Timber and forestry products

Our forests and woodlands provide a range of benefits, such as wood for construction and fuel, removing CO2 from the atmosphere, rural employment and a space for recreation.

Summary

Key messages

- In 2013 18% of Scotland was covered by woodland, compared with 11.8% in 1980 and 5.6% in 1924.
- 76% of the woodland area is made up of coniferous species and 24% by broadleaved species.
- The timber harvest in 2013 was 7.1 million green tonnes. This was about 64% of the total UK timber harvest for 2013.
- The Gross Value Added (GVA) of the forest industries in Scotland including forest-related tourism is £670 million, supporting 31,000 jobs, mostly in rural areas.
- Forest-related tourism alone contributes £209 million to Scotland's economy and sustains 17,900 full time equivalent jobs.
- Over 9 million visits are made to the national forest estate each year.
- In 2013, 57% of Scotland's woodland area was independently certified as sustainably managed, accounting for over 80% of all timber production.

State and trend

A summarised assessment of the state and trend has not been made for this topic.

Please read the topic for more information; if you have any questions about Scotland's timber and forestry products please feel free to contact us using the comment button above.

Overview

Woodlands and forests deliver many benefits to Scotland. Some of these flow directly into the economy whilst others have an indirect positive impact. Sometimes the benefit is a product which can be taken away from the forest, (like timber), while in other instances the benefit is enjoyed in the forest, like a day spent on a tree-top high wire course or an hour spent dog walking.

Timber is the most obvious direct benefit from woodlands but others include forest based recreation, wild food, and hosting renewable energy installations such as wind turbines.

Scotland's forests play a vital part in the efforts to remove CO_2 from the atmosphere and slow down climate change. They also underpin our value-added forest industries and the fast developing wood fuel sector.

The Gross Value Added (GVA) of the forest industries in Scotland including forest-related tourism is £670 million, supporting 31,000 jobs, mostly in rural areas, where jobs are particularly needed.

As well as contributing obvious economic benefits, Scotland's forests are valued as part of the landscape and help to define the unique sense of place which makes Scotland popular as a visitor destination. The capacity to absorb visitor activities such as mountain biking and horse riding, and at the same time nurture wildlife, makes forests and woodlands a very special asset.

Even though there are excellent conditions for growing trees, Scotland has, for historical reasons, significantly less woodland than many other countries in the world. By the beginning of the 20th century, woodland in Scotland had declined to only 4.5% of the land area. The mid-20th century was a period of rapid replacement of forest cover, initially using fast growing conifer species but from the 1990s onwards a wider diversity of woodland types were planted. The woodland area continues to expand in the 21st century but at a modest pace.

Forestry Commission Scotland (FCS) manages around one-third of the total forest resource (which is referred to as the national forest estate), on behalf of the Scottish Government. The remaining two-thirds is owned mainly by businesses and investment funds. Not-for-profit organisations, community groups and public sector bodies also own significant areas of forest.

State

Large areas of woodland were planted in the 20th century and these now provide millions of tonnes of timber to industry each year. Finding places to plant new forests has become more difficult and producing timber is just one of the management objectives.

Current rates of woodland planting are low compared with the mid 1970's when there were fewer constraints on changing land use to forests. Now there are more intense competing pressures on land, and the tensions between natural heritage conservation and alternative land uses have to be resolved satisfactorily before woodland creation can be approved.

Figure 1 shows how the annual rate of woodland planting has changed since the 1970s.

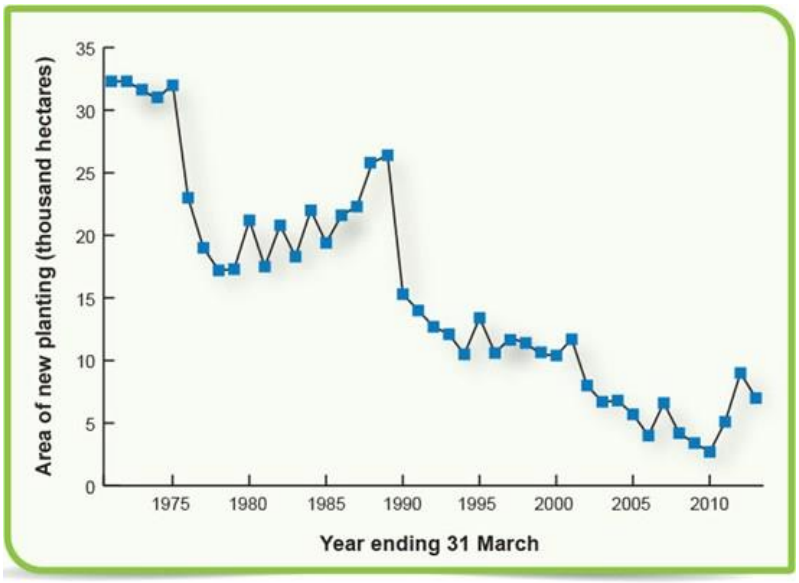

Figure 1: New woodland planting 1971 to 2013

Source: Forestry Statistics 2013

Characteristics of the forest resource

In 2013, woodland in Scotland covered 18% (1.4 million ha) of the total land area, compared with 5.6% in 1924 and 11.8% in 1980.

The current distribution of Scotland's woodland can be seen in Figure 2.

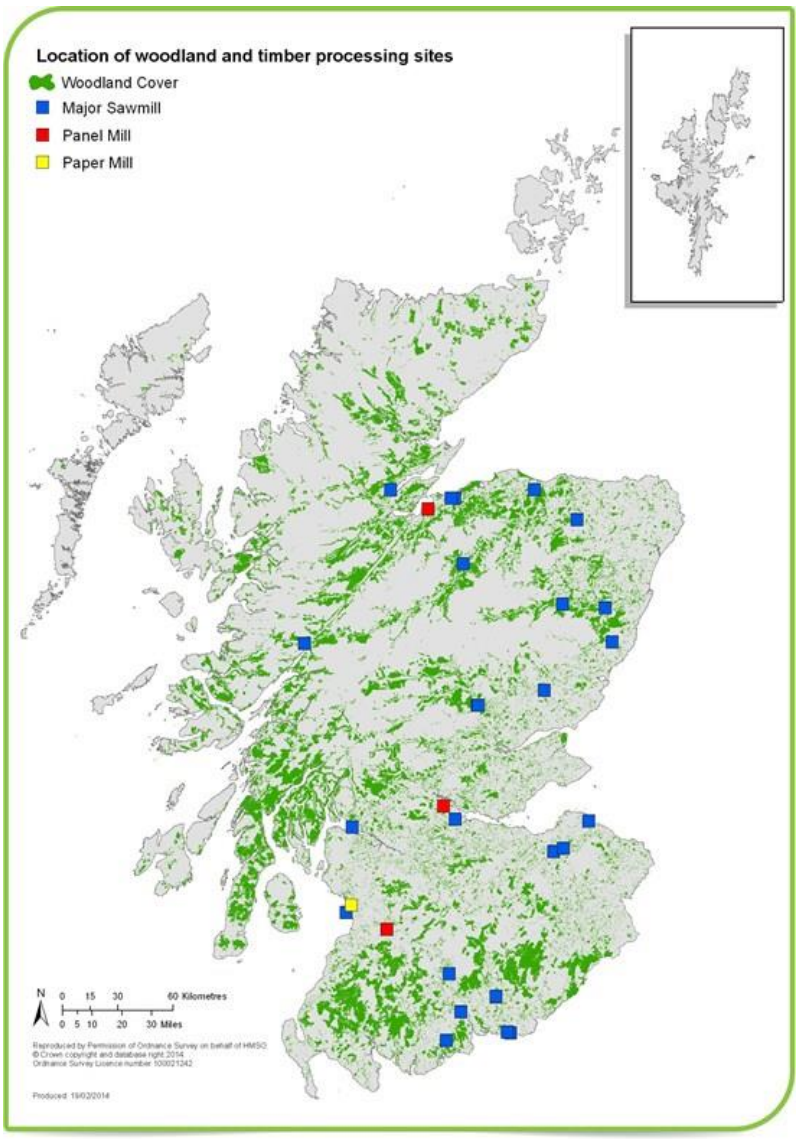

Figure 2: Woodland cover in Scotland and location of timber processing plants

It is estimated that 76% of the woodland area is made up of coniferous species and 24% by broadleaved species. Data from the National Forest Inventory estimates that Sitka spruce makes up 58% of the conifer area with Scots pine following as the second most common at 19% of the conifer area. The most common broadleaved species was birch which accounted for around 45% of the total broadleaved area.

Timber harvest

Scotland's forests provide large volumes of wood fibre for timber processing industries. The timber harvest in 2013 is provisionally estimated to be 7.1 million tonnes (fresh timber weight). This compared with a harvest of 1.9 million tonnes in 1990 and 4.3 million tonnes in 2000 and was about 64% of the total UK timber harvest for 2013.

The National Forest Inventory has quantified the forest softwood resource and the potential availability of softwood fibre over the next 25 years.

Table 1: UK 25-Year forecast of softwood timber availability

Total softwood	England	Wales	Scotland	Northern Ireland	Total UK
2012 - 2016	3,489	1,752	8,363	605	14,209
2017 - 2021	3,810	2,004	9,485	594	15,892
2022 - 2026	3,561	1,901	11,213	554	17,230
2027 - 2031	3,877	1,507	12,436	563	18,384
2032 - 2036	3,621	1,717	11,143	502	16,983

Potential timber availability is expected to continue to increase until around 2031, mainly as a result of increased availability of softwood from forests planted in the 1970s and 1980s. Potential timber availability is likely to be less than the future timber harvest because of access, cost and owner preference issues. A 50 year forecast of potential timber availability will be published by the Forestry Commission in 2014.

Contribution to the timber processing sector

Scotland's forest resource sustains a modern and expanding timber-processing industry. In 2011 there were 65 sawmills (of which 27 produced more than 10,000 m^3 of sawn wood per year), three wood panel mills and one pulp and paper mill primarily using Scottish grown wood fibre. The locations of these processing plants are shown in Figure 2.

In 2012, 1.7 million m^3 of sawn softwood was produced by sawmills in Scotland. The three main markets for Scottish sawn timber are construction, pallets and packaging, and fencing and outdoor products.

The combined annual production of the three wood panel mills is in excess of 1 million m^3 of panels. Scottish-produced wood panels are widely used in construction, interiors and furniture and a significant volume of panels are exported.

Contribution to the wood fuel sector

Scotland has a rapidly developing wood fuel sector. Wood fuel is a renewable form of energy but because the forest area is limited, care has to be taken to use it effectively.

Wood fuel use in Scotland has increased five fold from a relatively low base in 2004, to around 1.5 million tonnes in 2012. Around one-third of this is recycled or waste wood. Additionally, Scotland's five wood-pellet manufacturing plants used over 300,000 green tonnes of wood in 2012.

There are now over 500 plants in the industrial, commercial and public sectors using biomass for energy generation in Scotland. The vast majority are relatively small scale biomass heat only plants although the largest biomass plants use most of the wood fuel. The continued increase in wood fuel demand has been underpinned by the government's Renewable Heat Incentive for these sectors. A similar incentive for households is due to be launched later in 2014.

Contribution to other renewable energy generation

Scotland's forests already host a number renewable energy projects such as wind farms and hydro power installations. These include one of the largest wind farms in Europe at Whitelee Forest in Lanarkshire. There is likely to be an increase in the number of renewable energy projects sited in forests over the next decade.

Carbon sequestration

In 2011, it was estimated that the trees in Scotland's woodlands stored a total of 9.1 million tonnes CO_2 equivalent which is about 0.8 million tonnes more than in 1990. Although carbon sequestration by woodland has increased since 1990, it is important to note that this peaked around 2004. This is because the annual rate of new woodland planting declined from the 1990s onwards and as the trees planted in the 1970s and 1980s become older they store carbon at a slower rate.

Contribution to tourism and recreation

Forest tourism contributes £209 million to Scotland's economy and sustains 17,900 full time equivalent jobs. Over 9 million visits are made to the National Forest Estate each year, providing benefits both to visitors and the local economy, for example over £9 million is being spent annually by 400,000 visitors to the 7 stanes mountain bike trails in South Scotland.

Pressures affecting timber and forest resource

Scotland's forest resource is under pressure from human activity and from pests, diseases and a changing climate. If pressures are not effectively managed then the amount, and quality, of available forest products could decline.

There are a number of pressures on the quantity and quality of the forest resource and, at the same time, consuming forest products can impact on Scotland's wider environment.

Woodland loss

In the last 15 years a significant area of woodland has been lost as a consequence of making improvements in the visual appearance of forest edges, restoring priority habitats, and building windfarms. It is estimated that woodland removal due to windfarm development and habitat restoration in the period 2001–2011 was around 16,000 ha.

Windfarm development is a particular pressure because the upland areas, on which many forests were planted, are also good sites for generating wind energy. Until recently, windfarm developers have insisted on removing all of the trees close to turbines to eliminate potential risks connected with turbine performance. However, it is now accepted that turbines and trees can co-exist in much closer proximity, with appropriate engineering design. This pressure on woodland area is decreasing.

Pests and diseases

Scotland's forest products resource is under threat from pests and diseases, which have the potential to kill trees, slow down their growth or down grade timber quality. Climate change and the expansion of international trade (which can easily introduce pest species) are likely to increase the pressure on woodland in the UK by tree pests and diseases.

Two of the most significant concerns at the moment are *Phytophthora ramorum on larches* and *Dothistroma* (red band needle blight) on pines, which have the potential to cause significant economic damage to Scotland's forest resource.

Climate change

The key climate change trends expected for Scotland are warmer, drier summers and milder, wetter autumns and winters. We can also expect to see an increase in summer heat waves, extreme temperatures and drought as well as increased frequency and intensity of extreme precipitation events and reduced occurrence of frost and snowfall. These changes are likely to affect tree growth and the wider forest resource, for example by reducing the vigour of spruce growing in eastern parts of Scotland, through more frequent flood damage on paths and tracks, or by producing more forage for deer which in turn have greater breeding success.

Increased demand for timber products

International trends in the use of timber and wood fibre will have an impact on demand for Scotland's forest products. As economies expand, and contract, around the world the demand for forest products is expected to fluctuate but with a trend towards increased consumption. Scotland's part in satisfying future global demand will be constrained by the size of our available sustainable annual harvest. Although Scotland has a significant timber processing sector and forestry resource, the UK as a whole was the third largest net importer of forest products in the world in 2011, behind China and Japan.

The UK Government's ambitions for large-scale biomass electricity generation are based on importing significant volumes of wood fuel from other parts of the world due to the relatively small size of the UK wood fibre resource. It is important that the demand for wood fuel from Scotland's forests is matched to the supply potential and the existing timber processing industries continue to be able to source raw materials.

What is being done

There is strong demand for Scottish timber which comes from sustainably managed forests. Legislation, research and government funding are all helping to ensure our forest products harvest is sustainable.

Policy and legislation

The Scottish Forestry Strategy sets out the policy targets for, amongst other things, forest products and includes actions which will deliver those targets.

Forest policy for Scotland features a commitment to an expanding woodland area, with an increased diversity of tree species and forest design, and a diverse range of forest products which benefit our economy and wider society. The mechanism for achieving this is sustainable forest management.

Other policies indirectly impact on forest products such as Low Carbon Scotland - Meeting the Emissions Reduction Targets 2010-2022 which sets out the opportunities for forests and forest products to help slow climate change through storing carbon using more timber in construction and using wood as a renewable fuel.

Expanding the forest area

It is recognised in the Scottish Government's Land Use Strategy that society's increasing demands and expectations, for example for more food, timber, carbon storage and biodiversity, can exert considerable and competing pressures on our finite land resource. For that reason the implementation of the Land Use Strategy will be central to achieving a sustainable and more integrated approach to land use.

This more sustainable approach to land use will accommodate the Scottish Government's targets for tree planting which are part of the plan for reducing carbon emissions by 2022. However it is also important to ensure that the right trees are planted in the right places and it is already agreed that the main focus of future woodland creation will be away from prime agricultural land and will avoid areas of deep peat where the carbon losses from soil disturbance could outweigh the gains from carbon locked up in trees.

In October 2012, the Scottish Government accepted a recommendation from the Woodland Expansion Advisory Group that 100,000 hectares of new woodland should be planted over the period 2012-2022; that this should be carried out in ways that meet or exceed modern standards of good practice and deliver multiple benefits; and that there should be a review, initiated no later than 2020, to set targets for beyond 2022.

Safeguarding forests

Forest policy for Scotland maintains a strong presumption in favour of protecting woodland resources and all but the smallest amounts of tree felling must be licensed. The licence almost always requires that a felled area is regenerated as woodland. Felling trees without a licence, or not following the conditions of a licence, can result in a criminal prosecution. A basic requirement of sustainable forest management is that all timber harvesting is legal and the evidence for this in Scotland relies on issuing licences and detecting illegal felling.

In some circumstances tree felling falls outside the control of the licensing system, most notably when planning permission from a local authority is applied for, and this has been the route by which windfarms have resulted in woodland loss. This unintended consequence of renewable energy development is now being addressed through the Scottish Government's policy on the control of woodland removal.

Sustainable forest management

The UK Forestry Standard (UKFS) sets out the requirements for sustainable forest management across the UK and embodies principles which have been agreed and implemented around the world.

Independent certification schemes for sustainable forest management, such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC), have been tailored for the UK with reference to this Standard. In 2013, 57% of Scotland's woodland area (803,000 ha) was certified as being sustainably managed, and this accounted for over 80% of all timber production. 100% of the National Forest Estate has dual certification from FSC and PEFC.

Better information about the forest products resource

A new forecast of potential softwood availability was published in 2012, as part of the National Forest Inventory, which quantified the size of the forest softwood resource and estimated the potential availability of wood fibre over the next 25 years.

The National Forest Inventory, is ongoing and will continue to provide more detailed information about Scotland's forests, including information about the scale and nature of the broadleaved resource.

Expanding the forest area

Most of the woodland creation in Scotland is funded through grant aid available in the Scotland Rural Development Programme and this is supplemented by woodland creation on the national forest estate. All of this woodland expansion is undertaken following the requirements of the UKFS.

Safeguarding forests

The heightened threats from pests and diseases now require a more strategic approach compared with the past. The Forestry Commission's Biosecurity Programme provides the strategic approach to plant health and biosecurity and ensures the delivery of work to exclude, detect and respond to existing and new pests and pathogens of trees, whether of native or exotic origin.

Operating the felling licence system and implementing the woodland removal policy when considering applications for developments, such as wind farms, helps to ensure that the total woodland resource area does not decrease.

Renewable energy from forests

Forestry Commission Scotland is making a concerted effort to maximise wind and small-scale hydro projects on the National Forest Estate. It is estimated that by the year 2020, a total of 2 GW of power could be generated, enough to power 1 million homes.

During 2012, the number of industrial/commercial plants in operation using woodfuel increased by 203 (as compared with 2011) to a total of 505, with the majority of these plants (95%) being heat only installations each using less than 1,000 dry tonnes annually. Woodfuel projects were estimated to save 884k tonnes $C0_2e$ in 2011; this increased to 1,046k tonnes of C02e in 2012.

Climate change

There are many uncertainties associated with climate change, and the likely impact on the future quantity or quality of forest products. Scotland's forests need to be managed in ways which make them resilient and able to adapt as weather patterns change over the long term. A continuing supply of forest products must also be resilient. This is being achieved by building in diversity to Scotland's forests through broadening the range of genetic material in the most important species for timber, mixing tree species in stands, and adjusting management systems and the timing of operations.

Forests and woodlands also have an important role in contributing to Scotland's ambitious climate change emissions reduction targets through storing carbon. In addition timber can reduce carbon emissions when it is used instead of more carbon-intensive materials such as concrete and steel in construction or instead of fossil fuels in energy production.

Carbon off-setting takes place when a contract is agreed to allow the CO_2 emitted from one activity to be neutralised by another activity which captures carbon or which leads to a sustained reduction in emissions.

The transaction involves payment for a carbon capture project, such as woodland creation, and the registration of the project so that it can be audited and so that the carbon captured cannot be claimed by anyone else in the future. The Woodland Carbon Code has been developed to ensure that the market for this new forest product is well-governed in the UK and becomes internationally respected. At the end of 2013 there were 42 validated projects in Scotland covering an area of 1,901 hectares. These projects are expected to sequester 816 thousand tonnes of carbon dioxide.

The independent report Combating Climate Change – A Role For UK Forests, published in 2009, examines the potential of the UK's forests and forest products to mitigate and adapt to our changing climate.