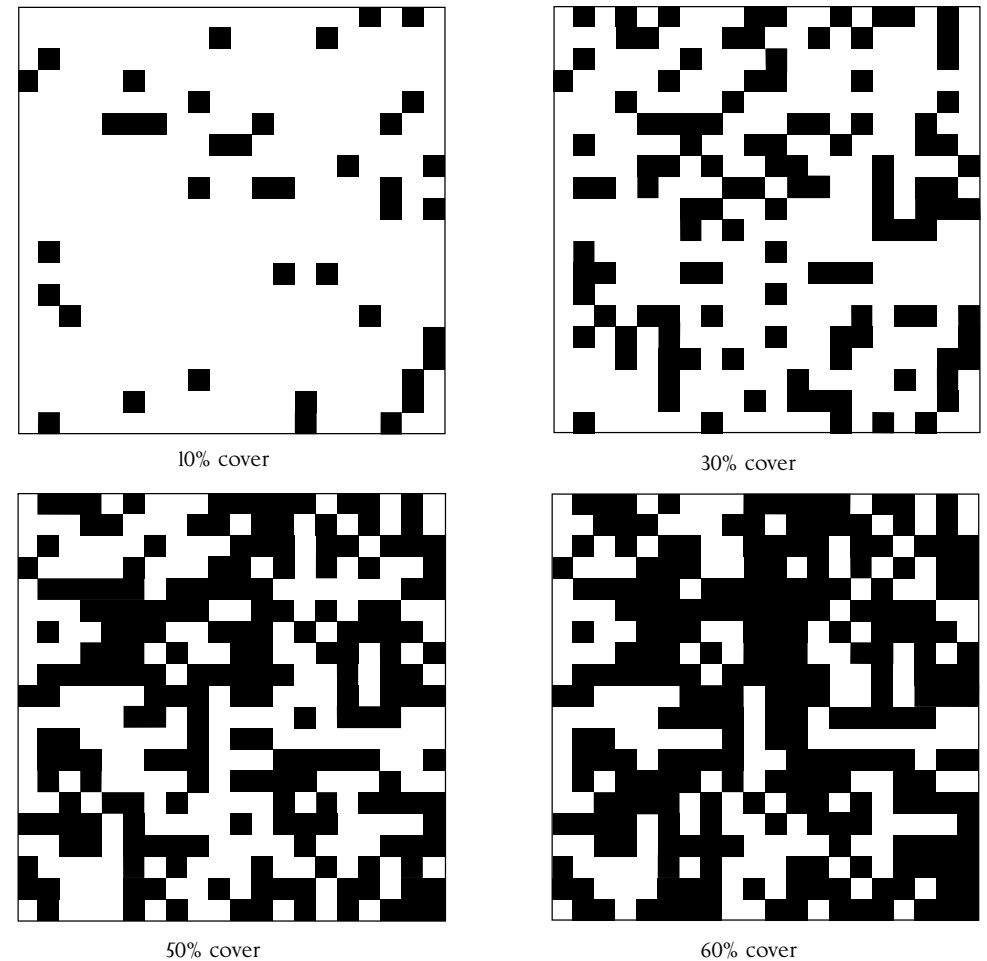
The best opportunity for woodland biodiversity to be placed on a sustainable footing is for all land cover within concentrations of ancient woodland to be in low-intensity management systems (excluding the existing area of built development): see Figure 4.

The relative proportions of semi-natural woodland and other habitats proposed are not arbitrary; they are based on a well-established mathematical model in which habitat patches are progressively and randomly added to a landscape (Figure 5).

**Figure 4:** A vision of sustainable land use within areas with a concentration of ancient woodland



**Figure 5:** The effect of progressively adding single one hectare blocks of semi-natural habitat at random to a 2 x 2 kilometre landscape<sup>13</sup>

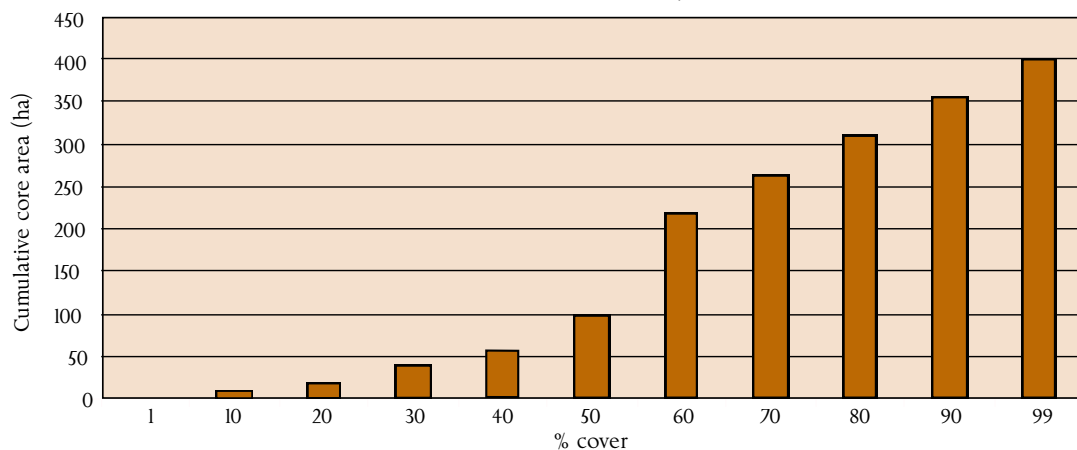


At 30 per cent cover a significant threshold is reached when it becomes difficult to add new patches that are isolated from existing ones, as, almost inevitably, they are next to them or in close proximity.<sup>14</sup> At between 50-60 per cent cover patches become contiguous for the first time, resulting in a significant increase in cumulative core area (Figure 6).

Achievement of 30 per cent semi-natural woodland cover plus another 30 per cent semi-natural cover is therefore the ideal, as it is the optimum balance ensuring connectivity of woodland habitats, connectivity of open-ground habitats and fusion of semi-natural habitats at a landscape scale in a way that would reduce significantly edge effects from intensive land use.

Targets have been developed for each concentration of ancient woodland with reference to its key features and woodland ownership. Goals set to achieve the vision of 30 per cent semi-natural woodland cover take account of the existing area of broadleaved and semi-natural conifer woodland, assume restoration of **all** ancient woodland planted with non-native conifers to semi-natural woodland, with woodland creation (including conversion of secondary plantations of non-native conifers) making up the balance, while goals for additional habitat creation have been set to achieve a total of 60 per cent semi-natural cover. Clearly it would be advantageous to biodiversity for the area of semi-natural habitat to exceed this threshold (Figure 7 overleaf).

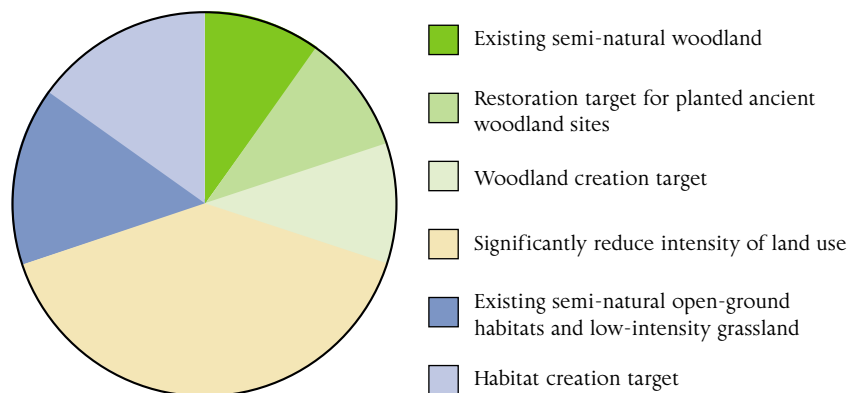
**Figure 6:** The extent of cumulative core area with increasing cover when one hectare blocks of semi-natural habitat are added at random to a 2 x 2 kilometre landscape<sup>13</sup>



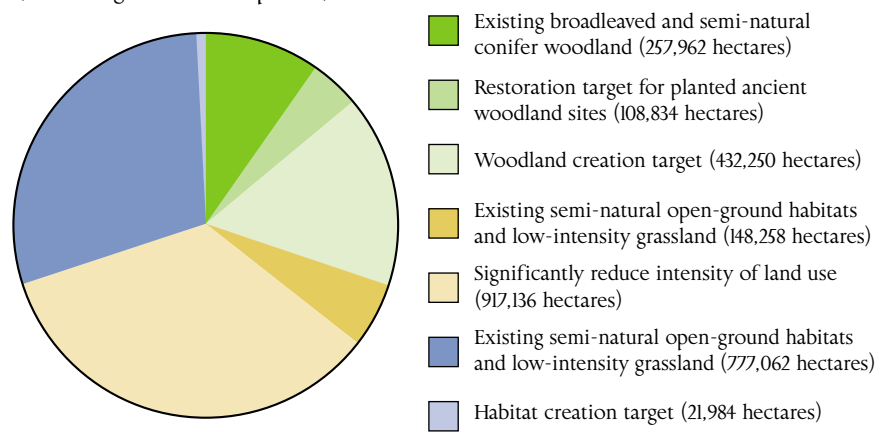
<sup>14</sup> Peterken, G.F. (in press, 2002) *Reversing fragmentation: Habitat networks as a basis for woodland creation*. Forestry Commission: Practice Note

# Areas with a high density of ancient woodland (continued)

**Figure 7:** An example of the distribution of land use and development of targets for delivery of sustainable land use in an area with a concentration of ancient woodland (excluding existing built development)



**Figure 8:** Combined targets for the concentrations of ancient woodland (excluding built development)



Terms are defined in accordance with those used in the data from which the targets have been determined to ensure that progress can be monitored simply and effectively by reference to these data each time they are updated. Existing built development has been excluded from the calculations as it would seem unrealistic to reverse this land use and it ensures targets are relevant to urban and urban-fringe areas within concentrations of ancient woodland. Semi-natural cover is defined as excluding:

- Built development, arable and improved grassland (determined from the Land Cover Map of Great Britain)
- Mixed woodland and conifer plantation (determined from the National Inventory of Woods and Trees).

In order to ensure that restoration of ancient woodland planted with conifers to semi-natural woodland can be monitored as far as possible by overlaying the National Inventory of Woods and Trees with the ancient woodland inventories, restoration is defined as reinstating at least 80 per cent of the canopy to broadleaved trees or native conifers. This falls short of the native woodland Habitat Action Plan definition for restoration ('target non-native woodland cover should normally be between 0-5 per cent when

restoration is complete') as the Trust believes this is unachievable for all practical purposes and impossible to monitor.

Detailed assumptions relating to the way in which targets have been calculated from existing data are summarised in Appendix 5.

## Targets

Tables 20 and 21 provide details of the targets developed for each of the concentrations of ancient woodland and these are combined in Figure 8.

There are more than 100,000 hectares of ancient woods planted with non-native conifers requiring restoration in the concentrations of ancient woodland identified. Forest Enterprise manages 50 per cent of this area.

The woodland-creation target within the areas identified is more than 400,000 hectares. Forestry Commission statistics show that 30,000 hectares of broadleaved trees have been planted over the last three years across Great Britain. Over a 50-year period, if current rates of planting were to be sustained, the target is achievable but would require a significant focusing of effort.

The overall target for additional habitat creation to achieve 60 per cent semi-natural cover is only just over 20,000 hectares. This may seem

**Below left:** Forest Enterprise manages 50 per cent of the ancient woodland planted with non-native conifers

Photograph: David Bradbury/Woodland Trust Picture Library

**Below right:** The woodland-creation target is achievable if current rates of planting were to be sustained

Photograph: Woodland Trust Picture Library



surprisingly low but takes into account the extensive areas of low-intensity grassland shown on the Land Cover Map of Great Britain. However, there is also a need to reduce significantly the intensity of land use across the other 40 per cent of land area within the concentrations of ancient woodland, as more than 900,000 hectares will comprise arable, improved grassland, conifer plantation or mixed woodland even once the other targets are achieved.

### Delivering the targets

The targets need to be delivered as soon as possible, ideally within 50 years. The urgency is due to the pace of climate change and the time it will take both for new habitats to develop and for the pragmatic restoration of ancient woodland sites planted with conifers to semi-natural woodland. Semi-natural habitats are fragmented and exposed to edge effects from intensive land use, particularly in the lowlands, and although there is typically a delay following fragmentation before the onset of local extinctions, it seems that they are already occurring.<sup>15</sup> With regard to ancient woods planted with non-native conifers, many sites have been planted for at least 30-40 years, so restoration needs to start as soon as possible if it is to be undertaken gradually to best effect.<sup>16</sup>

<sup>15</sup> Bunce, R.G.H. and Hurst, N. (2000) *Woodland change 1971-1998 in north-west England and south-west Scotland – a trial survey*. JNCC Report No. 300

<sup>16</sup> Curtis, T., Pryor, S.N. and Peterken, G.F. (in press, 2002) *Restoring Plantations on Ancient Woodland Sites: conversion to native woodland or conservation of Ancient Woodland communities?* The Woodland Trust

# Areas with a high density of ancient woodland (continued)

**Below top:** Woodland creation should be targeted to arable and improved grassland

**Below bottom:** Every effort should be made to conserve and extend old growth wherever it occurs

Photographs: Woodland Trust Picture Library



It is important that woodland creation is targeted to conversion of secondary plantations of non-native conifers and to arable and improved grassland wherever possible so that it also contributes to achieving 60 per cent semi-natural cover. It would be counterproductive to encourage woodland creation on existing semi-natural habitats in areas with a concentration of ancient woodland where there is less than 60 per cent semi-natural cover (e.g., in lowland England). However, in concentrations of ancient woodland where there is already more than 60 per cent semi-natural cover but less than 30 per cent cover of broadleaved or semi-natural conifer woodland (e.g., in Scotland), it may be acceptable to establish woodland on existing semi-natural habitats. Where this is the case, preference should be given to encouraging natural regeneration on semi-natural open-ground habitats through a reduction in grazing pressure. It should be noted that the areas identified represent a relatively small proportion of the total area with extensive semi-natural open-ground habitats. Moreover, sensitive natural regeneration through reduced grazing pressure would maintain much of the open habitat while also creating a wooded landscape.

Although it may be regarded as ideal for semi-natural woodland and open-ground habitats each to occupy 30 per cent of the landscape, in reality,

where the latter does not already exist, the scale of additional habitat creation required, landscape considerations, practicalities and willingness of organisations and individuals to undertake projects will determine in what proportions this comprises woodland or semi-natural open-ground habitats. With regard to the remaining 40 per cent of land cover in each concentration of ancient woodland, the relative degree to which there needs to be a reduction in the intensity of land use can be gauged from the proportion that is currently semi-natural open-ground habitats and low-intensity grassland.

Lack of suitable data prevents development of specific targets in relation to old-growth woodland but every effort should be made to conserve and extend old growth wherever it occurs. This is of particular importance in those areas where the significance of ancient trees is very high. As there is no quick way to develop old-growth woodland, existing old-growth stands and nearby woods should be managed to perpetuate old-growth characteristics. Additionally, in agricultural landscapes with significant concentrations of ancient trees regeneration to wooded conditions should be encouraged.

# Areas of extensive semi-natural open-ground habitats

The Woodland Trust will assist wider conservation interests  
Photograph: Woodland Trust Picture Library

The Land Cover Map of Great Britain has also been spatially analysed to identify 5-kilometre squares, outside concentrations of ancient woodland, with more than 60 per cent cover of semi-natural open-ground habitats, not including low-intensity grassland (Figure 3, page 7). All land cover classed as built development has been excluded from the calculations. The 5-kilometre squares identified cover 25 per cent of Great Britain, although this rises to 60 per cent in Scotland, where the extent of moorland cover makes a major contribution, compared to 11 per cent in Wales and just five per cent in England. Within such areas, the Woodland Trust will assist wider conservation interests by:

- Supporting woodland creation through reductions in grazing pressure that allow woodland to become a dynamic and integral component of landscapes in which semi-natural open-ground habitats continue to predominate
- Supporting the need to protect and maintain semi-natural open-ground habitats at a landscape scale
- Supporting the removal of secondary woodland and plantations from important semi-natural habitats at a landscape scale, where sufficient relict features survive to enable their restoration.



# Development of mapping

It is important not to delay setting programmes for action

Photographs: Woodland Trust Picture Library



The location of concentrations of ancient woodland and extensive semi-natural open-ground habitats is not subject to change. As further data are tracked down or created, maps and targets can be refined with increasing accuracy. However, the Woodland Trust believes it is important that this does not delay setting programmes for action.

Information from the Land Cover Map of Great Britain is only available summarised by 1-kilometre squares but Land Cover Map 2000 will provide actual boundaries of changes in land cover. This information may enable the Trust to determine the cumulative core area of semi-natural habitats within each concentration of ancient woodland.

The Millennium Guide to Scotland's Forest Resource, which includes the Caledonian Pine Inventory, may help to refine figures on the extent of ancient woodland planted with non-native conifers requiring restoration.

The national Woodland Grant Scheme boundary data, in combination with the ancient woodland inventories and the National Inventory of Woods and Trees, will enable identification of all ancient woodland planted with non-native conifers in private ownership not under a Woodland Grant Scheme. This should inform restoration targets. The Woodland Grant Scheme data is also likely to enhance our knowledge of the extent of woodland in public or conservation ownership. Other landownership boundary data are also being sought from public and conservation bodies.

**Below right:** Habitat creation will be targeted adjacent to ancient woodland and semi-natural open-ground habitats  
 Reproduced from the Ordnance Survey map by permission of Ordnance Survey on behalf of the Controller of HMSO, © Crown copyright AL 100017626

**Figure 9:** Boundaries of the concentrations of ancient woodland need to be adjusted to the actual landscapes, rather than following gridlines  
 (Reproduced from Ordnance Survey digital map data © Crown copyright 2000. All rights reserved.)

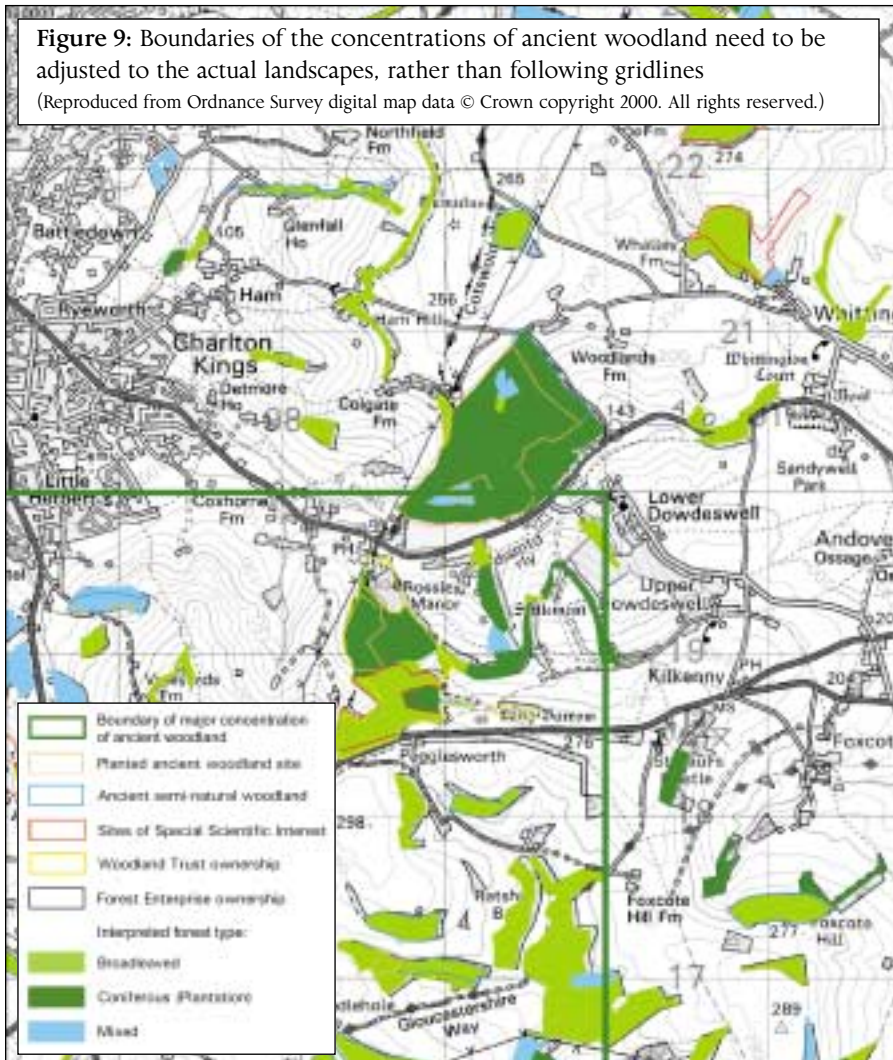


Figure 9 shows part of a major concentration of ancient woodland overlaid with all data used in the analysis to date. It can be interrogated on-screen to determine land-cover classes for each 1-kilometre square using the Land Cover Map of Great Britain. It is apparent from the data that can be displayed at this level of detail that the boundaries of the concentrations of ancient woodland need to be adjusted to the actual landscapes, rather than following gridlines. However, it is not intended that this should be undertaken until Land Cover Map 2000 is available.

It seems unlikely that woodland and habitat creation will occur at random within concentrations of ancient woodland, as the Trust and others are likely to target

areas adjacent to ancient woodland and semi-natural open-ground habitats. We will seek to determine to what extent the existing landscape pattern and a targeted approach would increase the rate at which connectivity and fusion of semi-natural habitats, in terms of percentage cover, would be achieved. It seems likely that this will vary between different concentrations of ancient woodland.

Mapping for Northern Ireland, analogous to that already done for Great Britain, will be carried out when an ancient woodland inventory for the Province is produced in 2004-5, although interim analysis may be possible in 2002-3.



# The Woodland Trust's programme for woodland biodiversity

The Woodland Trust has already started restoration of more than 2,000 hectares of ancient woodland  
Photographs: Woodland Trust Picture Library



Over the next 50 years, the Woodland Trust will seek to make a significant contribution to the delivery of targets within the concentrations of ancient woodland identified by undertaking:

- Restoration of 5,000 hectares of ancient woodland planted with non-native conifers. This is based on 10 per cent of the area planted with non-native conifers assumed to be in private ownership. The Trust has already started restoration of more than 2,000 hectares across Great Britain
- Creation of at least 40,000 hectares of new native woodland in the concentrations of ancient woodland. This will be achieved through land acquisition and by working with other landowners, and represents 10 per cent of the overall target of more than 400,000 hectares. The Trust has created more than 5,000 hectares of new native woodland since it was founded, of which 3,000 hectares have been established since 1995.

In addition, we will seek to increase understanding of how best to target action for woodland biodiversity by:

- Producing the Northern Ireland ancient woodland inventory supported by the Heritage Lottery Fund and the Environment & Heritage Service

The Woodland Trust has created more than 5,000 hectares of new native woodland  
Photograph: Woodland Trust Picture Library



- Developing a comprehensive dataset relating to the location of ancient trees, which can be spatially analysed to set targets for action in relation to old-growth woodland
- Continuing to develop the UK Phenology Network in association with the Centre for Ecology & Hydrology, seeking to predict future changes in the timing of natural events as a result of climate change and their implications for life cycles, changes in competitive advantage, and loss of synchrony between species
- Providing significant support to MONARCH, a research programme funded by a consortium of government agencies and non-government organisations, assessing potential changes in the location of suitable climate for species and their impact.

## Acknowledgements

The Woodland Trust would like to thank the Ancient Tree Forum, Centre for Ecology & Hydrology, Countryside Council for Wales, English Nature, Forestry Commission and Scottish Natural Heritage for supplying relevant data for analysis.



The Woodland Trust was founded in 1972 and is the UK's leading woodland conservation organisation. The Trust achieves its aims through a combination of acquiring woodland and sites for planting and through advocacy of the importance of protecting ancient woodland, enhancing its biodiversity, expanding native woodland cover and increasing public enjoyment of woodland.

The Trust relies on the generosity of the public, industry, commerce and agencies to carry out its work. To find out how you can help, and about membership details, please contact one of the addresses opposite.

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Registered charity number 294344

Registered in England number 1982873

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2069 02/02

This report should be referenced as: The Woodland Trust (2002)  
Space for nature: landscape-scale action for woodland biodiversity  
([www.woodland-trust.org.uk/policy/publications.htm](http://www.woodland-trust.org.uk/policy/publications.htm))

Table 1 Major concentrations of ancient woodland - ancient woodland inventory details

	Area name	Total area (km <sup>2</sup> )	Area of ancient woodland (ha)	% land cover ancient woodland	Average size of ancient woods (ha)	% ancient woods less than 5ha	Area of ASNW (ha)	% land cover ASNW	Area of PAWS (ha)	% land cover PAWS
Arable landscapes	Lincolnshire & Rutland Limestone	275	2,214	8	36	15	734	3	1,480	5
	Rockingham Forest	300	3,432	11	41	12	1,386	5	2,046	7
	Berkshire & Marlborough Downs	375	3,218	9	18	41	1,950	5	1,268	3
	Northumbria Coal Measures	400	2,960	7	21	34	1,452	4	1,512	4
	Hampshire Downs	1,050	10,206	10	17	41	5,513	5	4,694	4
	North York Moors	350	3,539	10	26	24	879	3	2,660	8
	South Yorkshire	425	3,451	8	16	44	1,823	4	1,624	4
North Downs & North Kent Plain	1,346	15,584	12	19	41	11,210	8	4,360	3	
Mixed landscapes	Chilterns	975	10,628	11	16	40	6,328	6	4,300	4
	Malverns & Wyre Forest	475	5,434	11	20	49	3,221	7	2,214	5
	Black Mountains, Golden Valley & Central Herefordshire	275	2,725	10	22	34	1,678	6	1,051	4
	Cranborne Chase & Vale of Blackmore	625	5,388	9	19	42	2,456	4	2,931	5
	Cotswolds Scarp	550	5,445	10	26	37	3,845	7	1,601	3
London Basin	1,250	10,700	9	14	47	7,500	6	3,200	3	
Pastoral landscapes	South Downs & South Coast Plain	864	9,521	11	17	52	4,259	5	5,262	6
	Selwood Forest	325	3,903	12	35	36	1,745	5	2,158	7
	Clun Hills	650	6,481	10	26	33	1,502	2	4,979	8
	Wye Valley & Forest of Dean	955	18,453	19	37	35	8,567	9	9,885	10
	Weald	3,884	50,223	13	15	46	38,997	10	11,225	3
	East Dartmoor	250	2,580	10	35	34	1,548	6	1,033	4
Semi-natural landscapes	East Exmoor & Quantocks	275	2,294	8	17	35	1,240	5	1,053	4
	South Wales Valleys	568	5,181	9	15	50	4,192	7	988	2
	Caradon	320	2,855	9	20	41	953	3	1,902	6
	South Cumbria	539	6,789	13	18	45	4,902	9	1,893	4
	New Forest	484	6,310	13	19	46	5,169	11	1,141	2
	Montgomeryshire	525	3,617	7	8	54	1,754	3	1,864	4
	Vale of Neath	266	1,829	7	15	37	954	4	874	3
Highland landscapes	Speyside	650	13,793	21	70	37	7,573	12	6,221	10
	Glen Affric, Glen Strathfarrar & Great Glen	1,400	17,864	13	45	42	8,274	6	9,590	7
	Tayside	350	4,246	12	55	30	2,608	7	1,638	5
	Loch Lomond	521	4,782	9	24	29	2,985	6	1,797	3
	Moidart & Sunart	626	6,410	10	28	40	3,950	6	2,460	4
	East Argyll	855	8,140	10	24	44	4,429	5	3,702	4
	Ben Nevis & Glen Coe	335	3,889	12	26	42	2,262	7	1,630	5
<b>Total</b>		<b>23,312</b>	<b>264,078</b>	<b>11</b>			<b>157,834</b>	<b>7</b>	<b>106,233</b>	<b>5</b>

Table 2 Local concentrations of ancient woodland - ancient woodland inventory details

Area name	Total area (km <sup>2</sup> )	Area of ancient woodland (ha)	% land cover ancient woodland	Average size of ancient woods (ha)	% ancient woods less than 5ha	Area of ASNW (ha)	% land cover ASNW	Area of PAWS (ha)	% land cover PAWS
Kyle of Sutherland	100	921	9	20	58	247	2	674	7
Strathconon & Loch Luichart	125	1,514	12	24	53	846	7	669	5
Lower Deeside	225	3,512	16	78	31	1,946	9	1,568	7
Upper Deeside	225	3,409	15	56	34	2,392	11	1,017	5
Eastern Mull	112	938	8	18	52	579	5	359	3
Mid Argyll	135	1,617	12	24	35	923	7	695	5
Knapdale	135	1,539	11	18	56	800	6	740	5
Clydesdale	175	996	6	12	46	795	5	200	1
Midlothian	100	539	5	17	44	390	4	149	1
Lower Esk Valley	150	1,022	7	18	26	282	2	740	5
Borrowdale, Derwent Water & Bassenthwaite Lake	175	1,808	10	28	45	768	4	1,041	6
Conwy Valley	124	1,051	8	22	29	422	3	627	5
Clwyd & Clwedog Valleys	100	578	6	11	55	316	3	262	3
Dyfi Valley	196	1,449	7	12	38	619	3	828	4
Ystwyth & Rheidol Valleys	177	1,634	9	22	32	673	4	961	5
Upper Carmarthenshire	150	1,070	7	13	38	605	4	465	3
Brechfa Forest	125	1,158	9	24	31	563	5	596	5
Torrige Valley	125	956	8	15	39	396	3	560	4
Plym, Tavy & Tamar Valleys	175	2,013	12	28	35	648	4	1,365	8
Isle of Wight	168	1,304	8	9	60	653	4	651	4
Rotherham-Doncaster	100	598	6	18	47	273	3	325	3
Bardney Limewoods	175	1,502	9	47	21	803	5	698	4
Worksop-Mansfield & Sherwood Forest	225	1,451	6	22	45	909	4	542	2
Darley Dale & Matlock Dale	100	793	8	21	24	676	7	118	1
Churnet Valley	100	970	10	21	37	586	6	384	4
The Wrekin, Ironbridge & Wenlock Edge	200	1,442	7	20	26	922	5	520	3
Charnwood Forest	100	595	6	21	21	248	2	346	3
Clent Hills & Chaddesley Woods Complex	100	622	6	13	57	478	5	144	1
Midlands Plateau (East)	175	1,064	6	12	49	518	3	546	3
Alne Valley & Wychavon	175	1,223	7	18	20	663	4	560	3
North Cotswolds	125	749	6	24	42	425	3	324	3
Yardley-Whittlewood Ridge	225	1,994	9	37	17	716	3	1,278	6
Wychwood Forest	150	1,227	8	44	29	753	5	476	3
Wytham Woods & Shabbington Woods Complex	200	1,818	9	31	26	1,086	5	730	4
Thorndon Park & High Woods Complex	125	854	7	14	53	769	6	85	1
Mulgrave Woods, Skelton, Kilton, & Easington Becks	165	1,311	8	46	22	822	5	490	3
	5,437	47,237	9			25,509	5	21,732	4

Table 3 Major concentrations of ancient woodland - Land Cover Map of Great Britain classes (percentage land cover)

	Area name	Sea / Estuary	Inland Water	Beach and Coastal Bare	Saltmarsh	Grass Heath	Mown \ Grazed Turf	Meadow \ Verge \ Semi-natural	Rough \ Marsh Grass	Moorland Grass	Open Shrub Moor	Dense Shrub Moor	Bracken	Dense Shrub Heath	Scrub \ Orchard	Deciduous Woodland	Coniferous Woodland	Upland Bog	Tilled Land	Ruderal Weed	Suburban \ Rural Development	Continuous Urban	Inland Bare Ground	Felled Forest	Lowland Bog	Open Shrub Heath
Arable landscapes	Lincolnshire & Rutland Limestone	0	1	0	0	1	4	12	2	0	0	0	0	0	0	5	4	0	62	0	7	1	0	0	0	0
	Rockingham Forest	0	0	0	0	1	5	18	2	0	0	0	0	0	1	10	3	0	51	1	6	1	1	0	0	0
	Berkshire & Marlborough Downs	0	0	0	0	1	12	12	1	0	0	0	0	0	0	10	2	0	48	0	7	2	2	0	0	1
	Northumbria Coal Measures	0	0	0	0	5	12	17	0	0	0	0	1	0	0	5	3	0	36	0	14	3	0	0	1	0
	North York Moors	0	0	0	0	1	16	13	0	1	2	1	7	1	0	9	5	0	36	0	3	1	1	0	0	3
	Hampshire Downs	0	0	0	0	1	13	22	1	0	0	0	0	0	1	10	2	0	36	2	6	0	2	0	0	1
	South Yorkshire	0	0	0	0	7	10	10	0	2	0	1	1	3	0	5	1	0	31	0	17	8	1	0	0	2
	North Downs & North Kent Plain	0	0	0	0	1	8	28	3	0	0	0	0	0	1	12	1	0	30	1	13	2	1	0	0	0
Mixed landscapes	Malverns & Wyre Forest	0	0	0	0	3	18	16	2	0	0	0	0	1	1	13	2	0	28	0	9	1	0	1	0	1
	Black Mountains, Golden Valley & Central Herefordshire	0	0	0	0	5	23	18	2	0	0	0	1	0	1	11	2	0	28	0	5	0	0	1	0	1
	Cranborne Chase & Vale of Blackmore	0	0	0	0	1	16	28	1	0	0	0	0	1	1	13	4	0	28	0	4	0	0	0	0	1
	Chilterns	0	0	0	0	1	13	25	1	0	0	0	0	0	1	14	1	0	28	2	11	1	0	0	0	0
	Cotswolds Scarp	0	0	0	0	6	16	20	2	0	0	0	1	1	1	13	1	0	26	0	6	1	1	1	0	3
	London Basin	0	1	0	0	1	12	24	1	0	0	0	0	0	1	13	2	0	24	1	15	4	1	0	0	0
Pastoral landscapes	South Downs & South Coast Plain	0	0	0	0	2	14	17	1	0	0	0	0	1	1	17	6	0	22	0	10	2	1	0	0	3
	Selwood Forest	0	0	0	0	3	20	27	1	0	0	0	0	0	1	14	3	0	20	0	5	0	0	1	0	2
	Clun Hills	0	0	0	0	7	22	23	2	0	0	0	1	0	1	10	4	0	19	0	4	0	0	1	0	1
	Wye Valley & Forest of Dean	0	0	0	0	5	20	18	2	0	0	0	1	0	1	17	6	0	18	0	5	0	0	1	0	1
	Weald	0	0	0	0	2	18	29	2	0	0	0	0	0	1	16	3	0	17	1	7	1	0	0	0	1
	East Dartmoor	0	0	0	0	8	25	18	3	0	0	0	3	1	1	17	4	0	15	0	1	0	0	1	0	1
Semi-natural landscapes	East Exmoor & Quantocks	0	0	0	0	9	18	31	4	0	0	0	2	0	1	14	5	0	11	0	1	0	0	0	0	1
	South Wales Valleys	0	0	0	0	7	12	26	4	0	0	0	2	1	1	14	3	0	10	0	11	3	1	0	0	2
	Caradon	0	0	0	0	3	12	45	0	0	0	0	2	0	1	17	2	0	9	0	5	0	0	0	0	0
	South Cumbria	1	4	1	1	8	12	26	0	11	2	0	3	0	0	15	5	0	8	0	1	0	0	0	0	0
	New Forest	0	0	0	0	3	8	14	1	0	0	0	0	5	1	32	14	0	6	0	4	1	0	0	0	9
	Montgomeryshire	0	0	0	0	1	20	35	1	0	1	0	2	0	0	17	2	0	5	0	1	0	0	0	0	8
	Vale of Neath	0	0	1	1	3	12	13	2	3	4	1	3	1	0	17	8	1	4	0	9	0	4	0	0	5
Highland landscapes	Speyside	0	1	0	0	2	5	4	2	3	32	20	1	1	0	2	19	0	1	0	0	0	1	0	0	4
	Tayside	0	7	0	0	2	4	4	2	6	42	9	1	1	0	4	12	1	1	0	0	0	1	0	0	4
	Loch Lomond	0	16	0	0	0	1	3	0	14	39	6	2	0	0	2	10	4	1	0	0	0	1	0	0	1
	Glen Affric, Glen Strathfarrar & Great Glen	0	7	0	0	1	2	2	1	10	44	5	1	0	0	3	12	3	1	0	0	0	2	0	0	3
	Moidart & Sunart	3	2	0	0	0	1	3	1	17	40	2	1	1	0	4	6	10	0	0	1	0	2	0	1	2
	East Argyll	4	4	0	0	0	2	3	1	18	35	7	2	0	0	2	14	3	0	0	1	0	1	0	0	1
	Ben Nevis & Glen Coe	4	0	0	0	0	2	2	1	17	40	4	3	0	0	2	10	6	0	0	1	0	2	0	0	2

Table 4 Local concentrations of ancient woodland - Land Cover Map of Great Britain classes (percentage land cover)

Area name	Sea / Estuary	Inland Water	Beach and Coastal Bare	Saltmarsh	Grass Heath	Mown \ Grazed Turf	Meadow \ Verge \ Semi-natural	Rough \ Marsh Grass	Moorland Grass	Open Shrub Moor	Dense Shrub Moor	Bracken	Dense Shrub Heath	Scrub \ Orchard	Deciduous Woodland	Coniferous Woodland	Upland Bog	Tilled Land	Ruderal Weed	Suburban \ Rural Development	Continuous Urban	Inland Bare Ground	Felled Forest	Lowland Bog	Open Shrub Heath
Kyle of Sutherland	0	1	0	0	2	4	4	1	11	27	13	1	1	0	3	24	1	1	0	0	0	1	0	0	3
Strathconon & Loch Luichart	0	5	0	0	2	4	3	1	6	36	5	1	0	0	5	14	3	3	0	1	0	1	0	0	5
Lower Deeside	0	1	0	0	1	6	3	1	1	19	30	0	1	0	6	17	1	4	0	0	0	2	0	0	7
Upper Deeside	0	0	0	0	1	2	1	1	6	59	20	0	0	0	1	6	1	0	0	0	0	2	0	0	1
Eastern Mull	6	0	1	0	0	0	0	0	22	37	1	1	0	0	0	4	22	0	0	0	0	4	0	0	0
Mid Argyll	13	0	1	0	0	2	2	1	17	41	4	1	0	0	1	7	4	1	0	1	0	2	0	0	1
Knapdale	9	1	2	0	1	4	4	2	13	35	5	2	0	0	1	9	4	0	0	1	0	2	0	0	3
Clydesdale	0	1	0	0	0	12	33	4	0	0	0	0	5	0	7	2	0	10	0	22	2	0	0	0	1
Midlothian	0	0	0	0	1	9	13	2	1	0	0	0	0	0	6	2	0	51	0	11	1	0	0	0	0
Lower Esk Valley	0	0	0	0	6	17	35	0	13	4	0	3	0	0	6	3	0	9	0	1	0	0	0	0	0
Borrowdale, Derwent Water & Bassenthwaite Lake	0	8	0	0	3	8	26	0	17	4	2	12	0	0	8	4	0	4	0	1	0	0	0	0	0
Conwy Valley	0	1	0	0	2	16	22	1	3	3	2	4	1	1	23	7	1	1	0	1	0	0	0	0	5
Clwyd & Clwedog Valleys	0	0	0	0	3	19	34	2	0	1	0	5	0	0	17	2	0	5	0	1	0	0	0	0	5
Dyfi Valley	0	0	0	0	3	18	19	1	2	3	1	6	1	0	21	12	0	1	0	1	0	0	0	0	6
Ystwyth & Rheidol Valleys	0	0	0	0	6	22	15	1	3	3	2	7	1	0	17	7	1	2	0	1	0	0	0	0	6
Upper Carmarthenshire	0	0	0	0	3	27	15	1	2	2	0	7	0	0	24	5	1	2	0	1	0	0	0	0	4
Brechfa Forest	0	0	0	0	4	17	10	4	5	5	2	7	2	1	18	13	5	2	0	0	0	1	0	0	3
Torrige Valley	0	0	0	0	8	18	31	2	0	0	0	1	0	0	11	5	0	17	0	1	0	0	1	0	1
Plym, Tavy & Tamar Valleys	0	0	1	0	4	15	33	1	0	0	0	2	0	0	16	3	0	7	0	14	0	0	0	0	0
Isle of Wight	3	0	1	1	2	17	24	1	0	0	0	0	2	1	10	6	0	18	0	8	1	0	0	0	3
Rotherham-Doncaster	0	0	0	0	4	4	5	0	0	0	0	1	1	0	4	0	0	60	0	12	6	2	0	0	1
Bardney Limewoods	0	0	0	0	1	3	9	2	0	0	0	0	0	0	6	3	0	66	0	8	0	0	0	0	0
Worksop-Mansfield & Sherwood Forest	0	0	0	0	2	2	15	1	0	0	0	0	1	0	9	3	0	37	0	17	7	3	0	0	0
Darley Dale & Matlock Dale	0	0	0	0	13	19	29	2	2	0	0	2	3	3	10	2	0	8	0	4	1	1	0	0	0
Churnet Valley	0	0	0	0	13	34	20	0	0	0	0	0	3	1	12	1	0	6	0	3	1	0	0	0	1
The Wrekin, Ironbridge & Wenlock Edge	0	0	0	0	3	20	15	0	0	0	0	0	1	0	11	1	0	34	0	6	2	2	0	0	0
Charnwood Forest	0	0	0	0	3	20	17	0	0	0	0	1	1	0	8	1	0	24	0	16	3	2	0	0	1
Clent Hills & Chaddesley Woods Complex	0	0	0	0	4	25	10	0	0	0	0	0	1	0	9	0	0	21	0	22	4	1	0	0	1
Midlands Plateau (East)	0	0	0	0	1	20	15	0	0	0	0	0	0	0	6	1	0	37	0	16	2	1	0	0	1
Alne Valley & Wychavon	0	0	0	0	1	10	19	1	0	0	0	0	0	0	6	1	0	46	0	11	1	1	0	0	1
North Cotswolds	0	0	0	0	2	14	14	1	0	0	0	0	0	1	9	1	0	38	0	12	1	1	2	0	2
Yardley-Whittlewood Ridge	0	0	0	0	0	7	15	1	0	0	0	0	0	1	6	2	0	60	1	6	0	0	0	0	0
Wychwood Forest	0	0	0	0	2	9	12	2	0	0	0	0	1	0	10	1	0	46	0	11	1	2	1	0	2
Wytham Woods & Shabington Woods Complex	0	0	0	0	1	18	22	1	0	0	0	0	0	0	9	4	0	32	0	11	2	0	0	0	0
Thorndon Park & High Woods Complex	0	0	0	0	1	8	24	1	0	0	0	0	0	1	9	0	0	41	1	11	2	0	0	0	0
Mulgrave Woods, Skelton, Kilton, & Easington Becks	0	0	1	0	0	13	13	0	1	4	2	9	0	0	9	2	0	28	0	8	2	1	1	0	4

Table 5 Major concentrations of ancient woodland - Land Cover Map of Great Britain summary details

	Area name	Woodland				Other semi-natural habitats				Intensive land use					
		Area of deciduous\mixed woods (ha)	% land cover deciduous\mixed woods	Area of conifer\evergreen woods (ha)	% land cover conifer\evergreen woods	Area of low-intensity grassland (ha)	% land cover low-intensity grassland	Area of other semi-natural habitats (ha)	% land cover other semi-natural habitats	Area of improved grassland (ha)	% land cover improved grassland	Area of arable (ha)	% land cover arable	Area of built development (ha)	% land cover built development
Arable landscapes	Lincolnshire & Rutland Limestone	1,339	5	1,100	4	3,171	12	1,394	5	1,227	4	16,951	62	2,173	8
	Rockingham Forest	3,162	11	912	3	5,487	18	1,473	5	1,515	5	15,231	51	2,124	7
	Berkshire & Marlborough Downs	3,874	10	566	2	4,361	12	2,134	6	4,354	12	18,116	48	3,289	9
	Northumbria Coal Measures	1,936	5	1,120	3	6,860	17	3,480	9	4,620	12	14,496	36	6,704	17
	Hampshire Downs	11,666	11	1,869	2	23,132	22	7,592	7	13,136	13	37,916	36	6,374	6
	North York Moors	3,175	9	1,638	5	4,680	13	5,695	16	5,460	16	12,527	36	1,390	4
	South Yorkshire	2,401	6	242	1	4,199	10	7,493	18	4,191	10	13,031	31	10,685	25
	North Downs & North Kent Plain	17,441	13	1,144	1	37,600	28	7,240	5	10,120	8	40,291	30	20,307	15
Mixed landscapes	Chilterns	14,606	15	1,151	1	23,995	25	4,544	5	13,124	13	27,368	28	11,885	12
	Malverns & Wyre Forest	6,641	14	817	2	7,576	16	4,361	9	8,403	18	13,243	28	4,323	9
	Black Mountains, Golden Valley & Central Herefordshire	3,308	12	476	2	4,837	18	2,494	9	6,232	23	7,590	28	1,422	5
	Cranborne Chase & Vale of Blackmore	8,650	14	2,469	4	17,606	28	2,675	4	9,863	16	17,250	28	2,450	4
	Cotswolds Scarp	7,464	14	446	1	10,791	20	7,821	14	9,015	16	14,036	26	3,850	7
	London Basin	17,038	14	3,013	2	29,863	24	6,388	5	14,875	12	29,850	24	23,288	19
Pastoral landscapes	South Downs & South Coast Plain	15,621	18	4,907	6	14,653	17	7,663	9	11,828	14	18,791	22	10,316	12
	Selwood Forest	4,875	15	1,092	3	8,739	27	2,506	8	6,442	20	6,386	20	1,625	5
	Clun Hills	6,910	11	2,334	4	14,820	23	8,229	13	14,352	22	12,656	19	2,828	4
	Wye Valley & Forest of Dean	17,192	18	5,473	6	17,651	18	10,831	11	18,969	20	17,154	18	5,005	5
	Weald	64,167	17	9,749	3	111,981	29	29,132	8	71,392	18	64,478	17	29,831	8
	East Dartmoor	4,510	18	1,080	4	4,438	18	4,175	17	6,198	25	3,763	15	283	1
Semi-natural landscapes	East Exmoor & Quantocks	3,913	14	1,433	5	8,390	31	4,901	18	4,848	18	2,890	11	440	2
	South Wales Valleys	8,669	15	1,858	3	14,593	26	10,293	18	6,544	12	5,465	10	7,663	13
	Caradon	5,588	17	572	2	14,258	45	2,116	7	3,680	12	2,807	9	1,739	5
	South Cumbria	8,126	15	2,540	5	13,826	26	16,808	31	6,417	12	4,454	8	847	2
	New Forest	15,767	33	6,875	14	6,987	14	9,481	20	3,636	8	3,056	6	2,152	4
	Montgomeryshire	8,852	17	1,097	2	18,144	35	7,114	14	10,637	20	2,720	5	767	1
	Vale of Neath	4,680	18	2,025	8	3,447	13	8,178	31	3,088	12	1,052	4	2,583	10
	Speyside	1,593	2	12,051	19	2,880	4	43,791	67	3,185	5	858	1	273	0
Highland landscapes	Glen Affric, Glen Strathfarrar & Great Glen	3,738	3	17,122	12	3,402	2	108,500	78	2,856	2	1,624	1	532	0
	Tayside	1,309	4	4,165	12	1,351	4	26,149	75	1,250	4	378	1	210	1
	Loch Lomond	787	2	5,428	10	1,360	3	43,499	84	307	1	328	1	255	0
	Moidart & Sunart	2,610	4	3,556	6	1,653	3	52,284	84	463	1	219	0	376	1
	East Argyll	2,026	2	12,312	14	2,360	3	66,205	77	1,462	2	239	0	573	1
	Ben Nevis & Glen Coe	592	2	3,266	10	693	2	27,491	82	706	2	70	0	234	1
	<b>Total</b>		284,223	12	115,896	5	449,781	19	554,125	24	284,389	12	427,283	18	168,790

**Table 6 Local concentrations of ancient woodland - Land Cover Map of Great Britain summary details**

Area name	Woodland				Other semi-natural habitats				Intensive land use					
	Deciduous\ mixed woods (ha)	% land cover deciduous\ mixed woods	Conifer\ evergreen woods (ha)	% land cover conifer\ evergreen woods	Low-intensity grassland (ha)	% land cover low-intensity grassland	Other semi-natural habitats (ha)	% land cover other semi-natural habitats	Improved grassland (ha)	% land cover improved grassland	Arable (ha)	% land cover arable	Built development (ha)	% land cover built development
Kyle of Sutherland	275	3	2,367	24	414	4	6,250	63	367	4	82	1	24	0
Strathconon & Loch Luichart	624	5	1,759	14	423	3	8,234	66	539	4	369	3	128	1
Lower Deeside	1,422	6	3,726	17	655	3	14,063	63	1,368	6	943	4	92	0
Upper Deeside	189	1	1,280	6	194	1	20,203	90	349	2	47	0	27	0
Eastern Mull	4	0	403	4	11	0	10,517	94	32	0	8	0	12	0
Mid Argyll	170	1	898	7	337	3	11,561	86	299	2	112	1	92	1
Knapdale	169	1	1,258	9	518	4	10,751	80	506	4	54	0	208	2
Clydesdale	1,178	7	371	2	5,758	33	1,904	11	2,100	12	1,757	10	4,246	24
Midlothian	630	6	221	2	1,282	13	481	5	900	9	5,082	51	1,181	12
Lower Esk Valley	851	6	468	3	5,273	35	4,202	28	2,540	17	1,338	9	189	1
Borrowdale, Derwent Water & Bassenthwaite Lake	1,384	8	721	4	4,585	26	8,334	48	1,377	8	623	4	245	1
Conwy Valley	2,961	24	917	7	2,667	22	2,879	23	1,970	16	165	1	119	1
Clwyd & Clwedog Valleys	1,724	17	170	2	3,365	34	1,623	16	1,864	19	475	5	96	1
Dyfi Valley	4,160	21	2,357	12	3,633	19	4,677	24	3,551	18	276	1	141	1
Ystwyth & Rheidol Valleys	3,037	17	1,309	7	2,603	15	5,313	30	3,873	22	412	2	267	2
Upper Carmarthenshire	3,711	25	758	5	2,207	15	3,069	20	3,998	27	312	2	191	1
Brechfa Forest	2,348	19	1,618	13	1,231	10	4,660	37	2,105	17	293	2	43	0
Torrige Valley	1,425	11	566	5	3,879	31	1,645	13	2,306	18	2,173	17	100	1
Plym, Tavy & Tamar Valleys	2,903	17	439	3	5,815	33	1,601	9	2,543	15	1,139	7	2,464	14
Isle of Wight	1,874	11	1,038	6	4,092	24	2,177	13	2,912	17	2,964	18	1,474	9
Rotherham-Doncaster	391	4	8	0	469	5	911	9	374	4	5,975	60	1,839	18
Bardney Limewoods	1,159	7	523	3	1,603	9	733	4	509	3	11,512	66	1,383	8
Worksop-Mansfield & Sherwood Forest	2,185	10	630	3	3,472	15	1,526	7	362	2	8,377	37	5,375	24
Darley Dale & Matlock Dale	1,376	14	151	2	2,859	29	2,445	24	1,915	19	751	8	440	4
Churnet Valley	1,351	14	91	1	2,016	20	1,787	18	3,355	34	590	6	422	4
The Wrekin, Ironbridge & Wenlock Edge	2,272	11	120	1	3,098	15	1,422	7	3,924	20	6,872	34	1,738	9
Charnwood Forest	838	8	80	1	1,741	17	747	7	2,033	20	2,380	24	1,877	19
Clent Hills & Chaddesley Woods Complex	941	9	29	0	1,000	10	729	7	2,529	25	2,057	21	2,569	26
Midlands Plateau (East)	1,089	6	179	1	2,538	15	495	3	3,572	20	6,475	37	3,085	18
Alne Valley & Wychavon	1,157	7	100	1	3,411	19	683	4	1,691	10	8,008	46	2,056	12
North Cotswolds	1,263	10	78	1	1,803	14	975	8	1,730	14	4,781	38	1,626	13
Yardley-Whittlewood Ridge	1,593	7	405	2	3,373	15	668	3	1,571	7	13,534	60	1,314	6
Wychwood Forest	1,595	11	90	1	1,757	12	1,443	10	1,304	9	6,879	46	1,784	12
Wytham Woods & Shabbington Woods Complex	1,772	9	706	4	4,358	22	578	3	3,510	18	6,358	32	2,488	12
Thorndon Park & High Woods Complex	1,263	10	44	0	3,019	24	501	4	944	8	5,120	41	1,598	13
Mulgrave Woods, Skelton, Kilton, & Easington Becks	1,526	9	288	2	2,229	13	3,945	24	2,120	13	4,584	28	1,628	10
	52,807	10	26,165	5	87,684	16	143,731	26	66,941	12	112,875	21	42,559	8

**Table 7 Major concentrations of ancient woodland - National Inventory of Woods and Trees summary details and comparison with Land Cover Map of Great Britain**

	Area name	Total area	National Inventory of Woods & Trees							NIWT vs. LCMGB data (>100% or positive figures where NIWT higher)				
			Total area (km <sup>2</sup> )	% broadleaved woodland	Area of broadleaved woodland (ha)	% mixed woodland	Area of mixed woodland (ha)	% conifer plantation	Area of conifer plantation (ha)	% semi-natural conifer	Area of semi-natural conifer (ha)	% difference in coniferous woodland	% difference in broadleaved/mixed woodland	% difference in total woodland
Arable landscapes	Lincolnshire & Rutland Limestone	275	6	1,628	3	773	3	704	0	0	64	179	127	666
	Rockingham Forest	300	8	2,433	5	1,467	3	1,008	0	0	111	123	120	834
	Berkshire & Marlborough Downs	375	8	3,169	4	1,346	2	600	0	0	106	117	115	675
	Northumbria Coal Measures	400	6	2,500	3	1,060	5	2,068	0	0	185	184	184	2,572
	Hampshire Downs	1,050	9	9,450	4	4,452	2	1,953	0	0	104	119	117	2,321
	North York Moors	350	6	2,139	4	1,344	12	4,169	0	0	254	110	159	2,839
	South Yorkshire	425	10	4,059	2	799	2	786	0	0	325	202	214	3,001
North Downs & North Kent Plain	1,346	10	12,986	5	6,742	1	1,292	0	0	113	113	113	2,436	
Mixed landscapes	Chilterns	975	12	11,846	5	4,797	2	2,311	0	0	201	114	120	3,198
	Malverns & Wyre Forest	475	8	3,814	3	1,321	6	2,860	0	0	350	77	107	537
	Black Mountains, Golden Valley & Central Herefordshire	275	9	2,360	2	597	3	927	0	0	195	89	103	99
	Cranborne Chase & Vale of Blackmore	625	9	5,563	3	1,831	5	2,994	0	0	121	85	93	-731
	Cotswolds Scarp	550	11	5,962	3	1,711	2	1,260	0	0	283	103	113	1,023
	London Basin	1,250	11	13,763	5	6,413	2	2,900	0	0	96	118	115	3,025
Pastoral landscapes	South Downs & South Coast Plain	864	12	10,359	8	6,765	2	1,944	0	0	40	110	93	-1,460
	Selwood Forest	325	10	3,192	2	705	5	1,648	0	0	151	80	93	-423
	Clun Hills	650	4	2,717	2	1,229	10	6,481	0	0	278	57	113	1,183
	Wye Valley & Forest of Dean	955	11	10,430	4	3,534	10	9,905	0	0	181	81	105	1,203
	Weald	3,884	14	53,952	5	20,975	3	12,158	0	0	125	117	118	13,167
	East Dartmoor	250	14	3,415	4	1,053	7	1,823	0	0	169	99	113	700
Semi-natural landscapes	East Exmoor & Quantocks	275	10	2,866	3	789	8	2,079	0	0	145	93	107	388
	South Wales Valleys	568	7	4,124	2	1,414	8	4,459	0	0	240	64	95	-528
	Caradon	320	8	2,481	3	1,001	6	2,052	0	0	359	62	90	-627
	South Cumbria	539	10	5,193	10	5,128	6	3,386	0	0	133	127	129	3,041
	New Forest	484	18	8,901	10	4,951	9	4,231	0	0	62	88	80	-4,559
	Montgomeryshire	525	5	2,657	2	1,076	3	1,811	0	0	165	42	56	-4,405
	Vale of Neath	266	8	2,217	7	1,890	16	4,306	0	0	213	88	125	1,706
Highland landscapes	Speyside	650	4	2,821	8	5,317	18	11,934	5	3,088	125	511	170	9,516
	Glen Affric, Glen Strathfarrar & Great Glen	1,400	4	5,922	12	16,548	16	22,386	0	308	133	601	217	24,304
	Tayside	350	4	1,355	13	4,722	14	4,746	0	130	117	464	200	5,478
	Loch Lomond	521	7	3,724	9	4,469	16	8,318	0	0	153	1042	266	10,298
	Moidart & Sunart	626	5	2,999	10	6,510	8	4,908	0	0	138	364	234	8,251
	East Argyll	855	5	4,053	21	18,084	22	18,640	0	0	151	1092	284	26,438
	Ben Nevis & Glen Coe	335	9	2,948	9	2,935	14	4,524	0	0	139	993	270	6,549
<b>Total</b>		23,312	9	217,993	6	143,746	7	157,568	0	3,525	139	127	131	122,712

**Table 8 Local concentrations of ancient woodland - National Inventory of Woods and Trees summary details and comparison with Land Cover Map of Great Britain**

Area name	National Inventory of Woods & Trees								Land Cover Map GB				NIWT vs. LCMGB data (>100% or positive figures where NIWT higher)			
	% broadleaved woodland	Area of broadleaved woodland (ha)	% mixed woodland	Area of mixed woodland (ha)	% conifer plantation	Area of conifer plantation (ha)	% semi-natural conifer	Area of semi-natural conifer (ha)	Area of deciduous/mixed woods (ha)	% land cover deciduous/mixed woods	Area of conifer/evergreen woods (ha)	% land cover conifer/evergreen woods	% difference coniferous woodland	% difference broadleaved/mixed woodland	% difference in total woodland	Difference in total woodland (ha)
Kyle of Sutherland	3	296	13	1,278	28	2,771	0	0	275	3	2,367	24	117	572	164	1,703
Strathconon & Loch Luichart	7	934	8	1,028	17	2,063	0	0	624	5	1,759	14	117	314	169	1,641
Lower Deeside	4	992	9	2,061	19	4,203	5	1,042	1,422	6	3,726	17	141	215	161	3,150
Upper Deeside	2	365	5	1,026	7	1,670	6	1,238	189	1	1,280	6	227	736	292	2,828
Eastern Mull	6	665	3	385	6	724	0	0	4	0	403	4	180	23,540	436	1,367
Mid Argyll	8	1,040	26	3,532	12	1,566	0	0	170	1	898	7	174	2,690	574	5,070
Knapdale	6	876	21	2,886	11	1,431	0	0	169	1	1,258	9	114	2,230	364	3,766
Clydesdale	1	137	11	1,937	1	245	0	0	1,178	7	371	2	66	176	150	770
Midlothian	1	110	9	911	4	370	0	0	630	6	221	2	167	162	163	540
Lower Esk Valley	3	497	4	558	8	1,221	0	0	851	6	468	3	261	124	173	957
Borrowdale, Derwent Water & Bassenthwaite Lake	7	1,162	1	210	10	1,792	0	0	1,384	8	721	4	249	99	150	1,059
Conwy Valley	7	903	6	767	15	1,903	0	0	2,961	24	917	7	208	56	92	-305
Clwyd & Clwedog Valleys	5	524	2	225	4	363	0	0	1,724	17	170	2	214	43	59	-782
Dyfi Valley	8	1,599	6	1,245	16	3,171	0	0	4,160	21	2,357	12	135	68	92	-501
Ystwyth & Rheidol Valleys	6	1,101	4	633	12	2,062	0	0	3,037	17	1,309	7	157	57	87	-551
Upper Carmarthenshire	7	1,035	4	620	10	1,443	0	0	3,711	25	758	5	190	45	69	-1,371
Brechfa Forest	5	594	10	1,291	24	3,038	0	0	2,348	19	1,618	13	188	80	124	958
Torrige Valley	7	854	3	374	7	843	0	0	1,425	11	566	5	149	86	104	79
Plym, Tavy & Tamar Valleys	10	1,715	3	483	7	1,194	0	0	2,903	17	439	3	272	76	101	49
Isle of Wight	9	1,447	6	959	1	96	0	0	1,874	11	1,038	6	9	128	86	-411
Rotherham-Doncaster	7	719	1	90	1	64	0	0	391	4	8	0	800	207	219	474
Bardney Limewoods	5	949	4	665	2	350	0	0	1,159	7	523	3	67	139	117	282
Worksop-Mansfield & Sherwood Forest	10	2,223	2	443	3	698	0	0	2,185	10	630	3	111	122	120	549
Darley Dale & Matlock Dale	12	1,182	4	405	3	255	0	0	1,376	14	151	2	169	115	121	315
Churnet Valley	9	946	3	284	3	290	0	0	1,351	14	91	1	319	91	105	78
The Wrekin, Ironbridge & Wenlock Edge	11	2,164	3	558	3	666	0	0	2,272	11	120	1	555	120	142	996
Charnwood Forest	7	676	4	358	2	235	0	0	838	8	80	1	294	123	138	351
Clent Hills & Chaddesley Woods Complex	5	470	1	71	3	326	0	0	941	9	29	0	1,124	57	89	-103
Midlands Plateau (East)	4	628	3	480	2	354	0	0	1,089	6	179	1	198	102	115	194
Alne Valley & Wychavon	6	964	2	357	1	208	0	0	1,157	7	100	1	209	114	122	273
North Cotswolds	8	954	2	239	3	390	0	0	1,263	10	78	1	503	94	118	243
Yardley-Whittlewood Ridge	7	1,490	1	315	2	540	0	0	1,593	7	405	2	133	113	117	347
Wychwood Forest	7	1,109	3	509	2	371	0	0	1,595	11	90	1	412	101	118	303
Wytham Woods & Shabington Woods Complex	5	926	4	866	3	604	0	0	1,772	9	706	4	86	101	97	-82
Thorndon Park & High Woods Complex	7	833	3	410	0	35	0	0	1,263	10	44	0	80	98	98	-29
Mulgrave Woods, Skelton, Kilton, & Easington Becks	7	1,089	4	634	4	654	0	0	1,526	9	288	2	227	113	131	563
	6	34,164	5	29,090	7	38,205	0	2,279	52,807		26,165		155	120	131	24,768

**Table 9 Major concentrations of ancient woodland - ancient woodland interpreted forest types determined from the National Inventory of Woods and Trees and the ancient woodland inventories**

	Area name	Plantation conifer within PAWS (ha)	Semi-natural conifer within PAWS (ha)	Mixed woodland within PAWS (ha)	Broadleaved woodland within PAWS (ha)	Total area of PAWS on the AWI (ha)	Total area of PAWS shown as woodland on the NIWT (ha)	Total area of PAWS not shown on the NIWT (ha)	Plantation conifer within ASNW (ha)	Semi-natural conifer within ASNW (ha)	Mixed woodland within ASNW (ha)	Broadleaved woodland within ASNW (ha)	Total area of ASNW on the AWI (ha)	Total area of ASNW shown as woodland on the NIWT (ha)	Total area of ASNW not shown on the NIWT (ha)
Arable landscapes	Lincolnshire & Rutland Limestone	542	0	503	370	1,480	1,415	64	20	0	31	660	734	711	23
	Rockingham Forest	538	0	837	645	2,046	2,020	26	13	0	227	1,102	1,386	1,342	44
	Berkshire & Marlborough Downs	329	0	315	582	1,268	1,227	41	18	0	411	1,412	1,950	1,841	109
	Northumbria Coal Measures	795	0	310	286	1,512	1,391	121	295	0	174	836	1,452	1,305	147
	Hampshire Downs	1,132	0	1,941	1,477	4,694	4,549	144	152	0	664	4,300	5,513	5,116	396
	North York Moors	1,490	0	479	552	2,660	2,521	139	62	0	106	618	879	786	93
	South Yorkshire	544	0	332	676	1,624	1,552	72	50	0	121	1,498	1,823	1,669	154
	North Downs & North Kent Plain	759	0	1,403	1,874	4,360	4,036	324	314	0	2,469	6,980	11,210	9,763	1,447
Mixed landscapes	Chilterns	1,150	0	1,485	1,527	4,300	4,162	138	181	0	1,013	4,826	6,328	6,020	308
	Malverns & Wyre Forest	1,596	0	179	373	2,214	2,147	66	381	0	588	1,918	3,221	2,887	333
	Black Mountains, Golden Valley & Central Herefordshire	480	0	305	223	1,051	1,008	43	87	0	126	1,358	1,678	1,570	107
	Cranborne Chase & Vale of Blackmore	1,291	0	654	902	2,931	2,847	85	141	0	219	1,906	2,456	2,265	191
	Cotswolds Scarp	401	0	376	762	1,601	1,539	62	232	0	455	2,967	3,845	3,654	190
	London Basin	1,052	0	1,245	771	3,200	3,068	132	223	0	1,354	5,482	7,500	7,059	441
Pastoral landscapes	South Downs & South Coast Plain	975	0	2,301	1,918	5,262	5,194	68	63	0	894	2,885	4,259	3,842	417
	Selwood Forest	1,148	0	423	567	2,158	2,138	21	102	0	79	1,477	1,745	1,658	87
	Clun Hills	3,834	0	596	353	4,979	4,784	196	225	0	138	964	1,502	1,327	174
	Wye Valley & Forest of Dean	5,906	0	1,486	2,216	9,885	9,608	277	2,042	0	1,022	4,934	8,567	7,999	569
	Weald	2,360	0	3,104	5,109	11,225	10,574	652	4,400	0	7,057	24,344	38,997	35,801	3,197
	East Dartmoor	716	0	100	157	1,033	972	60	83	0	219	1,193	1,548	1,495	52
	East Exmoor & Quantocks	531	0	111	362	1,053	1,004	50	100	0	79	1,002	1,240	1,181	59
Semi-natural landscapes	South Wales Valleys	444	0	314	175	988	933	55	1,794	0	395	1,611	4,192	3,800	392
	Caradon	1,222	0	326	277	1,902	1,826	77	120	0	97	669	953	886	66
	South Cumbria	630	0	845	325	1,893	1,800	93	98	0	1,426	3,085	4,902	4,609	292
	New Forest	413	0	458	233	1,141	1,104	37	119	0	841	3,881	5,169	4,841	328
	Montgomeryshire	875	0	387	427	1,864	1,689	175	114	0	199	1,007	1,754	1,320	434
	Vale of Neath	513	0	119	179	874	811	63	49	0	72	683	954	804	150
	Speyside	4,230	433	977	71	6,221	5,711	510	365	1,717	1,699	1,440	7,573	5,221	2,351
Highland landscapes	Glen Affric, Glen Strathfarrar & Great Glen	5,919	8	3,162	222	9,590	9,311	279	635	227	2,222	3,158	8,274	6,242	2,032
	Tayside	780	0	666	108	1,638	1,554	84	128	67	1,268	690	2,608	2,153	455
	Loch Lomond	968	0	526	218	1,797	1,712	85	156	0	249	1,948	2,985	2,353	632
	Moidart & Sunart	1,066	0	1,039	61	2,460	2,165	295	123	0	833	2,150	3,950	3,106	844
	East Argyll	2,335	0	985	171	3,702	3,491	212	681	0	826	2,082	4,429	3,589	840
	Ben Nevis & Glen Coe	933	0	460	141	1,630	1,534	95	82	0	120	1,656	2,262	1,857	405
	<b>Total</b>		47,897	441	28,750	24,307	106,233	101,394	4,839	13,645	2,012	27,694	96,724	157,834	140,075

**Table 10 Local concentrations of ancient woodland - ancient woodland interpreted forest types determined from the National Inventory of Woods and Trees and the ancient woodland inventories**

Area name	Plantation conifer within PAWS (ha)	Semi-natural conifer within PAWS (ha)	Mixed woodland within PAWS (ha)	Broadleaved woodland within PAWS (ha)	Total area PAWS on the AWI (ha)	% land cover ASNW	Total area of PAWS shown as woodland on the NIWT (ha)	Total area of PAWS not shown on the NIWT (ha)	Plantation conifer within ASNW (ha)	Semi-natural conifer within ASNW (ha)	Mixed woodland within ASNW (ha)	Broadleaved woodland within ASNW (ha)	Total area ASNW on the AWI (ha)	Total area of ASNW shown as woodland on the NIWT (ha)	Total area of ASNW not shown on the NIWT (ha)
Kyle of Sutherland	588	0	25	17	674	2	630	44	29	0	0	147	247	178	69
Strathconon & Loch Luichart	347	0	240	66	669	7	654	15	73	0	153	450	846	676	170
Lower Deeside	1,237	56	148	29	1,568	9	1,470	98	245	849	264	277	1,946	1,635	311
Upper Deeside	524	168	219	8	1,017	11	919	98	105	860	147	177	2,392	1,289	1,103
Eastern Mull	253	0	95	5	359	5	352	7	14	0	22	476	579	512	67
Mid Argyll	377	0	212	69	695	7	658	37	32	0	117	608	923	757	165
Knapdale	188	0	478	37	740	6	704	36	58	0	129	453	800	639	161
Clydesdale	86	0	96	1	200	5	182	17	28	0	523	59	795	609	185
Midlothian	31	0	76	21	149	4	128	21	22	0	244	47	390	313	77
Lower Esk Valley	478	0	89	93	740	2	660	80	34	0	29	149	282	212	70
Borrowdale, Derwent Water & Bassenthwaite Lake	854	0	73	84	1,041	4	1,011	30	135	0	3	390	768	528	240
Conwy Valley	286	0	248	71	627	3	605	22	20	0	65	294	422	379	44
Clwyd & Clwedog Valleys	120	0	73	52	262	3	245	17	17	0	37	222	316	276	40
Dyfi Valley	500	0	154	115	828	3	769	59	36	0	103	374	619	513	105
Ystwyth & Rheidol Valleys	612	0	257	43	961	4	912	50	90	0	53	468	673	611	62
Upper Carmarthenshire	275	0	114	49	465	4	439	26	44	0	74	368	605	486	118
Brechfa Forest	399	0	122	59	596	5	580	16	288	0	82	171	563	541	22
Torrif Valley	337	0	102	94	560	3	534	26	85	0	61	212	396	358	38
Plym, Tavy & Tamar Valleys	772	0	104	456	1,365	4	1,332	33	157	0	91	361	648	609	38
Isle of Wight	49	0	385	189	651	4	623	28	4	0	82	508	653	594	59
Rotherham-Doncaster	39	0	44	235	325	3	318	7	12	0	34	202	273	247	26
Bardney Limewoods	171	0	329	187	698	5	686	12	16	0	123	643	803	782	21
Worksop-Mansfield & Sherwood Forest	53	0	112	371	542	4	535	7	50	0	53	726	909	828	81
Darley Dale & Matlock Dale	39	0	49	22	118	7	110	8	12	0	147	459	676	617	59
Churnet Valley	175	0	68	107	384	6	350	34	20	0	81	420	586	521	65
The Wrekin, Ironbridge & Wenlock Edge	145	0	171	174	520	5	491	29	20	0	82	760	922	862	60
Charnwood Forest	94	0	163	65	346	2	322	24	7	0	17	208	248	232	16
Clent Hills & Chaddesley Woods Complex	111	0	11	15	144	5	137	7	82	0	3	333	478	418	60
Midlands Plateau (East)	225	0	248	56	546	3	529	17	39	0	143	278	518	460	58
Alne Valley & Wychavon	164	0	187	197	560	4	548	12	20	0	87	528	663	636	28
North Cotswolds	214	0	24	78	324	3	316	8	52	0	48	315	425	415	10
Yardley-Whittlewood Ridge	465	0	183	605	1,278	3	1,253	25	18	0	47	625	716	690	25
Wychwood Forest	184	0	183	88	476	5	455	20	17	0	77	624	753	718	35
Wytham Woods & Shabington Woods Complex	447	0	204	69	730	5	720	10	93	0	441	483	1,086	1,017	69
Thorndon Park & High Woods Complex	12	0	46	20	85	6	78	7	5	0	214	484	769	703	66
Mulgrave Woods, Skelton, Kilton, & Easington Becks	176	0	181	116	490	5	472	18	21	0	199	534	822	754	69
	11,028	224	5,512	3,962	21,732		20,726	1,006	2,003	1,709	4,074	13,830	25,509	21,617	3,892

**Table II Major concentrations of ancient woodland  
- significance of ancient trees**

	Area name	Significance of ancient trees
Arable landscapes	Lincolnshire & Rutland Limestone	Medium
	Rockingham Forest	High
	Berkshire & Marlborough Downs	Very High
	Northumbria Coal Measures	Low
	North York Moors	Medium
	Hampshire Downs	High
	South Yorkshire	Low
	North Downs & North Kent Plain	High
Mixed landscapes	Malverns & Wyre Forest	High
	Black Mountains, Golden Valley & Central Herefordshire	Medium
	Cranborne Chase & Vale of Blackmore	Very High
	Chilterns	High
	Cotswolds Scarp	High
	London Basin	Very High
Pastoral landscapes	South Downs & South Coast Plain	High
	Selwood Forest	Medium
	Clun Hills	High
	Wye Valley & Forest of Dean	High
	Weald	High
	East Dartmoor	High
Semi-natural landscapes	East Exmoor & Quantocks	Medium
	South Wales Valleys	Medium
	Caradon	High
	South Cumbria	Low
	New Forest	Very High
	Montgomeryshire	High
	Vale of Neath	Low
Highland landscapes	Speyside	High
	Tayside	Low
	Loch Lomond	High
	Glen Affric, Glen Strathfarrar & Great Glen	Low
	Moidart & Sunart	Low
	East Argyll	Medium
	Ben Nevis & Glen Coe	Low

**Table 12 Local concentrations of ancient woodland  
- significance of ancient trees**

Area name	Significance of ancient trees
Kyle of Sutherland	Low
Strathconon & Loch Luichart	Low
Lower Deeside	Low
Upper Deeside	Low
Eastern Mull	Low
Mid Argyll	Low
Knapdale	Low
Clydesdale	High
Midlothian	Medium
Lower Esk Valley	Low
Borrowdale, Derwent Water & Bassenthwaite Lake	Low
Conwy Valley	Low
Clwyd & Clwedog Valleys	Low
Dyfi Valley	Low
Ystwyth & Rheidol Valleys	Low
Upper Carmarthenshire	Low
Brechfa Forest	Low
Torridge Valley	Low
Plym, Tavy & Tamar Valleys	Medium
Isle of Wight	High
Rotherham-Doncaster	Low
Bardney Limewoods	Low
Worksop-Mansfield & Sherwood Forest	Medium
Darley Dale & Matlock Dale	Low
Churnet Valley	Low
The Wrekin, Ironbridge & Wenlock Edge	Medium
Charnwood Forest	Medium
Clent Hills & Chaddesley Woods Complex	Low
Midlands Plateau (East)	Low
Alne Valley & Wychavon	Low
North Cotswolds	High
Yardley-Whittlewood Ridge	High
Wychwood Forest	Very High
Wytham Woods & Shabbington Woods Complex	Medium
Thorndon Park & High Woods Complex	High
Mulgrave Woods, Skelton, Kilton, & Easington Becks	Low

**Table 13 Summary statistics about ancient woodland and concentrations of ancient woodland**

	England	Scotland	Wales	GB
<b>Total land area (km<sup>2</sup>)</b>	130,455	78,683	20,717	229,855
Total number of ancient woods	24,426	9,665	5,815	39,906
Average size of ancient woods (ha)	14	15	10	14
Number of ancient woods <5ha on AWI	11,311	5,308	2,902	19,521
% of ancient woods <5ha on AWI	46	55	50	48
<b>Major concentrations of ancient woodland (km<sup>2</sup>)</b>	16,816	4,737	1,752	23,305
% land cover occupied by major concentrations of ancient woodland	13	6	8	10
% of ancient woodland in major concentrations of ancient woodland	54	40	27	48
% of ASNW in major concentrations of ancient woodland	54	37	30	47
% of PAWS in major concentrations of ancient woodland	55	46	21	49
<b>Local concentrations of ancient woodland (km<sup>2</sup>)</b>	3,141	1,425	871	5,438
% land cover occupied by local concentrations of ancient woodland	2	2	4	2
% of ancient woodland in local concentrations of ancient woodland	7	10	12	8
% of ASNW in local concentrations of ancient woodland	6	10	8	7
% of PAWS in local priority areas	8	11	18	10
<b>All concentrations of ancient woodland (km<sup>2</sup>)</b>	19,957	6,162	2,623	28,743
% land cover occupied by all concentrations of ancient woodland	15	8	12	12
% of ancient woodland in all concentrations of ancient woodland	61	50	39	56
% of ASNW in all concentrations of ancient woodland	60	47	38	54
% of PAWS in all concentrations of ancient woodland	63	57	39	59

Table 14 Major concentrations of ancient woodland - public and conservation ownership (known)

	Area name	All woodland ownership				Ancient-woodland ownership (ha)										
		No of Woodland Trust acquisitions	Area owned by Woodland Trust (ha)	% land cover in Forest Enterprise ownership	Area owned by Forest Enterprise (ha)	Woodland Trust	Forest Enterprise	English Nature	Defence Land Agency	National Park/ Local Authority	Utility	Other conservation NGOs	Other public and conservation	Total public and conservation	Total assumed in private ownership	
Arable landscapes	Lincolnshire & Rutland Limestone	0	0	6	1,672	0	1,373						9		1,382	832
	Rockingham Forest	2	15	7	2,166	11	1,549		86	27					1,673	1,759
	Berkshire & Marlborough Downs	0	0	6	2,115	0	1,493								1,493	1,724
	Northumbria Coal Measures	15	230	2	744	137	630	17		20			4		808	2,152
	Hampshire Downs	1	137	2	1,628	3	1,235		11	86		245			1,580	8,626
	North York Moors	2	9	7	2,324	7	604					14			626	2,913
	South Yorkshire	8	146	1	506	102	433			15		40			590	2,861
	North Downs & North Kent Plain	21	735	1	1,871	449	1,876	83	15	45		528			2,996	12,588
Mixed landscapes	Chilterns	17	469	2	1,755	409	1,173			29		528	57		2,196	8,431
	Malverns & Wyre Forest	7	42	3	1,449	25	1,371					33			1,429	4,005
	Black Mountains, Golden Valley & Central Herefordshire	0	0	0	0	0	0								0	2,725
	Cranborne Chase & Vale of Blackmore	4	25	4	2,469	20	550					67			637	4,750
	Cotswolds Scarp	10	207	0	0	152	0			156		59			367	5,078
	London Basin	11	415	1	638	384	381			852		295			1,912	8,788
Pastoral landscapes	South Downs & South Coast Plain	4	86	5	4,605	71	2,729		7	49	15	217			3,088	6,433
	Selwood Forest	1	1	1	244	0	234					32			266	3,637
	Clun Hills	2	13	8	4,875	13	3,262					51			3,326	3,154
	Wye Valley & Forest of Dean	14	283	18	16,772	208	12,859					44			13,110	5,343
	Weald	60	726	2	7,885	446	6,444	25	198	139		1,061			8,313	41,910
	East Dartmoor	10	225	2	540	166	216					325			708	1,872
Semi-natural landscapes	East Exmoor & Quantocks	0	0	4	996	0	250			30		44			324	1,970
	South Wales Valleys	5	92	8	4,300	56	2,202								2,258	2,923
	Caradon	2	66	6	1,905	54	1,270			2		15			1,341	1,514
	South Cumbria	7	38	8	4,389	26	1,191	22		297		744			2,279	4,510
	New Forest	1	0	43	20,786	0	3,467					78			3,545	2,764
	Montgomeryshire	5	47	2	1,087	33	590								623	2,994
	Vale of Neath	3	136	20	5,427	112	729								841	987
	Speyside	1	14	11	6,871	0	2,268								2,268	11,525
Highland landscapes	Glen Affric, Glen Strathfarrar & Great Glen	4	228	32	44,912	30	10,617								10,647	7,217
	Tayside	0	0	23	8,071	0	2,010								2,010	2,235
	Loch Lomond	0	0	28	14,710	0	1,829								1,829	2,953
	Moidart & Sunart	0	0	12	7,756	0	1,546								1,546	4,865
	East Argyll	0	0	32	27,412	0	4,586								4,586	3,554
	Ben Nevis & Glen Coe	0	0	28	9,407	0	1,724								1,724	2,165
	<b>Total</b>		217	4,382	9	212,284	2,913	72,693	147	317	1,747	15	4,429	61	82,323	181,756

Table 15 Local concentrations of ancient woodland - public conservation ownership (known)

Area name	All woodland ownership				Ancient woodland ownership (ha)									
	No of Woodland Trust acquisitions	Area owned by Woodland Trust (ha)	% land cover in Forest Enterprise ownership	Area owned by Forest Enterprise (ha)	Woodland Trust	Forest Enterprise	English Nature	Defence Land Agency	National Park/Local Authority	Utility	Other conservation NGOs	Other public/conservation	Total public/conservation	Total assumed in private ownership
Kyle of Sutherland	0	0	49	4,920	0								0	921
Strathconon & Loch Luichart	0	0	21	2,569	0								0	1,514
Lower Deeside	0	0	2	421	0								0	3,512
Upper Deeside	0	0	1	200	0								0	3,409
Eastern Mull	0	0	11	1,280	0								0	938
Mid Argyll	0	0	25	3,383	0								0	1,617
Knapdale	1	31	24	3,260	30								30	1,509
Clydesdale	0	0	0	0	0								0	996
Midlothian	0	0	0	15	0								0	539
Lower Esk Valley	0	0	0	2	0								0	1,022
Borrowdale, Derwent Water & Bassenthwaite Lake	2	2	7	1,306	0	775			12		538		1,325	483
Conwy Valley	2	37	22	2,731	17								17	1,033
Clwyd & Clwedog Valleys	1	4	3	280	0								0	578
Dyfi Valley	1	4	15	2,846	4								4	1,445
Ystwyth & Rheidol Valleys	4	24	12	2,103	4								4	1,630
Upper Carmarthenshire	1	5	11	1,599	5								5	1,064
Brechfa Forest	0	0	32	3,999	0								0	1,158
Torrige Valley	0	0	0	34	0	62							62	894
Plym, Tavy & Tamar Valleys	9	62	4	625	51	399					64		514	1,499
Isle of Wight	0	0	5	826	0	248			3		17		268	1,036
Rotherham-Doncaster	1	1	1	104	0	89							89	509
Bardney Limewoods	0	0	6	1,019	0	612							612	890
Worksop-Mansfield & Sherwood Forest	0	0	3	648	0	325					20		345	1,106
Darley Dale & Matlock Dale	3	36	3	282	28	31					83		142	651
Churnet Valley	0	0	3	344	0	284					77		361	609
The Wrekin, Ironbridge & Wenlock Edge	1	5	0	82	5	97							102	1,340
Charnwood Forest	3	116	0	0	103								103	492
Clent Hills & Chaddesley Woods Complex	2	140	0	0	140		82				19		241	381
Midlands Plateau (East)	1	5	1	257	5	257			24				286	778
Alne Valley & Wychavon	3	2	1	117	0	171				60			231	992
North Cotswolds	0	0	0	0	0								0	749
Yardley-Whittlewood Ridge	2	3	5	1,199	0	1,115		261			43		1,419	575
Wychwood Forest	1	1	0	0	0								0	1,227
Wytham Woods & Shabington Woods Complex	0	0	2	474	0	470					140	94	704	1,114
Thorndon Park & High Woods Complex	4	76	0	0	14				56			67	137	717
Mulgrave Woods, Skelton, Kilton, & Easington Becks	2	10	2	311	10	108					21		139	1,171
	44	563	7	37,234	417	5,043	82	261	95	60	1,022	161	7,141	40,096

**Table 16 Major concentrations of ancient woodland - ancient semi-natural woodland and planted ancient woodland sites in public or conservation ownership (known)**

	Area name	ASNW ownership (ha)									PAWS ownership (ha)										
		Woodland Trust	Forest Enterprise	English Nature	Defence Land Agency	National Park/ Local Authority	Utility	Other conservation NGOs	Other public and conservation	Total public and conservation	Total assumed in private ownership	Woodland Trust	Forest Enterprise	English Nature	Defence Land Agency	National Park/ Local Authority	Utility	Other conservation NGOs	Other public and conservation	Total public and conservation	Total assumed in private ownership
Arable landscapes	Lincolnshire & Rutland Limestone	0	174				9			183	551	0	1,199					0		1,199	280
	Rockingham Forest	11	180		86	27				304	1,082	0	1,370		0	0				1,370	676
	Berkshire & Marlborough Downs	0	701							701	1,249	0	792							792	476
	Northumbria Coal Measures	79	46	16		6			0	147	1,305	58	583	1		14			4	661	851
	Hampshire Downs	3	8		11	75		182		279	5,234	0	1,227	0	11		63			1,301	3,392
	North York Moors	7	139					14		160	718	0	465				0			465	2,195
	South Yorkshire	81	149			15		40		284	1,539	21	285			0	0			306	1,318
	North Downs & North Kent Plain	350	107	17	15	40		294		823	10,387	99	1,769	66	0	5		234		2,173	2,188
Mixed landscapes	Chilterns	196	249			19		437	3	904	5,424	213	924			10		91	54	1,292	3,007
	Malverns & Wyre Forest	25	333					11		369	2,852	0	1,038				22			1,060	1,153
	Black Mountains, Golden Valley & Central Herefordshire	0	0							0	1,678	0	0							0	1,051
	Cranborne Chase & Vale of Blackmore	20	11					67		98	2,358	0	539				0			539	2,392
	Cotswolds Scarp	112	0			152		51		315	3,530	40	0			4		8		52	1,549
	London Basin	319	63			814		228		1,424	6,076	65	318			38		67		488	2,712
Pastoral landscapes	South Downs & South Coast Plain	40	280		4	21	1	108		454	3,805	31	2,449		3	28	14	109		2,634	2,628
	Selwood Forest	0	6					20		26	1,719	0	228					12		240	1,918
	Clun Hills	0	98					48		146	1,355	13	3,164					3		3,180	1,799
	Wye Valley & Forest of Dean	145	4,457					30		4,632	3,935	63	8,401					14		8,478	1,408
	Weald	381	3,720	25	186	76		818		5,206	33,792	65	2,724	0	12	63		243		3,107	8,118
	East Dartmoor	105	42					293		441	1,107	61	174					32		267	766
	East Exmoor & Quantocks	0	32			30		35		97	1,143	0	217			0		9		226	827
Semi-natural landscapes	South Wales Valleys	29	1,696							1,725	2,468	27	506							533	455
	Caradon	24	62			2		15		103	850	30	1,208			0		0		1,238	664
	South Cumbria	11	656	22		269		502		1,460	3,441	15	534	0		28		242		819	1,074
	New Forest	0	3,377					68		3,445	1,724	0	91				10			101	1,040
	Montgomeryshire	32	65							97	1,656	1	524							526	1,338
	Vale of Neath	17	196							213	741	95	533							628	246
	Speyside	0	185							185	7,387	0	2,083							2,083	4,138
Highland landscapes	Glen Affric, Glen Strathfarrar & Great Glen	30	2,159							2,189	6,085	0	8,458							8,458	1,132
	Tayside	0	842							842	1,766	0	1,168							1,168	470
	Loch Lomond	0	447							447	2,537	0	1,381							1,381	416
	Moidart & Sunart	0	137							137	3,813	0	1,409							1,409	1,052
	East Argyll	0	2,200							2,200	2,229	0	2,386							2,386	1,317
	Ben Nevis & Glen Coe	0	339							339	1,923	0	1,385							1,385	245
	<b>Total</b>	<b>2,017</b>	<b>23,159</b>	<b>80</b>	<b>302</b>	<b>1,546</b>	<b>1</b>	<b>3,270</b>	<b>3</b>	<b>30,378</b>	<b>127,457</b>	<b>897</b>	<b>49,534</b>	<b>67</b>	<b>15</b>	<b>201</b>	<b>14</b>	<b>1,159</b>	<b>58</b>	<b>51,945</b>	<b>54,288</b>

**Table 17 Local concentrations of ancient woodland - ancient semi-natural woodland and planted ancient woodland sites in public and conservation ownership**

Area name	ASNW ownership (ha)										PAWS ownership (ha)									
	Woodland Trust	Forest Enterprise	English Nature	Defence Land Agency	National Park/Local Authority	Utility	Other conservation NGOs	Other public/conservation	Total public/conservation	Total assumed private	Woodland Trust	Forest Enterprise	English Nature	Defence Land Agency	National Park/Local Authority	Utility	Other conservation NGOs	Other public/conservation	Total public/conservation	Total assumed private
Kyle of Sutherland	0	26							26	221	0	457							457	217
Strathconon & Loch Luichart	0	112							112	734	0	556							556	113
Lower Deeside	0	1							1	1,945	0	2							2	1,566
Upper Deeside	0	0							0	2,392	0	28							28	989
Eastern Mull	0	50							50	529	0	344							344	16
Mid Argyll	0	90							90	833	0	373							373	321
Knapdale	14	136							150	650	16	638							654	86
Clydesdale	0	0							0	795	0	0							0	200
Midlothian	0	0							0	390	0	0							0	149
Lower Esk Valley	0	0							0	282	0	0							0	740
Borrowdale, Derwent Water & Bassenthwaite Lake	0	19			12		455		486	282	0	697		0		83		780	261	
Conwy Valley	6	42							49	374	11	428							438	189
Clwyd & Clwedog Valleys	0	0							0	316	0	66							66	196
Dyfi Valley	0	45							45	573	4	383							386	442
Ystwyth & Rheidol Valleys	4	58							62	611	0	608							608	353
Upper Carmarthenshire	0	18							18	586	5	285							290	175
Brechfa Forest	0	258							258	305	0	531							531	65
Torrige Valley	0	3							3	394	0	17							17	543
Plym, Tavy & Tamar Valleys	26	56					49		131	516	25	455				15		495	870	
Isle of Wight	0	108			3		17		128	524	0	335		0		0		335	317	
Rotherham-Doncaster	0	0							0	273	0	97							97	228
Bardney Limewoods	0	304							304	500	0	394							394	304
Worksop-Mansfield & Sherwood Forest	0	137					20		157	752	0	238				0		238	304	
Darley Dale & Matlock Dale	15	67					63		146	530	13	39				20		72	46	
Churnet Valley	0	82					40		122	464	0	169				20		189	195	
The Wrekin, Ironbridge & Wenlock Edge	5	27							33	889	0	38							38	482
Charnwood Forest	0	0							0	248	103	0							103	243
Clent Hills & Chaddesley Woods Complex	135	0	51				14		200	278	5	0	31			5		41	103	
Midlands Plateau (East)	0	0			16				16	502	5	247		8				260	286	
Alne Valley & Wychavon	0	0				60			60	603	0	112			0			112	448	
North Cotswolds	0	0							0	425	0	0						0	324	
Yardley-Whittlewood Ridge	0	151		85			43		279	437	0	932		176		0		1,108	170	
Wychwood Forest	0	0							0	753	0	0						0	476	
Wytham Woods & Shabington Woods Complex	0	92					79	84	255	831	0	315				61	10	386	344	
Thorndon Park & High Woods Complex	14	0			12			67	93	676	0	0		44			0	44	41	
Mulgrave Woods, Skelton, Kilton, & Easington Becks	5	4					21		30	792	5	143				0		148	342	
	225	1,889	51	85	43	60	801	151	3,305	22,204	192	8,925	31	176	52	0	204	10	9,590	12,142

**Table 18 Major concentrations of ancient woodland - interpreted forest types for ancient woodland owned by Forest Enterprise**

	Area name	Plantation conifer within PAWS owned by Forest Enterprise (ha)	Semi-natural conifer within PAWS owned by Forest Enterprise (ha)	Mixed woodland within PAWS owned by Forest Enterprise (ha)	Broadleaved woodland within PAWS owned by Forest Enterprise (ha)	Plantation conifer within ASNW owned by Forest Enterprise (ha)	Semi-natural conifer within ASNW owned by Forest Enterprise (ha)	Mixed woodland within ASNW owned by Forest Enterprise (ha)	Broadleaved woodland within ASNW owned by Forest Enterprise (ha)
Arable landscapes	Lincolnshire & Rutland Limestone	447	0	410	297	10	0	16	145
	Rockingham Forest	495	0	505	359	3	0	145	31
	Berkshire & Marlborough Downs	251	0	131	403	0	0	210	486
	Northumbria Coal Measures	410	0	126	21	14	0	19	10
	Hampshire Downs	254	0	444	533	1	0	1	7
	North York Moors	291	0	85	81	30	0	32	73
	South Yorkshire	158	0	27	95	8	0	10	124
North Downs & North Kent Plain	385	0	663	655	11	0	29	20	
Mixed landscapes	Chilterns	359	0	370	188	37	0	60	73
	Malverns & Wyre Forest	851	0	29	153	88	0	39	198
	Black Mountains, Golden Valley & Central Herefordshire	0	0	0	0	0	0	0	0
	Cranborne Chase & Vale of Blackmore	148	0	257	366	1	0	4	4
	Cotswolds Scarp	0	0	0	0	0	0	0	0
London Basin	185	0	81	35	29	0	10	23	
Pastoral landscapes	South Downs & South Coast Plain	450	0	837	1,109	7	0	42	155
	Selwood Forest	135	0	84	9	4	0	0	1
	Clun Hills	2,613	0	419	79	63	0	3	31
	Wye Valley & Forest of Dean	4,814	0	1,244	1,836	1,416	0	633	2,166
	Weald	863	0	1,122	794	1,351	0	1,108	1,005
	East Dartmoor	150	0	11	3	13	0	19	6
Semi-natural landscapes	East Exmoor & Quantocks	163	0	33	18	18	0	0	13
	South Wales Valleys	294	0	163	39	1,198	0	212	268
	Caradon	917	0	219	46	32	0	2	26
	South Cumbria	175	0	304	53	30	0	321	297
	New Forest	64	0	16	9	24	0	417	2,688
	Montgomeryshire	389	0	71	40	28	0	30	5
	Vale of Neath	282	0	75	73	20	0	16	143
Highland landscapes	Speyside	1,685	33	330	1	23	26	58	12
	Glen Affric, Glen Strathfarrar & Great Glen	5,304	8	2,894	105	369	91	1,159	382
	Tayside	687	0	446	17	89	0	690	37
	Loch Lomond	816	0	359	154	119	0	79	309
	Moidart & Sunart	457	0	698	25	34	0	55	38
	East Argyll	1,525	0	742	44	467	0	350	273
	Ben Nevis & Glen Coe	877	0	385	41	51	0	65	190
<b>Total</b>		26,893	41	13,577	7,681	5,589	117	5,836	9,239

**Table 19 Local concentrations of ancient woodland - interpreted types for ancient woodland owned by Forest Enterprise**

Area name	Plantation Conifer within PAWS owned by Forest Enterprise (ha)	Semi-natural conifer within PAWS owned by Forest Enterprise (ha)	Mixed woodland within PAWS owned by Forest Enterprise (ha)	Broadleaved woodland within PAWS owned by Forest Enterprise (ha)	Plantation conifer within ASNW owned by Forest Enterprise (ha)	Semi-natural conifer within ASNW owned by Forest Enterprise (ha)	Mixed woodland within ASNW owned by Forest Enterprise (ha)	Broadleaved woodland within ASNW owned by Forest Enterprise (ha)
Kyle of Sutherland	433	0	23	1	6	0	1	19
Strathconon & Loch Luichart	316	0	203	37	12	0	54	46
Lower Deeside	2	0	0	0	0	0	0	0
Upper Deeside	28	0	0	0	0	0	0	0
Eastern Mull	249	0	94	0	14	0	11	26
Mid Argyll	184	0	173	16	5	0	29	56
Knapdale	156	0	469	12	50	0	60	26
Clydesdale	0	0	0	0	0	0	0	0
Midlothian	0	0	0	0	0	0	0	0
Lower Esk Valley	0	0	0	0	0	0	0	0
Borrowdale, Derwent Water & Bassenthwaite Lake	624	0	59	14	19	0	0	0
Conwy Valley	244	0	166	18	11	0	19	12
Clwyd & Clwedog Valleys	63	0	0	3	0	0	0	0
Dyfi Valley	281	0	65	38	10	0	28	7
Ystwyth & Rheidol Valleys	443	0	152	14	38	0	18	2
Upper Carmarthenshire	213	0	54	18	14	0	2	3
Brechfa Forest	376	0	101	54	201	0	49	7
Torrige Valley	16	0	0	0	2	0	0	1
Plym, Tavy & Tamar Valleys	405	0	27	23	38	0	1	17
Isle of Wight	29	0	215	90	4	0	44	60
Rotherham-Doncaster	23	0	5	69	0	0	0	0
Bardney Limewoods	78	0	167	150	2	0	41	260
Worksop-Mansfield & Sherwood Forest	17	0	1	220	22	0	11	104
Darley Dale & Matlock Dale	13	0	26	0	0	0	63	4
Churnet Valley	104	0	35	31	15	0	31	35
The Wrekin, Ironbridge & Wenlock Edge	11	0	0	27	2	0	0	25
Charnwood Forest	0	0	0	0	0	0	0	0
Clent Hills & Chaddesley Woods Complex	0	0	0	0	0	0	0	0
Midlands Plateau (East)	110	0	132	4	0	0	0	0
Alne Valley & Wychavon	40	0	46	26	0	0	0	0
North Cotswolds	0	0	0	0	0	0	0	0
Yardley-Whittlewood Ridge	360	0	130	442	8	0	4	139
Wychwood Forest	0	0	0	0	0	0	0	0
Wytham Woods & Shabbington Woods Complex	302	0	5	8	77	0	2	13
Thorndon Park & High Woods Complex	0	0	0	0	0	0	0	0
Mulgrave Woods, Skelton, Kilton, & Easington Becks	136	0	7	0	3	0	1	1
	5255	0	2356	1314	554	0	471	864

**Table 20 Major concentrations of ancient woodland - targets**

	Area name	New broadleaved and semi-natural conifer woodland to achieve 30% cover (ha)	Restoration of all ancient woodland planted with non-native conifers (ha)	Ancient woodland planted with non-native conifers owned by Forest Enterprise (ha)	% of ancient woodland planted with non-native conifers owned by Forest Enterprise	Ancient woodland planted with non-native conifers in private ownership (ha)	Woodland creation (ha)	Woodland creation (additional % woodland cover)	Additional habitat creation to achieve 60% semi-natural cover (ha)	% of other 40% land cover currently semi-natural open-ground habitats/ low intensity grassland
Arable landscapes	Lincolnshire & Rutland Limestone	5,970	1,065	868	81	197	4,905	19	3,033	0
	Rockingham Forest	5,930	1,388	1,004	72	384	4,542	16	1,403	0
	Berkshire & Marlborough Downs	7,094	663	381	58	281	6,432	19	3,768	0
	Northumbria Coal Measures	7,489	1,399	550	39	772	6,090	18	0	0
	Hampshire Downs	20,138	3,225	699	22	2,452	16,913	17	0	2
	North York Moors	7,944	2,031	405	20	1,626	5,913	18	0	0
	South Yorkshire	5,486	925	193	21	711	4,560	14	0	0
	North Downs & North Kent Plain	21,294	2,476	1,059	43	1,013	18,818	16	0	7
Mixed landscapes	Chilterns	13,838	2,816	766	27	1,682	11,023	13	0	1
	Malverns & Wyre Forest	9,139	2,156	967	45	1,166	6,984	16	1,017	4
	Black Mountains, Golden Valley & Central Herefordshire	5,463	872	0	0	872	4,592	18	492	4
	Cranborne Chase & Vale of Blackmore	12,452	2,086	406	19	1,680	10,366	17	0	8
	Cotswolds Scarp	9,383	1,009	0	0	957	8,374	16	0	7
	London Basin	16,751	2,520	295	12	2,056	14,230	14	0	3
Pastoral landscapes	South Downs & South Coast Plain	12,465	3,339	1,294	39	1,860	9,126	12	508	5
	Selwood Forest	6,071	1,673	223	13	1,438	4,398	14	0	10
	Clun Hills	15,935	4,655	3,095	66	1,544	11,280	18	0	10
	Wye Valley & Forest of Dean	16,722	9,435	7,474	79	1,884	7,287	8	0	4
	Weald	53,625	9,864	3,335	34	6,146	43,760	12	0	8
	East Dartmoor	4,000	898	174	19	632	3,102	13	0	4
Semi-natural landscapes	East Exmoor & Quantocks	5,252	741	215	29	518	4,511	17	0	20
	South Wales Valleys	10,619	2,552	1,656	65	870	8,067	16	0	25
	Caradon	6,588	1,668	1,168	70	470	4,920	16	0	30
	South Cumbria	10,730	1,573	508	32	781	9,156	17	0	24
	New Forest	4,959	990	104	11	876	3,968	9	0	16
	Montgomeryshire	12,863	1,376	488	35	886	11,488	22	0	33
	Vale of Neath	4,981	682	377	55	210	4,300	18	0	18
	Speyside	13,509	5,572	2,038	37	3,534	7,937	12	0	28
Highland landscapes	Glen Affric, Glen Strathfarrar & Great Glen	35,610	9,716	8,567	88	1,150	25,894	19	0	34
	Tayside	8,952	1,573	1,222	78	351	7,379	21	0	34
	Loch Lomond	11,826	1,650	1,294	78	357	10,176	20	0	37
	Moidart & Sunart	15,668	2,227	1,189	53	1,039	13,441	22	0	40
	East Argyll	21,426	4,000	2,734	68	1,266	17,426	21	0	20
	Ben Nevis & Glen Coe	7,021	1,475	1,313	89	162	5,546	17	0	36
	<b>Total</b>		<b>427,200</b>	<b>90,291</b>	<b>46,059</b>	<b>51</b>	<b>41,822</b>	<b>336,908</b>	<b>16</b>	<b>10,221</b>

Table 21 Local concentrations of ancient woodland - targets

Area name	New broadleaved and semi-natural conifer woodland to achieve 30% cover (ha)	Restoration of all ancient woodland planted with non-native conifers (ha)	Ancient woodland planted with non-native conifers owned by Forest Enterprise (ha)	% of ancient woodland planted with non-native conifers owned by Forest Enterprise	Ancient woodland planted with non-native conifers in private ownership (ha)	Woodland creation (ha)	Woodland creation (additional % woodland cover)	Additional habitat creation to achieve 60% semi-natural cover (ha)	% of other 40% land cover currently semi-natural open ground habitats/ low-intensity grassland
Kyle of Sutherland	2,697	642	462	72	180	2,055	21	0	22
Strathconon & Loch Luichart	2,778	661	531	80	130	2,117	17	0	30
Lower Deeside	4,688	1,631	3	0	1,628	3,058	14	0	27
Upper Deeside	5,140	848	28	3	821	4,292	19	0	40
Eastern Mull	2,678	362	357	99	5	2,317	21	0	40
Mid Argyll	2,979	621	363	58	258	2,358	18	0	21
Knapdale	3,111	724	676	93	32	2,387	18	0	27
Clydesdale	3,840	210	0	0	210	3,630	27	0	23
Midlothian	2,536	129	0	0	129	2,406	27	883	0
Lower Esk Valley	3,947	601	0	0	601	3,345	23	0	28
Borrowdale, Derwent Water & Bassenthwaite Lake	4,015	1,061	702	66	276	2,953	17	0	40
Conwy Valley	2,778	554	421	76	122	2,224	18	0	23
Clwyd & Clwedog Valleys	2,447	210	63	30	147	2,237	23	0	35
Dyfi Valley	4,231	690	356	52	331	3,541	18	0	19
Ystwyth & Rheidol Valleys	4,120	959	633	66	327	3,161	18	0	24
Upper Carmarthenshire	3,408	434	281	65	148	2,974	20	0	20
Brechfa Forest	3,144	809	678	84	131	2,334	19	0	11
Torridge Valley	2,866	524	18	3	506	2,342	19	0	17
Plym, Tavy & Tamar Valleys	2,796	1,033	470	45	523	1,763	12	0	23
Isle of Wight	3,158	438	248	57	190	2,720	18	0	15
Rotherham-Doncaster	1,729	95	28	30	67	1,634	20	1,068	0
Bardney Limewoods	3,887	516	246	48	269	3,371	21	2,499	0
Worksop-Mansfield & Sherwood Forest	2,914	214	40	19	174	2,700	16	140	0
Darley Dale & Matlock Dale	1,686	100	39	39	28	1,586	17	0	23
Churnet Valley	1,927	263	154	58	89	1,664	17	0	13
The Wrekin, Ironbridge & Wenlock Edge	3,315	337	13	4	324	2,978	16	959	0
Charnwood Forest	1,761	265	0	0	162	1,496	18	0	0
Clent Hills & Chaddesley Woods Complex	1,759	204	0	0	163	1,555	21	500	3
Midlands Plateau (East)	3,696	512	242	47	256	3,184	22	1,292	0
Alne Valley & Wychavon	3,669	371	86	23	285	3,298	21	540	1
North Cotswolds	2,308	289	0	0	289	2,019	19	485	0
Yardley-Whittlewood Ridge	4,866	666	498	75	0	4,200	20	2,315	0
Wychwood Forest	2,856	385	0	0	385	2,472	19	765	0
Wytham Woods & Shabbington Woods Complex	4,328	745	385	52	289	3,583	20	318	2
Thorndon Park & High Woods Complex	2,438	63	0	0	19	2,376	22	0	3
Mulgrave Woods, Skelton, Kilton, & Easington Becks	3,387	378	146	39	227	3,009	20	0	9
	113,885	18,543	8,165	44	9,713	95,342	19	11,763	16

## Appendix 1 Land Cover Map of Great Britain – combined land classes

Summary description	Land Cover Map of Great Britain land classes
Deciduous/mixed woods	Scrub/orchard Deciduous woodland Felled forest
Conifer/evergreen woods	Coniferous woodland
Low-intensity grassland	Meadow/verge/semi-natural
Other semi-natural habitats	Sea/estuary Inland water Beach and coastal bare Saltmarsh Grass heath Rough/marsh grass Moorland grass Open shrub moor Dense shrub moor Bracken Dense shrub heath Upland bog Ruderal weed Inland bare ground Lowland bog Open shrub heath
Improved grassland	Mown/grazed turf
Arable	Tilled land
Built development	Suburban/rural development Continuous urban

## Appendix 2 NIWT – combined interpreted forest types

Summary description	NIWT interpreted forest types
Broadleaved woodland	Broadleaved (less than 20 per cent conifer)
Mixed woodland	Felled Ground prepared for planting Mixed (between 20 and 80 per cent broadleaved or conifer) Mosaic Ripping Shrub Young trees
Conifer plantation	Coniferous (less than 20 per cent broadleaved)
Semi-natural conifer	Semi-natural conifer

### Appendix 3 ATF provisional dataset – combined significance of ancient trees

Significance of ancient trees	Number of known concentrations of ancient trees
Low	None
Medium	One site with up to 100 ancient trees
High	Two or more sites with up to 100 ancient trees each and/or one site with 100-1,000 ancient trees
Very high	Two or more sites with 100-1,000 ancient trees and/or at least one site with over 1,000 ancient trees

## Appendix 4 Major concentrations of ancient woodland – landscape groups

<p><b>Arable landscapes (more than 30 per cent arable)</b></p> <p>Areas dominated by arable land.</p>	<p>Lincolnshire &amp; Rutland Limestone          Rockingham Forest          Berkshire &amp; Marlborough Downs          Northumbria Coal Measures          Hampshire Downs          North York Moors          South Yorkshire          North Downs &amp; North Kent Plain</p>
<p><b>Mixed landscapes (25-30 per cent arable)</b></p> <p>Landscapes where the area under intensive land use is almost equal to the area of woodland and other semi-natural habitats.</p>	<p>Chilterns          Malverns &amp; Wyre Forest          Black Mountains, Golden Valley &amp; Central Herefordshire          Cranborne Chase &amp; Vale of Blackmore          Cotswolds Scarp          London Basin</p>
<p><b>Pastoral landscapes (15-20 per cent arable, 15-25 per cent improved grassland)</b></p> <p>Landscapes where the area under intensive land use is equal to or marginally exceeded by the area of woodland and other semi-natural habitats. Arable and improved grassland are equally represented.</p>	<p>South Downs &amp; South Coast Plain          Selwood Forest          Clun Hills          Wye Valley &amp; Forest of Dean          Weald          East Dartmoor</p>
<p><b>Semi-natural landscapes (15-30 per cent intensive land use)</b></p> <p>Areas where arable land occupies less than 10 per cent land cover with substantial areas of low-intensity grassland and semi-natural open ground habitats.</p>	<p>East Exmoor &amp; Quantocks          South Wales Valleys          Caradon          South Cumbria          New Forest          Montgomeryshire          Vale of Neath</p>
<p><b>Highland landscapes (less than 10 per cent intensive land use)</b></p> <p>These areas are all situated in the Scottish Highlands. A number are contiguous and have been sub-divided from one another using Scottish Natural Heritage's Natural Heritage Zones. They are dominated by semi-natural open-ground habitats, which occupy 65-90 per cent cover, mostly open shrub moor.</p>	<p>Speyside          Glen Affric, Glen Strathfarrar &amp; Great Glen          Tayside          Loch Lomond          Moidart &amp; Sunart          East Argyll          Ben Nevis &amp; Glen Coe</p>

## Appendix 5 Targets – explanations and assumptions

Targets	Explanations and assumptions
New broadleaved and semi-natural conifer woodland to increase to 30 per cent cover (hectares)	Based on the National Inventory of Woods and Trees. Only takes into account existing broadleaved (i.e., less than 20 per cent conifer) and semi-natural conifer woodland cover in calculating additional area required. Percentage land-cover calculation excludes area of built development.
Restoration of all ancient woodland planted with non-native conifers (hectares)	This is based on the ancient woodland inventories overlaid with the National Inventory of Woods and Trees. It takes into account planted ancient woodland sites shown as conifer plantation (i.e., less than 20 per cent broadleaved trees) or mixed woodland and ancient semi-natural woodland shown as conifer plantation. Ancient semi-natural woodland shown as mixed woodland is excluded from the calculations due to the range of categories that this can represent (Appendix 2).
Ancient woodland planted with non-native conifers owned by Forest Enterprise (hectares)	This is based on Forest Enterprise ownership overlaid with ancient woodland inventories and the National Inventory of Woods and Trees. Figures for planted ancient woodland sites and ancient semi-natural woodland are calculated above.
Ancient woodland planted with non-native conifers in private ownership (hectares)	This is the target for restoration of all ancient woodland planted with non-native conifers minus the area owned by Forest Enterprise above minus the area of planted ancient woodland sites in public or conservation ownership identified in English Nature's dataset or in Woodland Trust ownership. As English Nature only has a point dataset and boundaries of ancient woods in public or conservation ownership (other than Forest Enterprise) are unknown, it is not possible to overlay the National Inventory of Woods and Trees to calculate the area planted with non-native conifers; hence the calculation simply uses the area of planted ancient woodland sites. The figure could be refined with regard to Woodland Trust ownership by overlaying the National Inventory of Woods and Trees but the area concerned would not have a significant impact on calculations.
Woodland creation (hectares)	This is the target for new broadleaved and semi-natural conifer woodland to achieve 30 per cent semi-natural cover taking into account the target for restoration of all ancient woodland planted with non-native conifers The percentage land-cover calculation excludes the area of built development.
Woodland creation (additional percentage woodland cover)	This is simply the percentage land cover (excluding built development) represented by the woodland creation target.
Additional habitat creation to achieve 60 per cent semi-natural cover (hectares)	As woodland creation will be targeted to conversion of secondary plantations of non-native conifers and to arable and improved grassland wherever possible, where existing low intensity grassland and semi-natural open-ground habitats occupy more than 30 per cent land cover (excluding the area of built development) it is assumed that there will be no requirement for additional habitat creation to achieve 60 per cent semi-natural cover. However, where this is not the case the target is calculated accordingly. (NB Low-intensity grassland is assumed to contribute to semi-natural cover.)
Percentage of other 40 per cent land cover currently semi-natural open-ground habitats and low intensity grassland	This calculation is complicated by the total area of woodland shown on the National Inventory of Woods and Trees being greater than on the Land Cover Map of Great Britain (see Tables 7 and 8). The former is more accurate and has been used to calculate the extent to which 30 per cent land cover is exceeded by total woodland cover in combination with the total area of arable and improved grassland minus the target for additional habitat creation. The resulting figure has been subtracted from the remaining 40 per cent land cover to identify the percentage that is currently semi-natural open-ground habitats and low-intensity grassland. This takes account of all assumptions in relation to the other targets above. Built development is once again excluded from calculations of percentage land cover.