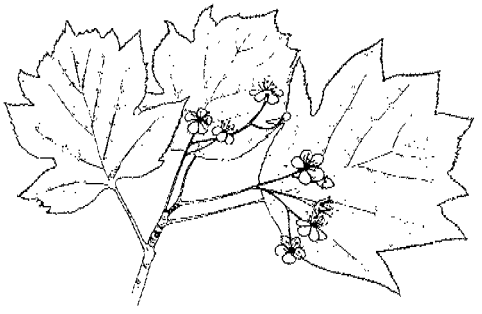
ENGLISH NATURE

No. 286

A new spring in England's woods

A report on English Nature's woodland conservation work, 1996-98



K Kirby

English Nature Research Reports

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A NEW SPRING IN ENGLAND'S WOODS

A report on English Nature's woodland conservation work, 1996-98

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Summary

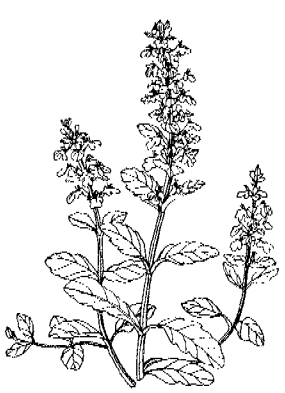
England's ancient woods are a central part of our natural heritage, the key to maintaining biodiversity in the countryside. The last ten years have seen tremendous improvements in terms of how they are managed :

- woods that had been replanted with conifers are being restored to native broadleaves such as oak and ash;
- new woods of native trees and shrubs are being planted in the uplands;
- traditional forms of management such as coppicing and wood pasture are being encouraged;
- there is broad agreement between land-owners, foresters and conservation bodies about what is needed to maintain their distinctive characteristics.

Our knowledge of where ancient woods occur, their composition and what makes them special in wildlife terms has also increased immensely.

English Nature played a major part in this progress and continues to do so, as this review of our woodland work over just the last two years shows. The report illustrates the extent and distribution of ancient woodland in England, woods within Sites of Special Scientific Interest, work on improving woodland management, the role of grazing within woods, where to put new woodland, and maintenance of our knowledge base.

We welcome the recent announcement by the Government that there is to be a forestry strategy for England and look forward to the publication this summer of four more woodland plans under the Biodiversity Action Plan process. This forestry strategy and the Habitat Action Plans for woodland should reinforce the trends towards improved woodland protection and management, but must also tackle those areas where work still needs to be done - on reversing fragmentation of woods, effects of pollution and managing deer.



Map 1: The Variety in English Woods Across the Country

NATIVE English species include:

Oak
Ash
Beech
Hazel
Willow
Alder
Lime
Poplar
Field Maple
Wild Cherry
Hawthorn
Holly
Yew

NON-NATIVE species include:

Sycamore
Corsican Pine
Norway Spruce
Sitka Spruce
Sweet Chestnut
Horse Chestnut

Introduction

Any spring is an exciting time to be in England's ancient woodland. If you are lucky the ground is carpeted by sheets of bluebells, anemones and golden celandines; the summer birds arrive and are advertising their territories in song; butterflies flit through open glades and rides.

This spring is however particularly important because of several new initiatives and opportunities in forestry policy and practice. English Nature has played a key role in these developments through the work that it has done over the last few years. This report reviews that work: further information is contained in the list of reports and papers at the end.

Box 1. England's ancient woods

Ancient woodland is that which is believed to have existed at least since 1600 AD; some sites may have never been cleared since the time of the Wildwood that covered much of England 7,000 years ago. There are about 341,000 ha of ancient woodland spread between about 21,000 sites.

58% (198000 ha) of this is still semi-natural woodland, that is the trees and shrubs are those native to the site and have not been planted.

Most ancient woods are small: 80% are less than 20 ha.

About 28,000 ha of ancient woodland has been cleared completely over the last 60 years, mostly between 1950 and 1980 for farmland, although locally areas were cleared for roads, houses and quarries.

Sources: English Nature's Ancient Woodland Inventory

Building on the Biodiversity Convention

We have been working with the Forestry Authority and the voluntary conservation movement to produce woodland Habitat Action Plans as part of the Government's follow up to the Biodiversity Convention signed in Rio in 1992. These broadly-based plans set bold targets for the expansion of our semi-natural woods, improvements in the way they should be managed and for the restoration of those that have been damaged by past planting of introduced conifers.

The first woodland plans, for upland oakwoods and native pinewoods, were published in 1996; the next batch cover wet woodland, beechwoods, parkland and wood-pasture, and upland mixed ashwoods. English Nature believes that there will then need to be a plan for lowland mixed broadleaved woods to complete the set. Broadleaved woodland is also important for many of the individual species for which plans are being prepared, such as the song thrush and the stag beetle. Hence we are working out ways of linking the species and habitat plans into simple sets of prescriptions that all foresters can use in their woodland management.

Protection of ancient woodland

English Nature is responsible for designating and advising on the management of Sites of Special Scientific Interest in England. These include the most important woodland sites for nature conservation. We are reviewing what new woods should be brought into the series. At the same time some woods are being proposed as Special Areas of Conservation under the European Union Habitats and Species Directive.

Such designations only cover a small part of the ancient woodland resource; therefore we must promote the protection of woodland by other means, principally through the policies adopted by other bodies such as the Forestry Commission, local planning authorities and other conservation organisations. We have, for example, produced a report on good practice in local authority policies towards woodland conservation. We also develop joint Statements of Intent with organisations that set out how we can work together more effectively to promote woodland conservation: in 1996 we signed one with the Woodland Trust, in 1997 with the Forest Enterprise and that with the Forestry Authority will be signed in 1998.

Box 2. Ways and means of protecting ancient woodland

The most important woods are designated as Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs), which means that English Nature then has a say in how they are managed. Ancient woodland within SSSIs and NNRs covers about 49,000 ha (14% of the total ancient woodland area) spread between some 1800 woods. 84% of this is ancient semi-natural woodland.

Public bodies and conservation organisations with large holdings of ancient woodland in England include: Forest Enterprise (eg. The New Forest), National Trust (eg. the Borrowdale Woods), Woodland Trust (eg. Wormley Wood), local Wildlife Trusts (eg. Bradfield Woods), RSPB (eg. Blean Woods), Corporation of London (eg Burnham Beeches).

There is 26,000 ha of ancient woodland within National Parks and 100,000 ha within Areas of Outstanding Natural Beauty.

Finally national forestry policy recognises that the special characteristics of all ancient semi-natural woods should be maintained and most felling within woodland requires a felling licence.

(Sources: the Ancient Woodland Inventory for England and Thomas *et al.* 1997)

Improving the management of existing woods

Getting forestry management right

English Nature recognises that most ancient woods need to be actively managed if the wildlife that is special to them is to be maintained. A sample survey has shown that most SSSIs are in a reasonable state, but in about 12 % there is a urgent need to improve their management. The same is true for ancient woodland more generally. In some woods we want to restore the way the woods were managed in the past by coppicing or as wood-pasture. In other sites we are

encouraging high forest management, where the trees are grown for 100-200 years to produce timber, in ways that are compatible with nature conservation aims. We are using our Natural Area framework to identify what is most important about the woods in, for example, the Weald compared to those in the Lake District and hence how their management should be adjusted accordingly.

Box 3. Deciding priorities by woodland type and region.

Different groups of species are favoured by different types of management. We have tried to develop criteria for deciding where particular treatments should be most encouraged.

For example coppice (or coppice with standards) is prefereed:
in woods which have been coppiced in the last 50 years;
in regions where coppice was recently still common;
on base-rich soils where there is likely to be a diverse ground flora after cutting;
where there are large coppice stools.

At a regional level woods in the south and south-east are the most important for coppice restoration.

Every ancient wood is different and English Nature cannot provide advice on all of them directly. Therefore we help with training courses for other countryside staff, run demonstration days and assist management projects such as the Marches Woodland Initiative. Our advice is also summarised in leaflets for distribution to owners and managers. However the main source of assistance for woodland management comes through the Woodland Grant Scheme run by the Forestry Authority. Both Forestry Authority and ourselves recognised that there were improvements that could be made in how the grant scheme was operating in ancient semi-natural woods, particularly in Sites of Special Scientific Interest. Following a joint review of forestry grant schemes (available in May) we have put in place various measures to make the Woodland Grant Scheme more effective at delivering the nature conservation targets that are part of the UK Biodiversity Action Plan.

Box 4. Dead fallen wood

Dead wood is one of the most important resources within forest systems. Managed woodland in England tends to contain less than 20 cubic metres of fallen timber compared to three to four times that amount in long-neglected, near-natural forests. One way to increase the diversity of managed woods is therefore to leave more logs on the forest floor to decay naturally.

Restoration of replanted ancient woodland

Between the 1930s and 1985 about 38% of ancient semi-natural woods were felled and replanted, usually with introduced coniferous trees, leading to a loss of much of their wildlife interest. Very few woodland herbs and grasses survive under the dense shade of trees such as Norway spruce.

However changes in forest policy and practice that we have promoted mean that some of these replanted woods are being restored to native broadleaves. Our research into the recovery of the ground flora in such areas will help us to identify which woods should be a priority for restoration work under the forthcoming Habitat Action Plans.

Box 5 Recovery of the ground flora in ancient woodland converted to conifers.

Planting of conifers in ancient woodland suppresses most of the ground flora because of the dense shade cast by conifers and their dense needle carpet. Some species may survive under gaps or along rides and tracks, but how well will they spread back if the conifers are felled and the wood restored to native trees and shrub?

In the four sites studied for us in 1997 removal of the conifers allowed a considerable expansion in the cover of the ground flora. Species found in the restored areas included typical woodland species and ancient woodland indicators (for example bluebell, dog's mercury, wood sedge and pendulous sedge), as well as the weedy species common in any newly felled area. The woods that were on rich heavy clay soils showed more recovery of the ground flora than the one on an acid sandy soil.

This work supports the indications from previous studies and allows us to argue for restoration of replanted areas on a bigger scale than previously.

(Source: Radford 1998)

The role of grazing animals in woodland

The wildwood that once covered England contained wild oxen, red and roe deer, wild boar and beaver. Nowadays most of these beasts have gone, but other deer, particularly fallow and muntjac, sheep and cattle graze and browse in many woods. Heavy grazing can prevent regeneration and coppice regrowth, and simplify the woodland structure. Grazing down of bramble thickets for example removes the cover that many small birds use for nesting. On the other hand some species like wood warblers and ground-dwelling mosses do better in the relatively open conditions created in grazed woods. Similarly the distinctive old pollards of places such as Windsor Great Park came into being because of the need to combine grazing and wood-production on the same of ground - cutting the trees at 2-3 m high meant that the regrowth was out of reach of the animals.

Results from recent work have looked at the problems of both too much and too little grazing, for example, looking at the impact of deer in particular in areas where their numbers are so high that they are causing major changes to the vegetation; and looking at whether there are ways of allowing domestic stock to graze woodland to keep them open without totally preventing regeneration. We are part of an EU project considering the role of woodland grazing in forests across the continent, while the special needs of very old trees such as the Windsor pollards are being addressed through our Veteran Tree Initiative.

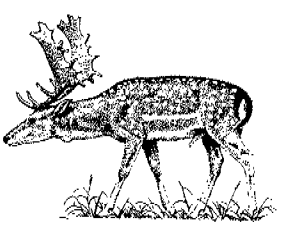
Box 6. Muntjac munching their way through Monks Wood

In the mid-eighties introduced muntjac deer increased in numbers rapidly in Monks Wood. Comparison of surveys made in the 1960s with the condition of the wood in 1990s showed how big an impact they were having, not just on the coppice regeneration but on the ground flora as well. Formerly abundant species such as dog's mercury were much reduced and grasses such as rough-stalked meadow-grass and wood false-brome have become more abundant. The effects of increased deer numbers are being seen in many other woods. Hence English Nature supports the England Deer Initiative established by the Forestry Authority which seeks to improve the management and control of deer in England.

Changes in frequency in common woodland species in Monks Wood, 1966-96
No of plots in which the following occurred (out of 36):

	1966	1996
Dog's mercury	18	7
Ground ivy	20	29
Wood false-brome	1	32
Nettles	1	9
Rough-stalked meadow-grass	0	35
Pendulous sedge	0	18

Data collected by Ariane Crampton (Oxford Forestry Institute) supported through English Nature's College Environment Link. Further information: various papers by Dr A S Cooke and Putman 1996



Keeping a watch on nature

Not all woods need to be managed and during the next year we will start to identify a range of sites across the country that should be left alone as much as is possible, for nature to take its course. We expect that amongst other benefits, these woods will become important for species that depend on dead and decaying wood, for example beetles and fungi. Most actively managed woods have very little of this vital habitat because the logs are harvested. 'Minimum-intervention' or 'left to nature' woods will not stay as they are now; gaps will appear, for example as trees die from disease or are blown over; the species present may change in response to changing weather patterns or the effects of grazing animals.

One of the exciting things is that while we know that they will change we cannot say where or when it will happen - it could be next week or in fifty years time. Therefore English Nature is involved in long-term studies that have, for example, helped us to understand the effects of the 1987 great storm, the effects of changing deer numbers and air pollution. Similar monitoring and research is done in managed woods to see which species come in after felling or coppicing and whether the management that we recommend on SSSIs is working out as we expect.

Box 7. Taking the long view - changes in Wytham Woods over a seventeen-year period

In 1974 164 permanent plots were established in Wytham Woods, near Oxford, by Dr H C Dawkins of the Oxford Forestry Department. A wide range of measurements were made of the soils, trees and ground flora. In 1991 English Nature staff relocated and re-recorded the plots to determine what had happened to the wood over the seventeen-year period. We found, amongst other things, the following changes:

- the woods had become more open;
- the shrub layer had been reduced;
- the ground flora remain as rich as before;
- bramble cover (important as nesting cover for small birds) had declined;
- grasses such as tufted hair-grass had increased.

Soil acidity had increased as had soil nitrogen levels, but these did not seem to have affected the ground flora. Instead we believe the changes can be explained by the effects of forestry management and increased deer browsing.

Further information: Kirby *et al.* 1996.

Where should new woodland go?

English Nature wants to see new woods of native trees and shrubs created where they will do most to benefit wildlife. Thus new woods could help to link sites or provide 'stepping stones' for woodland species as they move through the landscape; they could be added to existing small woods to provide more habitat for woodland plants and animals; or they could be used to create a buffer between an existing wood and fertilizer or pesticide drift from adjacent farmland. Our research has helped to identify where new woodland can best be used to help reverse the fragmentation of habitats that has impoverished the English countryside. With these models of where new woodland should go, we are now working with the Forestry Authority to get new woods on the ground.

Box 8. Ways of locating new woodland to benefit wildlife

Wye College (University of London) carried out a study for us to compare the effects of distributing new woodland in different types of lowland landscapes and how this would affect species with differing requirements. Their findings suggest ways in which the current area of new woodland planting could be more effective in promoting different wildlife. In areas such as Rockingham Forest (Northamptonshire), which already have a high density of large woods, the emphasis should be on placing new woods where they will reduce inter-wood distances and provide more wood-edge habitat. Where the woodland cover is low and the woods are mainly small, as in Suffolk, a better strategy is to build on existing small woods to increase the area of core woodland habitat.

In the uplands the concern is often that new woodland will encroach upon other important open habitats such as blanket bog. However a study in the National Parks by ITE showed that there was much land available to create new woodland without compromising other nature conservation objectives. This result helps us to support the Forestry Authority's Challenge Fund scheme for new woodland creation in National Parks.

Further information: Buckley & Fraser 1998; Good *et al.* 1997.

Special woodland species

Much of our work concentrates on getting the broad woodland habitat conditions right but we do need to take account of the sometimes conflicting needs of particular rare or characteristic species. The fritillary butterflies need open sunny woods; stag beetles need big old trees. Dormice tend to do best when coppice is cut in small patches, whereas the heath fritillary butterfly does best where cutting is done at a larger scale. English Nature's Species Recovery Programme helps to make sure that we have the information to include their special needs in our management recommendations. For example one project is looking at how woodland fragmentation affects the distribution of red squirrels on the Isle of Wight, thus providing a direct link back to the work that is being done on creating new woods to reduce woodland isolation. The survey of nightingales, recently announced by the British Trust for Ornithology (who are part funded by English Nature through the Joint Nature Conservation Committee), will help us to identify where we should be encouraging more coppice management.

Developing our science and knowledge base on England's woods.

English Nature tries to keep up-to-date with the latest scientific ideas, drawing on the work of universities, consultancies and research stations. Our staff attend and contribute to conferences and meetings across the country and abroad, and publish our own results in scientific journals and the more popular press.

We have a particular responsibility to maintain and develop the ancient woodland inventory that plays a central role in woodland conservation policy and practice in England. There is an ongoing programme to revise individual county inventories and to make the information more

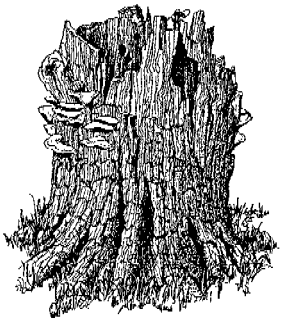
accessible - the Surrey revision was completed in 1997 and Hereford is being worked on at present. The boundaries of the ancient woodland sites are being digitised through a joint project with the Forestry Authority. We have recently used the inventory database to examine woodland fragmentation patterns across the country and to assess the extent to which ancient woods are conserved by different mechanisms.

Another major project has been to increase the number of sites for which there is more detailed survey using the National Vegetation Classification. Results from such surveys have been fed into a joint inter-agency data-base to produce improved maps of the distribution of different NVC types. The results help us to define where the different types for which Habitat Action Plans are being prepared are likely to occur.

Box 9. Where do different types of woodland occur?

Many aspects of woodland conservation work depend on us having good information about the distribution of the different types of woodland that occur across the country: for example where are the beech woods, where are the areas of moss-rich oak woodland? The Countryside Council for Wales, Scottish Natural Heritage and English Nature have therefore collaborated in updating the maps of woodland types (as defined by the National Vegetation Classification) using the wealth of survey work that has become available over the last 10 years. We now have over 10,000 records on the database, over 5,000 of which are from England. As a result we are in a better position to identify where there are gaps in our knowledge or where the classification itself needs further work. We have also started to look at how we can use variety of woodland types as a measure of diversity at the landscape scale.

Further information: Hall 1997.



Examples of local Action

1. A safe future for gin?
(John Barrett, Newcastle, 0191 2816316)
Juniper is our only native coniferous shrub and some of the most extensive stands in England are found in the north-east. Many of the bushes seem to be old however and some patches have disappeared over the last twenty-five years. Hence we are looking at how to encourage its regeneration and spread.

2. Fresh woods for the Lakes
(Karen Sampson, Kendal, 01539 792800)
English Nature is trying to encourage farmers and other landowners to create new woods of oak, ash and alder to help link up the ancient woods that survive along Lake District hillsides. This will contribute to the targets for woodland expansion developed under the national Biodiversity Action Plan.

3. Cracks in the pavements
(Rob Petley-Jones, Carnforth, 01524 702181)
Limestone pavements offer a marvellous mosaic of bare rock, dwarf woodland and rich grassland habitats, homes for many rare plants, as well as the very rare snail *Vertigo angustior*. This lives in the mossy carpets under the spreading dwarf yews that grow in the grikes, the deep cracks found in the pavement. At Gait Barrows National Nature Reserve we are creating a patchy network of coppiced woodland in places to provide the sunny conditions needed for some of our rarest butterflies, like the High Brown Fritillary. In other areas old woodland must be left alone to ensure that rare slugs like *Limax cinereoniger* and a host of fungi continue to thrive undisturbed.

4. WES works in the Dales
(Peter Welsh, Leyburn, 01969 623447)
Over the last five years English Nature's Wildlife Enhancement Scheme has help to start restoration work on 220 hectares of semi-natural woodland in the Yorkshire Dales, through reducing the grazing of old woods and creating new areas.

5. Where are the woods in West Yorkshire?
(Alison Graham-Smith, Wakefield 01924 387010)
Detailed surveys have been carried out of woods in West Yorkshire to identify the most important areas for nature conservation. The work links the field survey to English Nature's ancient woodland inventories and Natural Area descriptions.

6. Peak practice
(Ian Taylor, Bakewell, 01629 815095)
Conifers are being removed from Clough Wood in conjunction with the owners to restore oak woodland. The wood is the only site in England for the moss *Orthotrichum pallens*.

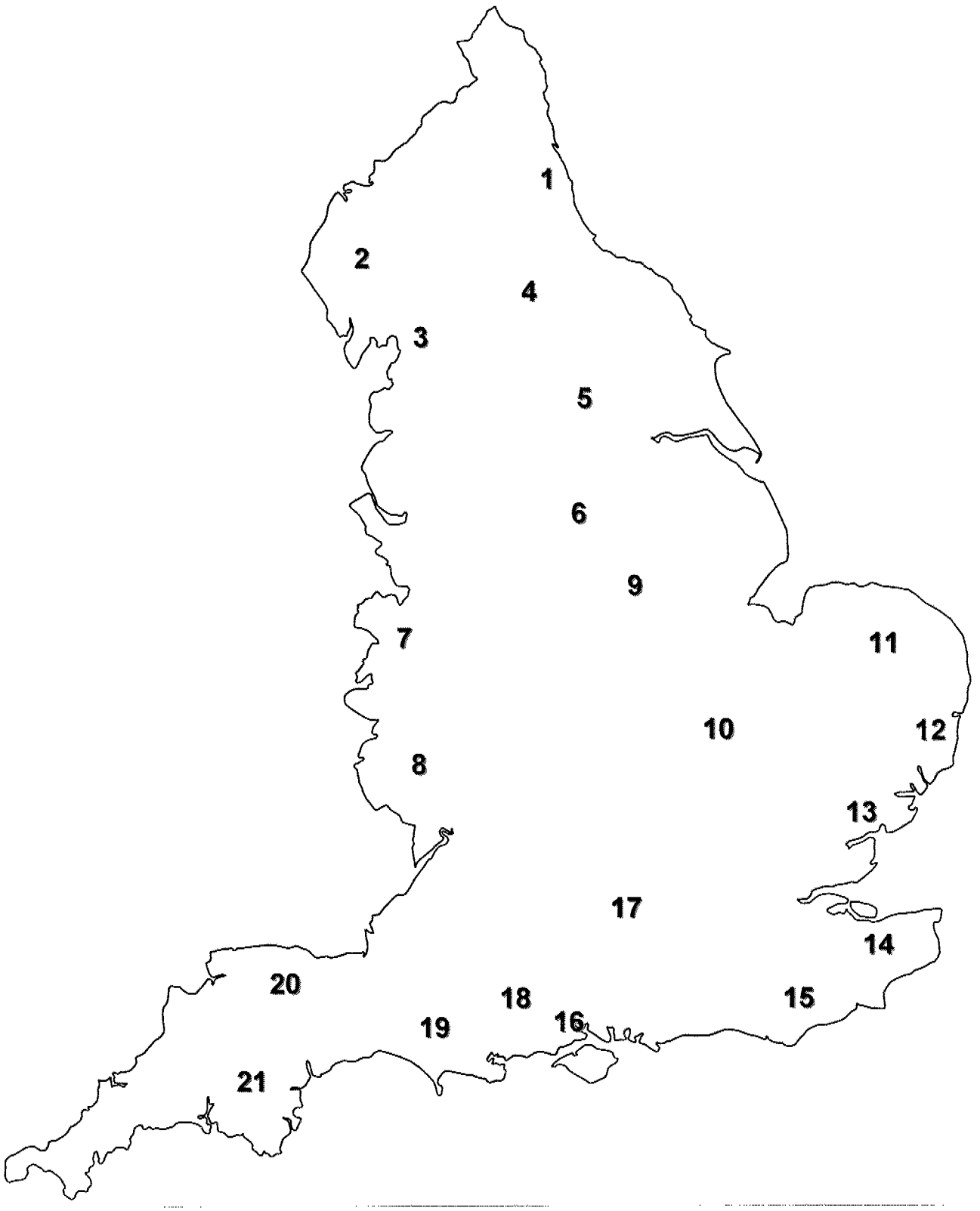
7. Marching forward
(Andrew Hearle, Shrewsbury 01743 709611)
Many owners of small woods need a bit of encouragement and help before they are able to manage their woods in ways that will produce some timber, improve the landscape and make the woods better for wildlife. Therefore English Nature is supporting the Marches Woodland Initiative that aims to support and develop sustained woodland management along the Welsh border.

8. Three Counties leading the way
(Mark July, Ledbury, 01531 638500)
The Three Counties Team have been working closely with the Forestry Authority to try to improve the effectiveness of woodland grant schemes in meeting the particular management needs of woodland Sites of Special Scientific Interest. We hope to simplify the procedures and paperwork that owners have to go through before they can get on with their management.

9. *Sherwood's mighty oaks*
(Ian Butterfield, Grantham, 01476 568431)
Ancient trees are one of England's most precious wildlife habitats and those at Sherwood are some of the most important in the country. Details of each individual veteran were recorded as part of a plan to ensure their continuing survival and the development of successors.

10. Not so black an outlook for poplars
(Tim Barfield, Peterborough, 01733 405865)
Surveys have found the Black Poplar one of our rarest native trees at a number of places in the Flit Valley in Bedfordshire, including in its original habitat of wet woodland. We are growing on new trees from cuttings to help ensure that this distinctive tree continues to grace the Flit Valley.

11. Norfolk's floating woods
(Stephen Rothera, Norwich, 01603 620558)
Since 1996 English Nature and the Broads Authority have undertaken extensive surveys of the alderwoods of the Bure and Ant Valleys. Re-coppicing of some areas is being supported by a woodland improvement grant from the Forestry Authority.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12. Lichens may be looking up in Suffolk
(Patrick Robinson, Bury St Edmunds, 01284 762218)
A recent survey that we organised of Sotterley Park showed changes in the lichen populations found on the old trees. Some species had been lost, but others had re-appeared suggesting that there has been some improvement in the air quality.

13. Conifers out in Essex
(Eric Steer, Colchester, 01206 796666)
.In parts of eastern England conifers planted in the 1950s and 1960s in ancient woods have not grown as well as expected. We have therefore encouraged their removal and these plantations are being converted successfully back to native trees and shrubs.

14 Butterflies in the Blean
(David Maylam, Wye, 01233812525)
The Blean Woods have long been known for their populations of the rare heath fritillary butterfly. Creating wide heathy rides has helped to maintain the species on our National Nature Reserve and this approach has now been extended on to the neighbouring Woodland Trust and RSPB reserves.

15. Deep thoughts from the Weald
(John Patmore, Lewes, 01273 476595)
The Weald is cut by deep stream valleys which contain many rare plants and animals, often those more common in the west, but here finding a sanctuary in these dank dips. English Nature has produced a short report on these important areas and is looking at how their special characteristics can be maintained.

16. New LIFE for the Forest
(Russell Wright, Lyndhurst, 01703 283944)
English Nature is part of a consortium that has secured money from the European Union under the LIFE programme. Our part will be to draw together the survey and monitoring work that will be needed to ensure that the management being undertaken provides the right wildlife benefits.

17. Carry on coppicing
(Simon Melville, Newbury, 01635268881)
At Irish Hill Coppice(Berkshire) English Nature is working with the owner to increase the amount of light reaching the woodland floor through coppice management. This encourages the diverse flora which here includes wild daffodils. Other coppice restoration work is going on in Oxfordshire woods.

18. Walking in the woods in Wiltshire
(David Burton, Wiltshire, 01980 620486)
At Langley Wood National Nature Reserve the site manager and local parish council have organised some guided walks through the wood. Visitors will be able to see what English Nature is doing to encourage the regeneration of native species.

19. *Working with veterans*
(Melanie Heath, Dorset, 01929 556688)
We organised a workshop on the management of veteran trees at Melbury Park in Dorset. This was the first of series that will take place across the country over the next year as part of the Veteran Tree Initiative, bringing together foresters, landowners and local authority staff to look how ancient trees should be treated.

20. *Rooting out the 'rhodi' on Exmoor*
(Mike Edgington, Taunton, 01823 283211)
We are working with others to get rid of rhododendron infestations in the woods of Exmoor and the Quantocks. A particularly important area for us has been to reduce its occurrence in the Barle Valley, one of the most important areas of woodland in England.

21. Taking the pressure off Wistmans Wood
(Phil Page, Devon, 01626 832330)
The area around Wistmans Wood on Dartmoor has been put into an ESA agreement, reducing the grazing pressure on this famous oakwood.

Woodland/forestry-related publications for 1996-7 and 1997-8

External publications

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* CLIFTON, S J, WARD, L K & RANNER, S D 1997. The status of *Juniperus communis* L. in north-east England. *Biological Conservation* **79**, 67-78.

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