Woodland expansion: a Scottish perspective

Alison Hester

The James Hutton Institute

Talk outline:

1. Setting the scene – Scotland's woodland resource
2. Benefits of woodland expansion?
3. Objectives and targets
4. Wider considerations for woodland expansion

1. Setting the scene: Scotland's woodland resource

- Native woodland current extent: ~4% land area of Scotland
- Total woodland including plantations: c 19% land area **(6th lowest in EU!)**
- Estimated biophysical potential (current climate): ~50%
- Why the mismatch?

Potted history – Scotland's native woodland over time

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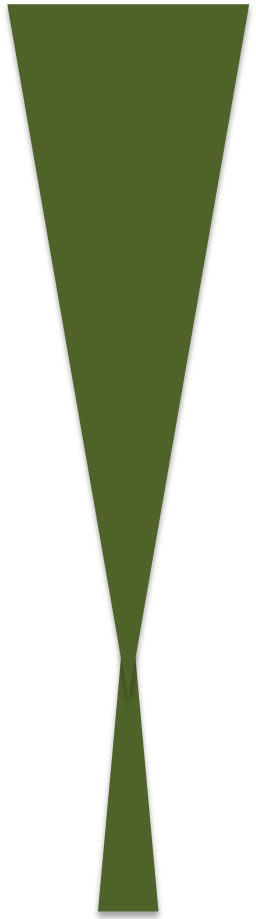
TIME

- Native woodland colonised widely after end of last ice age – to a peak of 80%(?) of Scotland's land area c 5000 BP…
- Long process of decline since then…
  - major decline c 4000 BP - attributed to combination of climate change (cooler/wetter) and increased human activity (felling, burning, grazing)
  - continued decline, primarily driven by human activities – only c 4% cover remaining by 1900s…
- 1919 Forestry Act – widespread planting for timber
- Small increases in native woodland establishment in last 20+ years after introduction of grant aid.



Woodlands: policy & legislative drivers

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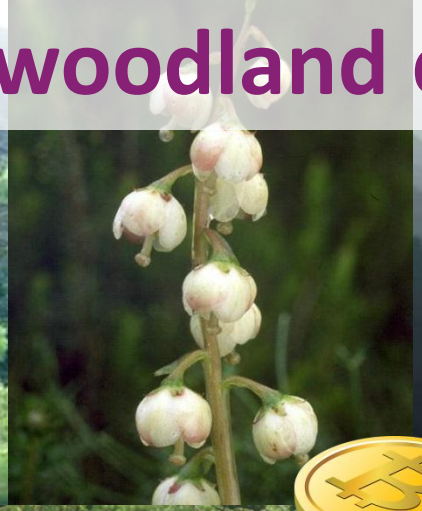
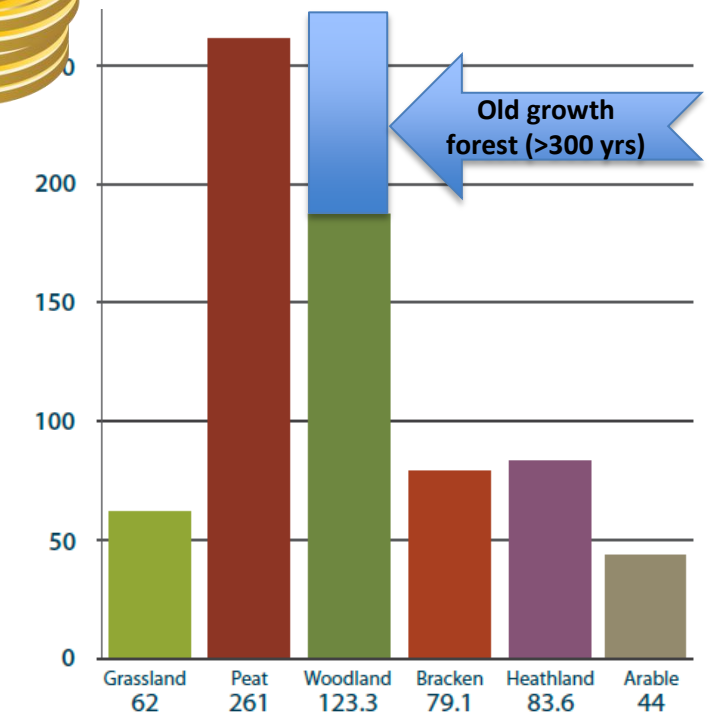
- Push to increase timber production since early 1900s – creation of extensive areas of conifer plantations, especially in Scotland
- Since 1980s, forestry policy has moved from main focus on production towards a mix of services: recreation, biodiversity, flood regulation, landscape… leading to diversification of planting species & layouts…
- EU biodiversity targets agreed in last 20 yrs require expansion of some native forest types (and other habitats) across UK…
- Today we have a complex mix of environmental, economic and social drivers for forest expansion.

2. Benefits of woodland expansion?





Estimated figures of carbon stored in soil and vegetation in tonnes of carbon per hectare

Scottish Forestry Strategy 2006 – benefits of woodland expansion:

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- **Helping tackle greenhouse gas emissions** (C seq, timber & fuel)
- **Restoring lost habitats and adapting to climate change** (forest habitat networks & new native woodlands)
- **Helping manage ecosystem services** (flood management; protection of soil & water resources)
- **Underpinning a sustainable forest products industry** (consistent, reliable timber supply - processing & wood fuel)
- **Supporting rural development** (local businesses; farm diversification)
- **Providing community benefits (**woodlands in & around communities; focus on health & community needs)
- **Enhancing urban areas and improving landscapes** (improving derelict/neglected land; diversifying farmed landscapes).

Valuing woodland ecosystem services

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- **UK timber:** increased production from 4% in 1940s to 20% of UK consumption of timber, pulp & panel products today – predicted to rise further by 2020
- **C sequestration:** total C stock in UK forests including soils: c.800 Mt, plus c.80 Mt C in timber & wood products = currently estimated as highest-value ecosystem service of UK woodlands - more than double the woodland production value p.a.
- **Social/cultural services:** 250–300 million day visits to woodlands per year – estimated social/environmental value >£1.2 billion p.a.; landscape value £185 million; recreational value £484 million…

3. Specific objectives and targets

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International -> national obligations:

- ***European level:*** EU Species and Habitats Directives; EU Climate Policy Targets; EU Forestry Strategy…
- ***UK -> Scotland level 'translations'***, e.g.:
  - *Scottish Forestry Strategy 2006:* woodland expansion to 25% Scotland's land area by 2050:
    - Triennial Implementation Plans (current: 2015-18) and annual Progress Reports
  - *Woodland Expansion Advisory Group recommendation (2014):* 100,000 hectares of new planting in Scotland by 2022
- ***Scottish Government Strategic Objectives***…

4. Wider considerations for woodland expansion

- Woodland expansion *necessarily* results in reductions in area of other land use types…
- Cost:benefits, potential conflicts and trade-offs need to be assessed, not just under current conditions (economic/environmental/social) but into the future - forests are a 'long-term' land use change!
- Woodland expansion should meet the Objectives and Targets set…
- But not by unduly compromising food production or other important habitats…
- Spatial analysis and planning is critical!

Woodlands versus other land uses – example: food production:

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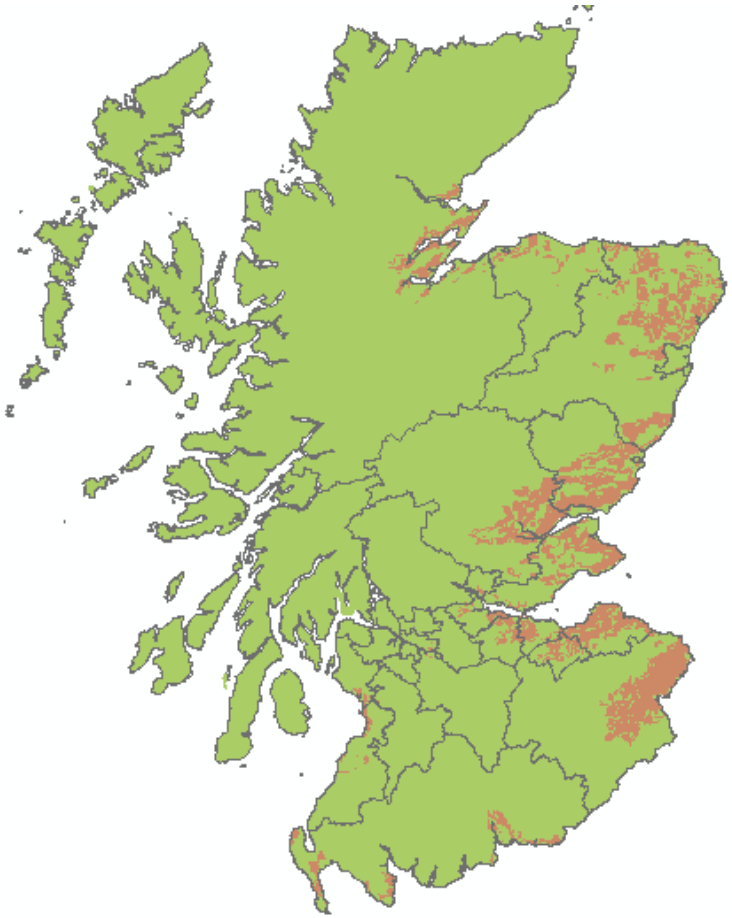
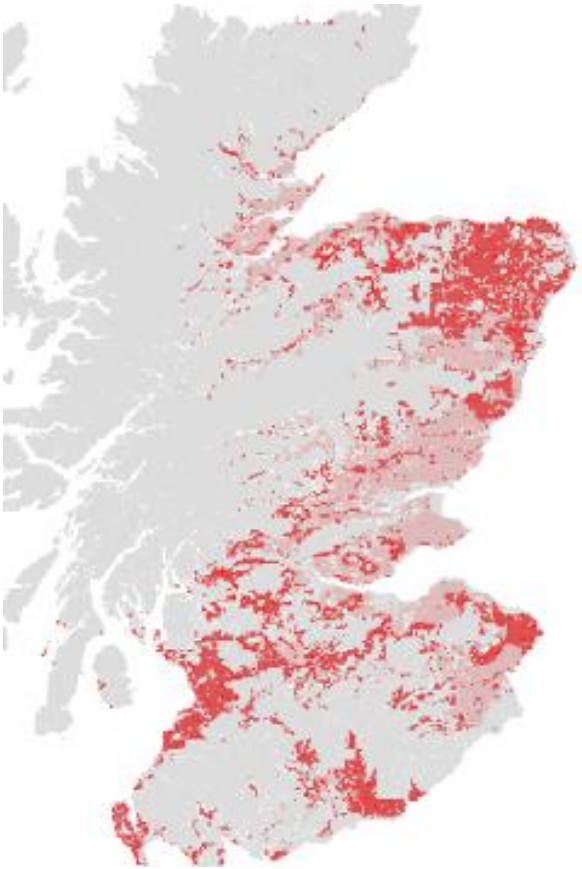
Prime agricultural land - & potential expansion (by 2050) under climate change:





‘Future-proofing’ planning for woodland expansion and networks…..

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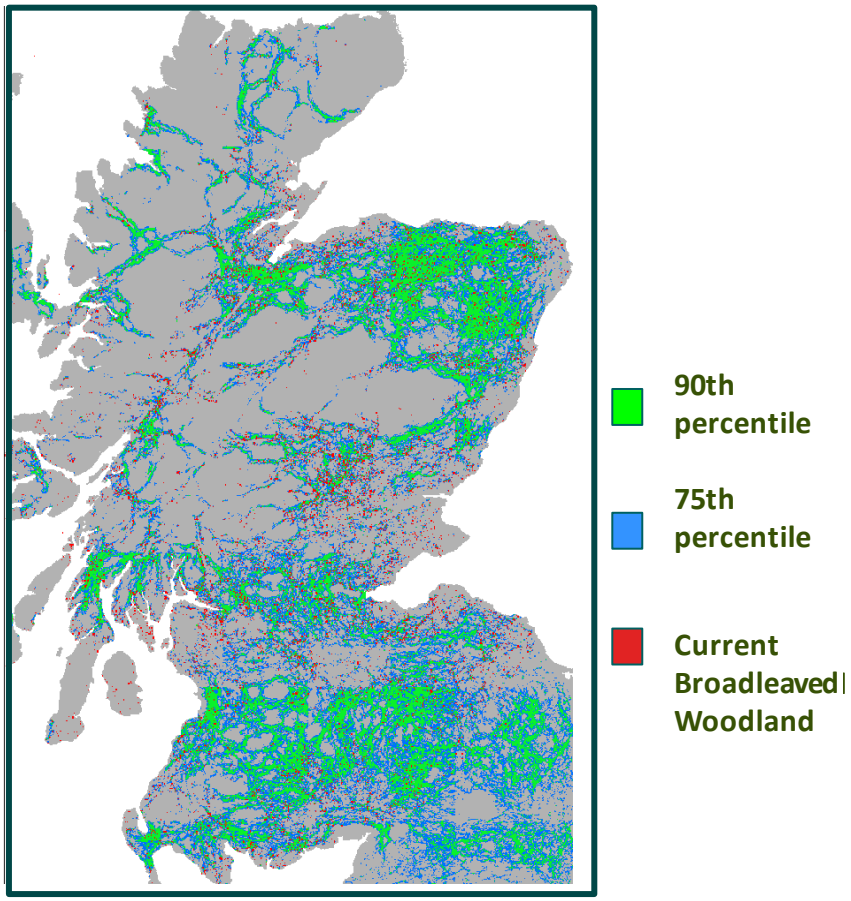
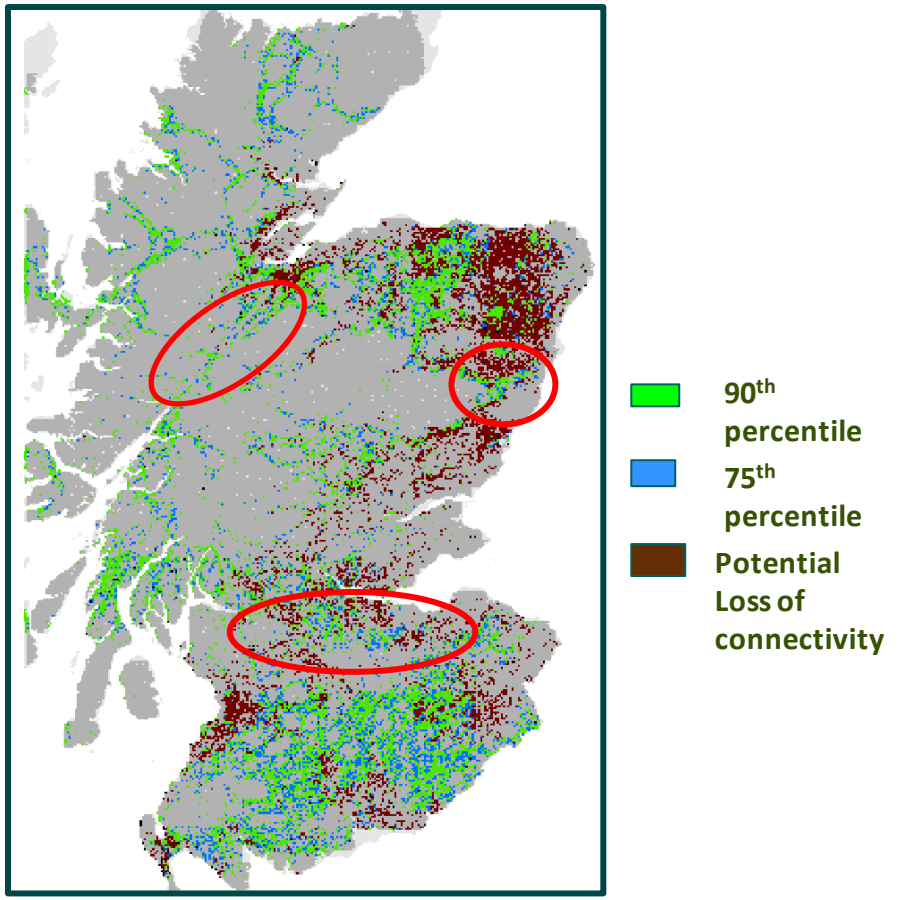
Landscape permeability to forest species



Present-day connectivity potential

Potential loss due to agric. intensification



2050s projection – Climate & Land Use Change

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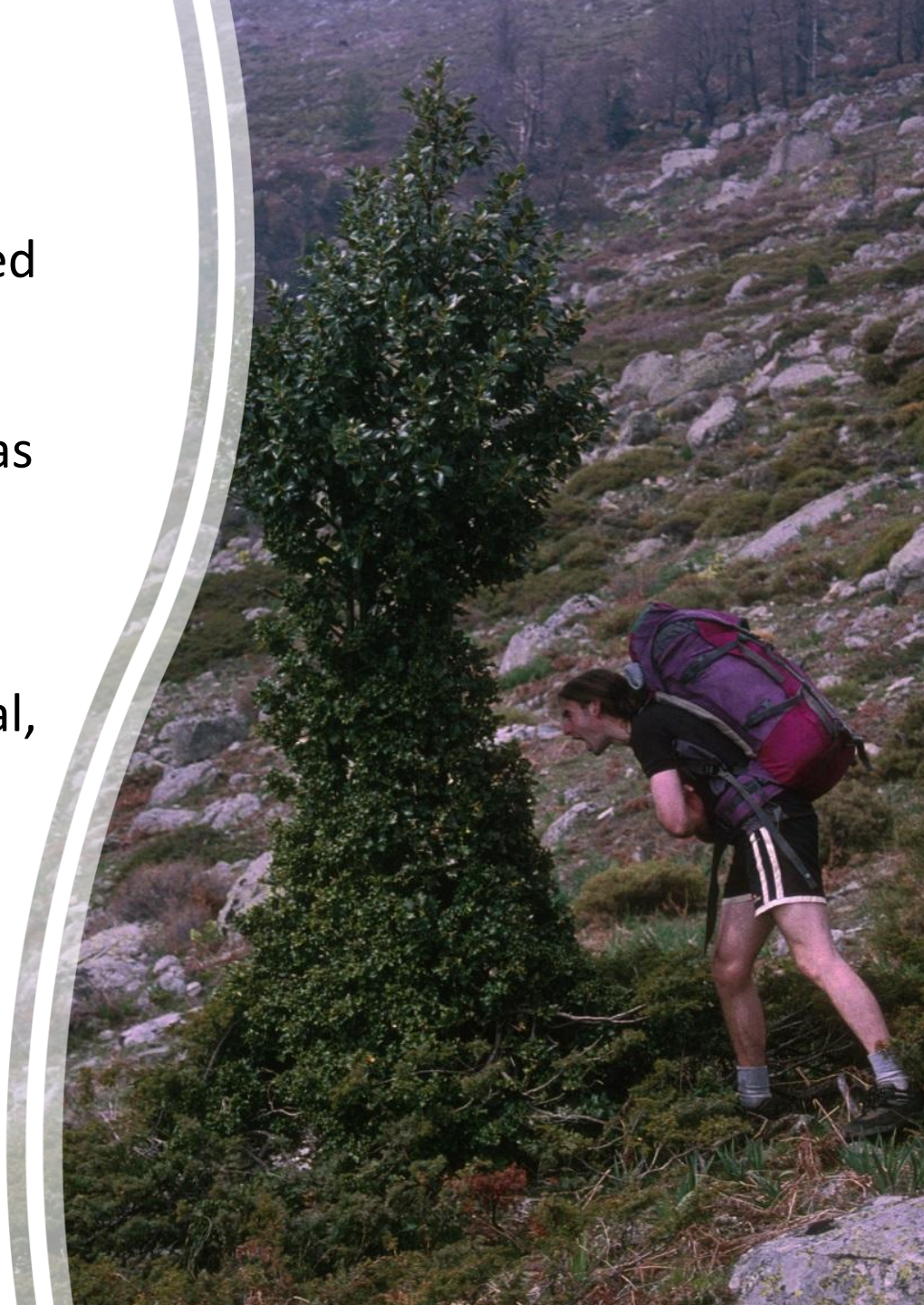
Summary

- Scotland's woodland has declined dramatically over millenia..
- Scotland (and whole UK) now has one of the lowest % woodland within Europe
- Multiple benefits (environmental, economic, social) are possible through woodland expansion
- But trade-offs inevitable and these need to be carefully researched and addressed…

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