

Why we need to invest in the expansion of commercial forests

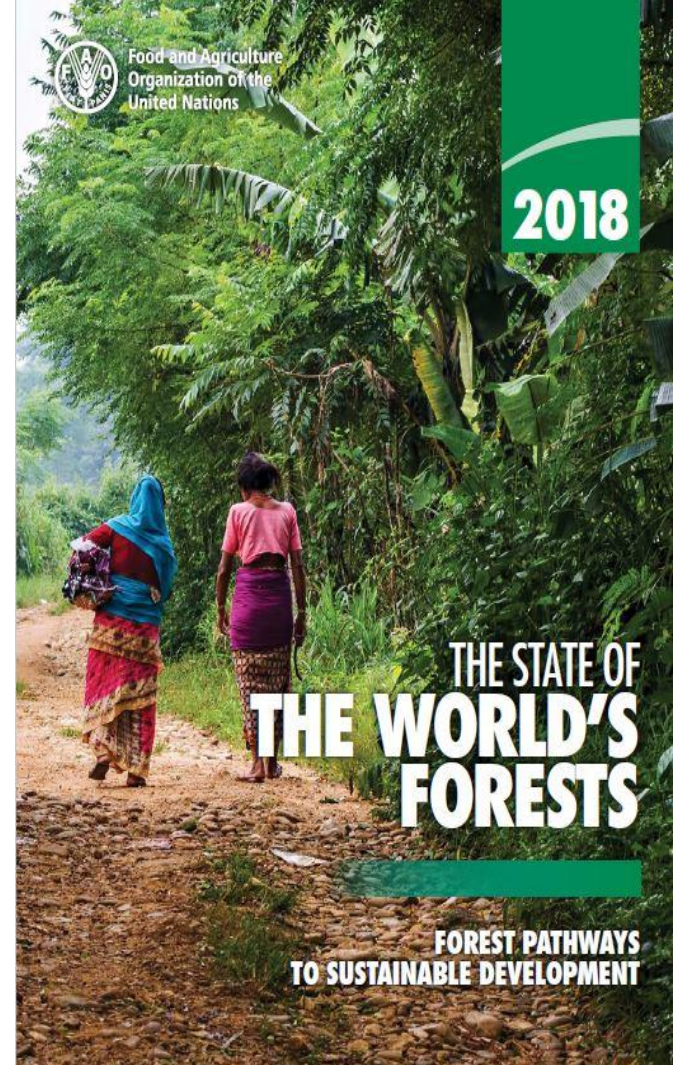
Andrew Cameron, University of Aberdeen



Global wood shortage?

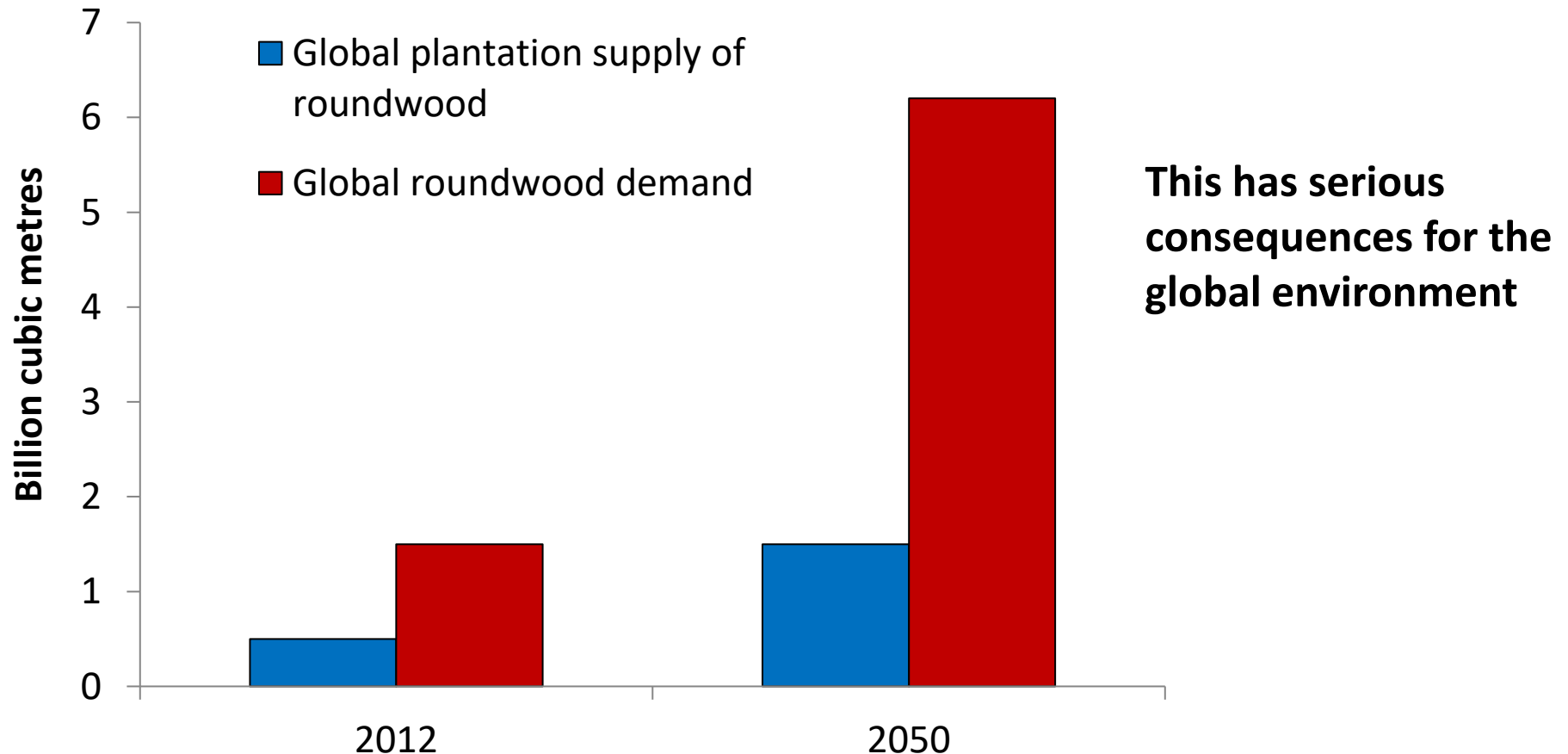
1. World use of industrial timber currently over 5 billion tonnes per year
2. Equates to ***nearly one tonne of wood per year for every human being on earth!***
3. International timber use rises at about 3% per year => increasing population growth, rapid industrialisation, use in 'green' energy
4. The United Nations Food and Agricultural Organisation (2018) warns that increases in international demand for timber and the push for 'green' energy will bring about a major shift from a **global wood surplus to a wood deficit!**

A deficit in supply would push up global demand (and cost!) increasing pressure on the worlds remaining indigenous forests.



Currently, around 5% of the world's forest area is plantation forest, BUT IT PRODUCES 1/3 OF THE WORLD'S INDUSTRIAL TIMBER!

By 2050, this proportion will be less than one quarter!



Risks to the world's remaining natural and semi-natural forests

1. Gap between supply from plantation forests and future timber demand will have to be met by **increased production from natural and semi-natural forests**.
2. Many of these forests, particularly in tropical regions, are already under severe pressure from human activity and rising demand for timber.
3. Increasing global demand and timber value inevitably results in **increased illegal logging causing further damage and loss of some of the world's most endangered forests!**



UK hugely dependent on imported timber products!

1. UK currently imports timber and timber products cost nearly **£8 Billion in 2017** (Forestry Statistics 2018).
2. **UK currently SECOND biggest importer of timber and timber products in the world (~80% of demand imported)!**
3. A world timber shortage would put further pressure on balance of payments.



UK timber imports increase dramatically



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The full scale of the unexpected and dramatic turnaround in UK timber product imports has been laid out in the Timber Trade Federation's (TTF) latest statistics bulletin.

From a position at the end of last August, when 2013 cumulative timber product import volumes were down by 2% (more than 100,000m3) compared to 2012, the TTF said the situation had reversed because of "dramatic" growth in September and October, with cumulative volumes nearly 5% higher (317,000m3) by the end of October.



UK timber product import volumes soared last autumn

Timber industry fears billion pound Brexit bill

⌚ 8 May The UK timber industry faces a potential £1bn bill if Britain leaves the EU Customs Union, the Timber Trade Federation (TTF) is warning.



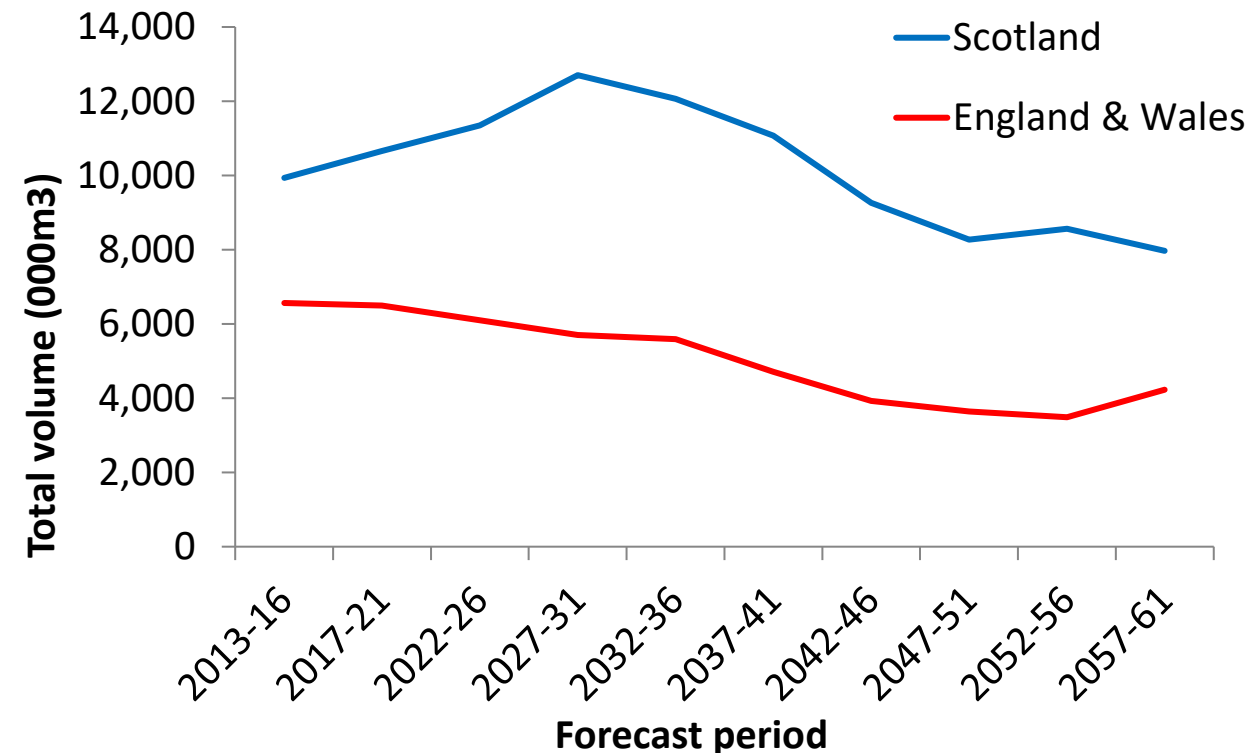
Above: Timber trouble ahead?

The timber tax bomb will explode if EU imports cease being VAT free.

"Some 90% of timber used in construction is imported from Europe, which British timber supplies are insufficient to replace," said TTF managing director David Hopkins. "Under the proposed Taxation Bill, once the UK leaves the EU and its VAT area, VAT on EU imports will have to be paid up-front. This will cause considerable problems for the SMEs who make up the majority of our sector."

So how much wood do we have?

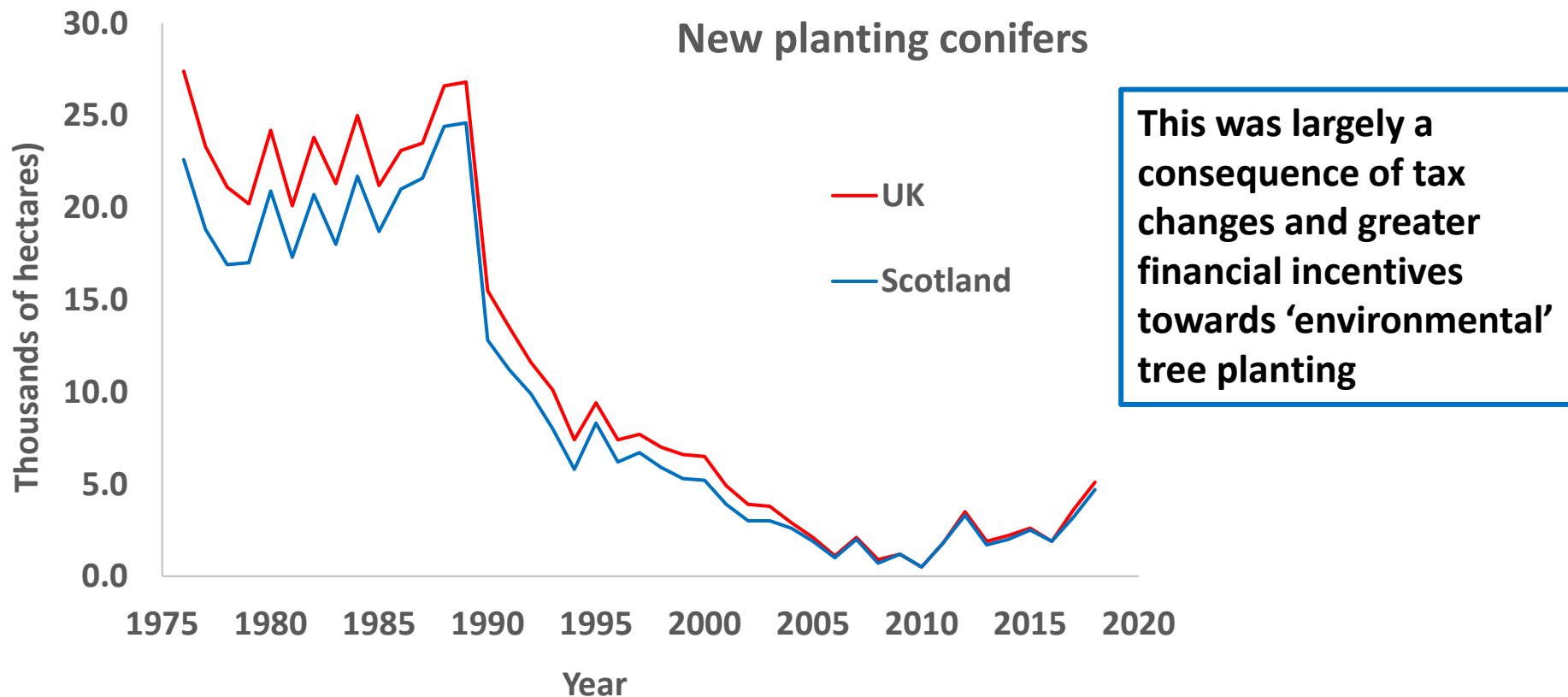
1. Forest area in Scotland is currently **18.5% of land area** (10% England, 15% Wales, NI 8%)
2. NE Scotland 19.3%
3. **EU average 37%!**
4. **Timber production in Scotland is currently 10 million m³ per annum**
5. Due to afforestation programmes particularly of 1960s and 1970s maturing, **volume production in Scotland** will rise to around 12.7 million m³ by mid-late 2020s
6. Critically, it will then **decline to only 8 million m³ by 2050s**



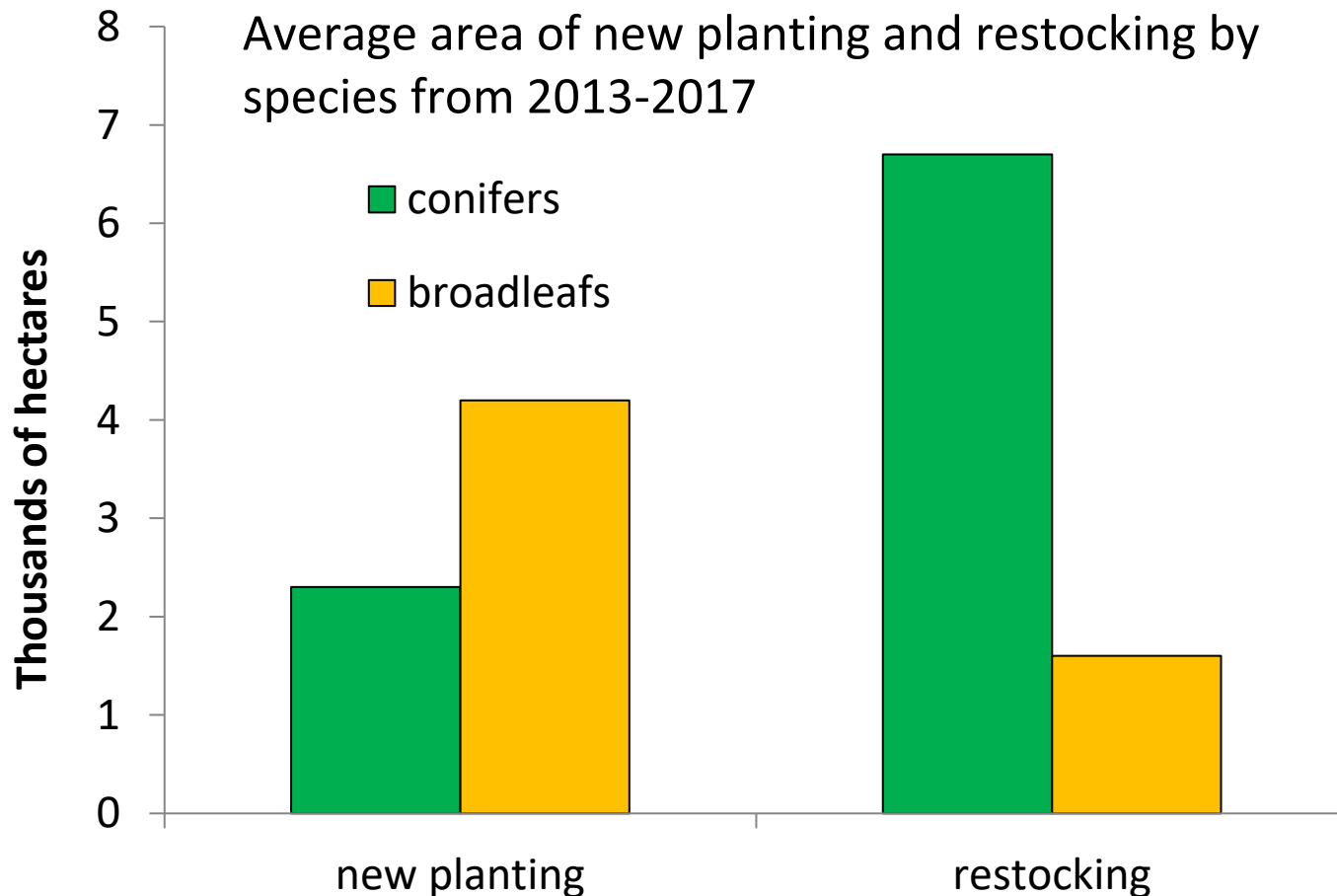
Why is this decline in production happening when demand for timber is steadily rising?

Decline in planting of commercial forest species!

There has been a significant decline in new planting of commercial conifer species since the 1990s.



1. This loss of commercial forest was made worse by trend to **plant broadleaved species instead of conifers**
2. 65% of all new planting in Scotland in the last 5 years comprised 'non-commercial' broadleaves (Forestry Statistics 2018).



Restocking existing conifer forest stands with 20% of broadleaves further reduces the area of productive forest

Yet more than 98% of wood used by the processing sector in Scotland is softwood (conifers).

Why the focus on planting broadleaves?

1. Largely environmentally driven supported by generous planting grants
2. **Of course, planting broadleaves is important particularly in areas of high environmental value**
3. It is not planting of broadleaves in itself that has been the problem, **it is the way that they have been planted**
4. To produce quality hardwood timber, trees need to be grown at **narrow plant spacing**, but vast majority of broadleaves are grown at **wide spacing**

Wide-spaced trees => result is the timber is nearly worthless because of the large branches on the stem!

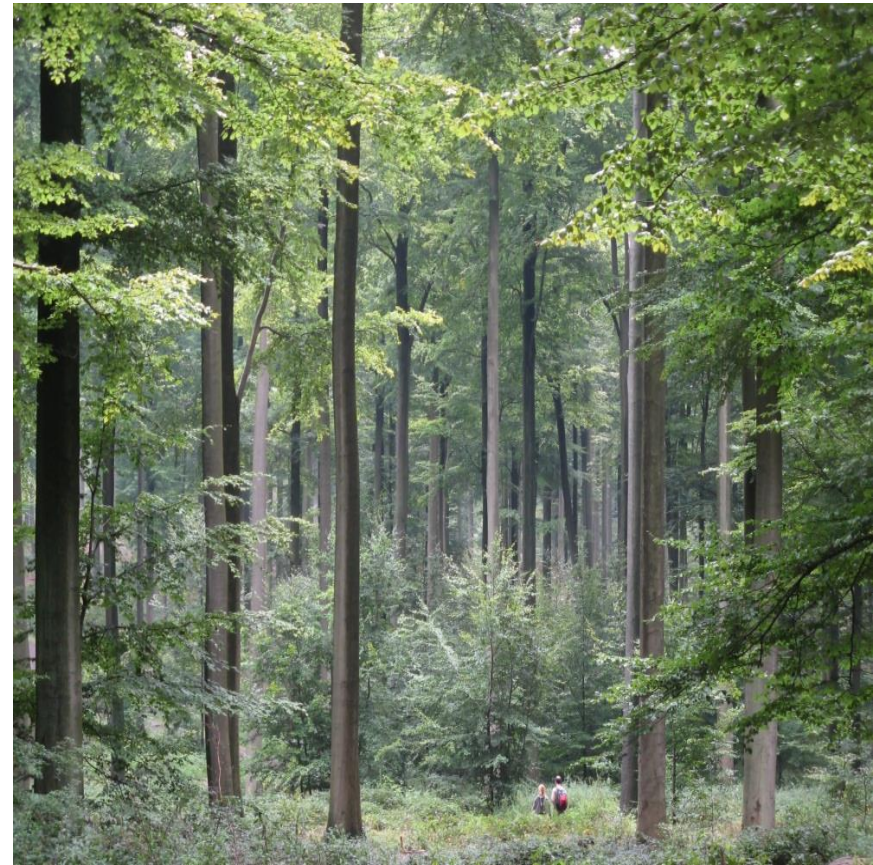


Birch forest, Finland



Compare with commercial broadleaved forests in Continental Europe where trees are established at closer spacings

Beech forest, Belgium



The issue of tree spacing at planting is finally been recognised and new grant payments are taking this into account.

The shrinking forest!

Combined effect of lack of new planting and loss of existing commercial forest area by planting non-productive species

Productive forest area in Scotland has been shrinking by around 5000 hectares per year over the last 10 years!



Scots forestry a hidden £1 billion economic success story -

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A new [report](#) published today reveals that Scotland's forestry sector is a hidden success story and is contributing nearly £1 billion to the economy through forest management, timber processing and recreation – a substantial increase from the previous figure of £670 million.

The forestry sector, including tourism and recreation, is also a major employer, supporting over 25,000 jobs across Scotland.

This is clearly a threat to an already successful forestry sector in Scotland!

Forestry industry in Scotland currently worth over £1 billion annually to the economy.

Employs over 25,000 people.

Forestry has become an important employer in rural areas

Timber processing sector continues to expand

- e.g. Norbord Europe near Inverness increasing production of oriented strand board (OSB) from 350,000 to 640,000 cubic metres
- £135 million investment
- **Investment based on predicted increase in roundwood production over next decade**
- **BUT, the processing industry is concerned that there may be insufficient timber to maintain current levels of production beyond this time!**
- **Processing plants may have to close**

The Inverness Courier

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Inverness Courier -> News

Published: 24/04/2018 13:00 - Updated: 24/04/2018 10:13

Major expansion for Norbord's Highland plant

Written by Calum Macleod



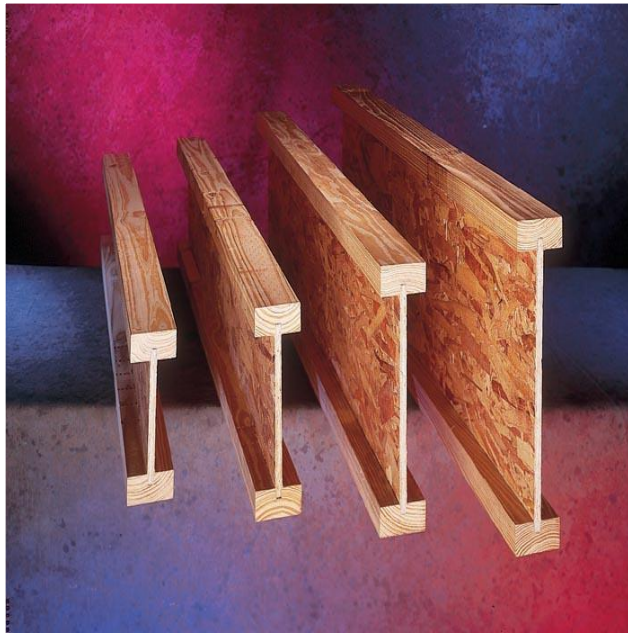
A FACTORY outside Inverness can look forward to "making clouds" – and more importantly wood products – for at least the next quarter of a century.

First Minister Nicola Sturgeon visited the Norbord production site near Dalcross on Monday to officially open a new manufacturing line created with the support of a £95 million investment.

One of the biggest single inward investment packages yet awarded in Scotland, the money secures the long-term future of the plant by almost doubling its size and increasing production capacity by almost 80 per cent.

Compelling argument to expand the productive forest area in Scotland

1. To maintain and expand timber production in the future to increase wealth, **rural employment**, prosperity, and **balance of payments through exports**.
2. To increase production to supply growing markets for construction, composites, biofuels, etc.
3. To address the wider issue of climate change and in particular in reducing atmospheric CO_2 .



Where should forest expansion take place?

1. Studies have indicated that there is 1.3 M ha of land area in Scotland that may be potentially suitable for forestry, much of poor quality land unsuitable for agriculture (Towers et al. 2006)
2. A further 2.2 M ha maybe potentially suitable given certain environmental constraints

Land availability is probably less of a barrier to tree planting than the need for land owners to see the economic and environmental advantages of planting trees.

Towers, W., Schwarz, G., Burton, R., Ray, D., Sing, L. and Birnie, R.V. (2006) Possible opportunities for future forest development in Scotland: a scoping study. Report by The Macaulay Institute for Forestry Commission Forest Research. 55 pp.



How can an expansion in the commercial forest area be achieved?

1. We need to incentivise land owners to plant trees (~83% of land in Scotland is privately owned)
2. This raises a variety of issues e.g. nature of land ownership, land reform, availability of planting grants, tax incentives
3. **Forestry Commission Scotland has launched a new planting scheme that offers better financial support for productive forestry and the planting of conifers**
4. Scottish Government has set a planting target of 10,000 hectares per year

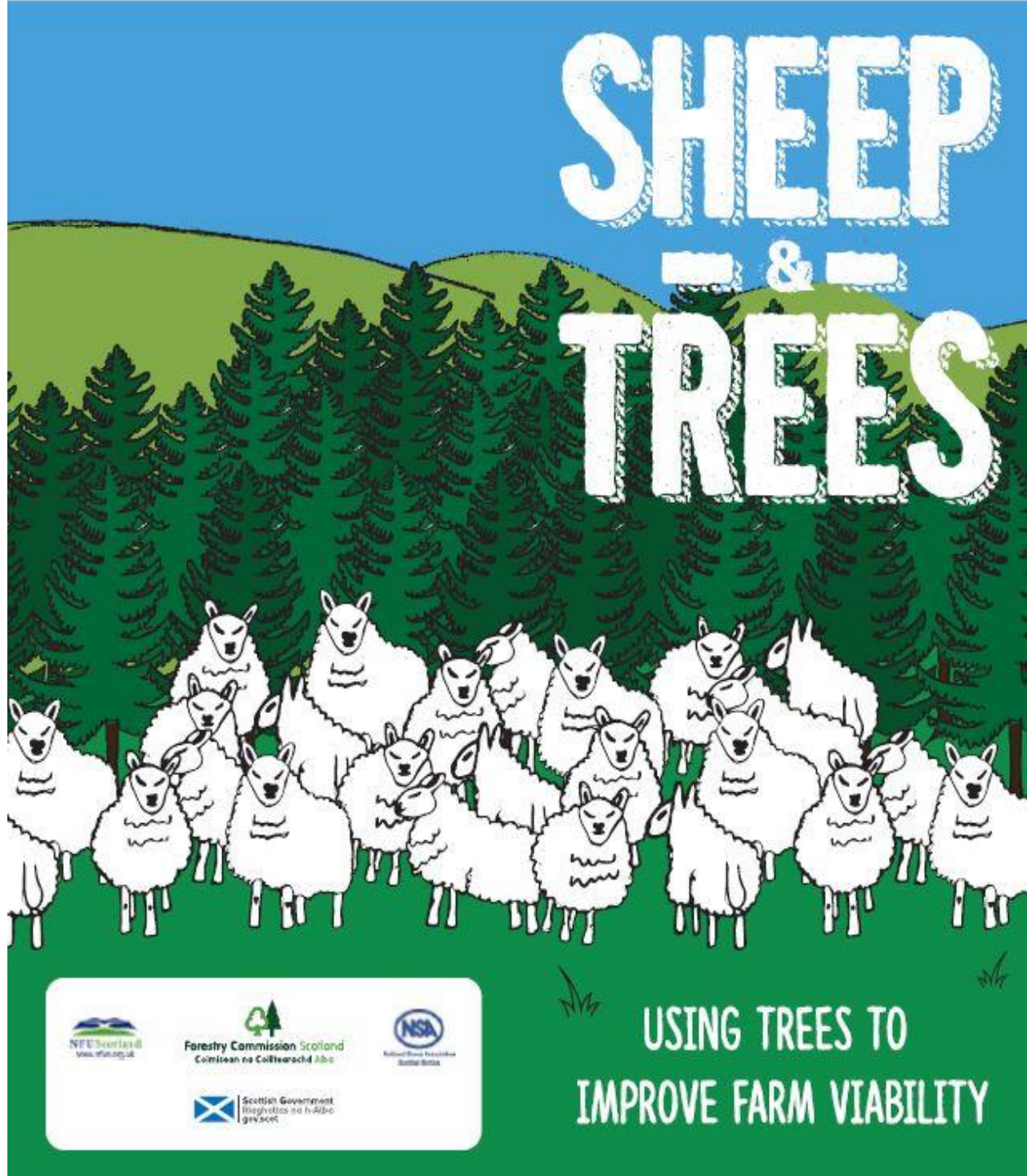
The Forestry Grant Scheme

A guide to grant options for woodland creation



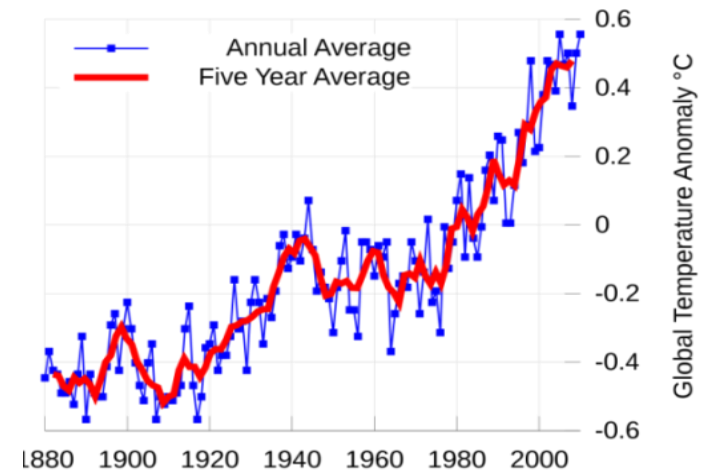
There are also initiatives to promote better integration between existing farming practices and commercial tree growing.

We must emphasise that farming and forestry are complementary land uses. After all, this is the norm across most of Continental Europe.



Forests and climate change

We cannot talk about land use without considering the impacts on climate change!



Sir Nicholas Stern (2007) said in his ground-breaking climate change review that forests offer the single largest opportunity for cost-effective and immediate reductions in emissions

1. The Scottish Government is committed to expand the forest area from its current level (18.5%) to 25% by 2050 as part of its commitment to climate change mitigation
2. **To meet carbon mitigation levels, fast-growing species such as Sitka spruce and Douglas fir will have to be used since carbon sequestration positively correlates with the growth rates of trees (Nijnik, 2010)**

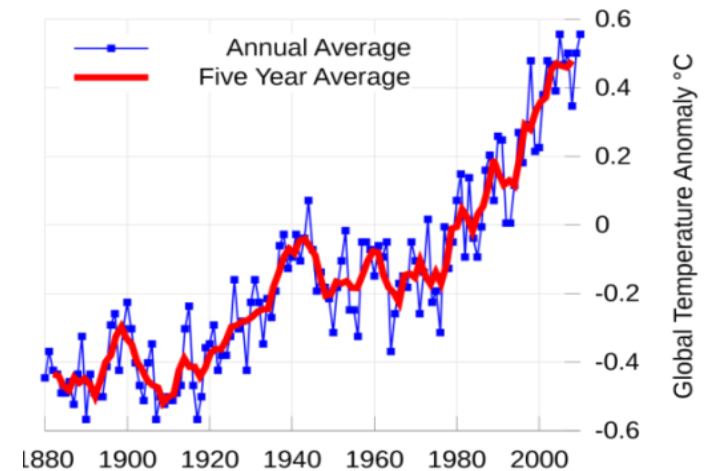
Conifers (e.g. spruces, firs) sequester up to 10x more carbon than broadleaves

Forests and climate change

In terms of carbon sequestration, how do costs of afforestation compare with **Carbon Capture and Storage (CCS)? (Openshaw, 2016)**

- investing in productive conifer forests works out at between £3-4.5 per tonne of CO₂ captured
- CCS estimated at a minimum of £50 per tonne of CO₂ captured

These studies further support the view that expansion of the productive forest area will have both major economic and environmental benefits.



Changing attitudes towards planting conifers!

Planted coniferous forests are often perceived as lacking ‘biodiversity’.

- in parts of Continental Europe, it is difficult to distinguish between plantations and natural forests (Roise, 2000)
- ironically, many of the original plantation forests are now described in terms of **‘back-to-nature’ forestry** (Gamborg and Larsen, 2003)

Tree planting for non-commercial reasons remains important, but this must not detract from investment in productive forestry in the context of what society needs.



In comparison with native woods/forests, upland Sitka spruce plantations have greater diversity, e.g.

1. mycorrhizal fungi and bryophytes
2. ground beetles
3. bryophytes on deadwood (c.f. pine)

Source: Quine, C. and Humphrey, J. 2003.

We should not ignore the fact that well-managed conifer-dominated forests are extensively used as places for recreation



CONCLUSIONS

1. **Expansion of the commercial forest area is vital if we are to address the growing domestic and global demand (and cost!) for timber.**
2. We cannot ignore the international dimension in terms of a limiting global roundwood supply and the **risk of further environmental damage to natural and semi-natural forests.**
3. We must examine new ways to incentivise land owners to plant trees.
4. **Expansion must be based primarily on productive conifer species** (say at least 85% of planted area) if we are to meet both economic and climate change targets.
5. More of the new broadleaf planting should have the objective of commercial timber production!
6. **We must educate the public** that forests are much more than nice places to visit, but **vital to future rural employment and prosperity and to the wider economy of Scotland.**

BUT WE NEED TO ACT NOW!

Even if we start planting now, these new forests will only start producing timber in around 35-40 years time!



One final message

There should be less deliberating about who owns the land and more focus on getting land owners to plant trees on it!

Remember that the forests will be there long into the future producing a sustainable raw material that creates wealth, employment and prosperity