



**SCOTLAND'S  
TREES, WOODS  
AND FORESTS**



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# **SCOTLAND'S TREES, WOODS AND FORESTS**





This booklet is written for anyone and everyone with an interest in Scotland's trees, woods and forests. I very much hope young people will find it helpful in learning more about this fascinating aspect of Scottish life and land use. And I also hope that visitors to Scotland will enjoy it, and that it will help enrich their stay and encourage them to come back again.

Forestry is sometimes described as Scotland's 'hidden industry'. We see the trees as we drive around, but do not always appreciate that they support more than 10,000 jobs.

This booklet describes how our trees, woods and forests are also being managed to make a positive contribution to the environment. A place for wildlife – and also a place for people.

If you are inspired to go out into the woods for yourself, then I will be delighted. To find out more about what is going on in Scotland's trees, woods and forests, contact any of the offices shown on the last page.

A handwritten signature in black ink, consisting of the name 'Allan' followed by a stylized 'Wilson'.

Allan Wilson  
Deputy Minister for Environment and Rural Development



## CHAPTER 1 **SCOTLAND'S FORESTS**

“THE VISION IS THAT SCOTLAND WILL BE RENOWNED AS A LAND OF FINE TREES, WOODS AND FORESTS WHICH STRENGTHEN THE ECONOMY, WHICH ENRICH THE NATURAL ENVIRONMENT, AND WHICH PEOPLE ENJOY AND VALUE.”

SCOTTISH FORESTRY STRATEGY



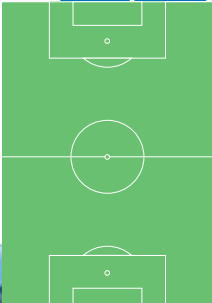


## TREES, WOODS AND FORESTS IN SCOTLAND

Take a look around you – Scotland is rich in trees, woods and forests. From Galloway Forest Park in the south to Weisdale in Shetland, from Tentsmuir Forest in Fife to the Atlantic oakwoods of the west coast, trees form a part of Scotland's living landscapes.

We have nearly two billion trees growing across more than 1.3 million hectares - that's around 17 per cent of Scotland's total land area or one in every six hectares.

This makes Scotland the most wooded country in Britain, and our trees account for almost half of all Britain's woods and forests. Yet this is still very small compared to other countries. Worldwide, more than a quarter of the land is forest and in the European Union more than one third of all land is covered in trees. The amount of tree cover in Scotland is still growing as, every year, we plant about 10,000 hectares of new woodland, as well as replanting where trees have been harvested.



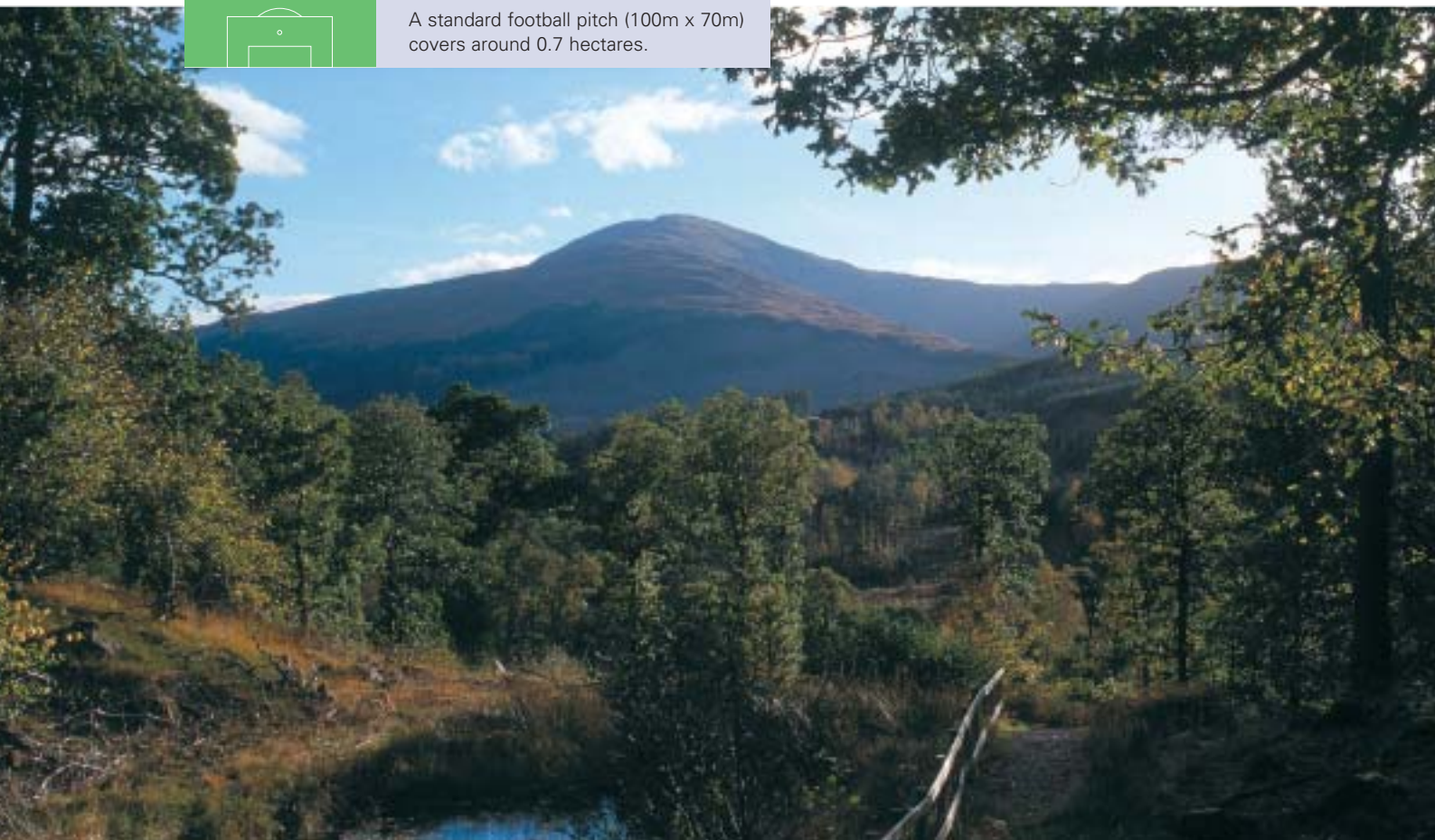
**DID YOU KNOW?**

Scotland has enough trees to cover nearly

# 2 million football pitches

- that would be one pitch for every household in the country.

A standard football pitch (100m x 70m) covers around 0.7 hectares.



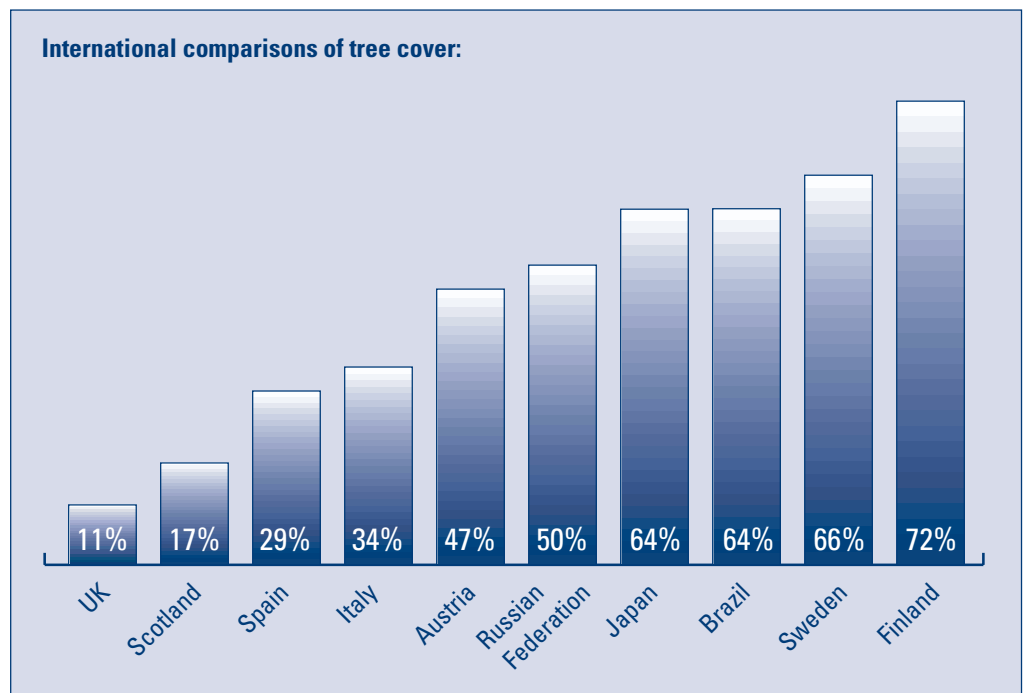
Fortunately, in many parts of Scotland, the climate is excellent for growing trees. That, and the efforts of many landowners during the past 400 years, has given Scotland a rich diversity in its forests and woodlands from the oakwoods on Loch Lomond-side to the Caledonian Pinewoods of Speyside and the agricultural shelterbelts of the lowlands.

About 36 per cent of all of Scotland's woods and forests - around 478,000 hectares - are publicly owned, and are looked after by the Forestry Commission on behalf of the people of Scotland. These are Scotland's national forests.

Private landowners (including farmers and crofters), communities, local councils, and voluntary organisations such as the National Trust for Scotland, the Woodland Trust and The Royal Society for the Protection of Birds own the other 64 per cent of Scotland's woods:

- up to 20,000 private owners own more than 1 hectare
- about 5,000 own more than ten hectares; and
- about 1,000 own more than 100 hectares

Only about ten per cent of our forests are natural; that's only two per cent of our land area. Most of our forests have been planted relatively recently and consist mainly of conifers - spruce, pine, larch and fir - that grow fast in Scotland's mild and wet climate.

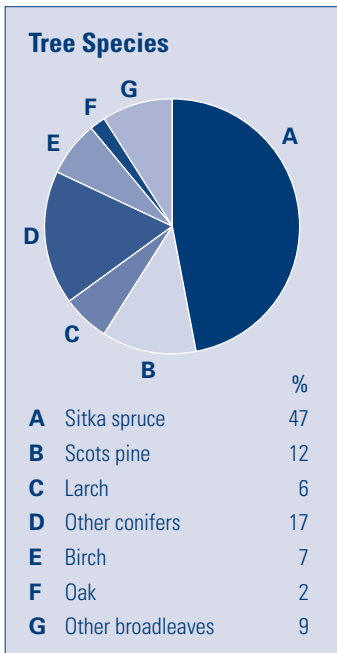






### Safe Havens

Our woods are havens for wildlife, including many protected species. In recent years, we have been able to support and secure the populations of a number of species under siege: ospreys by constructing artificial eyries in trees, barn owls by placing appropriate boxes in the right locations, and even black throated divers by constructing artificial islands. And freedom from pollution means that you can find hundreds of types of flowers, lichen, mosses and fungi among the trees.



Conifers make up 82 per cent of our trees and produce 'softwood' for construction timber, paper and other wood products, while broadleaves, such as oak, ash and birch, account for the remainder. Our broadleaved woods are valued primarily for their conservation and landscape value, although (properly managed) they can produce valuable hardwood timber for flooring, furniture and construction.





## FOREST HERITAGE

It was only about 10,000 years ago that Scotland's trees, plants and animals started returning as the Ice Age came to an end and the ice sheets that covered the country retreated. Much of Scotland at that time would probably have been wooded, with the only permanent open areas being the high mountain tops, lochs and bogs.

Today, there are still descendants of those woods in the birch, oak and pine woods in the Highlands.

But from the earliest times, people have found many uses for trees and have managed forests to meet their needs. They also removed trees to convert the land for farming.

The effects of people, combined with changes in our climate, meant our once plentiful forest resource gradually disappeared and, by the 1500s, the great woodlands had all but gone.

People still cut down trees today, but now we replant them so we can develop forests that will be around for generations to come.



**'Wood', 'woodland' and 'forest' usually means land that is at least 20 per cent covered by growing trees. All these words are commonly used, but 'forest' is used to describe a large area of land covered with trees.**

## 6000 BC

Scotland's first settlers arrived about 8,000 years ago and cut down trees for wood to build shelters, to make weapons and tools, and for use as fuel.

## 1000 BC

Bronze Age farmers cleared trees to plant crops and graze their animals.

## 400 - 1000

Viking invaders chose the finest trees from forests along much of our coasts to repair and build boats. They were superb craftsmen and travelled widely to find the right trees.



## 800 BC - AD 400

Iron Age people burned charcoal, from wood, in their furnaces to make metal tools, pots and pans.



**The Vikings used wooden nails made from yew trees to pin together the hull planks on their boats.**

## 1000 - 1500

In the Middle Ages, trees were cut down to make hunting forests in Highland glens and in the Lowland valleys. Flocks of sheep – some of them introduced to the country by the big Abbeys - grazed on the Border hills, eating seedlings and preventing regrowth of the woods. There were still large forests in the Highlands, and birch wood was an important part of the economy. By the 1500s we were already importing wood from the Baltic.



## 1500 - 1700

In 1503, the Scottish Parliament passed an act to encourage tree planting, saying the forests of Scotland were 'utterlie destroyit'. Landowners planted woods to enhance the grounds around their great homes: The Old Wood at Dalkeith House, Midlothian, the Cadzow oaks by Chatelherault Country Park, near Hamilton and the sessile oaks at Darnaway Estate, in Moray are fine examples. They include veteran trees, which can be many hundreds of years old, and are homes to particularly rich collections of plants and animals as well as fungi and lichens.





## 1700 - 1900

After the Industrial Revolution, the oakwoods in Argyll were harvested to provide bark for tanning leather and charcoal for the iron industry.



From around the 18th century, landowners began to improve traditional farming practices. They planted trees to create shelterbelts to protect their livestock. They also planted trees to create attractive parkland and 'policy woods' around their homes. Between 1750 and 1850 some 200,000 hectares were planted in Scotland.

In the Highlands, landowners were planting the first trees in some of the forests we still enjoy today. A wave of planting began at Craigvinean, near Dunkeld, in 1759. Today, along a five-mile stretch of the River Tay there are more than five million trees. Meanwhile, in the north east, some of today's finest designed landscapes can still be found in the woodlands, shelterbelts and planned villages of Aberdeenshire.

Elsewhere, in Speyside, for example, some of the remaining native pine forests were being felled to build ships.



The great Scottish botanists and plant-hunters - including Archibald Menzies and David Douglas - travelled the world bringing many new species back to Scotland, including trees that are commercially important to forest industries today.

The Napoleonic Wars (which ended in 1815) restricted wood imports, and demand for home-grown wood reached a peak. A new market developed in the 1850s with the expansion of the railway network, when wood was needed for railway sleepers, buildings and bridges.



**In 1792, Archibald Menzies, from Aberfeldy, Perthshire, became the first European to find a new species of fir tree (on Vancouver Island, British Columbia). The tree's scientific name is *Pseudotsuga menziesii*, but its seed was brought back to Scotland by David Douglas and the tree is known today as the Douglas fir. Some of the original trees planted by Douglas in the 1820s are still growing, at Scone and Lynedoch, in Perthshire and Dawyck, near Peebles. It was also on this north west American coast that Douglas found the Sitka spruce, which he immediately identified as an excellent tree that would grow rapidly in Scotland's climate and soil type.**

By 1900, our tree cover was down to only five per cent of Scotland. Scottish forestry had fallen into decline, due mainly to increased exploitation of timber in other parts of the world, the removal of the timber import duty and the transfer of land to new owners more interested in its 'sporting' qualities.

# 1900 until now

The First World War (1914-18) also restricted imports and many of our woods were cleared to meet the needs of the war effort. The Forestry Commission was set up in 1919 to build up a new strategic reserve of timber so that Britain would never again be so heavily dependent on imports.

But the pressure on our woodlands increased when even larger areas of woodland were cleared during the Second World War. After the war, the Forestry Commission bought large areas of land for tree planting and gave grants to private landowners to plant trees to rebuild our forests. Since 1947, Scotland's tree cover has nearly trebled.

**Increases in woodland area**

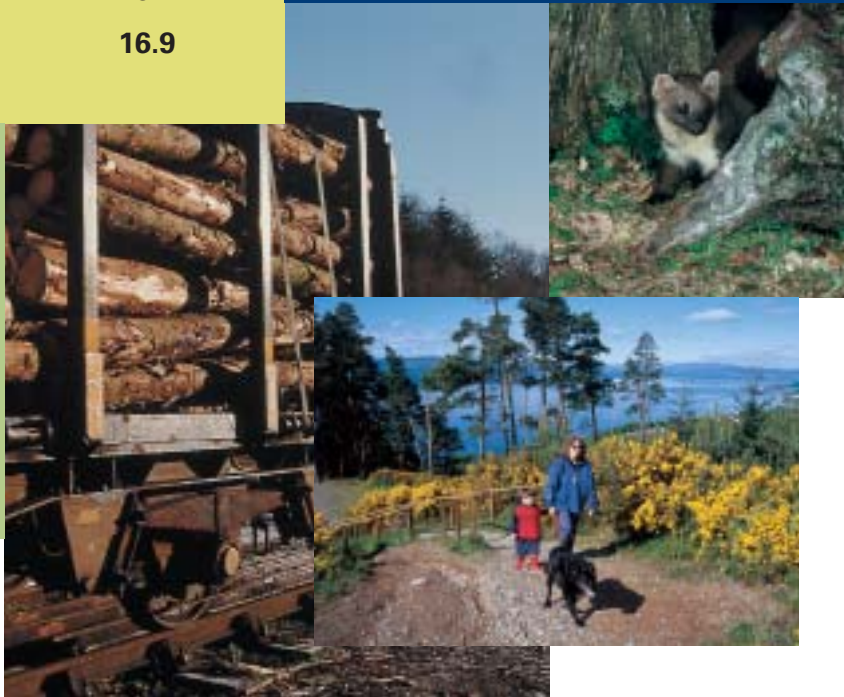
	'000s hectares	% land area
<b>1947</b>	<b>513</b>	<b>6.6</b>
<b>1965</b>	<b>656</b>	<b>8.4</b>
<b>1980</b>	<b>920</b>	<b>11.8</b>
<b>1995</b>	<b>1,282</b>	<b>16.4</b>
<b>2000</b>	<b>1,318</b>	<b>16.9</b>

## Forests for Scotland

In 2000, the Scottish Executive published *Forests for Scotland: The Scottish Forestry Strategy* to take sustainable forestry forward through the 21st century. The Strategy set out five strategic directions for Scottish forestry:

- to maximise the value to the Scottish economy of the wood that will be available for harvesting during the next 20 years;
- to create a diverse, high quality forest resource that will contribute to the economic needs of Scotland into the 21st century;
- to ensure that forestry in Scotland makes a positive contribution to the environment;
- to create opportunities for more people to enjoy trees, woods and forests in Scotland; and
- to help communities benefit from woods and forests.

Nowadays, the priorities have changed from simply producing wood to providing wider multiple benefits from our forests: strengthening the economy, benefiting the environment and providing forests for people.







CHAPTER 2 **FORESTS FOR PEOPLE**

“HIGH-QUALITY TREES, WOODS AND FORESTS CAN HELP MAKE SCOTLAND A BETTER PLACE FOR PEOPLE TO LIVE AND WORK IN AND TO VISIT.”  
SCOTTISH FORESTRY STRATEGY



### Day visits to woodlands in Scotland



Communities across Scotland are showing how they benefit from trees, woods and forests in many different ways:

- nearly two million of us visit a wood or forest every year;
- about 10,000 people work in forestry or in the wood processing and associated industries; and
- many more communities across Scotland are taking a bigger part in planning and managing their woods. More than 100 community groups own or manage woodlands.

### RECREATION

Although nearly half of us visit a wood every year, there is plenty of space to allow everyone to experience the quiet and calm of the forest.

When you arrive, you can choose from a wide range of activities - picnics under the trees and gentle strolls along all-ability trails, strenuous climbs to the top of mountain peaks, horse riding and some of the country's most exhilarating mountain bike rides.



**THERE ARE 361 FOREST WALKS, 110 PICNIC SITES, 94 CYCLE TRAILS, 55 HORSE RIDING ROUTES, 14 ORIENTEERING COURSES, 9 VISITOR CENTRES, 7 WILDLIFE HIDES, 3 FOREST CLASSROOMS, 2 PLAY AREAS, 5 FOREST DRIVES AS WELL AS ALL THE COUNTLESS OPPORTUNITIES TO ENJOY THE PEACE AND QUIET, OR THE FOREST JUST AS YOU LIKE IT, IN THE LAND MANAGED BY THE FORESTRY COMMISSION.**





## RECREATION FOR ALL

Forestry Commission grants help private landowners put in similar facilities in their forests.

A network of paths is developing across Scotland, not only within woods and forests, but also out onto the open hills, giving people access to many different areas and landscapes. There is also a national cycle route (Sustrans) being developed to offer the same opportunities to cyclists.

Whatever your reason for visiting a wood or forest, there are probably other benefits you may not have thought of:

- walking a mile can be as healthy as running a mile: what better place to do it than in the clean air of the forest; and
- everyone appreciates art in one form or another and the forest is a great place to see forms of art you may not see elsewhere. Tyrebagger, near Aberdeen, for instance has the largest collection of woodland sculptures in Scotland.



The Forestry Commission's website ([www.forestry.gov.uk](http://www.forestry.gov.uk)) provides nearly 1,200 pages of up-to-date information about where to go and enjoy yourself in Scotland's forests.



## Tree Trunk

The Tree Trunk is an educational resource developed by the Forestry Commission in partnership with Central Scotland Countryside Trust and Scottish Natural Heritage to support the 5-14, Standard Grade, Higher and Higher Still curricula in Scotland.

Teachers can search the Tree Trunk Online for books, posters, videos, sound tapes and leaflets to help in school studies. It also includes details of forest events and a link to the Forestry Commission's learning pages.

Visit Tree Trunk Online at [www.forestry.gov.uk/treetrunk](http://www.forestry.gov.uk/treetrunk)

## EDUCATION

Woods and forests are living classrooms for people of all ages and provide ideal settings for people to learn, and explore for themselves, whether they are interested in art or zoology:

- the Forest Education Initiative encourages children to find out about forests, and to visit local woods and sawmills to see some of the uses of wood;
- forest rangers share their knowledge and enthusiasm on guided walks through the woods, and through activities which help to make people

aware of the links between trees and the products they use in their everyday lives; and

- Scotland's universities and colleges carry out research and provide teaching to help develop new skills for forestry, and using wood today and into the future.



**The Central Scotland Forest covers 620 square miles between Glasgow in the west, Edinburgh in the east, Falkirk in the north and Lesmahagow in the south. One of the main areas of expansion within the forest is in repairing landscapes damaged by former industries, such as mining.**







## COMMUNITIES

Different communities across Scotland benefit from the woods and forests in a number of ways:

- people are planting trees and creating woods around towns and villages for everyone to enjoy;
- people who want it are having a major say in decisions about the management of local forests that affect their lives; and
- in remoter communities, crofters and other local people are planting trees to shelter livestock and are helping manage native woodlands to improve wildlife habitats and provide sustainable local jobs. For example, crofting communities in Ardnamurchan on the west coast of Scotland are working with the Forestry Commission and the Crofters' Commission to increase the value of the Sunart oakwoods as well as attracting visitors into a beautiful part of Scotland.



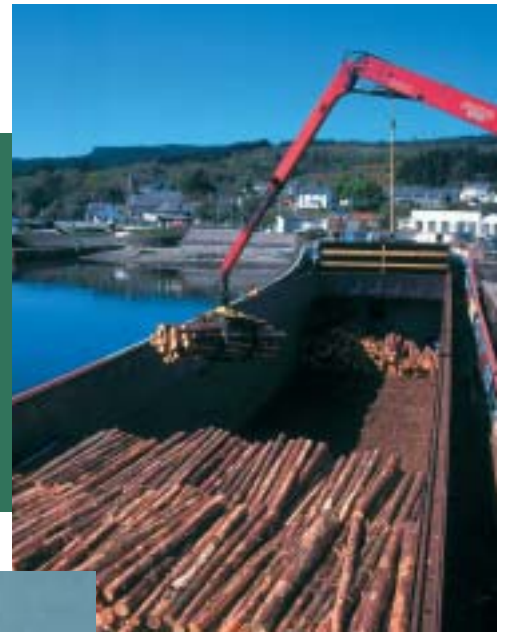
## Community involvement

Community groups and local business people are working with the Forestry Commission, Falkirk Council and other organisations to develop historic Callendar Wood, on the outskirts of the town, into a community woodland, which meets the needs of the people using it. Callendar Wood is just one small part of the developing Central Scotland Forest.



## Taking timber off the road

Local authorities, the forest industries, owners, government and its agencies are all working together to explore new ways of moving wood from forests to processing plants. Already, 300,000 tonnes of wood a year are moved by rail and sea, taking heavy traffic off local roads. This represents about six per cent of all timber traffic.



## Millennium Forest for Scotland

The Millennium Forest is a network of more than 80 woodland projects across Scotland, from the Shetlands in the north, to the Cree Valley in the south, from Stornoway in the Western Isles to Arbroath in the east. Each project is being developed by a partnership of local people, community groups, environmental charities, local authorities and government bodies. Significant funding came from the Millennium Lottery fund, and from the Forestry Commission.



An advisory panel on Forestry for People works with the Forestry Commission to maximise the benefits forests can bring to communities, especially in remote and rural areas. This Panel has representatives from a wide range of backgrounds across Scotland. It aims to increase community involvement in forestry, identify areas of potential benefit, and to develop and share best practice across the country.

## Craigmillar Castle Park

The park is owned by Edinburgh City Council. An area of 25 hectares was planted during the 1990's, using money from the Millennium Forest and the Woodland Grant Scheme. More recently, Mrs Mary Scott (of Liberton, Edinburgh) left a legacy to the Forestry Commission and some of this money will be used to improve the management of the mature woodlands in the park.





## CHAPTER 3 **FORESTS FOR THE ENVIRONMENT**

SCOTLAND'S NATIVE WOODLANDS, PRIOR TO THE LAST ICE AGE, WERE PART OF THE GREAT FORESTS THAT SPANNED NORTHERN EUROPE AND RUSSIA. AS THE ICE RETREATED, TREES RETURNED TO COLONISE THE LAND FORMING COMMUNITIES, ISOLATED BY THE SEA, THAT ARE TODAY VITAL CONSERVATION AREAS FOR OUR PLANTS AND ANIMALS.







### NATIVE WOODLANDS

Our native tree species - trees that are natural to this country - can be seen and enjoyed, right across Scotland:

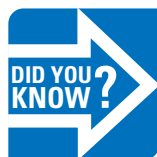
- Scots pine and birch in places like Glen Affric and Glen More in Inverness-shire, and the Black Wood of Rannoch in Perthshire;
- Oak, hazel and rowan in places like the Atlantic oakwoods of Argyll, the Fleet Woodlands in Dumfries and Galloway and Dalkeith Old Wood in Midlothian; and
- Alder, birch or willow on wet and sometimes inaccessible ground, like the Mound alderwood in Sutherland.

Common trees in Scotland include Scots pine, oak, ash, hazel, holly, birch, rowan, willow, alder, aspen, gean (wild cherry), wych elm, hawthorn and juniper.



These native woodlands are home to a rich variety of flowering plants, lichens, mosses and fungi, animals such as the red squirrel, rare birds such as the Scottish crossbill and insects such as butterflies, beetles and dragonflies.

For thousands of years, people have cut down large areas of native woodlands for building, and to clear land for agriculture. Faster growing North American conifers were planted in many of the new forests of the 20th century to help to meet Britain's need for wood and replenish stocks diminished by the two world wars.



**It would be wrong to think of any of our woodlands being entirely natural as man has had an influence for thousands of years. Even in woods such as the remnants of the Caledonian Pinewoods man has altered the natural selection process and these woods can be better described as semi-natural. Any woods more than 250 years old can also be described as being ancient.**



In recent years, the Forestry Commission has been doing much more to protect and conserve the biodiversity of Caledonian pinewoods, Highland birchwoods and Atlantic oakwoods. Some trees in these woods may already be 500 years old and the youngest trees may be as old as 100 years.

During the 1990s, some 50,000 hectares of new native woodland were created in Scotland. Now there are more than 150,000 hectares of native woodland - mostly in the Highlands - that are important for conservation and as Sites of Special Scientific Interest (SSSIs).



To help children learn the Gaelic alphabet, each letter is associated with a tree or plant: **A** is ailm (elm), **B** is beith (birch), **C** is coll (hazel), **D** is dair (oak), **E** is eadha (aspen), **F** is Fearn (alder), **G** is Gort (ivy), **H** is uath (hawthorn), **I** and **U** is iogh (yew), **L** is luis (rowan), **M** is muin (vine), **N** is nuin (ash), **O** is oir (gorse), **R** is ruis (elder), **S** is suil (willow) and **T** is teine (furze).



### Targets for restoration and expansion of native woodland

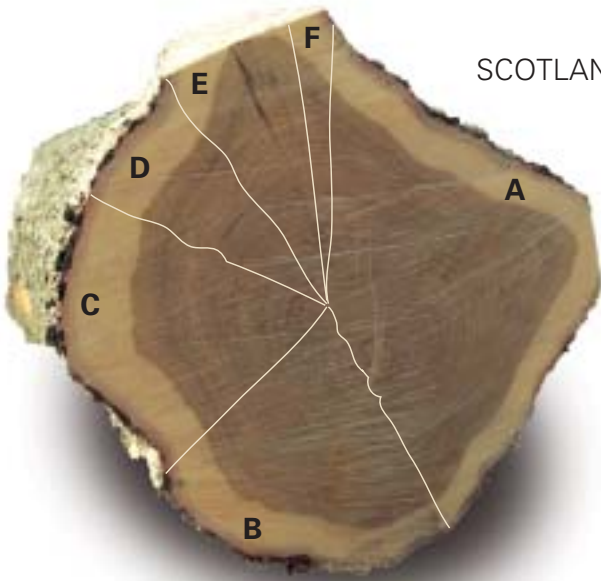
Habitat	Hectares	Completion date
Upland oak	6,000	2005
Native pine	36,000	2005
Wood pasture and parkland	150	2010
Upland mixed ash	2,800	2015
Wet woods	3,800	2015

### Planting native species

In the 1970s and 1980s, conifers accounted for all but two per cent of new planting in Scotland. Today, more than two thirds of new planting is native Caledonian pine and broadleaves, such as oak, ash, birch and willow. These trees enhance the landscape, as well as providing important wildlife habitats.

This work is being carried out by Forest Enterprise in Scotland's national forests, and is being encouraged by special grants for other landowners.

SCOTLAND'S NATIVE WOODLANDS



Native woodland types	%
A Upland birchwoods	42
B Upland oakwoods	20
C Native pinewoods	20
D Upland mixed ashwoods	8
E Wet woodlands	8
F Lowland mixed broadleaved woods	2

**Upland birchwoods**

comprise mainly downy birch in the mild, wet and windy north-west Highlands and silver birch in the colder central and eastern Highlands.



**Upland oakwoods**

are extensive on the west coast, from Galloway in the south to Sutherland in the north, but they are found all over Scotland. Bluebells and mosses grow under the trees in the west of Scotland and wood anemones in the colder, drier woods in the east.

**Native pinewoods**

are mainly Scots pine and are restricted to the Highlands. These pinewoods are often mixed with birch, juniper and rowan.



**Upland mixed ashwoods**

are usually found in gullies and on fertile damp ground where they often form part of larger broadleaved woods. There are large upland mixed ashwoods at Rassal, in Wester Ross and Tokavaig, in Skye.

**Wet woodlands**

are mainly alder, birch or willow growing as small woods along river valleys and around bogs and mires across Scotland.



**Lowland mixed broadleaved woods**

are mostly of native oak along with ash and sometimes wych elm. Silver birch, rowan and hazel often grow in the underwood.





## Glen Affric

Glen Affric National Nature Reserve, near Cannich, Inverness-shire, is the largest of the Forestry Commission's Caledonian Forest Reserves. The 9,000-hectare reserve includes native pinewoods with birch, alder, aspen, holly, juniper, rowan and willow. In some areas non-native conifers planted in the past are being cut out from among the native trees. Local seedlings are used in new planting.

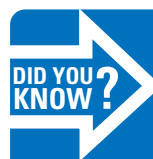
### HABITATS

Planting trees that were introduced to Scotland from other countries - such as conifers from North America - has created woods and forests that now serve as a habitat for many plants and animals. Sitka spruce, for example, is sometimes used by capercaillie.

As these trees are harvested a wider mix of trees is being planted, further increasing the rich variety of plants and animals that live there. Similarly, new techniques, which provide alternatives to clear felling, will help protect species and their habitats.

- Rare and internationally important woodland species - such as the Pearl-bordered Fritillary butterfly, twinflower, Scottish wood ant, aspen hoverfly and capercaillie - are priorities for conservation in Scotland.
- Advice on planting and harvesting trees (and other activities) in woods and forests is given in a series of environmental guidelines published by the Forestry Commission. These help ensure that forest management meets the UK Forestry Standard and safeguards protected species and habitats.

Forest habitat networks are important because they can link areas of woodland to form wildlife corridors, for example along burns and rivers.



**Scotland has its own rainforests to protect. Tainish Oakwood in Argyll is a 300 hectare temperate rainforest that flourishes in the clean humid air of the west coast. Its vegetation is rich and varied. But one species in particular – rhododendron, an exotic species introduced to Scotland – has to be removed as it threatens to overwhelm the native vegetation.**





## WATER, AIR AND SOIL

To help look after our environment, foresters must also protect the quality of the water, air and soil.

Burns, rivers and lochs are a precious natural resource. They provide us with the water we drink, excellent watersports and electricity. They are also home to important species such as the Atlantic salmon and the freshwater pearl mussel.

Good forest design improves water quality and prevents erosion of stream and river banks. This benefits both the water and woodland wildlife that use these areas.

The leaves and needles of trees help purify the air by capturing pollutants from it, including acid gases from vehicle exhausts, power station chimneys and industry. But these acidic pollutants can be washed into burns and rivers causing damage to fish and other freshwater life, especially if drainage systems are badly designed. In some sensitive areas (identified in the Forest and Water Guidelines) the soil is unable to cope with the extra acidity and special steps are taken to avoid new planting and to clear trees away from the banks of rivers and burns.

Planting woods in areas where there are flood problems can be helpful, with flood plain woodland harmlessly holding the excess water until the flooding subsides.





In the past, there was a landowner who used the **shadows of clouds** on the hillside as a way of deciding the shape for planting his woods!

## LANDSCAPE

Scotland is celebrated throughout the world for its scenery. The popular image may be of a glistening loch framed by rolling heather-covered hills and snowy peaks.

The reality is richer still as our landscapes range from gently rolling farmland of the south and east to the open and barren drama of wild rocky hills in the north and west. And in between, are the cities, towns and villages that are home to most people in Scotland.

In many parts of Scotland, woods and trees are an important part of the landscape; not just in the countryside but also in and around towns and cities. Lowland landscapes are made more attractive by hedgerows, field boundary trees and small woods. Trees helped to give the City of Glasgow its name, which means the 'dear green place'.

Our landscapes have been shaped by people; without their actions Scotland would be a more enclosed landscape dominated by forests. We do, however, have a rich inheritance thanks to enlightened landowners planting woodlands with many species and giving us landscapes which can form rich tapestries of colours and texture.



## Archaeology

**Evidence of Scotland's past, including burial monuments, Roman forts, abandoned townships and Second World War defences can be found in our woods and forests. Foresters are working with Historic Scotland and other organisations to safeguard this heritage.**



## Climate change

Change of this kind concerns everyone. Trees, woods and forests make an important contribution in absorbing carbon dioxide, one of the 'greenhouse gases', storing the carbon in stems and the soil, and at the same time producing oxygen. When we harvest a tree, we plant replacement trees to continue absorbing carbon dioxide, so ensuring no net contribution to 'greenhouse' gases.

During the 20th century, entire new forests were established, many of which can soon be felled for timber and replanted. Already, many forests are being reshaped to blend more naturally with the landscape and their previously uniform colour and texture is being enlivened with broadleaved planting and open spaces. In this way, they too are being actively managed to increase their variety and to contribute to the beauty of Scotland's landscape.

Foresters, advised by landscape architects, are now working in partnership with local councils and communities to design new woodlands for new purposes. They are changing the shape and structure of existing woods and forests to reflect the distinctive character and diversity of Scotland's landscapes.



Forests planted since 1990 will absorb about **0.4 million tonnes** of carbon a year by 2010.





## CHAPTER 4 **FORESTS FOR THE ECONOMY**

SCOTLAND'S TREES, WOODS AND FORESTS PROVIDE THE RAW MATERIALS FOR THE COUNTRY'S WOOD-PROCESSING INDUSTRY. TAKEN TOGETHER WITH IMPORTED TIMBER, THIS CONTRIBUTES £1.3 BILLION A YEAR TO THE SCOTTISH ECONOMY.





### WORKING FORESTS

Today, Britain imports more than 80 per cent of the wood it needs; four out of every five tonnes. It is Britain's fourth biggest import at an annual cost of £6 billion.

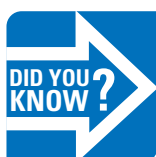
Scotland's working forests produce nearly five million tonnes of wood a year. Given that everyone uses around one tonne of wood a year, it

means, in broad terms, Scotland produces (sustainably) enough wood to be self-sufficient. It doesn't quite work like that, however, as we import and export wood products. Before it leaves the forest, the timber that is harvested from Scotland's forests is worth around £100 million. After processing, it is worth much more.

Wood production in Scotland will almost double in the next 20 years as forests planted during the past 30 years mature. It is also expected that demand will grow by only around a half in the same period. This may allow us to increase our timber exports, to the rest of the UK and other countries.



**More than half a million hectares** of Scottish woods and forests have been certified by the Forest Stewardship Council (FSC) which is a scheme approved by the World Wildlife Fund (WWF) to identify sustainably managed woodlands. Wood coming from these forests can carry the FSC label, often seen in D.I.Y. stores on sustainably produced wood products. Forestry Commission woodlands certified – 478,000 hectares; private woodlands certified – 94,000 hectares.



**More than 95 per cent** of all wood harvested is softwood, from conifers such as spruce, pine, larch and fir.

Wood from broadleaved trees, such as well grown oak and quality ash, sycamore and birch, can sell at premium prices. The trees take longer to grow and new market opportunities need to be developed along with increased production facilities if we are to realise their full potential.



## wood.for good

Wood is renewable and can be recycled, and 'wood.for good', the largest single timber promotion in the UK, aims to develop new markets for wood in the UK. The promotion is encouraging people to use more wood for furniture and building.

For details, visit [www.woodforgood.com](http://www.woodforgood.com)



**Increase in wood production 1999 - 2000**

	000's of cubic metres (standing)
1999	5,200
2000	5,700
2002 - 2006	6,200
2007 - 2011	7,900
2012 - 2016	9,100
2017 - 2020	10,100

Forestry in Scotland also creates much-needed jobs in remote and rural areas, where there are often limited opportunities for work. Forestry and wood processing provide the equivalent of 10,700 full-time jobs.

Managing forests for wood production provides a wide range of technical and managerial jobs in planting, managing and harvesting trees.



**Employment in forestry and associated industries:**

(source: Forest Employment Survey 1998-99)

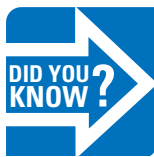
	full-time equivalents
<b>Forestry Commission</b>	<b>2,011</b>
<b>Private woodland owners</b>	<b>3,196</b>
<b>Forestry companies and contractors</b>	<b>2,223</b>
<b>Wood processing industries</b>	<b>2,917</b>
<b>Other employers</b>	<b>347</b>
<b>Total</b>	<b>10,694</b>

Forest workers today need higher levels of skill to operate the sophisticated modern machinery used in planting and harvesting trees. Scottish Vocational Qualifications (SVQs) provide nationally recognised qualifications aimed at encouraging lifelong learning and career development.

Forest craftspeople, supervisors and contractors can gain higher qualifications from Further Education colleges. And there is a Modern Apprenticeship scheme in Scotland to attract young people into forestry. Forest managers usually have a diploma or degree in forestry. After

university, foresters refine their skills by planning and controlling forest operations and preparing forest design, planting and felling plans before becoming managers.

There are also qualifications in traditional building crafts including the use of wood, designing and landscaping.



**There is increasing scope for using Scottish hardwood in high-quality furniture production, flooring, joinery and craftwork. This could create new opportunities for small-scale businesses in rural Scotland**

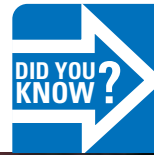
Scotland has a world-class forest industries' workbase and, in the past five years, the industry has invested more than £100 million in new processing capacity in Scotland's 85 sawmills, 3 wood panel mills and 1 pulp and paper mill.

**Employment in the forest by activity:**

	full-time equivalents
<b>Forest Nurseries</b>	<b>201</b>
<b>Establishment</b>	<b>1,189</b>
<b>Maintenance</b>	<b>1,304</b>
<b>Harvesting</b>	<b>1,947</b>
<b>Road construction</b>	<b>179</b>
<b>Other forest jobs</b>	<b>372</b>
<b>Total</b>	<b>5,192</b>







## Scotland's 10 largest sawmills buy more than half of the logs

harvested in Scotland for use in the construction industry, and for pallet and fencing materials.



Experts forecast that the increase in wood production in the next 15 years should create opportunities for future investment totalling £1.5 billion in new sawmills, wood-based panel production, pulp and paper manufacturing, and electricity generation.

The Scottish Forest Industries Cluster is a partnership of the forest industries and Scottish Enterprise. Its Strategy, 'Roots for Growth', sets targets for the next five years, to:

- create more than 1,000 new jobs;
- stimulate an extra £100 million investment in processing; and
- increase market share from nine to 15 per cent.

### WOOD IS FOR EVERY DAY

Wood and wood products are all around us. Wood is used in building houses, and making furniture, fences and toys. Paper is used in books, magazines and packaging.

Wood is a part of our daily lives.

### Employment in the forest industries by activity:

	full-time equivalents
Processing	3,083
Haulage	593
Other non-forest	1,826
<b>Total</b>	<b>5,502</b>



Small logs (roundwood) from thinnings and from the tops of trees that are too small for sawing, are mostly sold to mills making wood-based panels or to pulp and paper mills. These processes also make use of chips and sawdust (co-products) from other mills.

**PRODUCTS OF THE FOREST: HOUSE FRAMES, SKIRTING, WINDOW FRAMES, WORKTOPS, CABINETS, BEDS, TABLES, CHAIRS, STAIRS, DOORS, WARDROBES, SOFA FRAMES, FIRE SURROUNDS, WALLPAPER, FENCES, GARDEN FURNITURE, SHEDS, DECKING, WINE RACKS, SHELVES, BANISTERS, DESKS, TOILET SEATS, PICTURE FRAMES, DADO RAILS, CONSERVATORY FRAMES, UTENSILS, TOOLS, CLOCKS, CHARCOAL, CEREAL PACKETS, PAPER, CARDBOARD, BOXES, NEWSPAPERS, MAGAZINES, WRAPPING PAPER, BOATS, TRAILERS, CARAVANS, CAR DASHBOARDS, BRIDGES, PLAY FURNITURE, CARRIAGES, TOBOGGANS, HOCKEY STICKS, SHINTY STICKS, GUITARS, VIOLINS, PIANOS, ART MATERIALS, DYES, SCULPTURES, TOYS, BEER, WINES, SPIRITS, BERRIES, FRUIT, NUTS, HERBS, VENISON, MUSHROOMS, TAXANES, ORIGINAL ASPIRIN, HERBAL MEDICINES, WOODFUEL (TO NAME BUT A FEW).**







More than **5,000 medicines** have been **made from trees**. An early painkiller was made from a chemical called salicin, which is found in several species of willow. The synthetic version of salicin is the main ingredient for aspirin. Now yew trees are being used to develop chemicals called taxanes, which are treating some cancers.



Every aspect of life is affected by a forest product. From the houses we live in to the sports we play, from our food and drink to our love of music. Some have been shown here but there are many more besides.

Wood is being seen as the building material for the 21st century. It has a natural warmth and, in terms of the environment, uses little energy to produce compared with other building materials.

The next time you sit down to a meal, or fire up the barbecue, stop, take a look around and count everything made of wood. Even the clothes you are wearing may be made from wood fibre since new fabrics, as soft as silk, have been developed from wood and are being used by some of the best designers.



**Woods and forests are a valuable attraction** for Scotland's tourism industry. They are an important part of our landscape often used in adverts to attract people to visit Scotland and also provide beautiful places to visit during their stay.







## CHAPTER 5 **SCOTLAND'S REMARKABLE TREES**

TREES IN A WOOD CAN BE AS VARIED AS FLOWERS IN A GARDEN. ALTHOUGH THERE MAY BE AS MANY AS 1,000 DIFFERENT SPECIES OF TREE GROWING IN ARBORETA, GARDENS AND FORESTS ACROSS SCOTLAND, MOST OF OUR WOODLANDS INCLUDE A SELECTION FROM JUST 30 COMMON SPECIES.



Scotland has many famous and notable trees...

- The Fortingall Yew, in Perthshire, is reckoned to be the oldest living thing in Europe and estimated to be between 3,000 - 5,000 years old. All that survives of a tree once measured as 56 feet in girth (1769) are two remnants, enclosed within a stone wall (built in 1795 to deter souvenir hunters). Legend has it that Pontius Pilate was born in Fortingall and played under the yew's branches as a child.
- There is a rivalry over which is the tallest tree in Scotland. A Douglas fir on the forest walk near The Hermitage in Craigvinean Forest, Dunkeld (Perthshire) measures 212ft (64m). But a recent survey by the Tree Register has confirmed that a Douglas fir in Reelig Glen Wood, Moniach (Inverness-shire) and another Douglas fir at Dunans in Argyll are slightly taller. These are also the tallest trees in Britain.
- The Beech Hedge at Meikleour, Perthshire, is possibly the tallest hedge in the world, reaching 120ft (more than 41m)
- The Birnam Oak, in Perthshire, is said to be the surviving remnant of Birnam Wood, immortalised by Shakespeare in Macbeth.
- The Capon Oak, just south of Jedburgh, has a vast trunk of 32 feet in diameter. A survivor of the Jedburgh Forest, its name is thought to come from the Capuchin Order of monks who used to shelter under its canopy on route to Jedburgh Abbey.





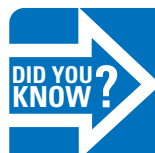








- The Newbattle Abbey Sycamore is the oldest known sycamore in Scotland. Planted in 1550, this tree has grown into a 85 feet high, 18 feet in girth handsome tree, gracing the frontage of Newbattle Abbey near Dalkeith.
- The Hirsel Sycamore. This huge sycamore – 92 feet high and 21 feet in girth – was reputedly planted to commemorate those who perished at the Battle of Flodden. It is a superb specimen with a typically billowing crown, and stands in a country park near the Borders town of Coldstream.
- The Act of Union Beech trees cling on for dear life on the windswept slopes of North Berwick Law. They were planted to commemorate the Act of Union between the Scots and English Parliaments in 1707.
- Queen Mary's Thorn was planted by Mary, Queen of Scots, around 1563 in the quadrant of St Mary's College, St Andrews. This old hawthorn proves trees don't have to be huge to be veterans, and continues to provide a link with one of Scotland's most famous historical figures.
- The Great Yew of Ormiston, in East Lothian, is where John Knox is said to have preached his early sermons in the 16th century. This superb yew has a central trunk of 22 feet girth that stands in the middle of an open central cavern formed by an ever-spreading outer ring of foliage.
- The King of the Forest is a majestic Scots pine in Muirward Wood near Scone. It has the largest girth ever recorded for this species (20 feet) and stands 102 feet high.
- The Glen Lyon Ash can be found midway up this beautiful Perthshire glen. Ash trees are not noted for their longevity, but this tree is the exception. Thought to be 400 – 500 years old, this ash was once more than 100 feet high. It has recently been cut back to produce new growth, which should see it survive for another century or two.
- The Cadzow Oaks on the southern outskirts of Hamilton form one of the finest examples of mediaeval deer parks in Scotland. The 300 or so survivors are thought to have been planted by King David I in the middle of the 12th century and are among the oldest broadleaved trees in Scotland.



The Younger Botanic Garden, Benmore, Argyll, includes tree species from the **Himalayas** in its Bhutan Glade.

In some of the older forests you may see signs of coppicing and pollarding (where trees are cut back to encourage multiple stems) at ground level or part way up the trunk, respectively.

- The King Tree is one of the biggest sweet chestnuts in Scotland. This tree is probably 450 years old and now stands in the middle of a housing estate in the Stirlingshire town of Denny.
- The Parent Larch, which stands close to Dunkeld Cathedral, is the sole survivor of five trees planted by the 2nd Duke of Athol in 1738. It is one of the earliest European larches introduced to Scotland and gets its name from the fact it provided an early source of seed for future planting.
- The Mightiest Conifer in Europe is the name given to a 250 year old, contorted silver fir in Ardkinglas Garden, Argyll.







## CHAPTER 6 **FINDING OUT MORE**

RESPONSIBILITY FOR FORESTRY WAS DEVOLVED IN 1999 AND THE FORESTRY COMMISSION IS ANSWERABLE TO THE SCOTTISH EXECUTIVE AND SCOTTISH PARLIAMENT FOR ITS ACTIVITIES IN SCOTLAND. DETAILS OF THE FORESTRY COMMISSION'S ACTIVITIES IN SCOTLAND CAN BE FOUND IN ITS ANNUAL REPORT AND ACCOUNTS.



The Forestry Commission's National Office for Scotland acts as the Scottish Executive's forestry department, providing policy advice on forestry to Scottish Ministers and the Scottish Parliament. In addition, the National Office, along with six conservancies, covering Highlands, Grampian, the Perth area, Strathclyde, South West Scotland and Lothian & Borders, makes grants to other woodland owners and regulates forestry practice.

The Forestry Commission is also responsible for managing Scotland's national forests. This work is done by Forest Enterprise, an agency of the Forestry Commission, which has an office in Edinburgh. It also has two Territorial offices, in Inverness and Dumfries and 15 District offices covering the areas Dornoch, Inverness, Moray, Fort Augustus, Buchan, Lochaber, Kincardine, Tay, Lorne, West Argyll, Cowal & Trossachs, Scottish Lowlands, Galloway, Ae and the Scottish Borders.

To find out more about Scotland's trees, woods and forests, the Forestry Commission or Forest Enterprise, or to find details of interesting places to go and things to do, phone 0845 FORESTS (that's 3673787) or log on to the Forestry Commission's website ([www.forestry.gov.uk](http://www.forestry.gov.uk)).





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## **SEMINARS AND PUBLICATIONS**

Browse our website ([www.forestry.gov.uk](http://www.forestry.gov.uk)) for details of seminars on forestry issues and a searchable database of current publications

## **RELATED ORGANISATIONS**

**Forest Industries Development Council**  
0131 220 9290  
mail@fidc.org.uk  
www.fidc.org.uk

**Royal Botanic Garden Edinburgh**  
0131 552 7171  
info@rbge.org.uk  
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**Scottish Forest Industries Cluster**  
0131 220 9290  
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**Scottish Natural Heritage**  
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**Scottish Wildlife Trust**  
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