ENGLISH NATURE

Sustainable forestry and nature conservation in England

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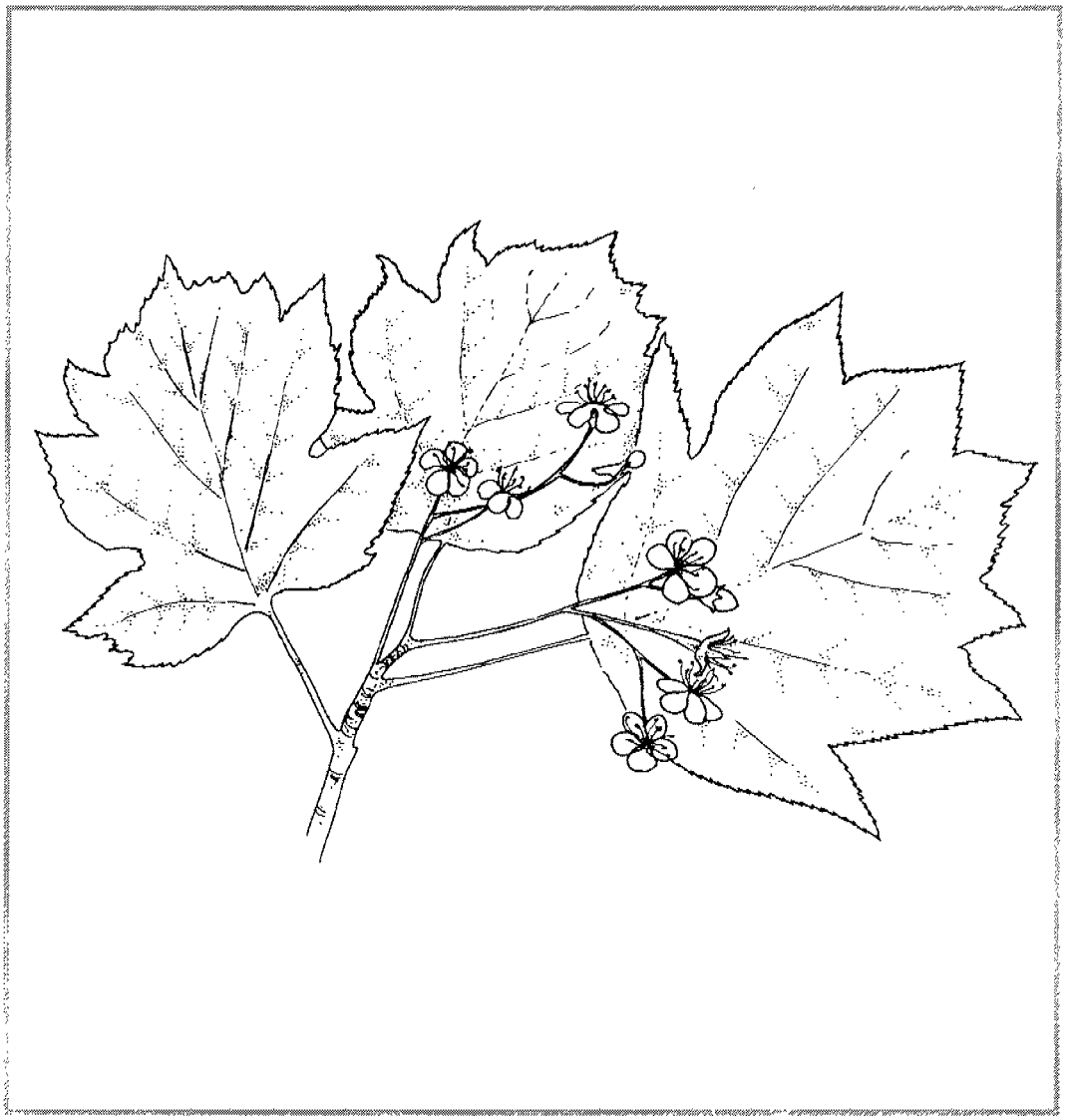

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Sustainable forestry and nature conservation in England

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Summary

1. In December 1995 a one day seminar was held to consider issues relating to sustainable forestry and nature conservation in England. Papers based on the presentations made have been brought together in this volume, with notes on the discussion and other related material.

2. Woodland nature conservation depends on ancient woodland outside the SSSI system and on new woods to maintain the range and abundance of many species and to reduce the effects of past habitat fragmentation.

3. More encouragement is needed to improve the management of existing woods, particularly small ancient semi-natural stands.

4. Commercial conifer forests have a potentially greater contribution to make to maintaining woodland biodiversity than may have been previously recognised.

5. Broad types of land and situations where woodland expansion would be beneficial can be identified but these must be developed at county and Natural Area levels. Such local developments must be within a national strategic context.

6. Significant increases in England's woodland cover can only be achieved if we are prepared for major changes in the landscape of some regions.

7. English Nature should re-appraise its attitudes to new forest creation and be prepared to take a more proactive stance.

8. Monitoring of the changes in existing and new woodland needs to be improved as part of a sustainable forestry programme.

Acknowledgements

My thanks to the various contributors, to Chris Reid, Jeanette Hall and Dawn Isaac who kept track of the discussion, to Peterborough City Library who provided the room and particularly to Heather Ferguson who bore the brunt of the organisation and administration for the day.

Contents

Preface

In 1995 English Nature set out its position on environmental sustainable forestry and nature conservation (Appendix 1). Within this we stated our support for the development of a strategic approach to forestry and the need to promote both the better management of existing woods and the expansion of our forest cover in ways that do not compromise the nature conservation values of important open habitats. How are such statement to be turned into practical guidance, both for our staff and for others concerned with nature conservation and forestry?

There is a lot of existing experience on how to manage individual woods with nature conservation as an objective, either solely or along with other objectives such as wood production. More work is needed in this area, particularly with respect to monitoring whether existing associated incentives are sufficient to deliver what is currently perceived to be "best practice"; and whether in fact that "best practice" does deliver what it is intended to do from a nature conservation point of view. However, there is much less agreement as to what the balance should be between different types of management at both local and national levels; about how much new woodland is desirable, where it should go and how do we get it there.

In an earlier report (Kirby & Rush 1994) we outlined what were the broad targets towards which English Nature was moving, particularly with respect to the management of existing woods. Some of these have been (or will be) further refined through the Habitat Plans and Statements in the Biodiversity Action Plan Steering Group Reports. In the following report (based on papers and discussions from a seminar held on 4 December 1995 at Peterborough) we explore more the question of what sort of woodland expansion we want or how we should respond to proposals from other individuals or organisations for such expansion. Taken together with an assessment of existing woodland cover by Natural Areas (Reid, Kirby and Cooke 1996) it should help us to contribute in a positive way to the statement in Rural White Paper that woodland cover in England should be doubled over the next 60 years.

None of the views in this report should be taken as representing official policy positions of English Nature, Forestry Authority, Countryside Commission, Scottish Natural Heritage, Countryside Council for Wales etc. The meeting on which it is based was intended to be an open debate, to provide EN staff in particular with a wide range of contrasting and sometimes contradicting views. Phil Ratcliffe emphasised the important role commercial managed forests can have in maintaining overall forest diversity in England; Andy Neale outlined the many different places where new forests might be created; Roger Turner stressed the need for an overall national framework within which these different ideas should be set; Hilary Miller and Alan Hampson provided views from Wales and Scotland respectively showing both some of the problems to be overcome and opportunities to be grasped. The EN contributions both in talks and discussion tried to see what in practice these mean for our work.

I hope that this report will make a useful contribution to the debate about sustainable forestry and nature conservation in England.

Keith Kirby
April 1996

REID, C.M., KIRBY, K.J., COOKE, R.J. 1996. A preliminary assessment of woodland conservation in England by Natural Areas. Peterborough: *English Nature Research Reports*, No. 186.

An introduction to English Nature's views on nature conservation and sustainable forestry

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Introduction

Woodland once covered most of England and would do so again if human influences were removed. Conserving the remnants of our native woodland wildlife, the communities in which it occurs and the features associated with it is therefore a high priority for English Nature (EN). Objectives for woodland conservation in England have been summarised as follows (Kirby 1993):

a. to maintain and if possible expand the area of semi-natural woodland and, in particular, to maintain and enhance ancient semi-natural woods with their distinctive plant and animal communities;

b. to maintain and if possible enhance the populations of rare woodland species;

c. to maintain and if possible enhance the populations of all native woodland species; and

d. as far as is possible to do the above across the traditional (historic) ranges of these species and communities.

Various mechanisms are available to English Nature to promote woodland conservation to meet the above objectives. Woods may be designated as National Nature Reserves (NNRs) or Sites of Special Scientific Interest (SSSIs); their management then becomes the subject of consultation between the owners and EN under the provisions of the Wildlife and Countryside Act 1981 (amended 1985). EN also seeks to influence policies and practice in the countryside generally to make them more sympathetic towards nature conservation. A much greater area and number of woods can be affected by such approaches but we may need to make compromises in order to integrate the preferred nature conservation solution with timber production, landscape and amenity objectives. English Nature must decide therefore which woods have the highest priority for nature conservation and hence may need statutory protection as SSSIs; and where conservation can be best achieved in other ways. If new woodland is to be created, or major changes made in the way that forestry in England is practised, EN must assess whether this will affect the conservation management of SSSIs, but also whether it will improve or hinder conservation work in the countryside as a whole (which includes the maintenance of important open ground species and communities).

This paper provides background information to EN's interest in 'sustainable forestry' in an English context. This will need to be related to sustainable forestry development at a Great Britain and European level, but the differences in landscapes, land-use and land history make it worthwhile to consider the countries separately in the first instance.

Changing woodland cover and nature conservation values in England

Total woodland cover in England was estimated to be about 948,00 ha at the last forestry census (Forestry Commission 1983). Ancient and ancient semi-natural woods which were identified as the most important categories of woodland in England for nature conservation (Peterken 1977; Rackham 1976) make up about 200,000 ha.

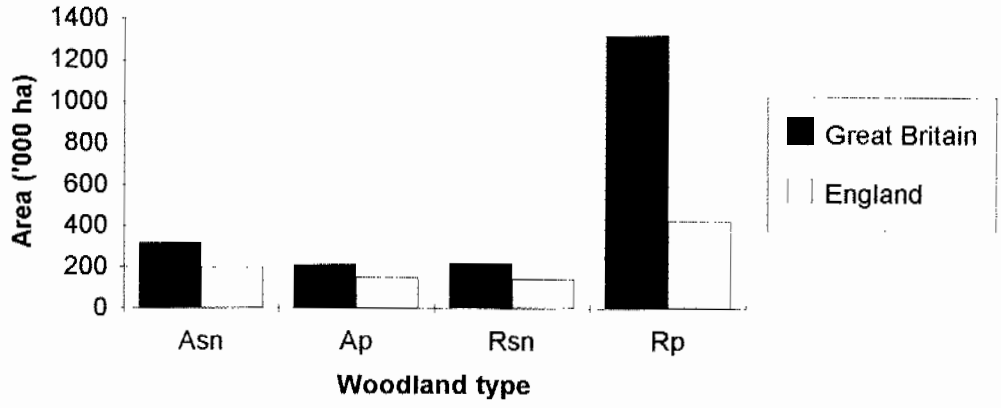

Figure 1. Extent of woodland of different types in England (based on data from Forestry Commission 1983; Spencer & Kirby 1992). Asn ancient semi-natural woodland, Ap plantations on ancient sites, Rsn recent semi-natural, Rp recent plantations.

Not only does England contain more ancient semi-natural woodland than either Scotland or Wales, but also probably more recently semi-natural woodland, although the data for this are more uncertain (Kirby 1996). Semi-natural woodland forms a much higher proportion of the total woodland cover, which has implications for attempts to integrate conservation and commercial forestry.

Ancient woodland, which was mainly broadleaved, shows a strong concentration in the south-east counties, whereas total woodland cover has a more westerly and northern bias. This reflects the expansion of woodland this century, largely through coniferous afforestation such as on the former lowland heaths in East Anglia and Dorset, and the uplands of Cumbria and Northumberland.

The distribution and composition of English woodland has changed dramatically over the last 70 years with enormous consequences for nature conservation. What will the pattern be like in 60 years time? English Nature should be taking positive steps to shape that pattern so that the benefits for nature conservation are emphasised and problems kept to the minimum.

Ancient semi-natural woodland predominates within SSSIs, but only about 21% nationally is so designated. Hence during the 1980s the Nature Conservancy Council worked with the Forestry Commission to develop national forestry policies to provide better treatment for all ancient semi-natural woods. That cooperation continued after English Nature was formed in 1991, for example through contributing to training courses for FA staff and in the production of the guides to the management of native woodland (Forestry Commission 1985, 1994). Guides and guidelines are, however, not always followed; as they evolve into mandatory "standards", within some sort of national framework (see paper by Turner, this volume) EN needs to ensure that the right features get included and that the standards are set at the appropriate level.

Local authorities have also responded to the increased interest in ancient woodland, in part stimulated by production of NCC's inventories, and are much more willing to oppose development plans that threatened ancient woodland and in some cases have policies in structure and local plans that encourage its conservation. The majority of ancient semi-natural woods are, however, small and isolated; while we may have largely halted direct damage to them their future well-being depends on what happens in the countryside around them. English Nature needs to be clear where and in what ways habitat fragmentation is a problem (Kirby 1995), and where and how it should be reversed. Should we be advocating the type of forest network being proposed in Scotland (see Hampson this volume) and even more fundamentally how do we get owners of small woods, particularly those on farms, interested in woodland in the first instance (see Miller this volume)?

Replanting with non-native conifers has been the greatest cause of loss to ancient semi-natural woodland in England since the 1930s (38% compared to 7% to clearance). However, in some plantations some of the flora and fauna survived in gaps, where planted trees failed and along ridesides. There is scope for restoring native broadleaved woodland cover to some of these sites with a good expectation that much of their former value can be recovered. How and where should we concentrate our efforts to bring this about? How can we persuade private owners that productive plantations established with the help of public money should now be removed and (often less-productive) broadleaved crops? Will they see this as sustainable forestry?

Through much of the 1970s and 1980s woodland expansion by afforestation was seen as a major threat to nature conservation and the forests produced to be of little or no benefit to native species (NCC 1984, 1986). Since 1988 relatively little new upland afforestation has been proposed in the uplands of England; some of the early forestry plantings have been restructured making them more diverse; while our knowledge of their wildlife has also improved to the point that some have become SSSIs in their own right. We need to re-assess the role that these can play in conserving native plants and animals and as potentially interesting new habitats in their own right (see Ratcliffe this volume).

New plantings over the last five years have been more concentrated in the lowlands with a greater proportion of broadleaves than previously, encouraged by, for example, the National Forest and Community Forests initiatives. Woodland has also spread naturally over the last 60 years - the linear belts of woodland and patches of hawthorn scrub that have developed on old railway lines, derelict land or fields abandoned in the 1930s are generally considered an asset for nature conservation. However much effort goes into clearing or preventing the spread of new woodland on to heathland and species-rich grassland in parts of the country. What ideas are there for new amenity planting or for development of new native woods (see Neale this volume) and how do we avoid it going in the wrong place?

Monitoring change and success

There is no doubt that the woodland pattern will change over the next 60 years and that it will affect nature conservation values for both open ground habitats and species and those associated with woodland. Do we have the right baseline data for our successors to be able to say what those changes have been; more importantly are there systems that will enable us to judge in 5-10 years whether or not we are at least moving in the right direction (see Kirby, this volume)?

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Sustainable forestry and biodiversity: current status and future options

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Introduction

The Forestry Authority (FA) is the part of the Forestry Commission, which is the Government's Department of Forestry in Great Britain. It implements and advises on the development of the Government's forestry policy and sets standards for the sustainable management of forests throughout Britain. It aims to ensure that forests and woodlands are managed in a way which best serves the public interest (Box 1). The FA also encourages and controls the creation of new woodland so that this will bring public benefits, in terms of wood produces, recreation, landscape and wildlife.

Box 1. Our woods and forests

Britain's forests which occupy about 10 per cent of our land area currently provide about 15 percent of our timber requirements. Production is forecast to double over the next 20 years, making Britain a larger timber producer than well-forested countries such as Norway. Our forests provide a robust environment for a wide range of recreational pursuits and millions of visits are made to them each year. Forests and woodland also determine the landscape character of much of our countryside and contribute a sense of permanence in a fast changing world. They can add to local amenities in other ways by providing shelter for human habitation and livestock. Finally, while many of our forests are relatively immature, the 15 per cent of our woodland that is ancient semi-natural has developed a rich diversity of wildlife. More recent forests also provide homes to a wide range of species: their value for wildlife will increase with time and appropriate management.

Sustainable management - the background

Sustainable management is about managing our forests in a way which ensures that the benefits we derive from our forests today are not at the expense of benefits which would otherwise be available to future generations. This principle was firmly established at the United Nations Conference on environment and Development (UNCED) in Rio de Janeiro in 1992. The UK and other European countries are also committed to implementing the guidelines for the sustainable management of European forests adopted in Helsinki in 1993 (see Appendices 2 and 3). In taking forward this commitment, the Forestry Commission is developing criteria and indicators for sustainable forestry which might form a basis against which the achievements of sustainable forestry could be judged. Irreplaceable and valued components of the environment must be safeguarded, in particularly, the basic elements on which the quality of life depends such as the productivity of the soil, the quality of surface and ground water, the diversity of biological life, the appearance of the landscape and conservation of the archaeological heritage. Guidelines have been published to outline the action which must be taken (see Forestry Commission 1989, 1990 as examples).

In addition the FA has published management guides for the eight main types (Figure 1) of semi-natural woodlands which occur in Britain (Forestry Commission 1994). It has set up and encouraged the formation of projects, such as the Highland Birchwoods Initiative, to promote the management and expansion of native woodland and the utilization of their timber.

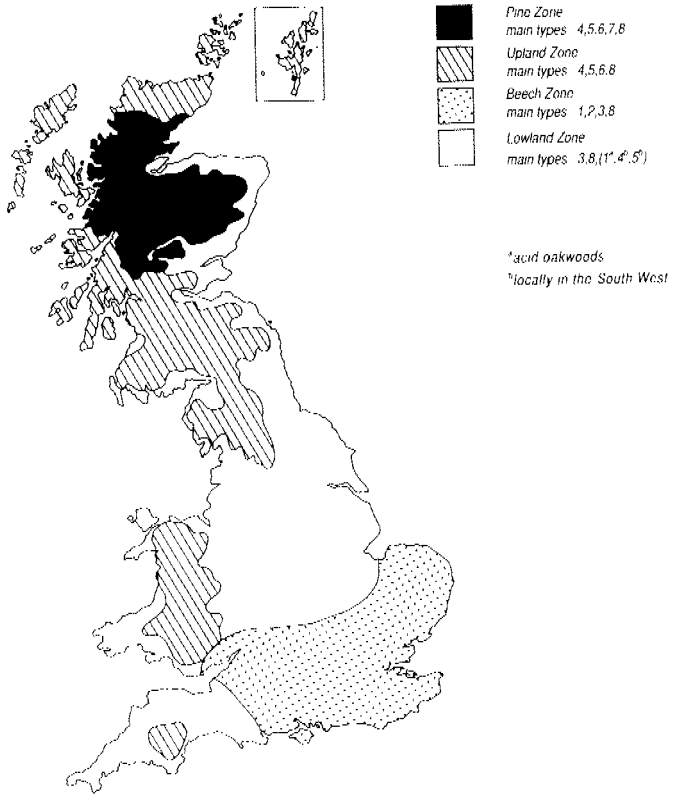
FA encourages the creation of new native woodland, which will, in time, come to resemble semi-natural woodland in structure and composition, and has published guidance on the design and establishment of new native woodlands which are ecologically appropriate and environmentally adapted to the site (Patterson & Rodwell 1994). Incentives to use native species are provided through special grants for new native pinewoods in the Scottish Highlands and the higher rates of grant for broadleaves throughout Great Britain.

Table 1. The benefits of sustainable management

The Forestry Authority aims to ensure that forestry delivers the following benefits for all the people of Britain, now and in the future:

Forest productivity	by maintaining and increasing the supply of timber for a wide range of productive uses
Soils	protecting soil resources and restoring soils degraded by industry and extractive land use practices
Water	sustaining the quality of water and aquatic systems
Air	improving air quality by absorbing pollutants and CO_2
Wildlife	restoring lost or damaged wildlife habitats and creating new ones
Landscape	restoring derelict landscapes and contributing to landscape diversity
Shelter	providing shelter for crops, livestock, wildlife and people
Amenity	enhancing the rural environment
Recreation	maintaining and enhancing opportunities for public access and recreation
Employment	creating jobs, particularly in rural areas
Community involvement	providing opportunities for community based forestry developments
Education and science	contributing to the advancement of science, promoting people's understanding of forest ecosystems and of human interaction with nature

Figure 1. Forest types and zones covered by the eight management guides for semi-natural woodland.



The UK Biodiversity Action Plan

Biodiversity: the UK action plan was published in January 1994. In this the Prime Minister announced that a Biodiversity Steering Group would be established, with representatives drawn from key sectors and chaired by the Department of the Environment, which would oversee the following tasks:

- Developing costed targets for key species and habitats.
- Suggesting ways of improving the acceptability and co-ordination of information on biodiversity.
- Recommending ways of increasing public awareness and involvement in conserving biodiversity.
- Recommending ways of ensuring that commitments in the plan were property monitored and carried out.
- Publishing findings before the end of 1995.

Table 2. Woodland habitats and species included in the UK Steering Group Report (HMSO 1995) and non-woodland species for which FA/FE were identified as important partners in their conservation

Woodland and woody habitats
Ancient and/or species rich hedgerows (costed habitat action plan)
Upland oakwood (costed habitat action plan)
Native pine woodland (costed habitat action plan and habitat statement)
Broadleaved and yew woodland (Habitat statement)
Planted coniferous woodland (Habitat statement)
Lowland wood pastures and parkland (Habitat statement)
Boundary features (Habitat statement)
Limestone pavements (Habitat statement)

Non-woodland habitats for which FA/FE have some responsibility
Coastal and floodplain grazing marsh
Purple moor grass and rush pastures (*Molinia-Juncus*)
Mesotrophic lakes

Woodland species with Biodiversity Action Plans
Dormouse *Muscardinus avellanarius*
Red squirrel *Sciurus vulgaris*
Scottish crossbill *Loxia scotica*
Capercaillie *Tetrao urogallus*
Song thrush *Turdus philomelos*
Aphodius niger (a dung beetle)
Pearl bordered fritillary *Boloria euphrosyne*
Callicera spinolae (a hoverfly)
Blue ground beetle *Carabus intricatus*
Cryptocephalus coryli (a leaf beetle)
Netted carpet moth *Eustroma reticulatum*
Narrow headed ant *Formica exsecta*
Violet click beetle *Limoniscus violaceus*
Stag beetle *Lucanus cervus*
Tachys edmondsi (a ground beetle)
Devil's bolete *Boletus satanas*
Nail fungus *Poronia punctata*
Elm's gyalecta *Gyalecta ulmi*
Pseudocyphellaria norvegica (a lichen)
Schismatomma graphidioides (a lichen)
Green shield moss *Buxbaumia viridis*
Atlantic lejeunea *Lejeunea mandonii*

Non-woodland species for which FA/FE have some responsibility
Otter *Lutra lutra*
Pipistrelle bat *Pipistrellus pipistrellus*
Greater horseshoe bat *Rhinolophus ferrumequinum*
Sand lizard *Lacerta agilis*
Great crested newt *Triturus cristatus*
High brown fritillary *Agynnis adippe*
Chrysotoxum octomaculatum
Marsh fritillary *Eurodryas aurina*
Bog ant *Formica candica*
Heath fritillary *Mellicta athalia*
Freshwater pearl mussel *Margaritifera margaritifera*
Fen orchid *Liparis loeselii*
Floating water plantain *Luronium natans*
Slender naiad *Najas flexilis*
Yellow marsh saxifrage *Saxifraga hirculus*
Killarney fern *Trichomanes speciosum*
Orange fruited elm lichen *Caloplaca luteoalba*
River jelly lichen *Collema dichotomum*
Weissia multicapsularis

As a consequence in December 1995 the Steering Group's Report was published (*Biodiversity: the UK Steering Group Report*; Volume I Meeting the Rio Challenge; Volume II Action Plans). In Volume II of this document Species Action Plans (SAPs) for 116 globally threatened and threatened endemic species, living in the United Kingdom, are presented. In addition a number of Habitat Action Plans (HAPs) are provided. These cover a selection of important habitats which are considered to be in need of urgent action. SAPs and HAPs action plans will be developed within the next few years. The FA has played an active part on the Steering Group and the FA and Forest Enterprise will continue to play an active role in delivering many of the targets (Table 2).

Biodiversity in managed forests

The attention of most of the conservation bodies (both statutory and voluntary) has been on natural and semi-natural habitats (including woodland) but these are only a small part of the UK land cover. Other opportunities exist within managed forests. For example, it has been reported recently that spider diversity is higher in Norway spruce *Picea abies* woodlands than in oak woodland, and that the detritus-feeding invertebrates, *Psocoptera* spp. are more abundant in Norway spruce than in oak (Hambler & Speight 1995). Indeed they have been referred to as 'the plankton of the tree canopy' supporting a very wide range of other species.

The extensive planting of exotic trees has created forests in Britain which provide habitats for a range of native animals and indeed are predominantly composed of native species in the soil, field and shrub layers. North American conifers provide sustainable resources in the form of timber, habitats for native wildlife, recreational opportunities and, with careful management, aesthetically pleasing landscapes. They can be managed to provide levels of biodiversity, including important keystone species, approaching that found in some natural and semi-natural woodlands in similar biogeoclimatic zones. A multi-objective forest policy should include the aim of increasing levels of biodiversity as much in managed forests as in semi-natural forests. The aim is not simply 'species-richness'. The species present must reflect the ecological conditions of the site and the availability of ecological niches. The range of taxa appropriate to the particular ecosystem should be present, with all trophic levels from top predators through to herbivores and detritus feeders.

Biodiversity, encompassing the entire range of ecosystems, habitats, species and genes, is so complex that it is almost impossible to measure. However, in practical terms spatial and structural variety in forests can be used as a surrogate measure of biodiversity since wildlife usually benefits from increased structural diversity. Felling and harvesting regimes can be adapted to try to mimic the particular scales and distributions of disturbance created through natural fire or windblow. Another reason for adopting a management regime which relies on mimicking natural processes is that these are perhaps more likely to be sustainable than those which are heavily dominated by man. Ratcliffe (1993) attempts to describe some of the important components which are necessary to support forest wildlife within such managed forests: a range of age classes, large trees, riparian zones and dead wood.

What sort of forests do we want?

Ratcliffe and Peterken (1995) discuss the potential exists in British spruce forests to increase biodiversity. Approaches are suggested which explore the natural features of a range of native woodland with a view to describing a Desired Future Condition (DFC) for British spruce forests. A vision must be developed that can be translated into objectives describing the type of forests to be created, which has a temporal scale describing the planned sequence of events for at least 100 years and a spatial scale which encompasses whole landscapes.

The vision cannot be expressed as re-creating the pristine wildwood. While this may sound desirable, the existing remnants of natural forests in Britain are very different from the primeval wildwood, and the species abundance and composition have almost certainly changed. Human

presence has had a profound impact on British woodland for a very long time, so the cultural impacts of humans must be represented within the vision. As well as the gross changes which may have occurred to native species composition, such as the changes in distribution and abundance of small-leaved lime and elm, there are current and future impacts of introduced species such as the grey squirrel and the Japanese sika deer to consider.

Even in western North America, where it is generally accepted that 'natural' forests exist, there is considerable doubt accumulating as to the ecological status of these forests. Many of these forests today result from a century of reduced natural fires due to the increase in fire suppressant activities. Even before settlement by Europeans there is increasing evidence the American indigenous people had a major impact on their environment. Bowden (1992) challenges the image of the pristine forest which has endured for 300 years or more: "the great invented tradition of American nature as a whole, is the pristine wilderness, a succession of imagined environments which have been conceived as [being] far more difficult for settlers to conquer than they were in reality. The ignoble savage, not agricultural and barely human, was invented to justify dispossession, and to prove that the Indian had no part in transforming America from wilderness to garden." The concepts of an interventionist indigenous people had no place in the popular image. Therefore the image of the ecologically invisible Indian was perpetuated. Bowden (1992) suggests that, "Indians who lived, so the tradition goes, in harmony with nature, making no irremediable changes in the environment, and handing over to Europeans a virgin land" is incorrect. Whether denigrated as ignoble savages or idealised as native Americans living in perfect equilibrium and harmony with the environment, the native Americans are given no credit for opening up the eastern woodland which created much of America's grassland, or for transforming hardwoods to pinewoods with their wood-burning habit.

In England, massive changes have occurred, especially since the Industrial Revolution. While around 2 to 3% of the land surface of Britain (25% of woodland) appears to have borne some sort of tree cover continuously over the last few hundred years or so, and probably for much longer than that, these forests have been cut over, burned and possibly over-grazed many times in their history. This semi-natural woodland represents our closest link to the original forests and often has rich assemblages of plants and animals and also rare species, but what is its future? The fragmented nature of these woods is such that careful consideration should be given to reversing the trend of fragmentation and attempting to join some of them up to form larger blocks.

Within our vision for the future then, we need to make provision for the widest range of forest conditions reflecting all aspects of man's impact on the landscape. This includes the careful management and restoration of our semi-natural woodland remnants as well as the transformation of plantation forests into diverse managed ecosystems which can deliver a wide range of multiple benefits to society. In considering biodiversity at the landscape scale important non-woodland ecosystems must be considered. In any plan to restore ecosystems careful consideration must be given to assessing the probability of success in achieving the desired objectives which will draw heavily on existing and planned research programmes.

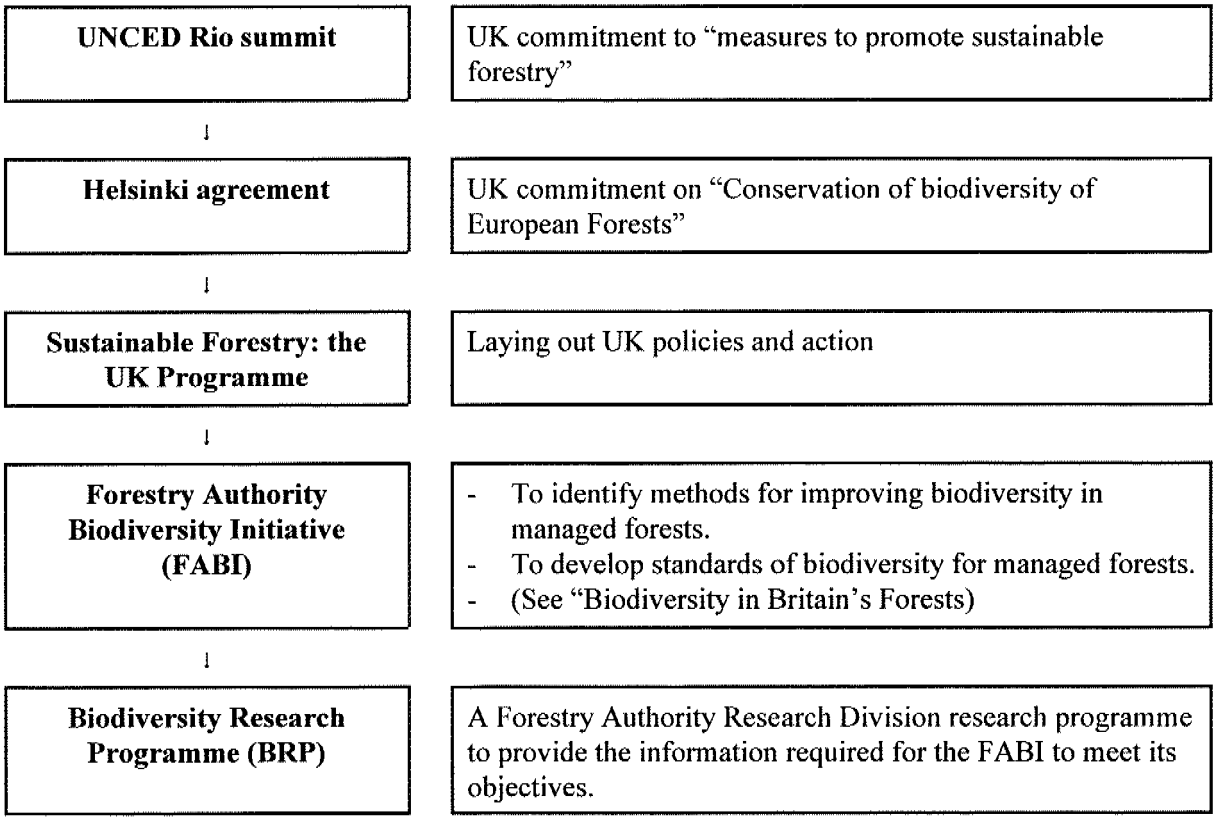
Biodiversity research

Within the Forestry Authority's Biodiversity Initiative (FABI) we have established a Biodiversity Research Programme (BRP). This programme is currently costing £600,000 per annum and covers a wide range of projects including the development of ecological site classification, herbivore impact and the value of dead wood in forest ecosystems (Figure 2). However, the approaches suggested in this paper largely assume that an increase in biodiversity will accompany increases in spatial and structural diversity. Hence we need to understand more of the diversity inherent in many managed ecosystems and to monitor the changes which occur with the application of differing silvicultural treatments.

Monitoring

Monitoring is a process of detecting whether change has occurred, establishing its direction, and measuring its extent. This also should be accompanied by some assessment of the significance of the observed changes. Before monitoring systems can be introduced it is important to establish standards which are desirable and which can be measured. The Forestry Authority are currently engaged in developing environmental standards and the Biodiversity Research Programme will ultimately produce more detailed standards of biodiversity. Relating such work to monitoring in other woods and at other scales is considered by Kirby elsewhere in this volume.

Figure 2. Structure of the Forestry Authority's Biodiversity Research Initiative.



1. To develop monitoring protocols and collect baseline information on selected species or guild, structural and habitat diversity in stands of different ages in major UK forest types.

2. To identify biodiversity criteria and indicators for managed forests at the stand and landscape scale.

3. To identify and recommend practical standards by which to appraise biodiversity in managed forests.

4. To identify and recommend silvicultural systems and management practices that maintain and enhance biodiversity in managed forests.

5. To establish sites for the validation of chosen biodiversity indicators, implementation of recommended forest management practices and long term monitoring of biodiversity in managed forests.

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Woodland expansion - a Countryside Commission view

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Introduction

Trees and woodlands are an integral part of the English countryside, helping to define its beauty and character and enriching our lives in a host of ways. Whether ancient in origin or newly created, woodland fulfils many important functions, besides producing timber and other wood products. It provides valuable wildlife habitat, an alternative use for agricultural land, opportunities for leisure and public access and has the potential to contribute to the rural economy and employment. As the Community Forest projects are showing, woodland can provide a catalyst for revitalising derelict and degraded landscapes, as part of wider environmental enhancement projects.

Trees also have an important cultural and aesthetic value. They frequently play a part in local folklore and traditions. They are celebrated in literature and song and are a common source of inspiration in arts and crafts. The pattern of tree cover can help to define what makes one area distinctive from another, creating a sense of place and identity within local communities. Even individual trees can be important - often acting as important landmarks or boundary markers, or having particular historical associations.

Although they often appear to be permanent and unchanging features of the landscape, woods are dynamic - they grow and change, and more often than not require some form of management if they are to provide the full range of benefits we expect from them. Different people have different expectations. To some, trees are just a crop, to be harvested for timber, whereas to others they are a wildlife habitat or a setting for cycling or walking. The kinds of forestry favoured by timber growers, ecologists, and recreationists can differ greatly - creating familiar tensions. If we are to establish some coherence in our approach to forestry we must establish some priorities and preferences. The power of tree planting and woodland management to change our environment is enormous. We need to use it creatively. Ratcliffe (1996) asks "what sort of forests do we want?" - this paper explores this question from the Countryside Commission's point of view, focussing particularly on the proposal in the Rural White Paper to double the tree cover in England.

The Countryside Commission's involvement with forestry

The Countryside Commission's aims for forestry are to enhance the contribution that trees and woodland make to the beauty of the English landscape and to people's enjoyment of the countryside. Our current policy statement *England's trees and woods* (published in 1993) endorses the twin aims of Government forestry policy.

- to facilitate the sustainable management of existing woods and forests; and
- to encourage a steady expansion of tree cover to increase the many and diverse benefits that forestry can provide.

Existing trees should be cared for and managed appropriately, paying special attention to the conservation of ancient semi-natural woodland and adjacent habitats. Felling, re-stocking and natural regeneration should be undertaken in such a way as to enhance their value in the landscape and contribute to the diversity and ecological richness of the countryside. Just as existing woods provide a range of benefits, we need to redress the losses of ancient woodland and to woodland cover generally by establishing new trees, to provide benefits for the future.

We have always seen our role as that of a catalyst, devising and testing new initiatives and ways of working, often in partnership with other organisations, pump priming projects through grant aid, and trying to influence the work of others. Our earliest efforts, going back to the early 1970s, were with tree planting, through amenity tree planting grants and, latterly, landscape improvement grants. Working through local authorities and other organisations, we have helped landowners to plant some 20 million trees; provided financial support for the management of trees and small woods, both directly and indirectly through countryside management projects and Groundwork Trusts; and helped organisations like the Woodland Trust and the National Trust purchase nationally important areas of woodland, where these have been threatened by loss or damage.

Following the 1987 storm we established the Task Force Trees programme to help with the restoration of historic urban and rural landscapes which had suffered storm damage and, in all, this was responsible for planting almost two million trees.

Our *Small woods on farms* report in 1982 highlighted the extent of decline of farm woodland, a need to develop better woodland advisory services for farmers and landowners, a more coordinated approach to marketing wood products, and better training for owners and managers in woodland management skills. This led to a number of proactive initiatives to provide woodland advice - such as Cumbria Broadleaves, Silvanus and the Anglian Woodland Project - set up in partnership with local authorities, other government departments and agencies and the voluntary sector. These projects have continued to develop and expand, and are now well established in many parts of the country.

In 1989 we launched a major joint initiative with the Forestry Commission to create 12 new community forests on the edges of major urban areas. The aim is to use the creation of new multi-purpose woodlands as a spur to revitalise the countryside around towns and cities - improving the landscape and creating new recreational and educational opportunities. The Government has approved plans for all 12 forests, and once established they will cover a total area of 310,000 ha, of which around 30% will be woodland.

We have also been working to create the National Forest - a role which has now passed to the newly created National Forest Company. The National Forest will create a major new environmental and recreational asset in the Midlands, spanning Derbyshire, Staffordshire and Leicestershire. Like Community Forests, the aim is to create a predominantly wooded landscape - by increasing tree cover from 6% to 40% - interspersed with other land uses. Once complete, it will cover some 500 sq km.

The opportunity for future woodland expansion

The Countryside Commission is keen to see a significant increase in tree cover, both by environmentally sensitive new planting and natural regeneration in order to:

- enhance or restore the landscape;
- enrich and create wildlife habitats;
- provide timber and other wood products;
- diversify employment opportunities in rural areas;
- provide new sources of farm income;
- provide recreation and access opportunities;
- provide a carbon sink, so helping to reduce the speed of global warming;
- provide an educational resource.

In our policy statement *England's trees and woods*, we argued that the wooded area of England should be doubled, from around 7.5% - the second lowest figure in the European Union after Ireland

- to 15% - by the middle of the next century. Such a target would provide a strategic framework for forestry policy nationally, and a focus for our own work.

There is considerable support for forest expansion: the threat of widespread conifer plantations has largely receded; the non-market benefits of woodland - for wildlife and recreation - are being increasingly recognised and taken into account in decision making; the potential for trees to improve the countryside around towns and cities has gained acceptance; and there is growing recognition that amenity and environmental objectives are not necessarily at odds with commercial forestry.

Table 1. Tree cover in Europe

	% land surface
Ireland	5
England	7.3
Netherlands	9
Wales	11.6
Denmark	12
Scotland	12.6
Greece	20
Italy	22
France	27
Norway	27
Spain	31
Portugal	40
Sweden	64
Finland	76

The context for forestry is changing in other ways. Agriculture is in a transitional period. The CAP - whose structures currently underpin agricultural land values in many areas - is under continual review. Reductions in the level of farm support are likely to suppress land values, perhaps making forestry a more attractive option for landowners. The recent changes to the set aside regulations, which allow land entered into forestry schemes to count towards set aside requirements, could tip the balance further in favour of forestry. These changes provide a unique opportunity for re-afforestation in lowland England.

The target of doubling the woodland cover has now been endorsed by the Government in the recent Rural White Paper, and this will help to focus public and political attention on the future role and purpose of forestry in the countryside. The need now is to look in more detail at the potential for forestry expansion, how this fits in with landscape, ecological and recreational needs, what constraints might apply, and the tools, mechanisms and initiatives which might be needed.

Our work in this area is clearly at an early stage and what follows are merely options which may or may not warrant further consideration.

Developing a vision for forestry expansion

Our aim is to try and identify, in very broad terms, where forestry expansion might be targeted, and what type and scale of woodland might be appropriate for different types of landscape. Large new

forests may be appropriate in certain parts of the country, whereas in others it might make more sense to encourage natural regeneration next to existing ancient woodland or small woods on farms. Elsewhere the priority may be individual field trees or hedgerows. We should also establish where the management of existing trees and woods is a more important issue, for example with native broadleaved woods in the uplands, small farm woods in the lowlands, mature trees in hedgerows, or historic parklands. Expansion will fail if new woodland just ends up as the neglected, unmanaged woods of the future. There are then questions relating to choice of species: do we want planting or natural regeneration; should we be looking to try and re-create natural woodland cover or create something new?

In order to assess what might be achievable and desirable, we need to look in more detail at the environmental opportunities and constraints. At a fairly broad level it should be possible to sieve out sensitive or unsuitable areas for new woodland. Areas of high nature conservation interest such as extensive wetlands, unimproved grass and heathland, and other semi-natural open habitats should be ruled out at an early stage. We might also want to rule out broad areas of historic and archaeological importance. There will be environmental and physiographic constraints, such as areas of rock outcrops or land above a certain height where climatic and other factors exclude forestry. Built up areas might imply a constraint, although there may be opportunities for urban forestry.

Critically, the vision for future forestry must link in with the work we and English Nature are doing through the Countryside Character Programme and the Natural Areas mapping exercise. The joint character map will help to provide a framework for identifying the types of landscapes where woodland expansion is most appropriate and necessary.

As well as meeting environmental needs, the vision must have a strong economic and social rationale. Land values, patterns of land ownership, agricultural land quality and the economics of forestry in relation to farming need to be taken on board, to give an idea of where, economically, woodland expansion is most realistic. Where might forestry be able to complete with agricultural incomes at present and, if not, what new incentives might be needed to effect change on any scale? Work on the economic potential for woodland creation, when linked with work on the environmental potential, will help us to identify broad areas where there might be actual potential, as well as need, for afforestation.

What mechanisms will be needed to make it happen? What can be delivered through existing, mainstream agricultural and forestry policies and incentives as operated by the Forestry Commission and MAFF? Are new incentives needed? If so, how should they be funded? How can we help to stimulate markets or create added value for woodland products? Do we need to think about changes in the law or the tax system? Should we be thinking about new woodland creation initiatives, akin to the National Forest or Community Forests in scale? Is there a continuing role for publicly funded land acquisition?

We are beginning to develop our own ideas about how woodland expansion could be achieved, but we also want to talk to others - particularly of course the Forestry Commission, English Nature and other agencies and NGOs. We see our job as trying to stimulate debate about the target and to put forward well argued and robust proposals, and through this win support for a more strategic approach to forest expansion. We see our particular role as twofold:

- firstly, to initiate research - to look at the environmental and economic potential, and the constraints; to look at what incentives and mechanisms might be needed to bring about a doubling of tree cover; and to develop and test ideas for new initiatives;
- secondly, to pilot new initiatives and approaches through experimental work, which, once successfully tried and tested, can be applied elsewhere.

Opportunities for woodland expansion

We have identified a number of areas where we believe there may be potential for woodland expansion considered under three broad headings - the lowlands, the countryside in and around towns, and the uplands - although inevitably there is some overlap between them. It must be stressed that these are only some of the ideas being considered and some may not be developed further.

Lowlands

We would like to see the full implementation of the current national forest creation initiatives - the National Forest and the Sherwood initiative. There may be scope for creating other major new rural forests - possible by extending and regenerating historic forests, such as the old royal hunting estates which are now largely fragmented, or creating new forests on lowland farmland, perhaps through some form of permanent set-aside.

We cannot make major inroads into increasing tree cover without significant afforestation of agricultural land, particularly in lowland England - perhaps linked to long-term set aside or through new mechanisms and incentives. This could take place at a range of scales. Where and how will depend on the direction of future forestry and agricultural policy, land values and gross margins, and the degree to which society is willing to pay farmers for the 'non-market' benefits farm forestry could bring.

What is the role for publicly funded land acquisition? To what extent should forest expansion be achieved through expansion of the publicly-owned forest estate, an approach which has been markedly successful since the Forestry Commission was created in 1919?

There are strong arguments for extending existing areas of ancient woodland by new planting or natural regeneration, but how and where? Should there be an initiative to reinstate 'lost' wood and restore existing tree cover in historic parklands?

There could be a programme to focus planting on derelict land or disused mineral workings - such as old coal field sites, landfill sites, re-claimed contaminated land and worked out sand and gravel areas.

There is already interest in re-creating woodland within river floodplains. What is required to develop this and could it then form a model for more widespread floodplain forest restoration?

Tree planting could be used to expand 'green corridors' along major rail and road routes - an approach the Countryside Commission is already promoting in west London along the A4 corridor.

There is growing interest in short rotation coppice for heating and energy and, while not true woodland, it can offer some of the same benefits and may take off in a big way in future. Is this something that should be supported, and if so where and how should it be grown, and on what scale?

What opportunities are there to develop woodland creation projects which are linked specifically to economic and social regeneration, perhaps through the development of marketing initiatives or skills training.

Within and around towns

Our first priority is to see the existing Community Forest programme, and other similar local projects, fully implemented. This programme might then be extended to establish new community forests around other towns and cities - perhaps at different scales and using different organisational and funding models. Another possibility would be to encourage afforestation within greenbelts.

We are interested in the idea of small scale community woodland, linked to villages and housing estates, which as well as enhancing the local landscape would help to provide for local recreational needs. What mechanisms might be needed to allow communities to acquire their own patch of woodland, and what management arrangements would be needed?

Any look at forest expansion should also look at the potential within urban areas, from street trees and landscaping linked to new development, to large scale urban forestry on derelict land and along transport and river corridors.

Within upland areas

We are interested in the idea of new upland forests, perhaps on marginal agricultural land or on valley sides. This could be through planting or natural regeneration - perhaps using one or more National Parks as pilot areas.

We are also interested in exploring minimal intervention approaches to land management, and in exploring the idea of creating 'wild areas' - perhaps linked to wider sustainable land management projects which aim to re-establish natural ecosystem processes. There may be scope for experimental schemes which involve withdrawing from agriculture in some areas and allowing nature to dominate - for example removing livestock from moorland areas to allow a gradual succession to woodland. This sort of approach might also be applied to lowland areas, such as wetland habitats in river floodplains.

We are well aware of the sensitivities such ideas of 'abandonment' provoke, but the natural state for most of England was woodland, and in most cases it is only man's intervention which is preventing a reversion to woodland.

Again in the uplands we might look towards an expansion of existing ancient woodland and for extensions to the Forest Enterprise estate and private estate forests.

Conclusion

There is an enormous potential for woodland expansion, but on any significant scale it is unlikely to happen without a commitment from many bodies. Private investment in forestry needs to be encouraged, and integrated with the activities of the public and voluntary sectors. The forestry industry needs to be involved, as do government departments and agencies, and the NGO sector. New partnerships will be needed to coordinate efforts, and new mechanisms will need to be explored to ensure the best use of public money. However, first we need to agree some common objectives and begin to give some thought to what a programme to double tree cover might look like. The Countryside Commission hopes to play an active role in this process.