

**COST ACTION FP 0703**

**Echoes: Expected Climate cHange  
and Options for European Silviculture**

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## Country Report: Major points

### *United Kingdom*

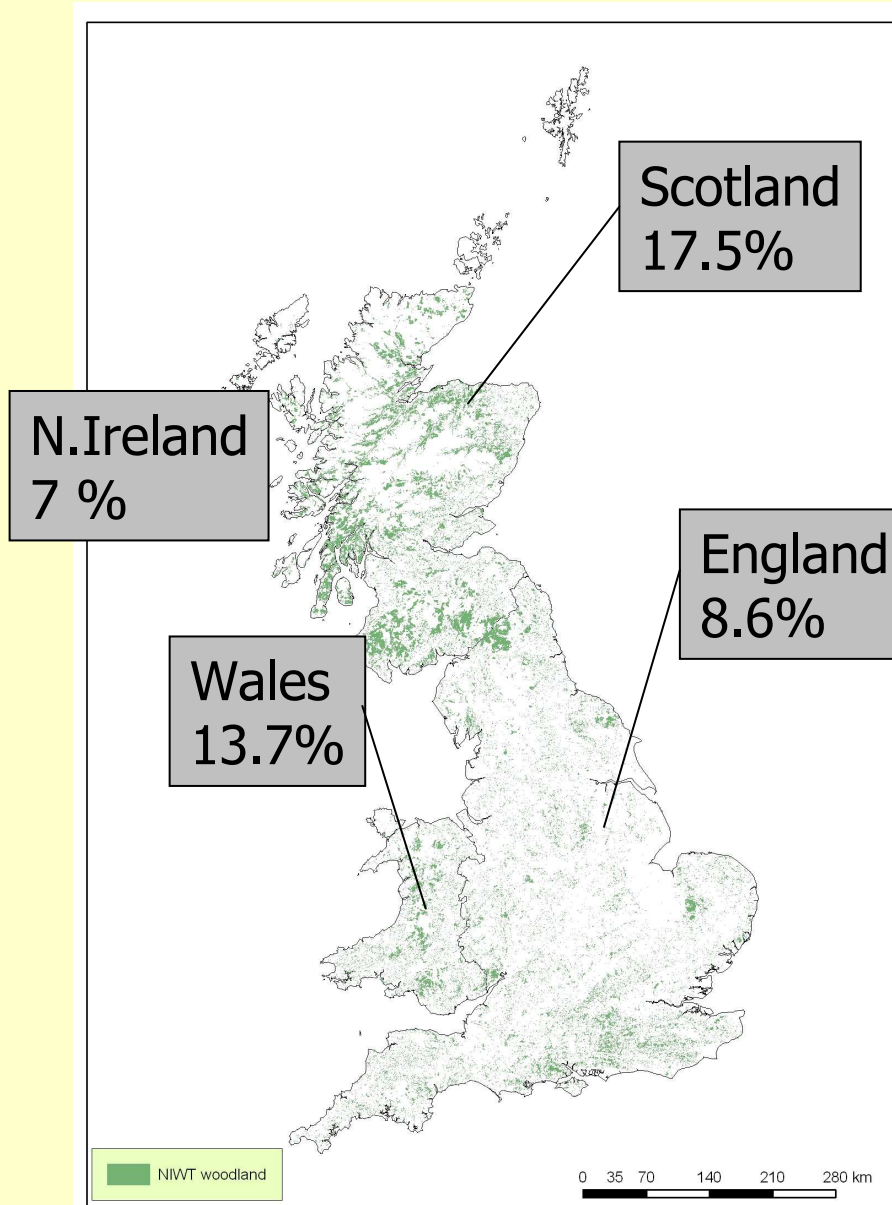
22-24 January 2009, Florence - Italy

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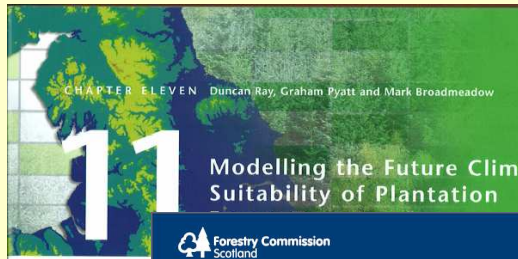
# Forest area of UK



Year	Forest Cover
1924	5%
2007	11.9%

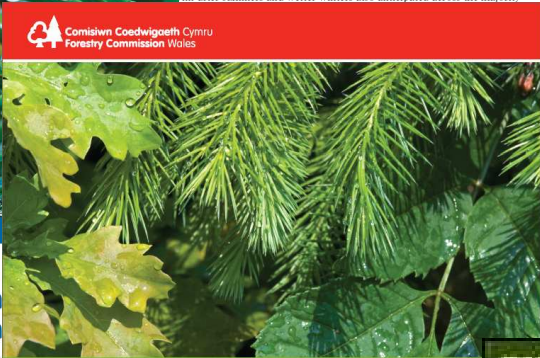
<i>Forest area</i>	<i>2.84 M ha</i>
Conifers	58% = 9 M m <sup>3</sup> yr <sup>-1</sup>
Broadleaves	42% = 0.4 M m <sup>3</sup> yr <sup>-1</sup>

# Climate Change Publications: 2000 to present



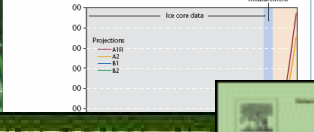
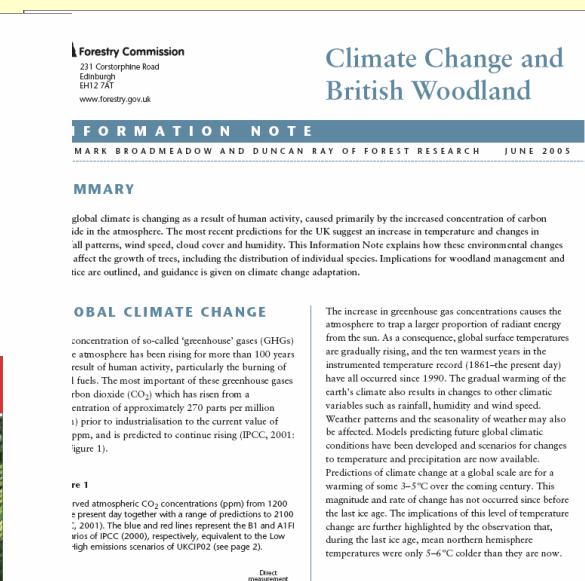
Climate change is now one of the greatest global challenges, and research is under way on all aspects of the environment. Forestry Commission Scotland has commissioned research to determine how forests and forestry in Scotland will be affected by climate change. This Research Note provides an initial synthesis of the likely impacts, with preliminary recommendations to support development of forestry in Scotland. Climate change will create many challenges and opportunities. Productivity will increase in some areas and a wider selection of species will become potential threats, including drought, increased insect and disease damage, and wind damage to combat these will be necessary. There are many uncertainties associated with climate change on trees, management systems and forest operations. A key basis for risk planning is the timing of operations. Scotland's aspiration to expand woodland from 17% to 20% of the land area provides an opportunity to target reforestation within habitat networks. This will reduce wood loss and help improve the resilience of woodland ecosystems to climate change.

FCRN101 1



Climate change is now one of the greatest global challenges, and research is under way on many aspects of the environment. Forestry Commission Wales has commissioned Forest Research to determine how forests and forestry in Wales will be affected by climate change. This Research Note provides an initial synthesis of the likely impacts, with preliminary recommendations to support the revision of the Wales Woodland Strategy. Climate change will create challenges and opportunities for the Welsh forest industry. Productivity will increase in some areas and a wider selection of species will become suitable, but effects will vary spatially and by species. Approaches to woodland management will be required to address potential threats of drought, increased insect and disease damage, and wind damage. There are many uncertainties associated with climate change, and the likely impact on trees, management systems and forest operations. A key concept in risk planning and management diversification, from broadening the choice of genetic material, mixing tree species in stands, to varying management systems and the timing of operations. An aspiration of the current Wales Woodland Strategy is to increase the proportion of woodlands managed using low impact silvicultural systems. This conforms with the need to adapt management through species choice, promote management that has a lower environmental impact on forest and improve the overall resilience of woodland ecosystems to climate change.

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### CLIMATE CHANGE SCENARIOS FOR THE UK

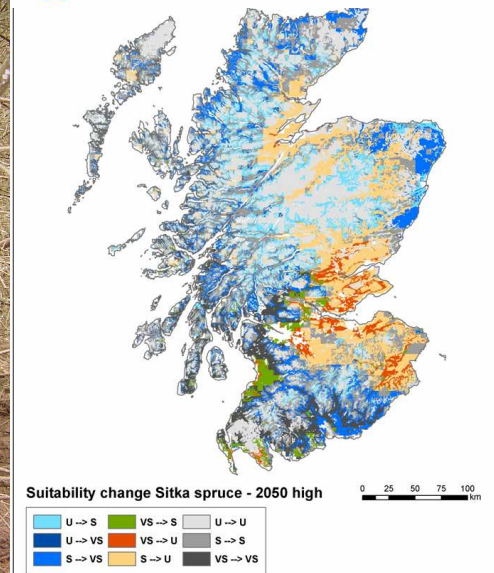
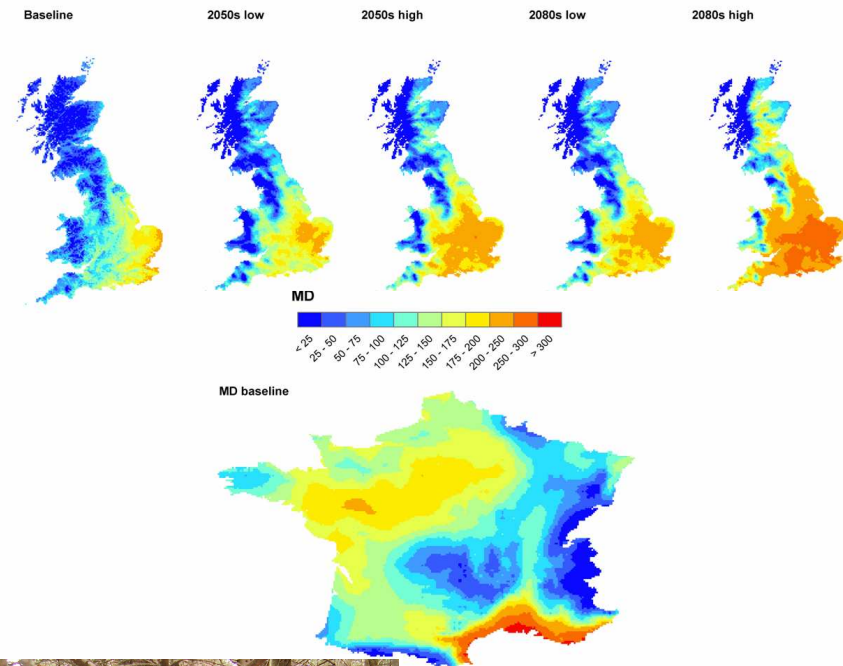
The prediction of climate change scenarios for the UK is based on the IPCC (2000) scenarios. The greatest uncertainties are in the timing and magnitude of the temperature increase.



# Impacts

- Milder winters – Warmer summers – Inc. CO2
  - Earlier budburst – later bud set
  - Increased growth in warmer and wetter summers
- Wetter winters – Drier summers
  - Winter water logging, summer drought – abiotic damage, reduced growth in dry summers
  - Biotic damage, reduced growth + increased mortality
  - Reduced tree stability
  - Increased incidence of fire
  - Slope stability, soil erosion, water quality
- Changing suitability – Ecological Site Classification
  - Biophysical suitability model
  - Main drivers being drier summers and wetter winter soils

Moisture Deficit comparison between France baseline climate and UKCIP02 scenarios for Britain



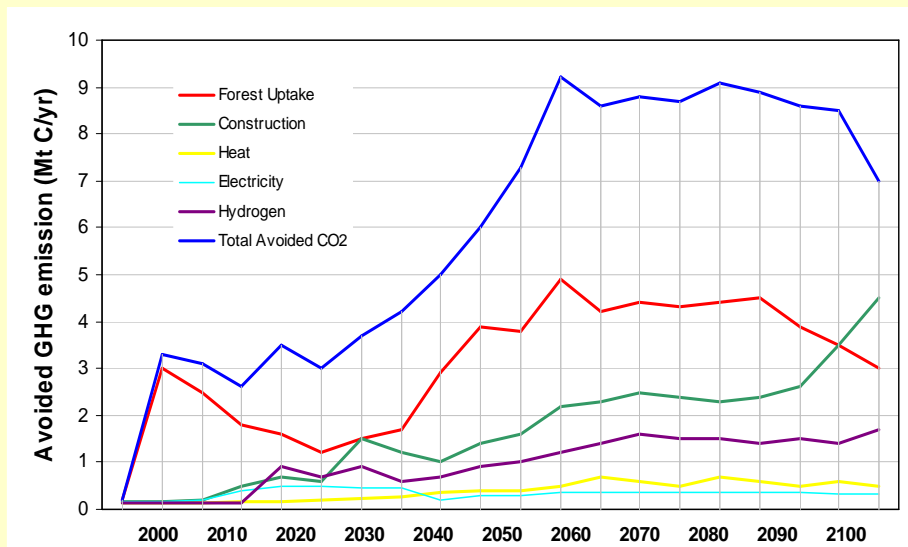
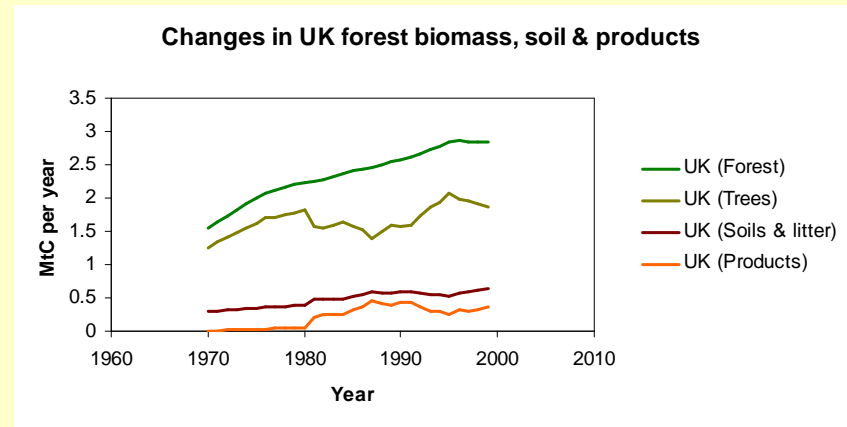
# Adaptation

- Spread risk and increase resilience of existing stands
  - Greater use of mixtures;
  - More dynamic silviculture;
  - More diverse stand structures
- Adopt shorter rotations
  - Accelerated tree breeding;
  - More deployment of improved (conifer) genotypes;
  - Timber products from trees with more juvenile wood.
- Improved support tools
  - Better growth and yield models;
  - Decision support systems.

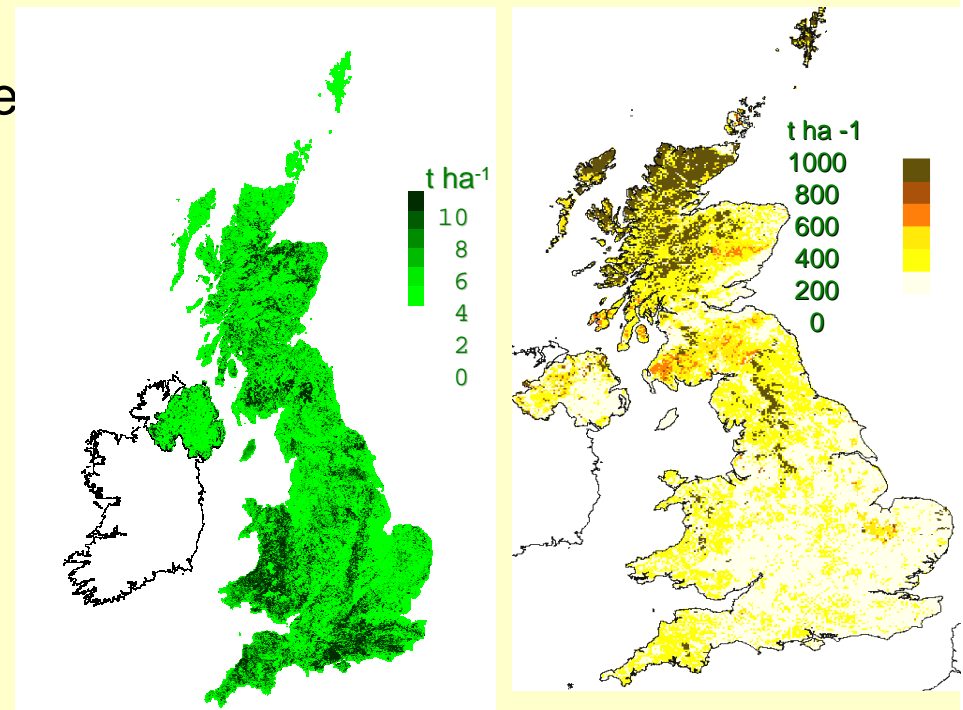


# Mitigation

- Maintaining/increasing C pools (also soil)
- Reforestation & forest management to enlarge CSS
- Short rotation forestry
- Using wood for fuel: C neutral, effective, reliable, sustainable & cheap (1m<sup>3</sup> wood used instead of coal avoids 0.2tC)
- Wood products: 1m<sup>3</sup> timber to replace V of bricks/concrete avoids 1-2 tC emissions



( Tipper et al., 2004)



Vegetation Carbon

Soil Carbon

(MLURI, 2000)

# Conclusions

- Need for continuing and consistent knowledge transfer;
- Closer research-policy-practice interface;
- Practical guidance and decision tools;
- Understand foresters' perceptions of climate change;
- Appreciate foresters' time horizons and their willingness to act;
- Design effective incentives for adaptation/mitigation;
- Consider an appropriate regulatory structure.