

14 December 2018
University of Northumbria

Superwood

How forestry and timber can
drive a low-carbon economy

Session 2

Forestry, climate
change & bioeconomy

#Superwood



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SUPERWOOD CONFERENCE

Session 2: Forestry, climate change and the bioeconomy

- Friday 14th December 2018 -

Beccy Speight , Chief Executive
Woodland Trust



WOODLAND
TRUST

Our Vision

“ A UK rich in
native woods and trees
for people and
wildlife”

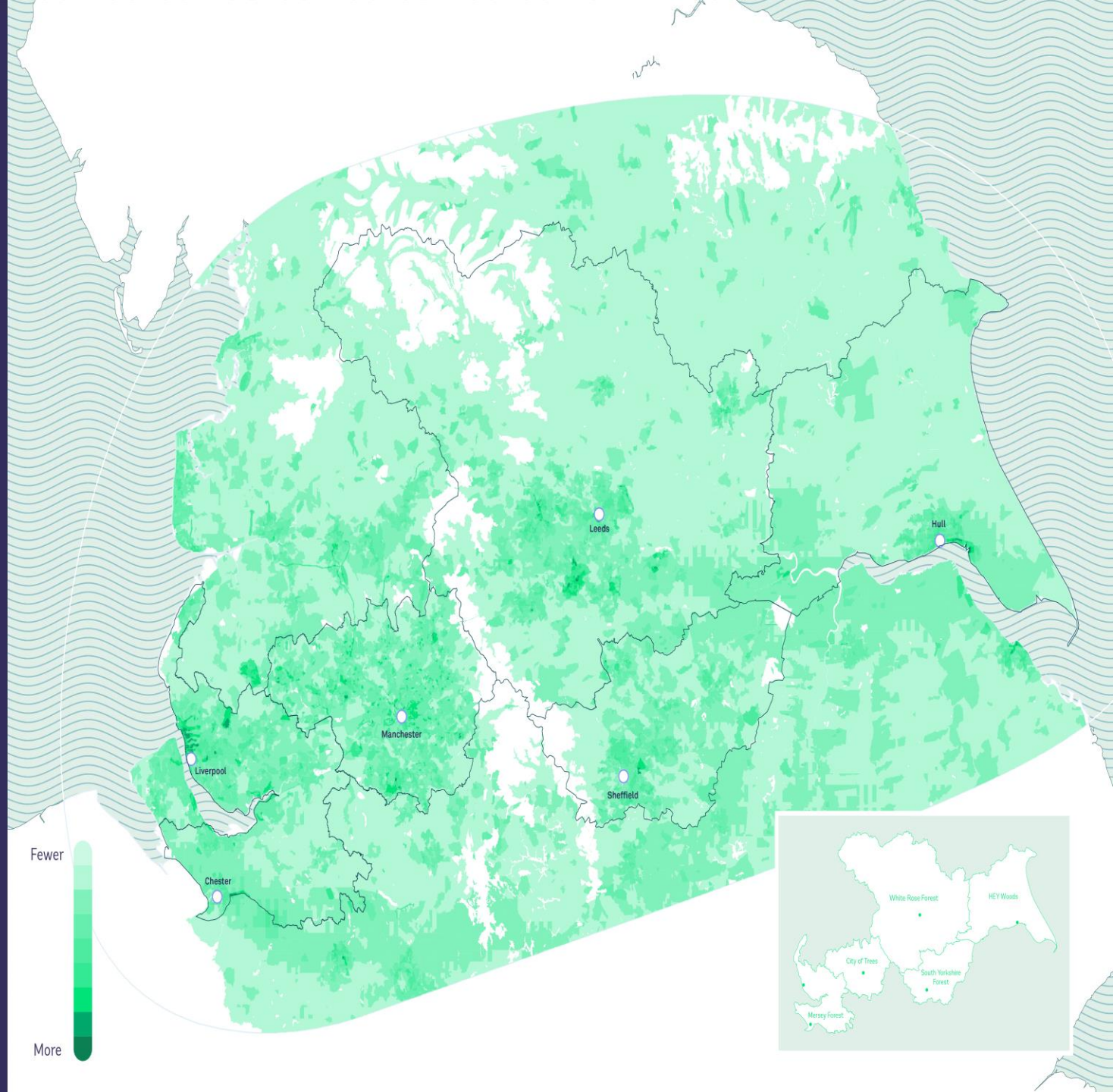


WOODLAND
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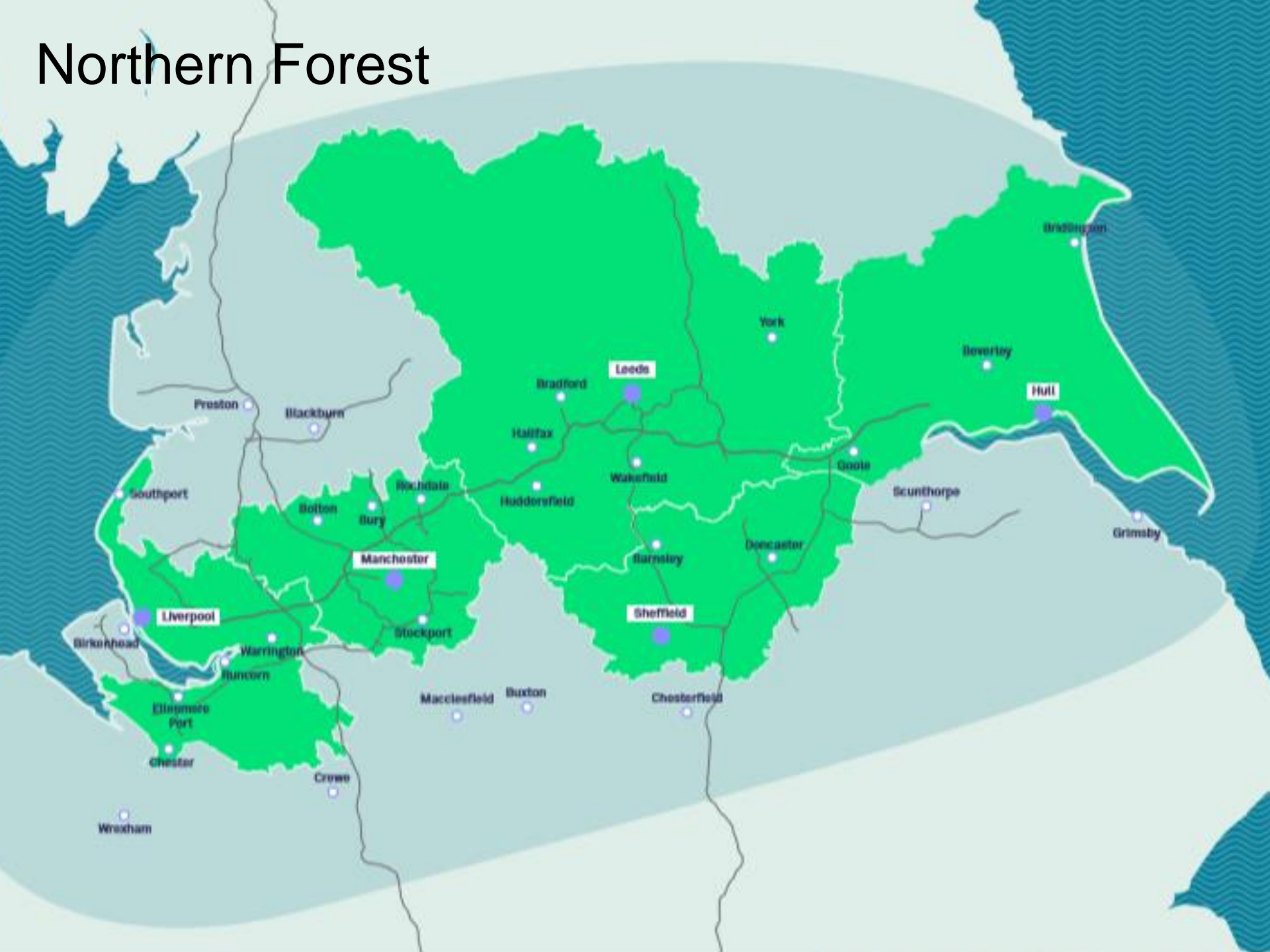
How we see the external context



Where should we plant our 50 million trees?



Northern Forest



Planting – the remaining barriers



Where we do and where we don't see eye to eye

We want to see more tree planting and we're not anti-conifer
BUT...

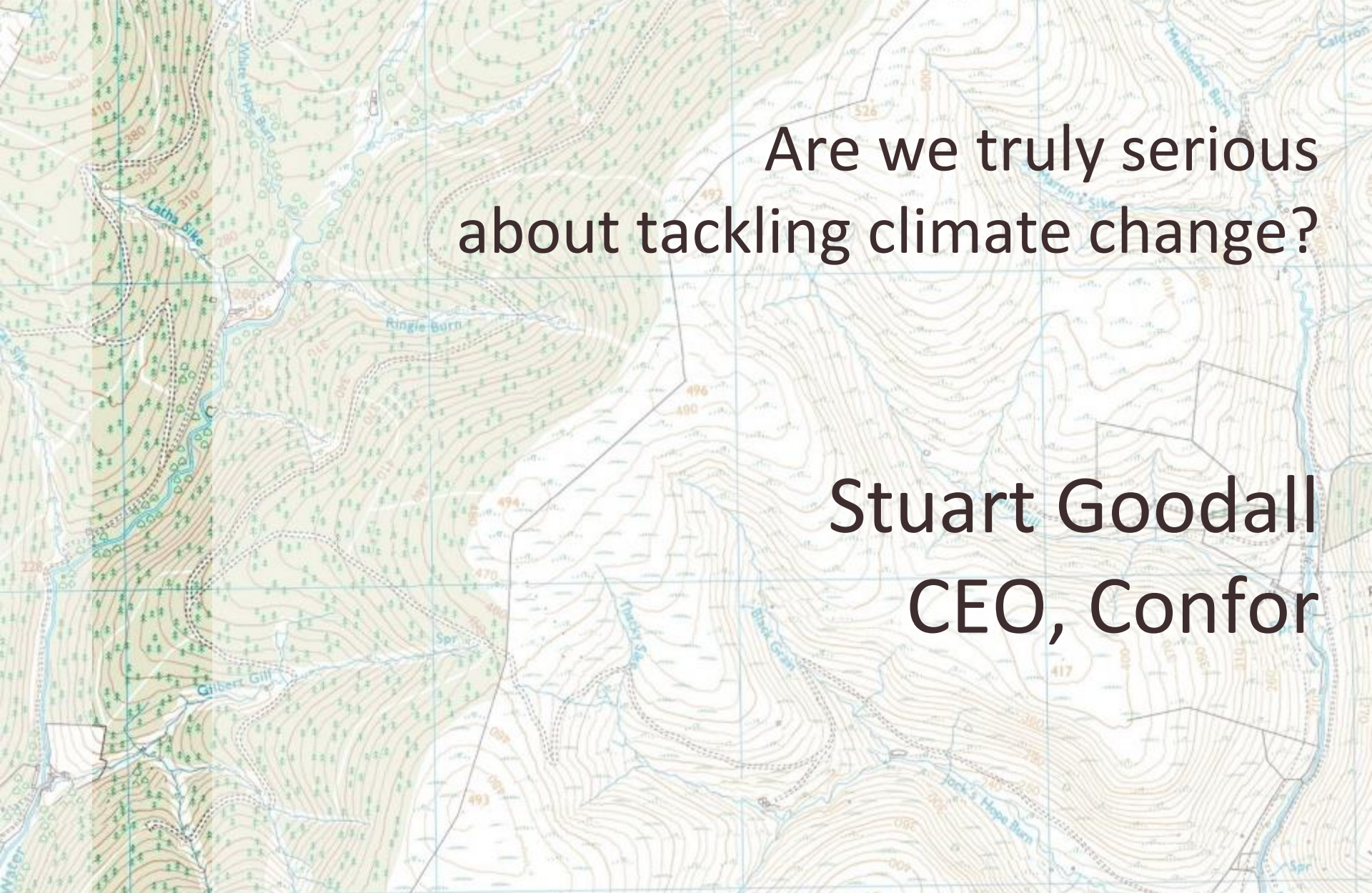
- The right tree in the right place – PAWS, species choice.
- Working with farming.
- Helping support UK nurseries / reducing pest and disease risks.
- We're all part of the same sector – so what price a unified voice to the outside world?

Thank you
for listening
Not heard enough?
I can tell you more

Name: Beccy Speight, Chief Executive
Tel: 0343 770 5540



WOODLAND
TRUST

A detailed topographic map of a forested area, showing contour lines, streams, and various geographical features. The map is oriented vertically with a grid overlay. The text is superimposed on the right side of the map.

Are we truly serious
about tackling climate change?

Stuart Goodall
CEO, Confor

"Never in the history of humanity... have all human beings got together to face one danger that threatens us - never.

It's a big ask, but the penalty of not taking any notice is huge."

David Attenborough



POPE FRANCIS HAS A MESSAGE TO THE WORLD LEADERS ABOUT CLIMATE CHANGE:

"THE TIME TO FIND GLOBAL SOLUTIONS IS RUNNING OUT.

THERE IS THEREFORE A CLEAR, DEFINITE AND URGENT ETHICAL IMPERATIVE TO ACT."



Global climate change is one of the greatest challenges facing humanity in the twenty-first century.

— *Angela Merkel* —

AZ QUOTES



Mark Carney, Governor of the Bank of England

"the vast majority of reserves are unburnable"...

"In other words, once climate change becomes a defining issue for financial stability, it may already be too late."



The greatest danger

Huge reduction in meat-eating 'essential' to avoid climate breakdown

Major study also finds huge changes to farming are needed to avoid destroying Earth's ability to feed its population

● We label fridges to show their environmental impact - why not food?



EMILY ATKIN SCIENCE 08.21.18 08:00 AM

GERMANY HAS PROVEN THE MODERN AUTOMOBILE MUST DIE



If the cement industry were a country, it would be the third largest emitter in the world.

In 2015, it generated around 2.8bn tonnes of CO2, equivalent to 8% of the global total – a greater share than any country other than China or the US.

Cement use is set to rise as global urbanisation develops. Along with air transport, an expanding demand for luxury travel mean the impact of the high-polluting industry is likely to continue growing.

Tourism is responsible for nearly one tenth of the world's carbon emissions

Air transport and an expanding demand for luxury travel mean the impact of the high-polluting industry is likely to continue growing.

Josh Gabbattiss Science Correspondent | @josh_gabbattiss | Monday 7 May 2018 16:30 | 7 comments | 1.3K shares





The greatest danger

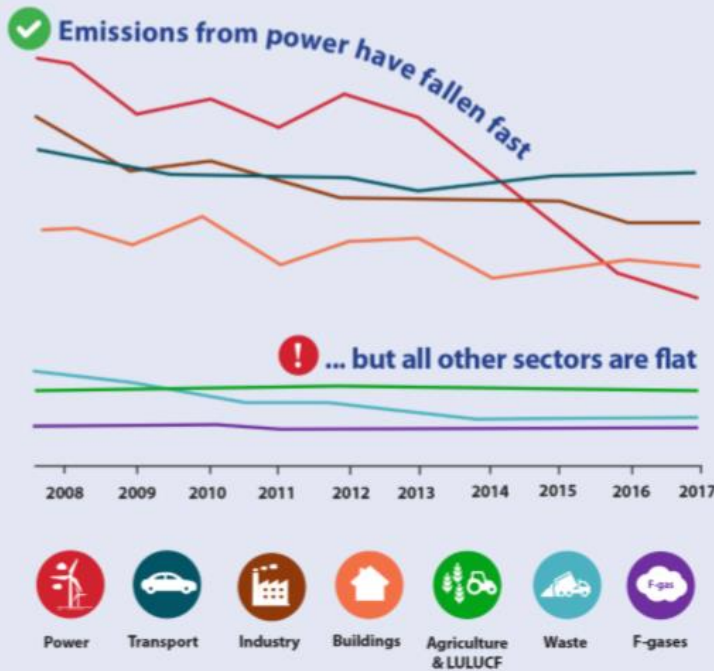
“In parts of Scotland, we are seeing greater emphasis on commercial forestry and the production of monocultures of fast growing trees, using ... large-scale clear cuts; these damaging methods are no longer practiced in other countries.” *Anne McCall, RSPB Scotland*

“As rapidly as possible, replace the Forestry Commission’s exotic plantations in Upland Nature Areas with native woodlands and open spaces.” *Chris Packham, A People’s Manifesto for Wildlife*

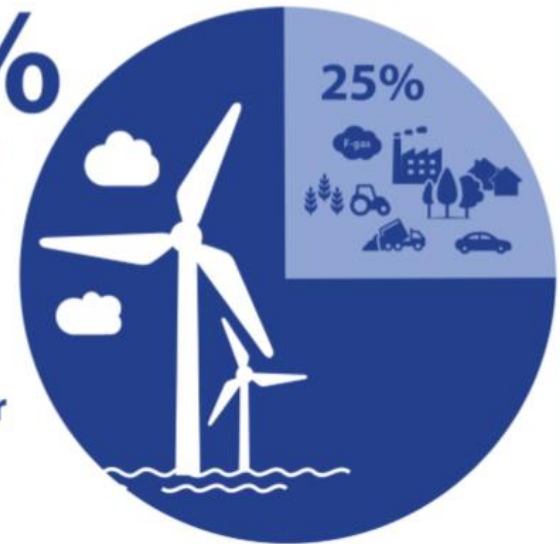
The greatest danger

Excellent progress in reducing emissions from electricity generation masks failure in other sectors

The UK's greenhouse gas emissions have reduced by 43% compared to 1990 levels, on the way to a target of at least an 80% reduction by 2050.



75%
of emissions reductions since 2012 have come from the power sector



Clear goals, ambitious strategy and well-designed policies have been effective. These lessons must now be applied to other sectors

Committee on Climate Change 2018 Progress Report to Parliament on meeting UK emissions www.theccc.org.uk/publication/reducing-uk-emissions-2018-progress-report-to-parliament/

Taking action

BSW Timber
bre
Statement of Verification
BRE GEN EPD: 000124
EPO EPD Ref No: 000594
Environmental Product Declaration
provided by
Wood for Good
in accordance with the requirements of
EN ISO 14025:2012+A1:2013 and BRE Global Scheme Document SD207
This declaration is for
100% of kiln dried planed or machined sawn timber used as structural timber.

BSW Timber
Construction
Products
0900 967 8827

BSW establishes environmental performance for its construction timber
BSW Timber participated in the Wood for Good initiative to establish an environmental product declaration (EPD) for its kiln-dried construction timber.
The EPD from BRE Global describes the environmental impacts associated with the production of one cubic metre of sawn, kiln-dried and planed timber.
According to the EPD (BRE 000124) the global warming potential of this product is **minus 712kg CO₂ eq. per m³**.

GLOBAL WARMING POTENTIAL (kg CO₂ eq. per m³)

Material	Global Warming Potential (kg CO ₂ eq. per m ³)
Concrete	~180
Steel	~180
Timber	-712



@forestsandwood

BSW environmental performance validation
Scottish Forest & Timber Technologies Roots for Further Growth
Conifer Breeding Co-operative



Confor
Promoting forestry and wood

Forestry is key to meeting climate change targets

Part of the solution

Support the simple, low-cost options

Onshore wind and Solar are likely to be **25% cheaper** than new gas plants by the 2020s



Efficiency in buildings is an obvious practical step. But insulation rates in homes are **95% lower** than they were in 2012



Tree planting rates are **two-thirds lower** than they need to be



see p202

Recycling food waste reduces emissions. By 2025 **all food waste** should be **recycled**



see p211

Failure to pursue these options increases energy bills and adds to the cost of decarbonisation

Committee on Climate Change 2018 Progress Report to Parliament on meeting UK emissions www.theccc.org.uk/publication/reducing-uk-emissions-2018-progress-report-to-parliament/

Committee on Climate Change

Part of the solution

“The UK has ambition amounting to annual afforestation rates of **20,000** hectares.

Current rates are short of this ambition, at just under **9,000** hectares.

In more ambitious scenarios, we assume annual planting rates of **50,000** hectares.”

www.theccc.org.uk/publication/land-use-reducing-emissions-and-preparing-for-climate-change/

8-18
MtCO₂e Saved



Increased woodland and hedgerow planting

Nationally, action is required to do the following:

26-36%



Reduction in grasslands and rough grazing by 2050

(up to) 1.5 million hectares



of new woodland to store carbon by 2050

(up to) 1.2 million hectares



for bioenergy crops by 2050

The Biomass economy

Part of the solution

How can biomass be used effectively?

In the future, demand is likely to outstrip sustainable supply. Harvested biomass will be used most effectively where it *maximises* the removal and *minimises* the release of carbon into the atmosphere.

More timber
used in buildings

up to ~3 MtCO₂e/yr
of carbon storage
by 2050

No new subsidies
for large-scale
biomass to power
plants unless with
CCS*

Use biomass to
produce hydrogen,
electricity or
industrial products
whilst sequestering
carbon with CCS
up to 65 MtCO₂e/
yr of UK emissions
saved

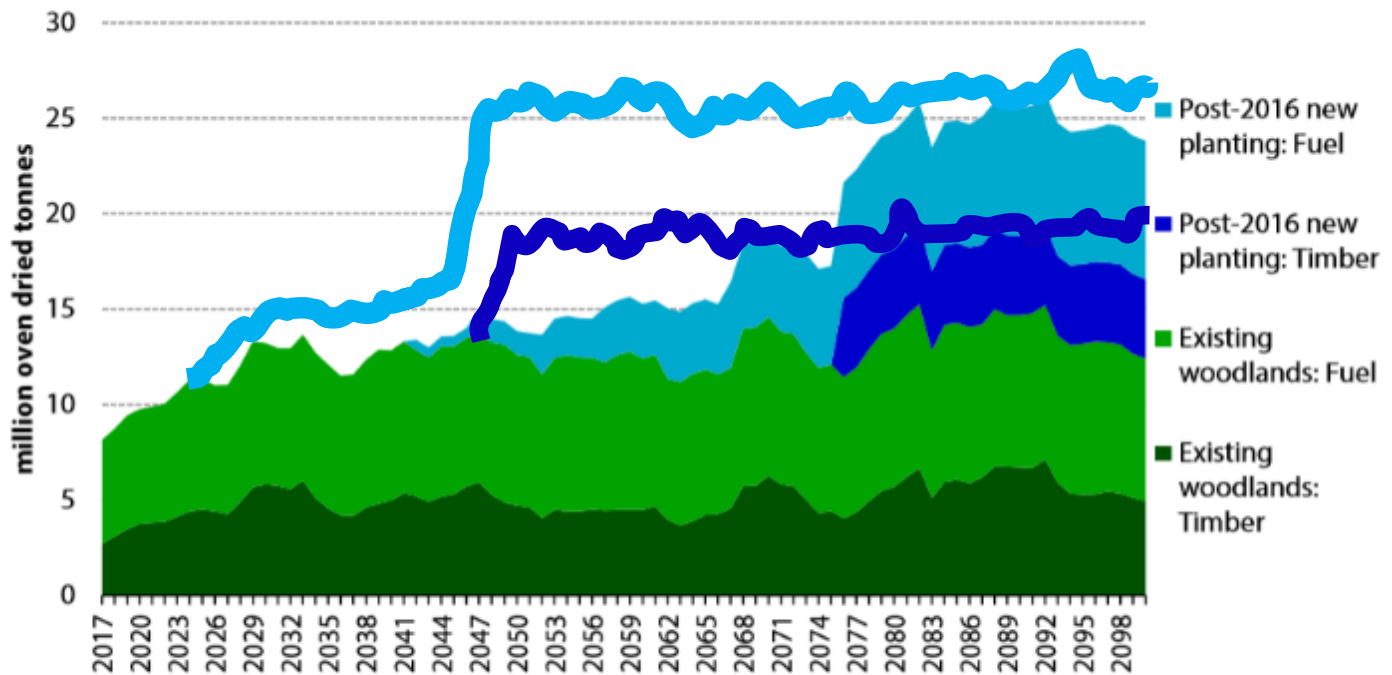
Phase out
biofuels in cars
and vans
in the 2030s

Plan for up to
10% of aviation
fuels as biofuel
produced with
CCS by 2050

The Biomass economy

Part of the solution

Figure 2.13. Harvested wood from existing and new woodlands, 2017-2100

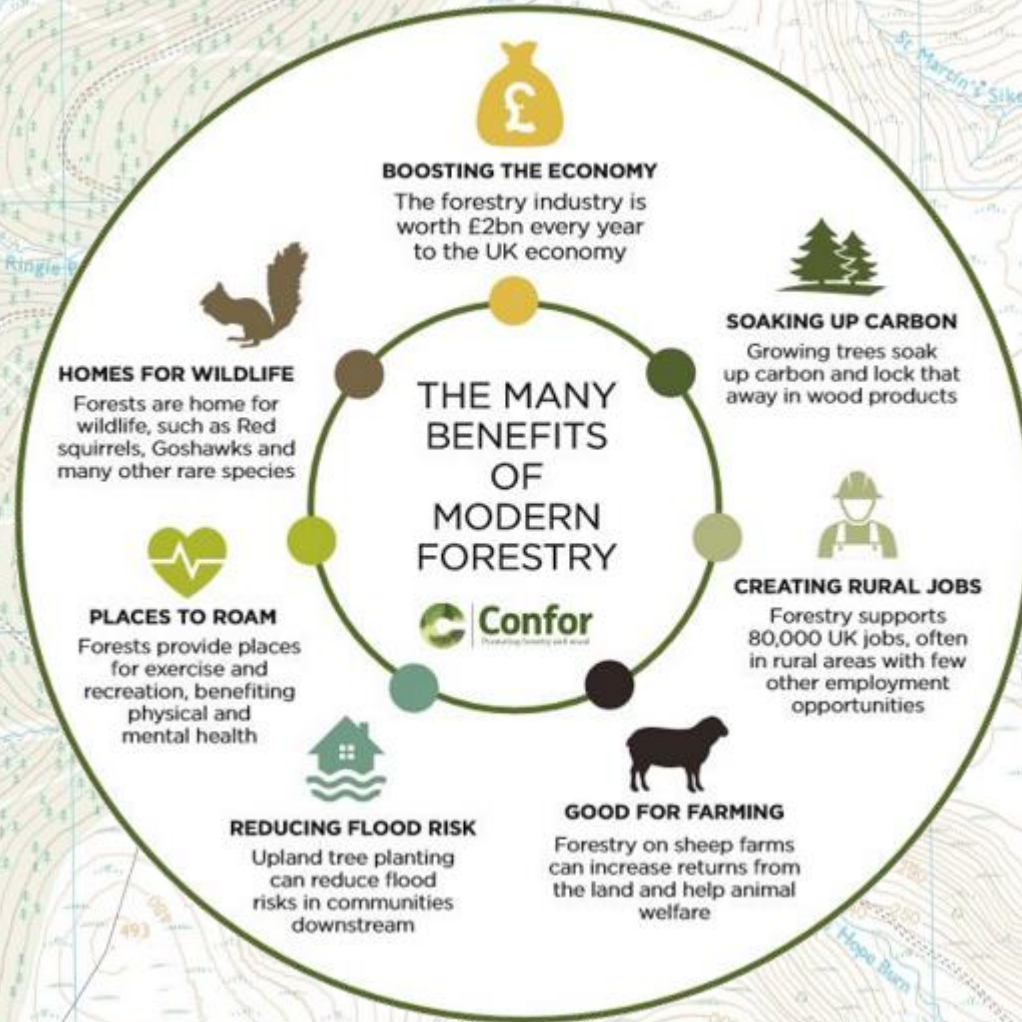


Source: CEH and Rothamsted Research (2018) and CCC analysis

Notes: Output is based on the high ambition for new planting, yield improvements and management of existing broadleaf woodlands

The many benefits of modern forestry

Multi-purpose forestry



So how do we make it happen?

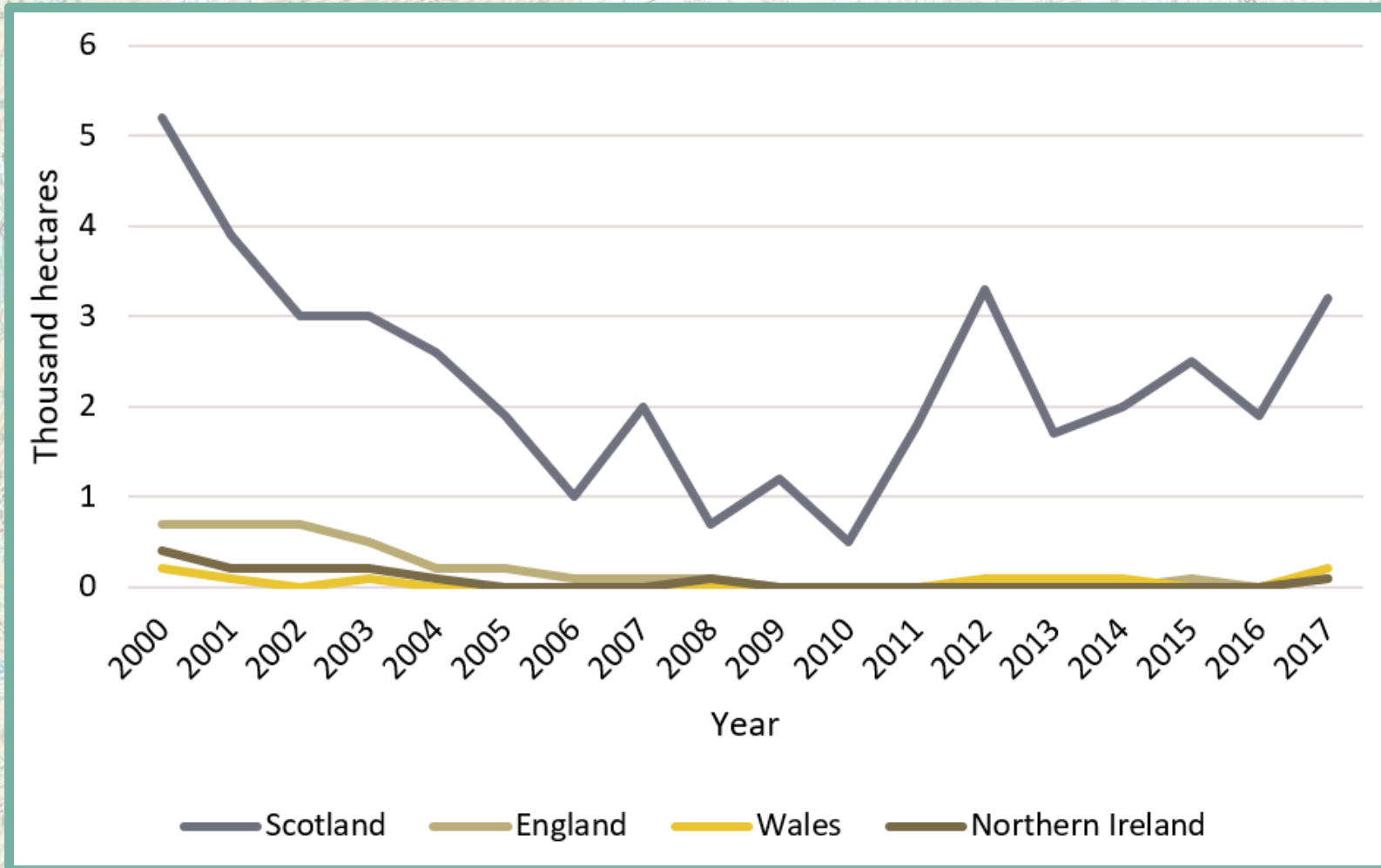
Making it happen



Local school children planting England's largest new productive forest at Doddington Moor, 2017

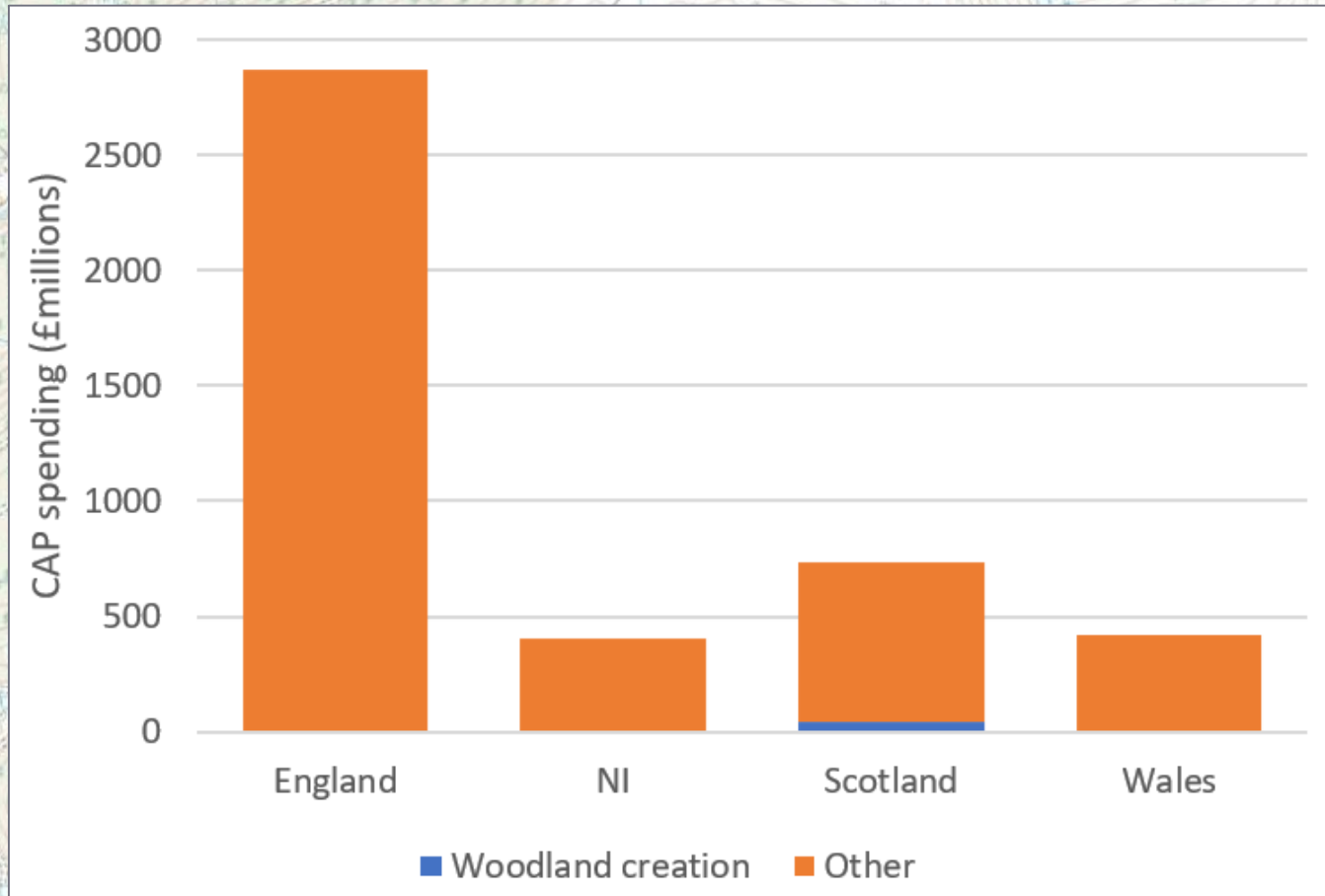
So how do we make it happen?

Making it happen



CAP funding per year 2014-20

Making it happen



Why hasn't it happened already?

Making it happen

Lack of funding

Lack of confidence

Dislike of change

Fear of returning bad practice

Regulators are overly cautious

Preference for 'tech' solutions

Adds up to a declining UK forest culture

Telling the forestry story

Making it happen

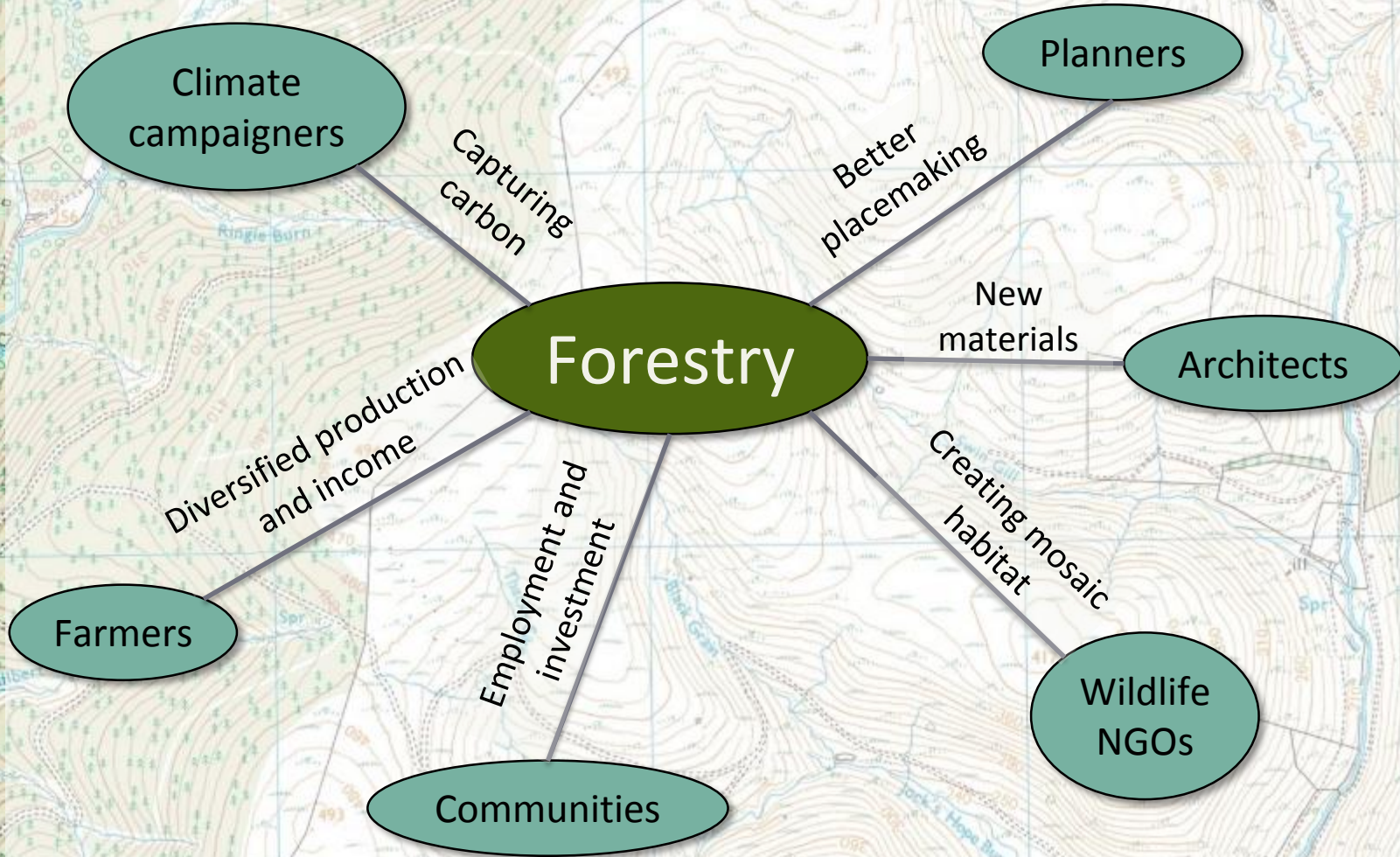
Animating forestry

If wood didn't exist then we'd surely invent it.



Build alliances

Making it happen



I'm lonely

Making it happen





Strategic Integrated Research in Timber

Edinburgh Napier
UNIVERSITY

Wood & the bioeconomy: big opportunities, bigger challenges?

Dan Ridley-Ellis

Centre for Wood Science and Technology
Edinburgh Napier University

Superwood: How forestry & timber can drive a low carbon economy
A Confor event, 14 December, Newcastle-upon-Tyne



THE QUEEN'S
ANNIVERSARY PRIZES
FOR HIGHER AND FURTHER EDUCATION
2015

Bioeconomy, trees and timber

- Reduce non-renewables, jobs, climate change
- Raw materials are the backbone of industrial development
 - Linked to well-being, health, standards of living
- Forestry is chief among the sources of biotic materials
 - includes natural rubber too
 - although its not the only one (marine, agriculture etc)
- Foresters *right now* are influencing the supply for 2050

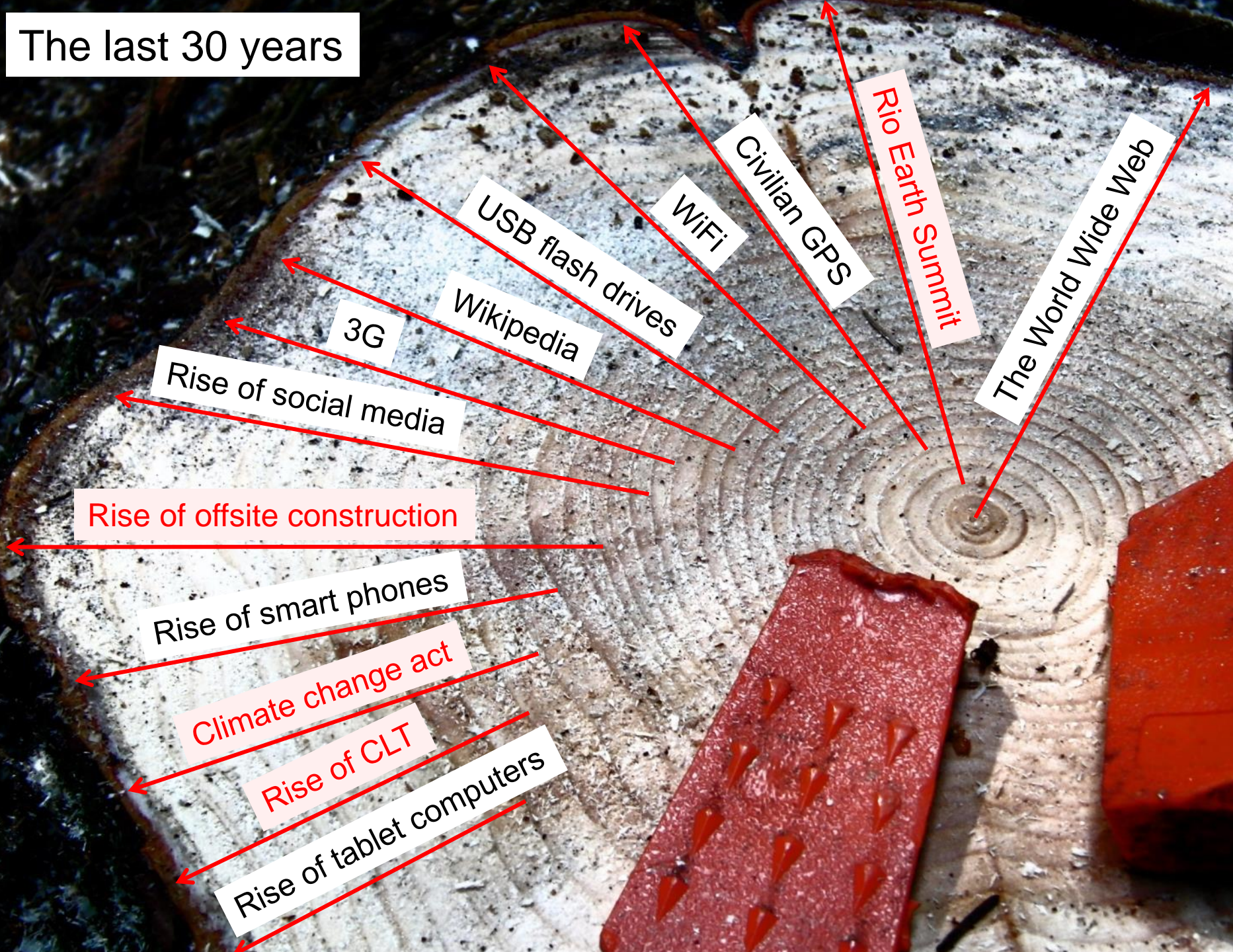


Opportunities

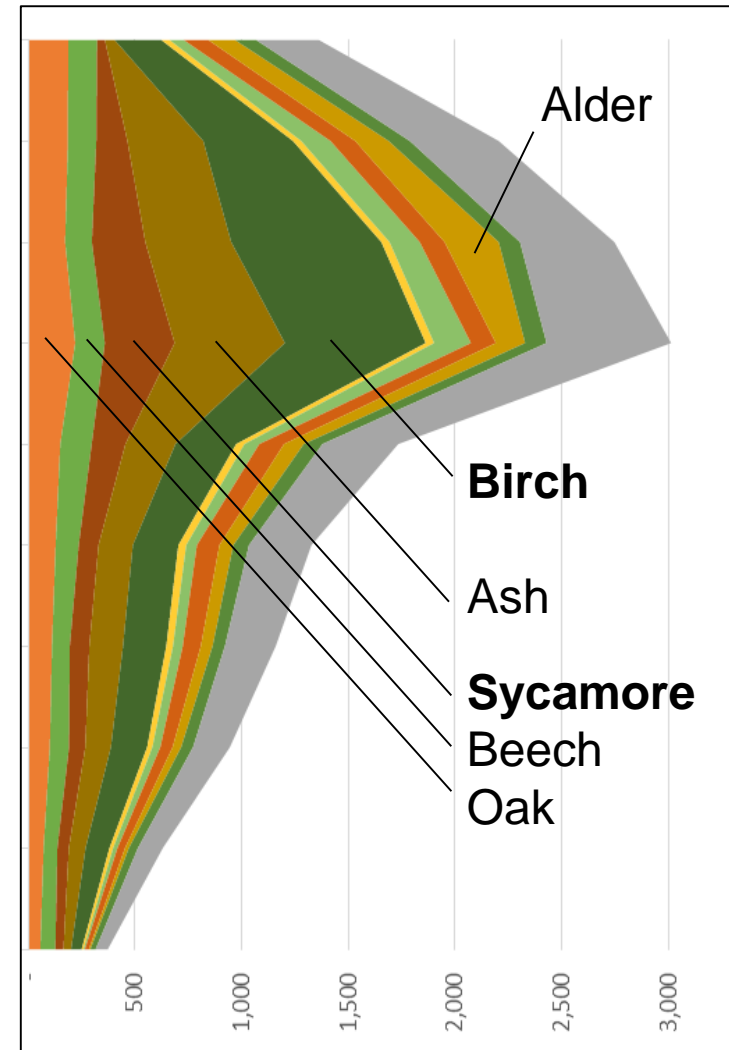
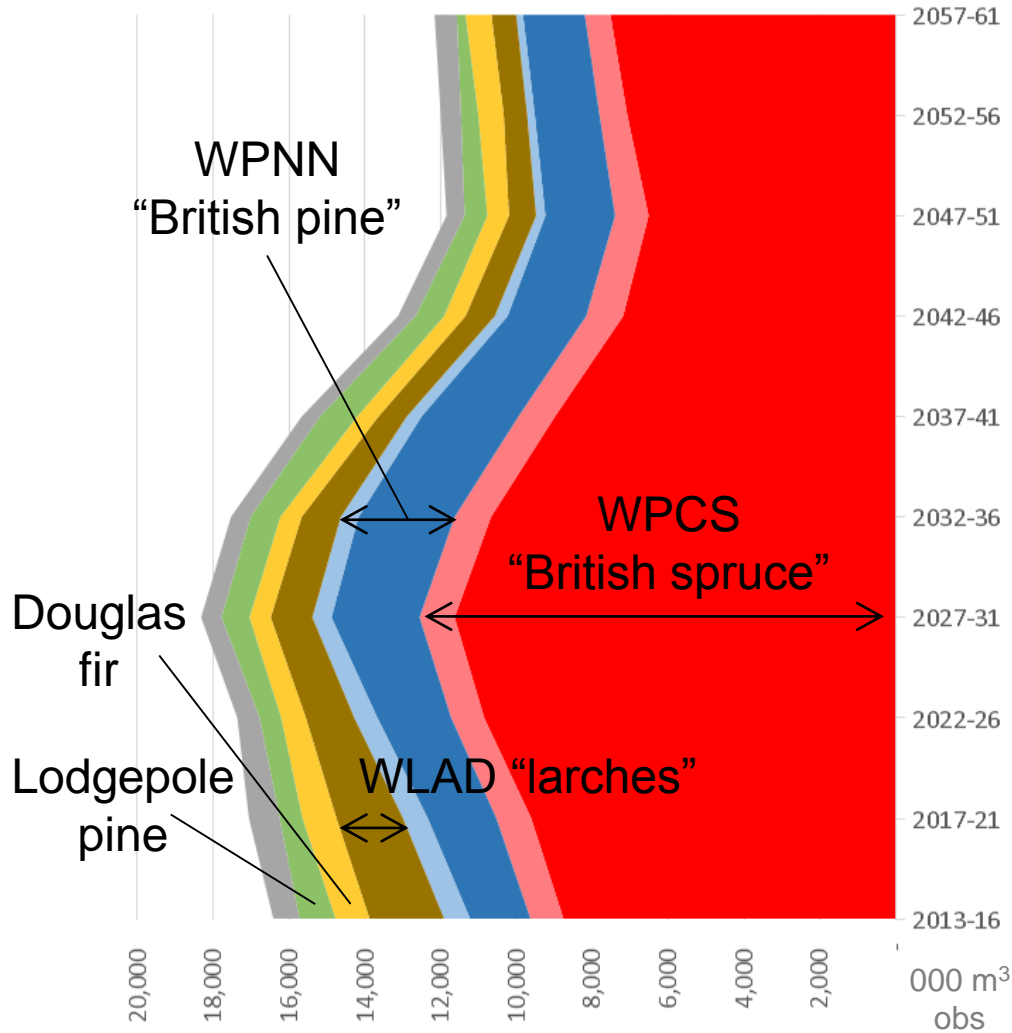
- More wood in construction
 - Innovations like CLT
- More wood in manufacturing
 - Innovations like modified & engineered wood
- More wood in bioenergy
 - Including biorefineries for fuel
- Biocomposites and textiles
- Biochemicals
- Ecosystem services of trees & forests



The last 30 years



GB volume forecast (FC)



Challenges

- We already made many of the decisions
- Public & industry views of forests are not aligned
- Development is too fixated on novelty
- The scale is huge
- Forestry also depends on the abiotic materials supply
 - Metals, minerals, fuel, aggregates



Need to change our thinking

- “Wood is abundant”
- “Industry can focus on just a few species”
- “We can continue to expect rising quality”
- “Price will remain low for basic products”
- So we will need ways of dealing with more variety and less information from past experience and extensive testing
- We must be better at directing to the right value streams – even before forest matures

e.g. VERAM roadmap 2050 (Europe)

- Better resource efficiency
- Circular economy
- Sustainable development
- Reduced import dependency

- Emerging technologies
- Environmental challenges
- Societal changes



Sustainable supply (Europe)

- Currently, forest increment > harvest
- Yet forest rich countries are net importers
 - Economic reasons
 - “Limited availability of the required wood varieties”

Biotic sector

To maintain and strengthen the competitiveness of the European forest-based sector, it is crucial to secure an efficient, sustainable and **high-quality wood raw material supply** while following the principle of right wood to the right end use. The provision of raw materials in the context of sustainable forest management and the further development of efficient and environmentally friendly forest operations are core activities of the forest-based sector.

No! *Correct* quality



What is not going on to help?

(e.g. for construction)

- Standardisation demanding more and more test information
 - Problematic for minor species
 - Problematic for recycled and reused timber
- Unfamiliarity of engineers with wood
 - Also the other building professionals
 - And skills shortages in the wood chain
- Habitual specification of the usual species
- Over specification of grade



What is not going on to help?

(e.g. for construction)

- Junk and/or unverified “knowledge” (both positive and negative about wood)
- Green washing, ecobling & bad accounting
- Too much emphasis on locked in carbon
- Design without thought to reuse & recycling



Preparing for future forests

- Different species
 - New planting
 - Using more of what we already have
- Familiar species but changed
 - By climate change, pests and diseases
 - By forest management
 - By seed selection and tree breeding
 - Especially now with genomic selection
 - e.g. “Sitka spruced” project <https://www.forestry.gov.uk/fr/sitkaspruced>

We will need ways of dealing with more variety and less information from past experience and extensive testing



Summary

- Wood is the material of the future (whatever we do)
- But renewable is not the same as limitless
 - New planting needed
 - Planning ahead
 - Availability needs to be an impact assessment parameter
 - Need to be better at “forest fractionating”
 - Can our biobased economy be “techno-commensalism”?
- We need to align conflicting views of forests

