

S LANDSCAPE AND WILDLIFE

Main messages

There has been a decline in some highly valued species, habitats and landscapes especially in farmland areas over the last 30 years.

Although the rate has slowed since 1987, soils are continuing to be lost to development, at the rate of about 6,500 hectares per year between 1990 and 1994.

The overall area of woodland has been increasing since the 1920s, but we still need to consider the better management of our existing woodland.

There has been an increase in the use of recycled minerals.

Relevance

The special natural, cultural, aesthetic and archaeological characteristics of our countryside and landscape are highly valued and must be retained. We must reverse the decline in wildlife and habitats – our biodiversity. Gradual change in the landscape is inevitable, reflecting developments in agriculture, forestry and rural communities but the changes must be well-managed and not cause unacceptable impacts on countryside character.

Soil is essential for the production of food and other crops, for maintaining biodiversity, for the landscape. Forests, woodlands and trees are places for leisure and recreation and are an economic resource for timber production, tourism, and local development and regeneration. Minerals are a vital resource on which construction, manufacturing and energy industries depend.

The extent to which the key objectives identified in the Strategy are being achieved, as reflected by the indicators, is illustrated in the following table.

Key strategies

- *A better quality of life: A strategy for sustainable development for the UK (8.49-8.61)*
- Forthcoming Rural white paper
- *UK Biodiversity Action Plan¹*

Some other related indicators:

Rivers of good or fair quality (**H12**); New homes built on previously developed land (**H14**); Area under agreement under the ESA and Country Stewardship agri-environment schemes (**D13**); Area converted to organic production (**D14**); Access to local green space (**K7**); Concentrations of persistent organic pollutants (**M1**); Dangerous substances in water (**M2**); Sulphur dioxide and nitrogen oxides emissions (**P3**); Acidification in the UK (**P4**); Sites affected by water abstraction (**Q6**); Estuarine water quality, marine inputs (**R1**); Biodiversity in coastal/marine areas (**R3**); Fish stocks around the UK fished within safe limits (**R4**)

Key	
✓	significant change, in direction of meeting objective
≈	no significant change
na	not applicable, in cases where the indicator is for contextual purposes
✗	significant change, in direction away from meeting objective
•••	trend is uncertain or no quantitative data available

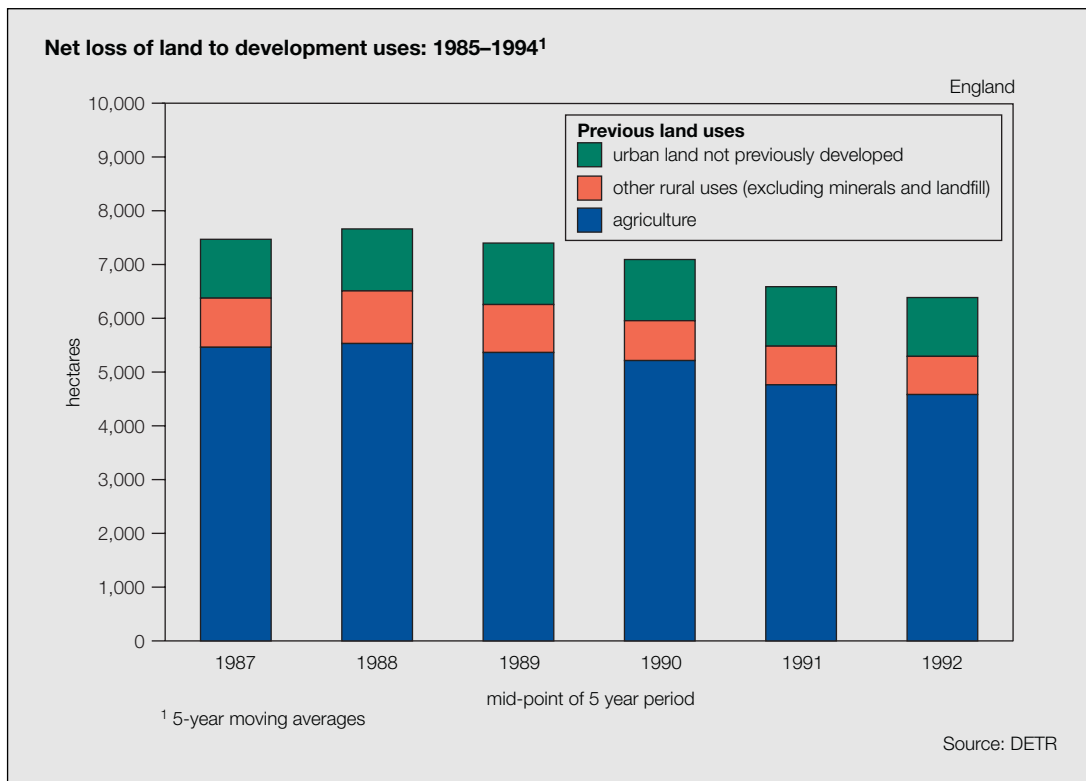
¹ January 1994. ISBN 0-10-124282-4

Objective	Ref no.	Indicator		Data used	Change since		Specific targets/goals
					1970	1990	
Minimise the loss of soils to new development	S1	Net loss of soils to development		1985-1994	...	...
Soil protection	S2	Concentrations of organic matter in agricultural topsoils		1979/81-1995	X	...	
Reverse the long-term decline in populations of farmland and woodland birds	H13	Populations of wild birds (headline)	All species	1970-1998	✓	≈	Reverse the long-term decline in populations of woodland and farmland birds
			Woodland		≈	X	
			Farmland		X	X	
Reverse the decline in UK wildlife and habitats	S3	Trends in plant diversity		1978-1990	X	...	
	S4	Biodiversity action plans		1995-1999	...	...	Achieve the targets of each UK action plan
Protection for individual landscape features such as hedges, dry stone walls and ponds	S5	Landscape features	Hedges	1984-1993	X	X	Halt all loss of ancient and species-rich hedgerows in the UK by 2005
			Walls, banks, etc	1984-1990	...	...
			Ponds	1984-1996	X	≈	
Strengthen protection for special sites	S6	Extent and management of SSSIs	Extent	1984-1999	✓	✓	
			Management	1997/98	...	...
Protecting the wider landscape	S7	Countryside quality		To be developed	...	...
Promoting public access and enjoyment of the landscape	S8	Access to the countryside		To be developed	...	...
Contextual indicator	S9	Native species at risk		1997	na	na	
Continuing expansion of UK woodland area	S10	Area of woodland in the UK		1924-1998	✓	✓	
Protecting and expanding ancient and semi-natural woodlands	S11	Area of ancient semi-natural woodland in GB		1999	...	...
Better management of existing woodlands	S12	Sustainable management of woodland		To be developed	...	...
Sustainable forestry management overseas	S13	Number of countries with national forest programmes		1998	...	...
Aim to maximise efficient use of materials and greater use of recycled and waste materials	S14	Amount of secondary/recycled aggregates used compared with virgin aggregates		To be developed	...	...	Use of 40 million tonnes per annum of recycled materials by 2001 and 55 million tonnes per annum by 2006 in England
All mineral working sites are restored to a standard suitable for a specific beneficial afteruse	S15	Land covered by restoration and aftercare conditions		1974-1994	≈	≈	

Objective Minimise the loss of soils to new development

Indicator Net loss of soils to development

S1



In England, in 1990-1994, there was a net change of around 6,500 hectares of land a year to developed use. Most of the land becoming developed was previously used for agriculture, though around a quarter had other rural uses, such as forestry or outdoor recreation, or was vacant undeveloped land in urban areas.

Relevance Development can have adverse effects on both the biological and physical properties of soil and can limit its future uses. The sustainable use of soil requires that a sufficient quantity of greenfield soils is retained for present and future needs: for example, ecosystem support, food and fibre production and the protection of cultural heritage.

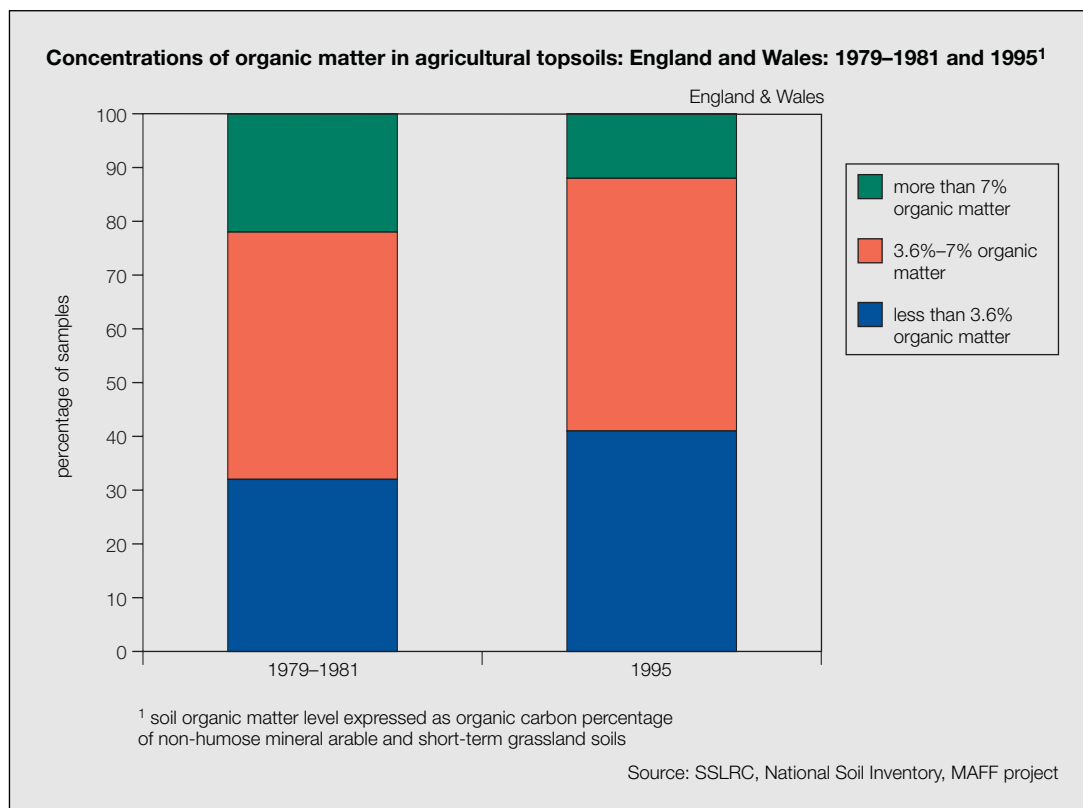
Trends The indicator uses land area loss as a proxy for soil loss. The chart is based on data from 1985 to 1994, but there is considerable fluctuation in the annual figures reported, and so five-year moving averages have been used. However, there is evidence of a gradual reduction in the amount of greenfield land used for development during the period. The data illustrated are net figures, and take account of the small amounts of land which changed from developed to other uses.

Background Soils in rural use are under continuing pressure for new housing, commercial, industrial and infrastructure development. It is estimated that, in 1991, around 10 per cent of the land area of England was in urban use. The area of urban land has increased by about half a percentage point, or 70,000 hectares, during the ten-year period 1985-1994.

Objective Soil Protection

Indicator Concentrations of organic matter in agricultural topsoils

S2



In England and Wales, in the 15 year period up to 1995, there has been an increase in the proportion of agricultural topsoils found to have ‘low’ organic matter concentrations and a corresponding decrease in the number of agricultural topsoils with ‘high’ organic matter concentrations.

Relevance The precise mechanisms by which organic matter maintains soil quality are not completely understood, but it is known that it plays a key role in maintaining soil attributes such as fertility, structural stability, water-holding capacity, and buffering capacity.

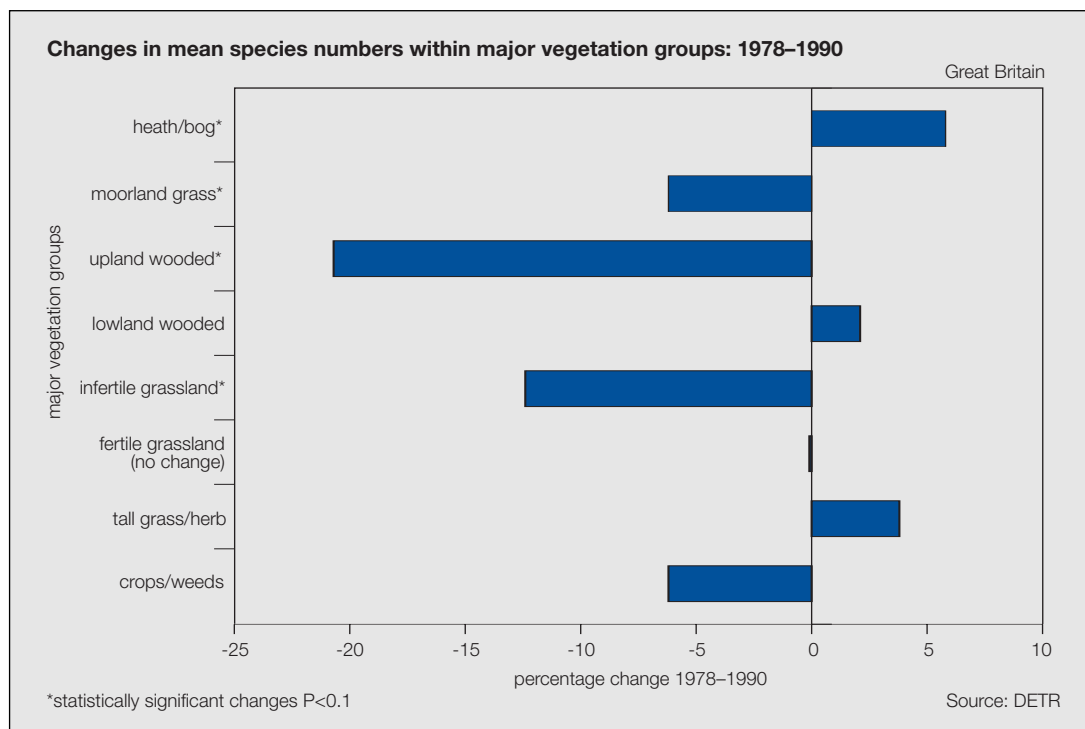
Trends Significant changes in organic matter concentrations are likely to be detectable only over long periods. Soils that have been under long-term arable management have generally stable or very slowly declining organic matter levels. The largest declines have been on grasslands ploughed up for arable use, and on cultivated peaty or organic soils.

Background Soil management has a major impact on organic matter levels and characteristics. Draining wet soils and cultivation increases mineralisation rates, lowering organic matter levels. Crop systems and manure management determine the rate and quality of organic material returning to the soil.

Objective Reverse the decline in UK wildlife and habitats

Indicator Trends in plant diversity

S3



There have been significant declines in plant species diversity in moorland grass, infertile grassland and upland wooded habitats between 1978 and 1990. There was an increase in species diversity in heath/bog vegetation.

Relevance We value wildlife for its own sake and because it is an integral part of our surroundings and our quality of life. Plant diversity is a fundamental aspect of both our natural habitats and our ecosystems, which are managed for agriculture and forestry.

Trends Decreases in the average number of species have occurred in fields, woods, moorland, hedges and streamsides, especially in lowland landscapes. The changes in the different types of plants suggest that the decline reflects an overall shift towards more intensively-managed and nutrient-rich vegetation. The increase in diversity in heath/bog vegetation was associated with an increase in grasses at the expense of typical heath and bog plants.

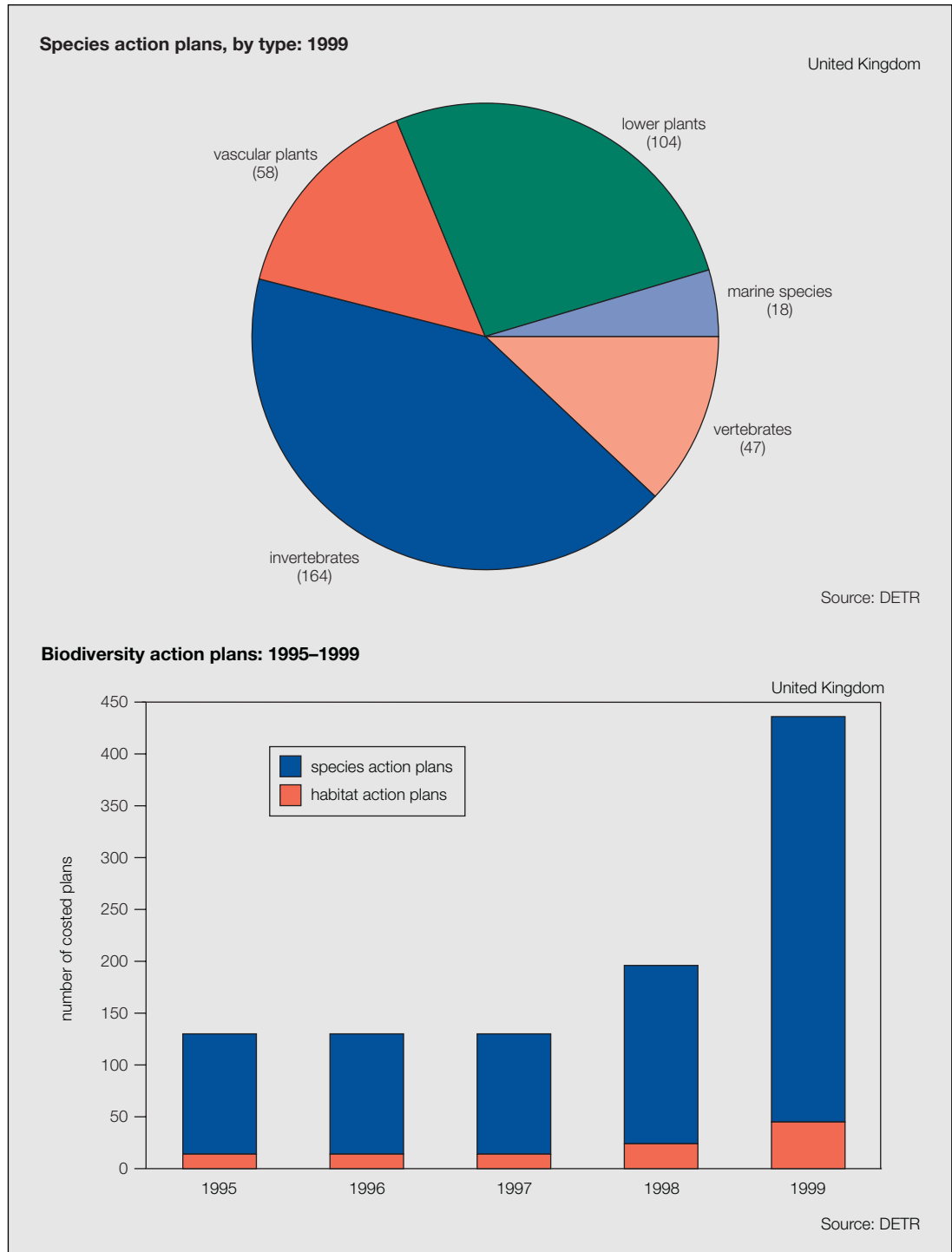
Background The 1990 Countryside Survey examined the changes in the diversity in plant species in the British countryside as a whole since 1978. The vegetation is classified into eight major types based on their species composition. Although species number has sometimes been considered an over-simple measure of biodiversity, a number of experts have emphasised that it is a direct measure, and analysis of the Countryside Survey data has shown that it has real ecological meaning. Changes in plant diversity are associated with agricultural intensification, management of field boundaries and atmospheric pollution.

This indicator is based on an aggregation of different types of plots ie main plots (200m²) and linear plots (1x10m) along hedges, road verges and streamsides. There are some differences in the changes in mean species numbers in the different plot types, which this aggregation does not show. The results from the Countryside Survey 2000 should be available in late 2000. This indicator may then be refined to show changes in broad habitat types as defined in the UK Biodiversity Action Plan.

Objective Reverse the decline in UK wildlife and habitats

Indicator Biodiversity action plans

S4



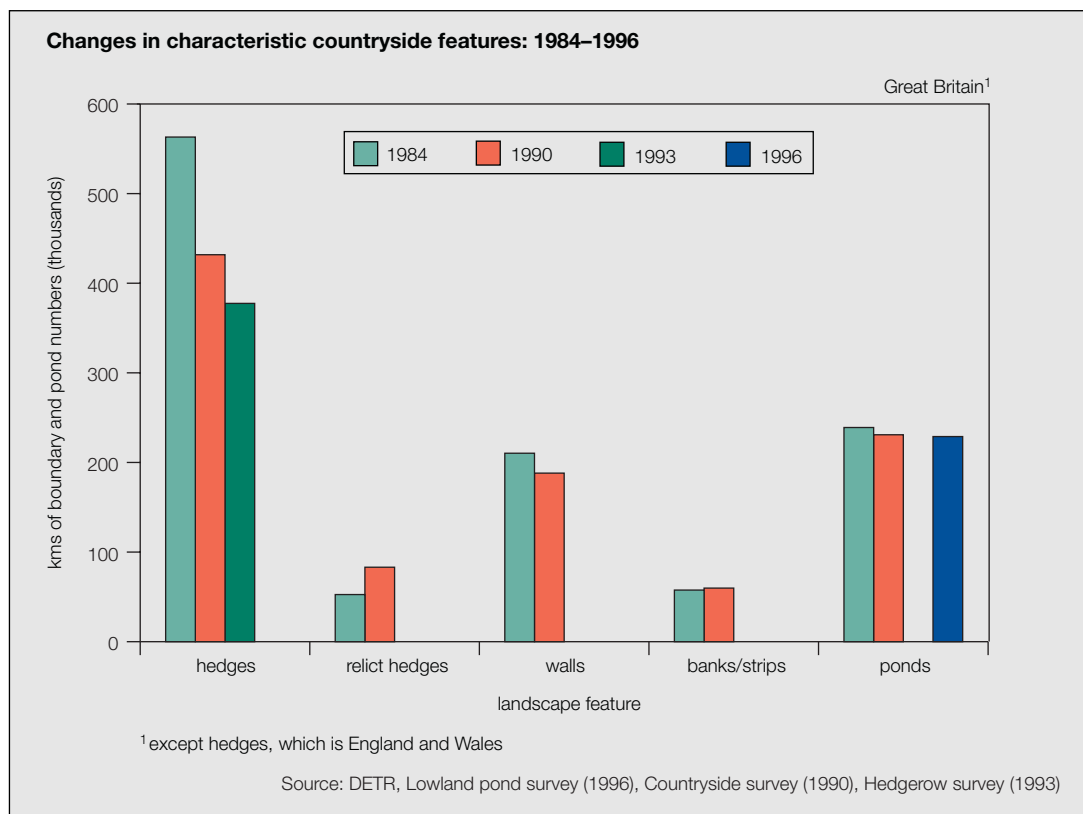
By the end of 1999, biodiversity action plans for all 391 agreed priority species and 45 agreed priority habitats had been costed and for many of them action had started.

Relevance We value wildlife for its own sake and because it is an integral part of our surroundings and our quality of life. We therefore wish to conserve, as far as reasonably possible, the wide variety of our wildlife species and habitats in the UK for future generations. Biodiversity action plans (BAP) covering agreed priority species and habitats will form a major thrust for conservation action in the UK over the next twenty years.

<i>Targets and goals</i>	We must reverse the decline in wildlife and habitats – our biodiversity, and in particular work to achieve the agreed targets for the 436 priority species and habitat plans identified as part of the UK biodiversity action plan.
<i>Trends</i>	The number of costed biodiversity action plans has risen from the first set of 130 in 1995 to 436 by the end of 1999 and now covers all the identified priority species and habitats. This temporary indicator of the process of preparing action plans will in the future be replaced by an indicator tracking progress in the implementation and achievements of all these plans, but at this stage it is too early to make such assessments.
<i>Background</i>	The government published its biodiversity action plan in January 1994 in response to the United Nations Convention on Biological Diversity agreed at Rio in 1992. The UK's Biodiversity Action Plan sets out the broad strategy for conserving and enhancing biodiversity in the period up to 2015. Specific costed action plans for priority species and habitats have also been developed. The priority species include skylark and red squirrel, as well as a number of fish, flowering plants, mosses and lichen and invertebrates. These plans contain targets for the conservation and enhancement of the priority species and habitats. There are also over 120 local biodiversity action plans, which enable communities to identify wildlife which matters to them, and to contribute to national biodiversity targets.

Objective Protection for individual landscape features, such as hedges, dry stone walls and ponds

Indicator Landscape features – hedges, stone walls and ponds **S5**



Hedges, walls and ponds have been in decline through the 1980s and early 1990s, mainly due to lack of appropriate management. Now more hedges are being planted than uprooted, but the problem of maintenance remains.

Relevance Hedges, walls and ponds can be attractive landscape features of the countryside, sometimes being of historical importance. They provide a valuable habitat for wildlife; for example, ponds collectively support at least two-thirds of Britain’s freshwater plants and animal species. Hedges and walls continue to serve their original purpose of land demarcation and livestock control and can help reduce soil erosion.

Targets and goals The UK Biodiversity Action Plan target is to halt all loss of ancient and species-rich hedgerows and to achieve favourable conservation management of 50 per cent of such hedges by 2005.

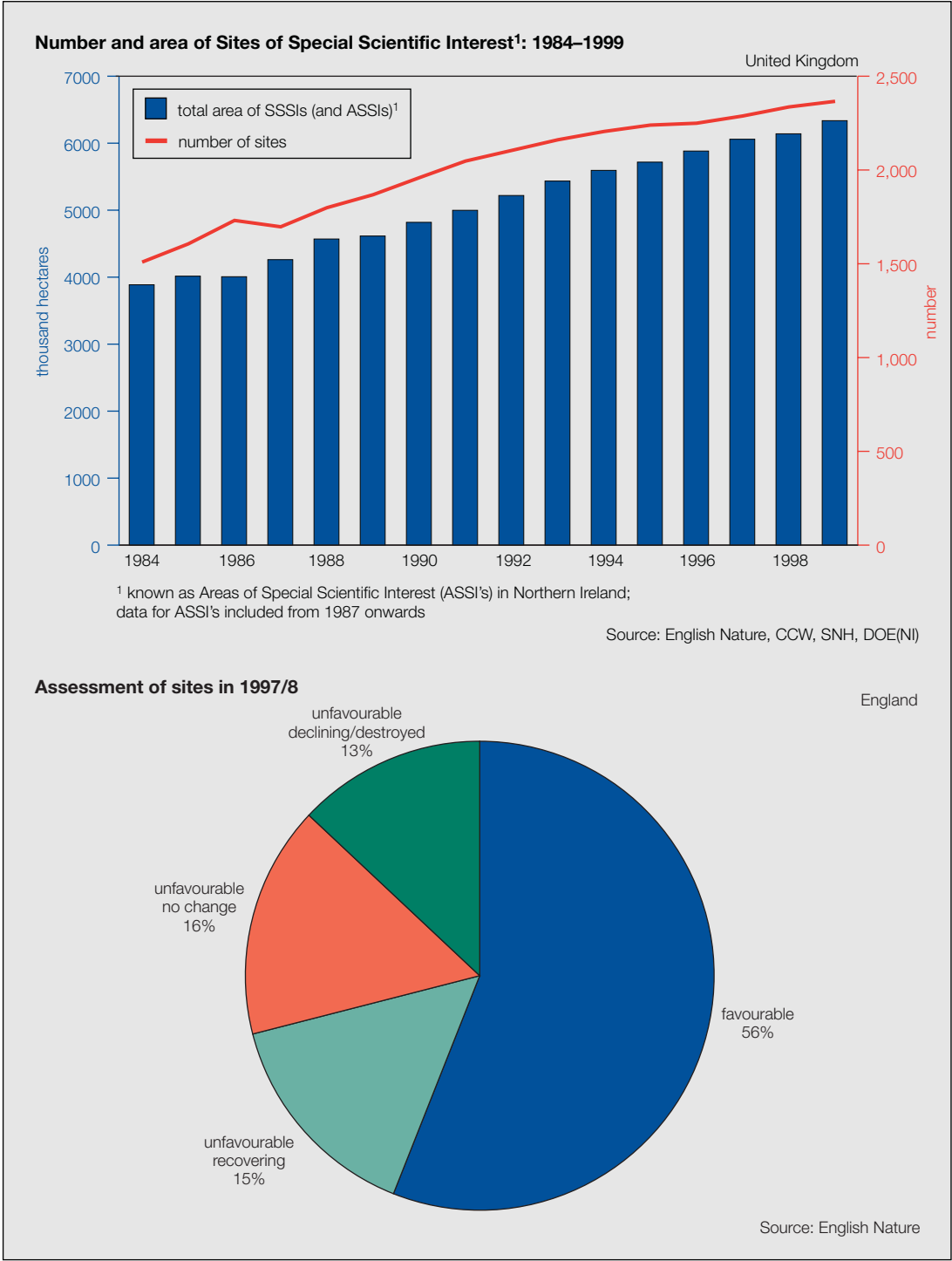
Trends Between 1984 and 1993 there has been a major decline in our hedgerows. In England and Wales, the length of managed hedgerows decreased by nearly a third in that period. In the latter part of the period, the decline had slowed with the rate of new planting of hedgerows exceeding the rate of outright removal between 1990 and 1993. The number of relict hedges increased rapidly after 1984. Walls have also been declining. The main cause of the decline in field boundaries is lack of appropriate management. Overall numbers of lowland ponds have declined slightly, losses being largely compensated by new ponds.

Background As farming has become more intensive, hedgerows in some areas have been removed in order to facilitate the efficient use of machinery. Hedges, walls and ponds have suffered due to the cost of their continued management and their lessening relevance to modern agriculture. In June 1997 government regulations came into force to protect *important* hedgerows in England and Wales.

Objective Strengthen protection for special sites

Indicator Extent and management of Sites of Special Scientific Interest

S6



Numbers and areas of SSSIs in the UK have increased substantially over the last two decades. New assessments were introduced for England in 1996. These assessments suggest that just over half of English sites were in a 'favourable' condition in 1997/98.

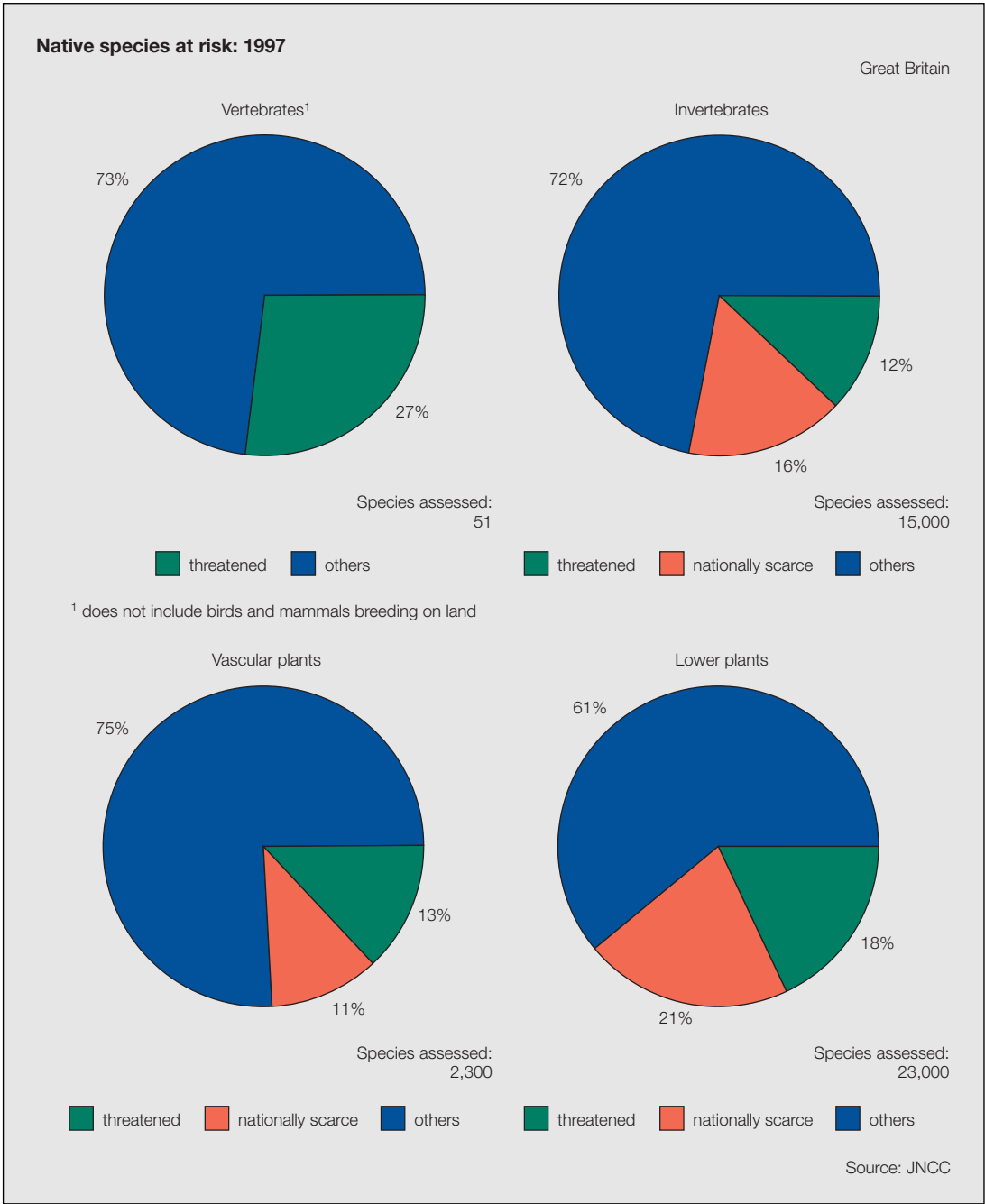
<i>Relevance</i>	Sites of Special Scientific Interest are selected according to the importance of their biological features (e.g. habitats or species) and /or their geological features (e.g. landform, mineralogy etc.). A site may contain more than one feature of interest. They represent the best examples of these features in the UK and are managed to conserve them.
<i>Trends</i>	The areas of land designated as being SSSIs in the UK have increased by more than a third over the last decade. Over the last three years, a new assessment of the condition of each feature on each site has been made, covering about half of all features/sites in England. The preliminary results show that just over half of features/sites are in a 'favourable' condition and a further 15 per cent are 'unfavourable improving'. No previous assessment of condition has been made so the trends are not known. An indicator based on these condition assessments will be developed and in future it will be the key indicator relating to SSSIs.
<i>Background</i>	Countryside in the UK has been massively changed in this century. Many natural areas have had their biodiversity diminished as a result of intensification of agriculture and afforestation; some other areas have been lost due to development. SSSIs provide a means of protecting and managing the best remaining sites, most of which are in private ownership.

Objective	Protecting the wider landscape	
Indicator	Countryside quality (to be developed)	S7
	<p>The countryside is appreciated for its character, tranquillity and cultural values. It is planned to develop an indicator which will reflect and monitor the quality of the countryside, but the factors contributing to countryside quality are difficult to measure. Further research is needed to develop a suitable indicator.</p>	
<i>Relevance</i>	<p>Some gradual change in the landscape is inevitable, reflecting developments in agriculture, forestry and rural development, but the change must be well-managed, and not occur at the expense of unacceptable change in the character of different areas and increasing disturbance from traffic.</p>	
<i>Background</i>	<p>There are a number of difficulties in establishing an indicator of countryside quality. The desirable direction of change for landscape features may vary from one character area to another. Public perception is not consistent, and may change with time and according to cultural influences. Change in countryside character is relatively slow and so unsuited to continuous monitoring.</p> <p>Some aspects of countryside quality, such as hedges, stone walls and ponds, and area of woodland, are already covered by other indicators. A number of possibilities for the development of this indicator are being explored, including measures of countryside character and traffic intrusion. A set of indicators is being developed in parallel for the forthcoming rural white paper.</p>	

Objective	Promoting public access and enjoyment of the landscape	
Indicator	Access to the countryside (to be developed)	S8
<i>Relevance</i>	The ability to access and explore open countryside plays an important role in people's quality of life, with the opportunity it gives for relaxation and exercise.	
<i>Background</i>	This indicator would seek to measure people's access to the countryside and their enjoyment of the landscape. It could cover barriers to visiting the countryside, ease of travel to the countryside, access to open countryside and other facilities, and enjoyment of their visit. Data are currently available on: <ul style="list-style-type: none">• Numbers of people visiting the countryside• Who goes to the countryside and what they do when they get there• Who does not go and why• Length of rights of way in accessible state (signposted, easy to follow, easy to use) Data may also become available in future on land open for people to visit.	

Objective Contextual indicator
Indicator Native species at risk

S9



Whilst many species native to GB are relatively common, over a quarter of fish, amphibians and reptiles which were assessed in 1997 are considered “threatened”. Between 10 and 20 per cent of invertebrates, vascular plants and lower order plants are threatened with a similar proportion nationally scarce.

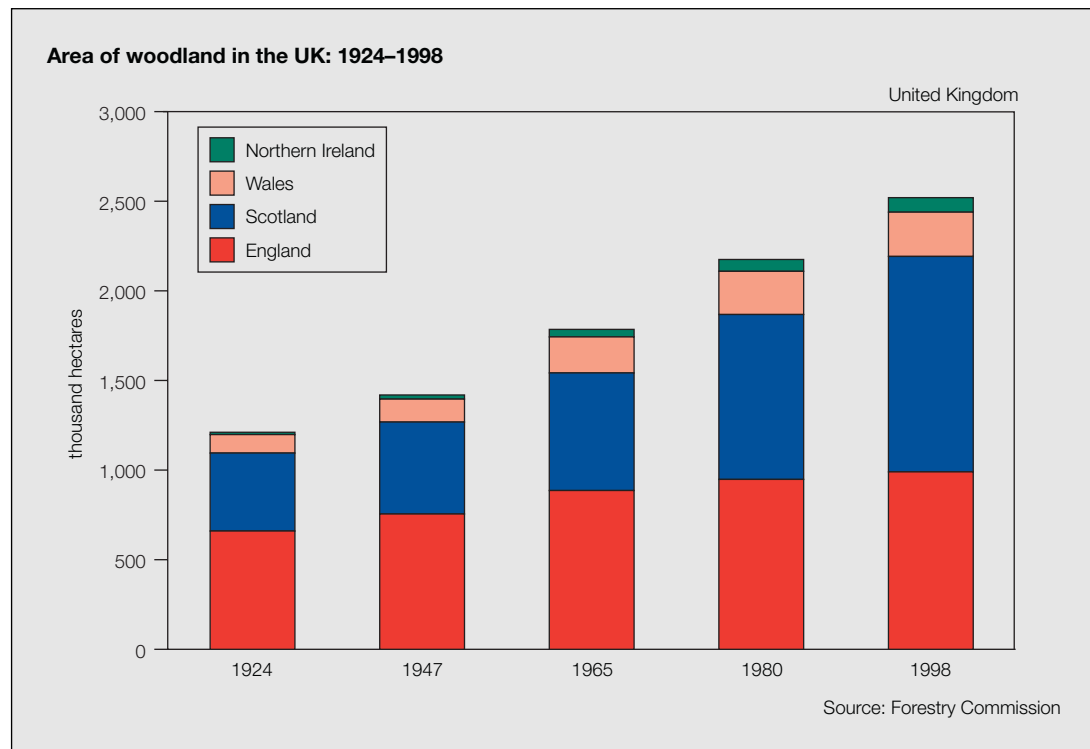
Relevance We value wildlife for its own sake and because it is an integral part of our surroundings and our quality of life. We therefore wish to conserve, as far as reasonably possible, the wide variety of our wildlife species and habitats in the UK for future generations.

<i>Trends</i>	<p>This indicator provides a broad-brush measure of the extent and status of biodiversity in GB. Comparable information is not available for the UK as a whole. It is not practical to produce meaningful trends because these proportions are significantly affected by changes in our scientific knowledge (eg. new surveys)</p>
<i>Background</i>	<p>Figures here have to be interpreted with caution. Some species will always be rare simply because the extent of their habitat is naturally very small or because GB is at the geographical limit of their natural range.</p> <p>Vertebrate species included in this indicator are freshwater fish, non-marine reptiles and amphibians. Comparable figures are not available for mammals and birds because their threat status is considered in the international rather than the national context. A large proportion of invertebrates, plants, and other organisms (eg parasitic animals, springtails, fungi, and micro-algae) have not been assessed and so are not included.</p> <p>Threatened and scarce species are used in evaluating the conservation importance of sites; their presence is one of the criteria used to select Sites and Areas of Special Scientific Interest (SSSI and ASSI).</p>

Objective Continuing expansion of UK woodland area

Indicator Area of woodland in the UK

S10



The area of woodland in the UK has increased in the 20th century, from around 5 per cent land cover to more than 10 per cent in 1998. In that year, woodlands covered 7.6 per cent of England, 15.6 per cent of Scotland, 12.0 per cent of Wales and 6.0 per cent of Northern Ireland.

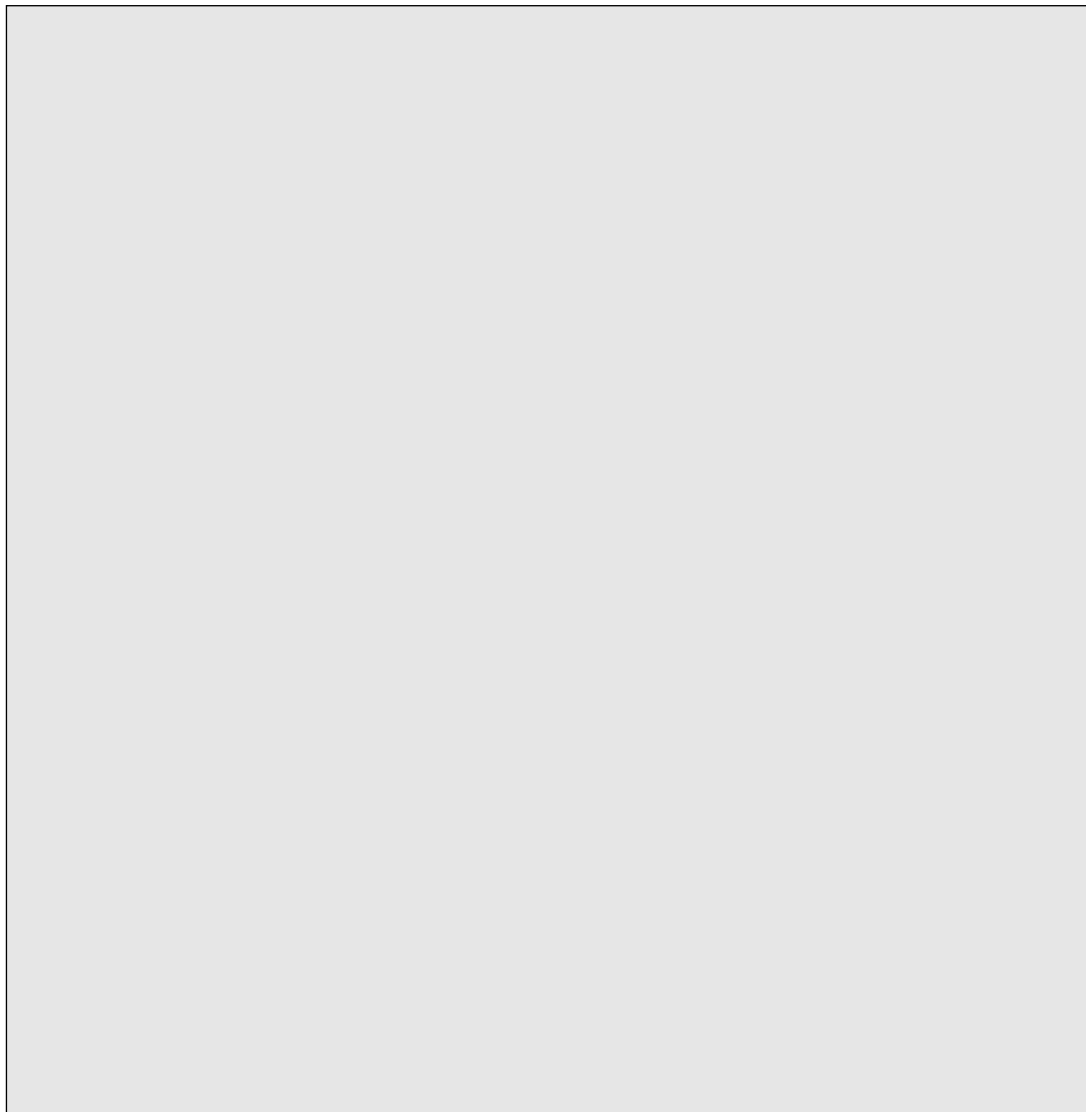
Relevance Forests and woodlands enhance our landscape and are habitats for wildlife. They are places for leisure and recreation and are an economic resource for timber production, tourism, and local development and regeneration. Plans for creating new woodland need to be sensitive to possible impacts on soil, water, wildlife, heritage features and other aspects of the woodland setting.

Trends Much of the increase in woodland areas this century came from new commercial conifer plantations in the 1950s to 1980s, especially in upland areas of Scotland, planted by the Forestry Commission and private owners. During the 1990s, 15-20 thousand hectares of new woodland have been created each year in the UK, mostly by private owners assisted by the Woodland Grant Scheme and other government grants, and the majority of new woodland creation is now broad-leaved woodland or native Caledonian pine.

Background Over the centuries, there was a gradual loss of forest cover in the UK, which fell to its lowest level of 5 per cent at the start of the 20th century. In 1998, the area of woodland had doubled from that low. The UK timber industry has been expanded and modernised over the last few decades, but still only about 15 percent of the UK consumption of timber and wood products is met from our own resources.

Objective Protecting and expanding ancient and semi-natural woodlands

Indicator Area of ancient semi-natural woodland in GB **S11**



The area of ancient semi-natural woodland in GB is now estimated to be 317,000 hectares, 13 per cent of the total area of woodlands, and 1.4 per cent of total land area.

Relevance Ancient semi-natural woodlands tend to be richer in plants and animals than other woodland areas, and are also important as a part of the historic landscape.

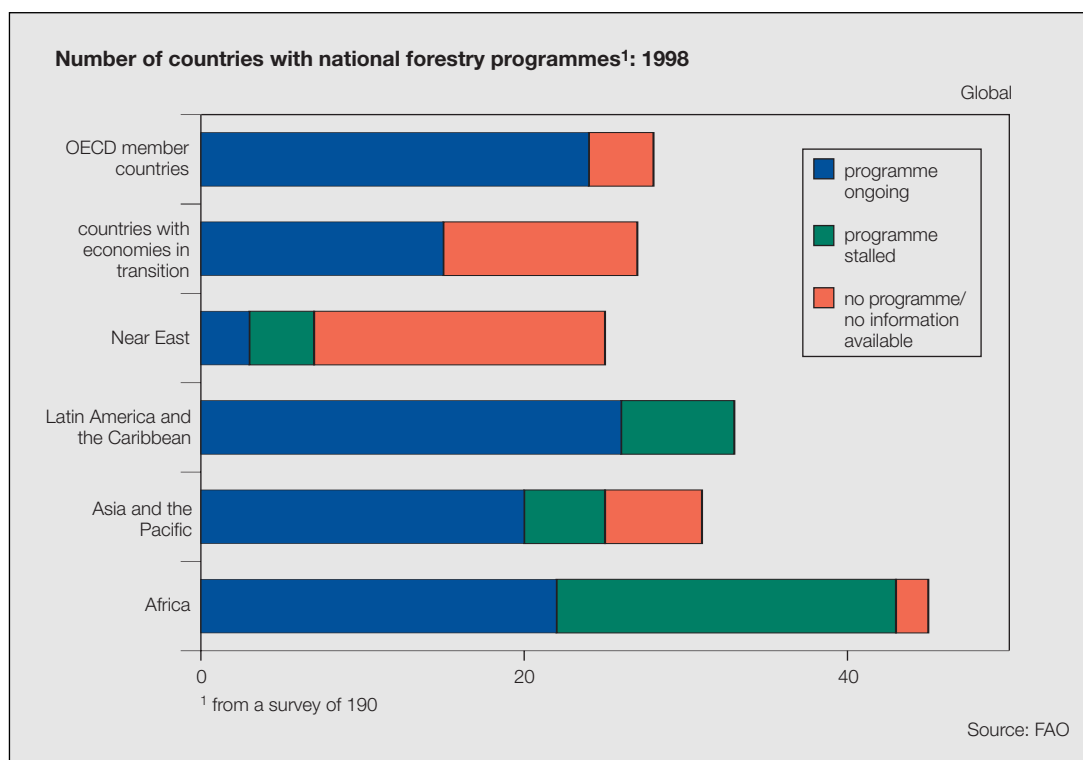
Trends The area of ancient semi-natural woodland has declined over the centuries, and the woodlands have become increasingly fragmented. About 38 per cent of the ancient semi-natural woodland area present in the 1930s was converted to plantations; some have retained native trees, shrubs and ground flora, and may be able to be restored to a semi-natural state. A further 7 per cent of the 1930s area was cleared for other land uses; depletion has now largely ended.

Background Ancient semi-natural woodlands are areas that have been continuously wooded since 1600 (since 1750 in Scotland) and consist of native species. The trees are normally established by natural regeneration, rather than planting by man. Areas are now highly fragmented; the greatest concentrations are in SE England, the southern Welsh borders and the central Scottish Highlands. About one quarter of ancient semi-natural woodlands is in nature conservation areas.

Objective	Better management of existing woodlands	
Indicator	Sustainable management of woodland (to be developed)	S12
<i>Relevance</i>	The 1998 UK Forestry Standard, published in January 1998, sets out the government's approach to sustainable forestry. Informed by wide-ranging consultation, the Standard expresses a vision for our woodlands. It is more than a document describing good practice; it contains criteria and indicators for sustainable forest management. These set out aspects to be assessed at Forest Management Unit (FMU) level and also sources of national-level indicators.	
<i>Trends</i>	When systems are in place for monitoring sustainable forest management at FMU level, it will be possible to compile comprehensive national measures to show the extent to which woodlands conform to the UK Forestry Standard.	
<i>Background</i>	The criteria and indicators for sustainable forest management cover forest soil condition, water quality, water yield, water discharge patterns, net carbon sequestration, air pollution, timber production, other production, nature conservation, workforce skills and safety, rural development, access and recreation, quality of life for local people, increased awareness and participation, community involvement, other land uses, conservation of heritage features and landscape quality.	

Objective Sustainable forestry management overseas

Indicator Number of countries with national forest programmes **S13**



Some three-quarters of countries surveyed currently have a national forest programme, but some of these have stalled and the others are at various stages of planning/implementation.

Relevance The UK works extensively with international organisations and developing countries to promote sustainable forestry, which recognises forests as a resource for those who depend on them, and the wider importance of forests for the world’s environment.

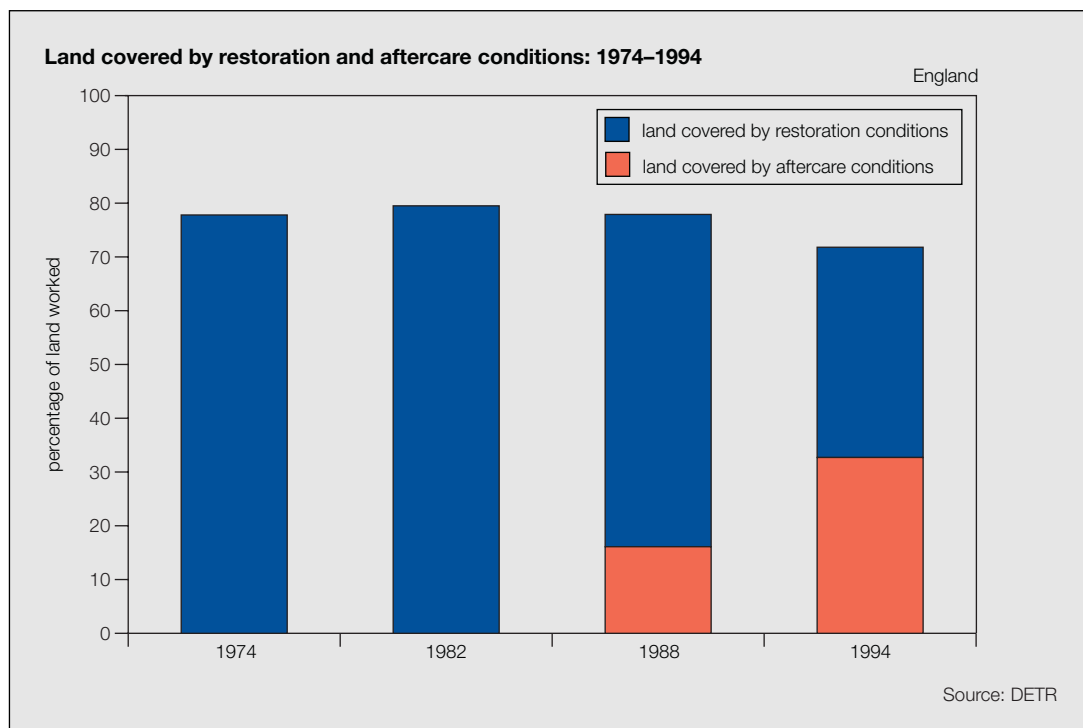
Trends FAO surveyed 190 countries in 1998, provisional results from which are shown above. 142 (75 per cent) of those surveyed had a ‘national forest programme’ which is a general term for a wide range of national approaches to the achievement of sustainable forest management, which has been adopted by the intergovernmental panel on forests. However, of these 142 national forest programmes, 25 per cent (36) have stalled and 13 per cent (19) are still in the planning phase.

Background The extent of forest cover will vary from country to country and over time reflecting the relative value of different land uses to different users and no universal target figure is appropriate. The UK works with partner countries to develop and implement national forest programmes, which help manage these conflicts and articulate negotiated, long-term approaches. FAO is currently considering how to enhance data collection and monitoring in this area.

Objective	Aim to maximise efficient use of materials and greater use of recycled and waste materials
Indicator	Amount of secondary/recycled aggregates used compared with virgin aggregates (to be developed) S14
	Data from 1989 show the use of secondary and recycled materials in place of primary aggregates stood at about 10 per cent of total aggregates supply. Information available suggests that more recently there has been a significant increase, particularly in the use of recycled construction and demolition waste.
<i>Relevance</i>	Natural resources should, as far as possible, be conserved. This can be achieved by maximising the opportunities for greater reuse and recycling at all stages of the construction process.
<i>Targets and goals</i>	Targets were set for England in Minerals Planning Guidance Note 6 (MPG6, 1994) for the use of 40 million tonnes per annum of recycled materials by 2001 and 55 million tonnes per annum by 2006.
<i>Background</i>	Aggregates are essential materials for the construction industry. In Great Britain, around 220 million tonnes of aggregates were quarried in 1998, largely sand, gravel and rock. Mineral, construction and demolition wastes and some industrial by-products (such as slags and ashes) can meet part of the demand for aggregates. Statistics on materials usage are relatively weak. However surveys of construction and demolition wastes and road planings are currently in progress. Results will be published in early 2000.

Objective All mineral working sites are restored to a standard suitable for a specific beneficial afteruse

Indicator Land covered by restoration and aftercare conditions **S15**



There has been a steady improvement in the quality of land reclamation in recent years, and since 1982, all new permissions for mineral working have included aftercare conditions. Legislation introduced in 1991 and 1995 requires the review and updating of all permissions to modern standards

Relevance It is necessary to balance society’s need for minerals that contribute to economic growth with the need to conserve resources and protect the environment. Minerals extraction may often impact on attractive countryside and modern best practice is to avoid or mitigate long term effects.

Trends Since the introduction of aftercare conditions in 1982 for Great Britain, a third of the permitted area in England is now covered. More recently, the Planning and Compensation Act 1991 and the Environment Act 1995 (both relating to Great Britain) introduced statutory requirements for mineral planning authorities to review and update old permissions, which will result in all sites having restoration and aftercare conditions. These reviews are ongoing. The apparent negative trend observed in the graph above, reflects a steady improvement in the accuracy of the data collected, and in the case of 1994, the inclusion in the survey, for the first time, of a large number of Interim Development Order sites. At the time of the survey these were in the process of being reviewed, but had not reached the stage of agreement on restoration and aftercare proposals.

Background For some types of workings, such as hard rock quarries, the same area of land may continue to be worked for many years. For others, such as sand and gravel, there can be quicker progressive working and restoration.