

The background of the slide is a landscape photograph showing a dirt road winding through a field of tall grasses and young pine trees. In the distance, there are rolling hills under a cloudy sky. A green rectangular box is overlaid on the middle of the image, containing the title text.

Landscape ecology

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Forest Research

Grantham, 5th June 2007



Outline

- Introduction: Landscape Ecology and habitat fragmentation
- What can landscape ecology research from the Forestry Commission offer the forest industry?
- Where next?



What is landscape ecology?

‘interactions between species and the landscape they live in’

- Two approaches to studying landscape ecology:
 - Structure / composition
 - Function / process - *interactions, flow, movement*



Why do we need it?

- **Biodiversity decline**
 - Existing measures inadequate
- **Conservation strategies and policies**
 - Habitats Directive Article 10
 - UK Biodiversity Action Plan
 - GB, England and regional forest strategies
- **Sustainable landscape issues**
 - Integrated development
 - Climate change

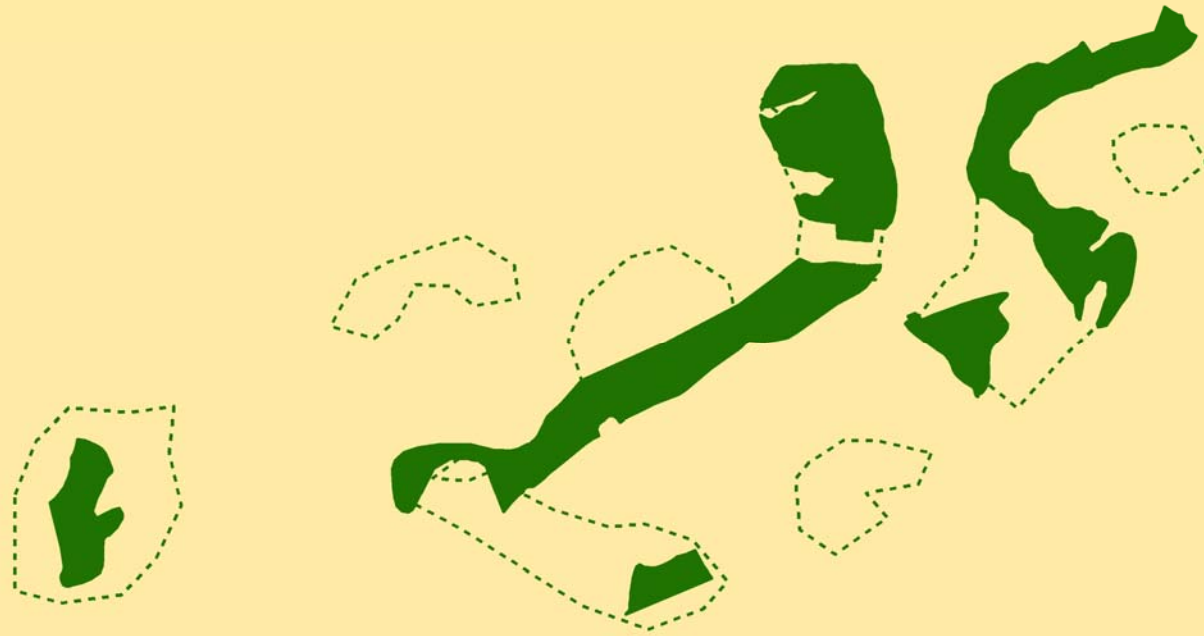


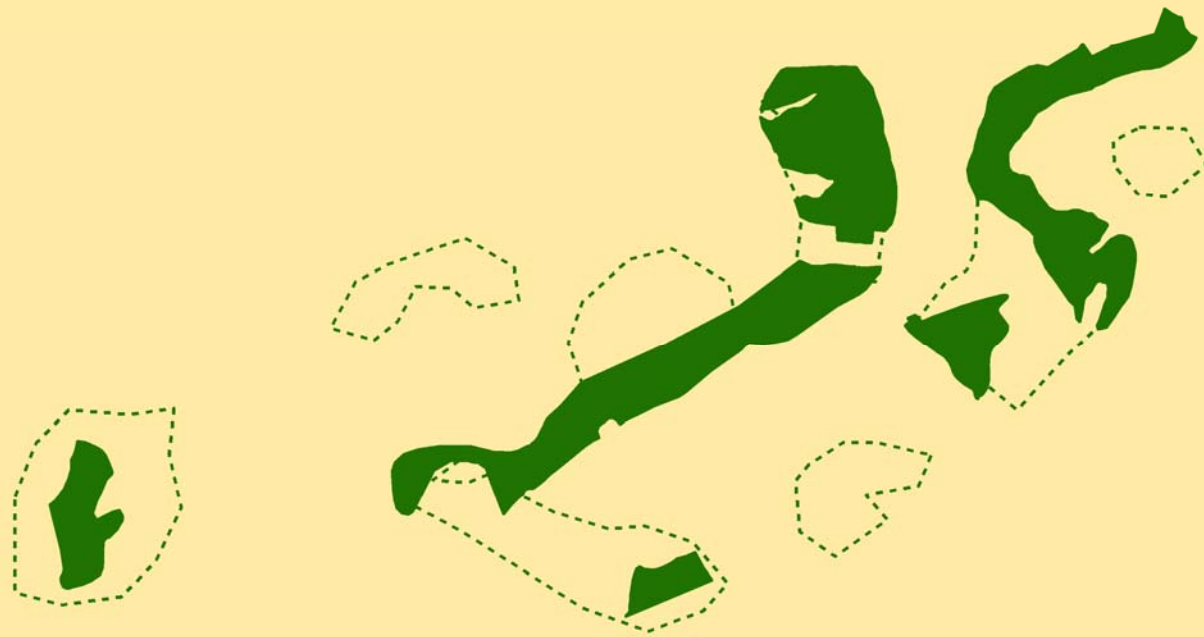
The East Midlands

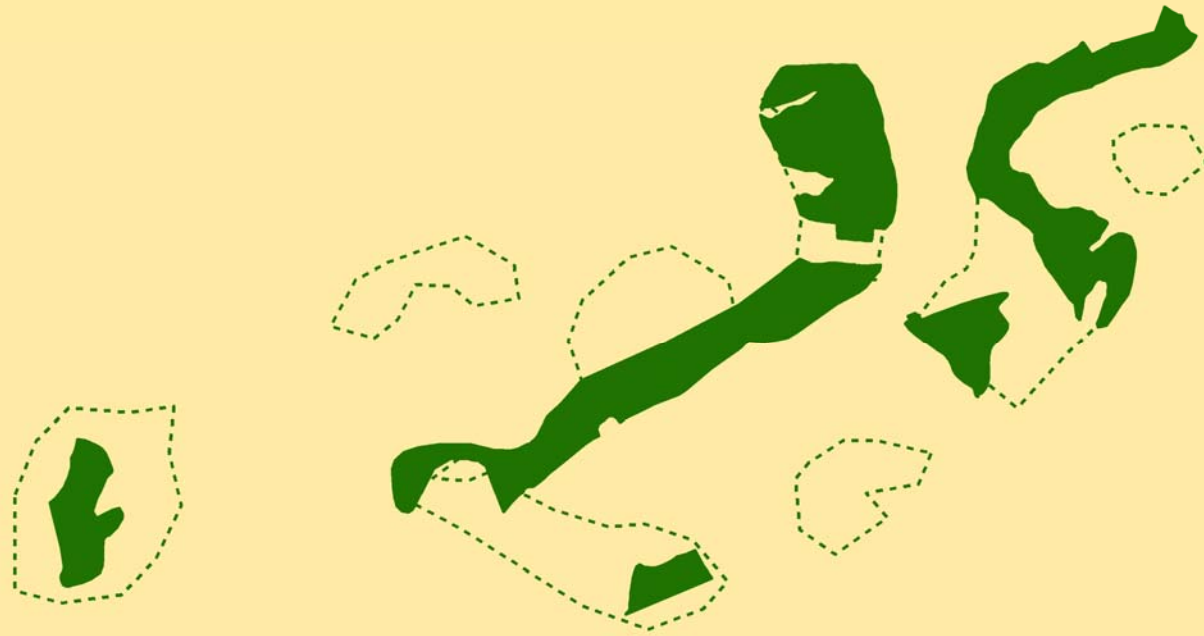
- Space4trees regional forestry strategy:
 - ‘landscape scale approach’
 - ‘ecologically functional wooded landscapes and habitat networks’











What can research offer the forest industry?

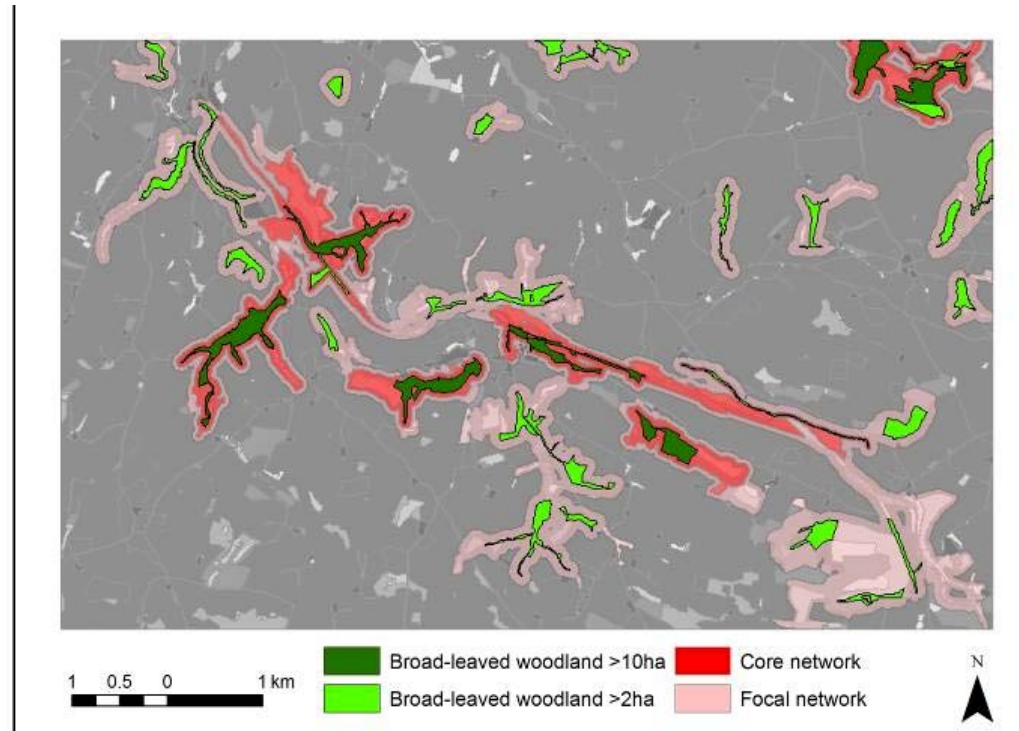
Tools to support management at a range of scales

- National/regional scale – *strategic planning, policy, targeting*
- Forest scale – *guide management, evaluate plans*



Example 1: Local targeting

Local targeting



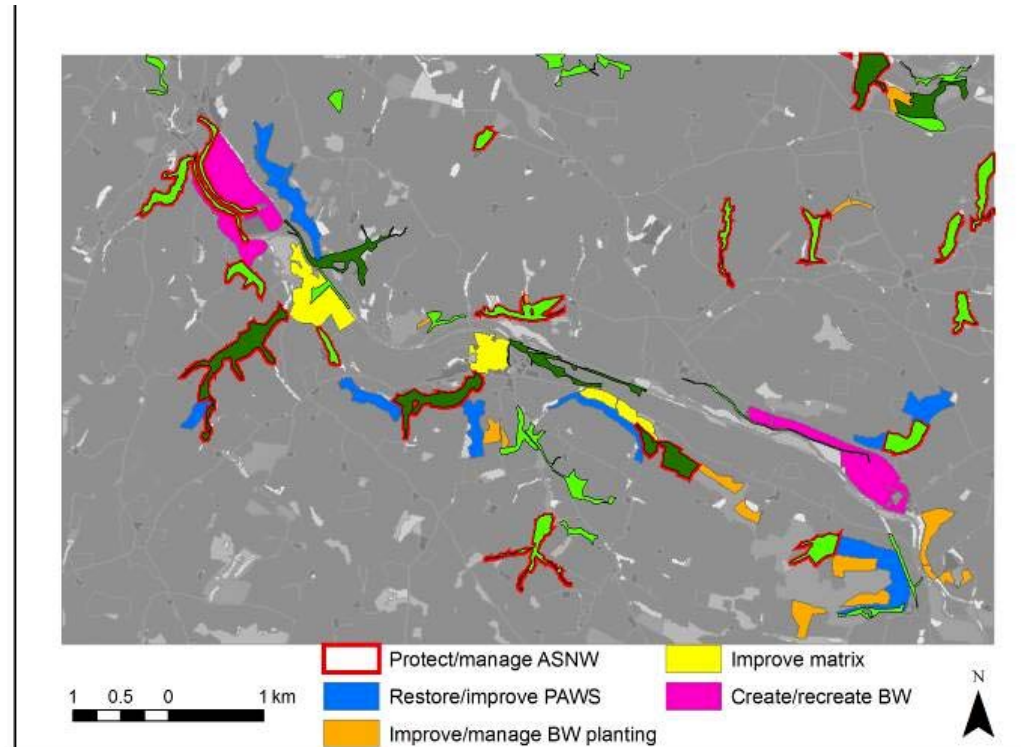
A buffer with variable width, based on the ‘naturalness’ of the habitat adjacent to the woodland, forms the basis of the FR Habitat Networks tool. The core network buffer shows which woodlands species are likely to be able to move between. The focal network is the framework for expanding the core network.

Targeting: Priorities

- **Protect & manage**
 - ASNW
- **Improve**
 - Neglected woodland
- **Restore**
 - PAWS
- **Expand**
 - Buffer or extend
- **Improve landscape permeability**
 - Extensify land use

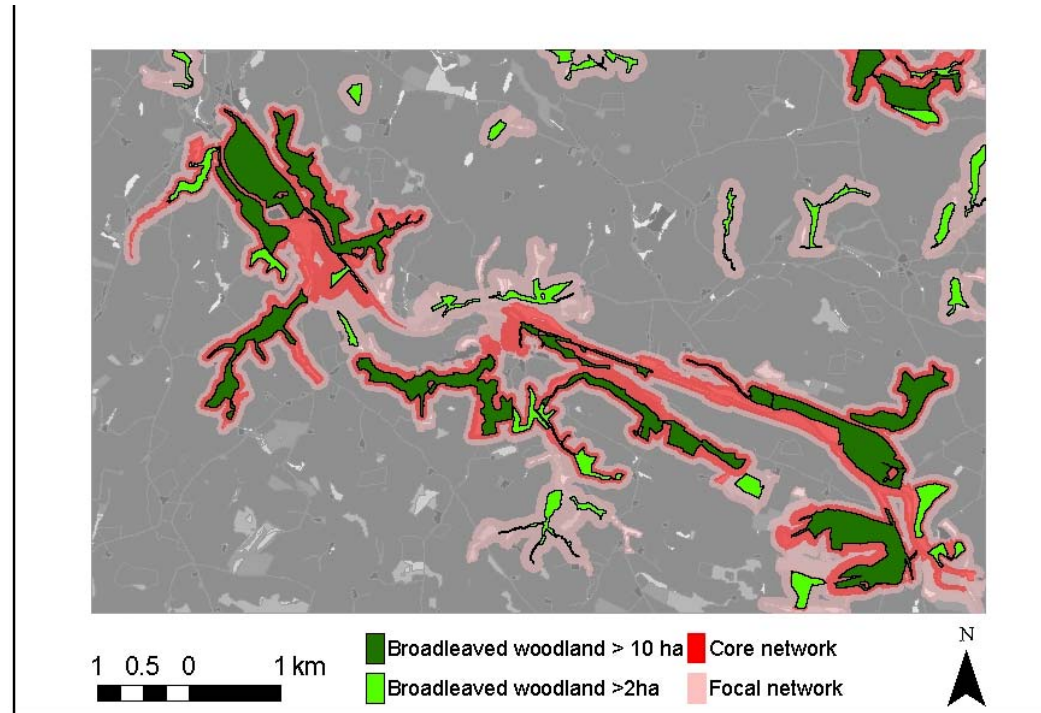


Local targeting



- Sites within the focal network are chosen for appropriate land-use adjustment following the list of priorities

Local targeting

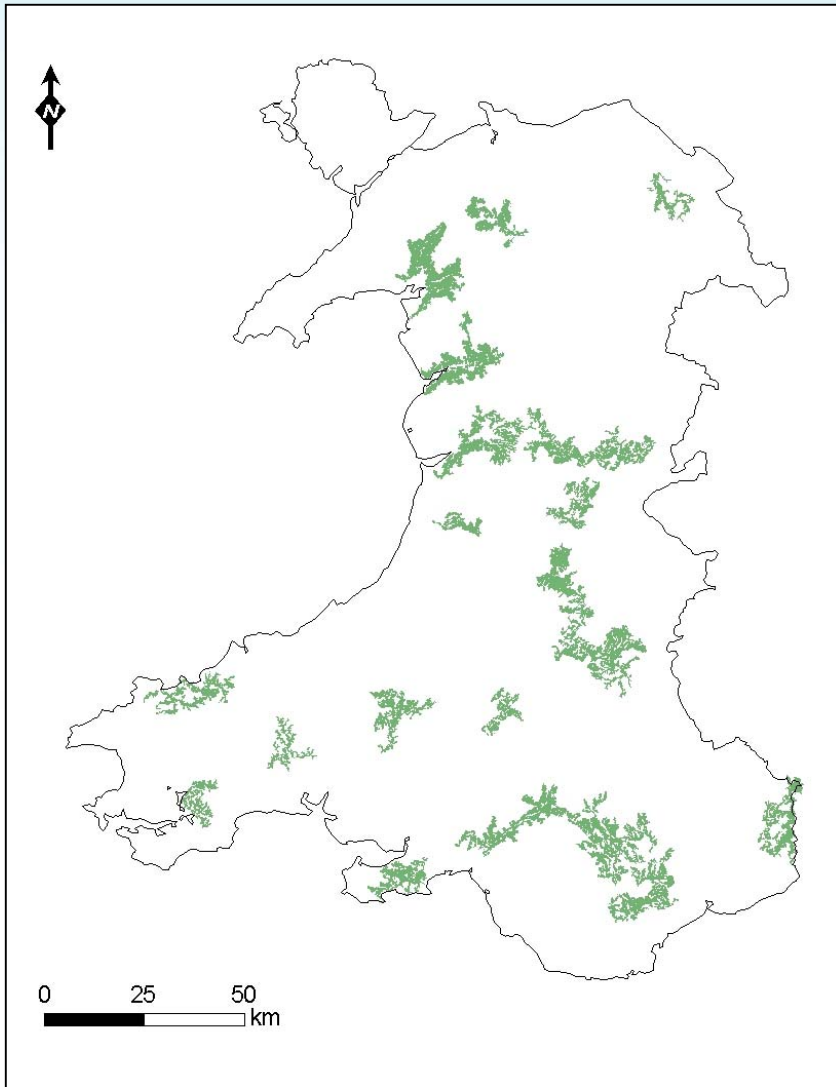


- Before the work is carried out, the effect on the habitat networks can be modelled to ensure it has the required effect

Example 2: Strategic targeting



Strategic targeting

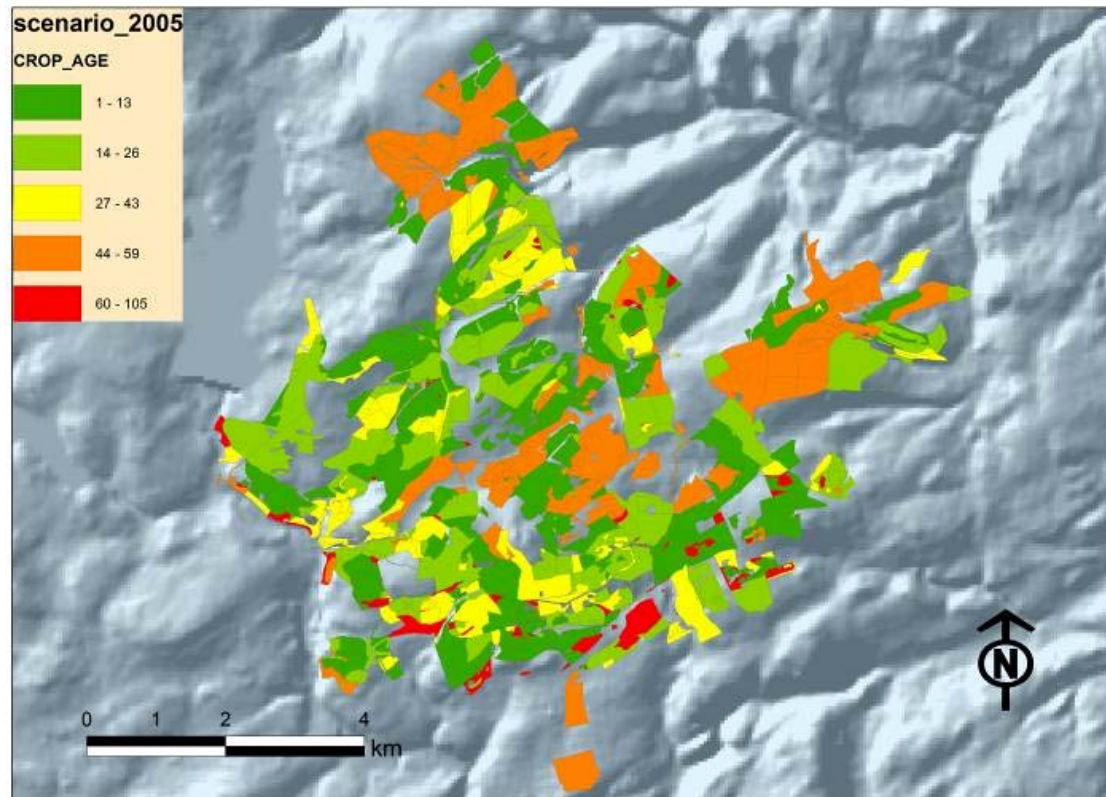


- The 20 focal networks containing the most woodland were used as the basis for grant scheme incentives in the Better Woodlands for Wales grant scheme, as these areas have the most potential to become large core networks

Example 3: Local evaluation

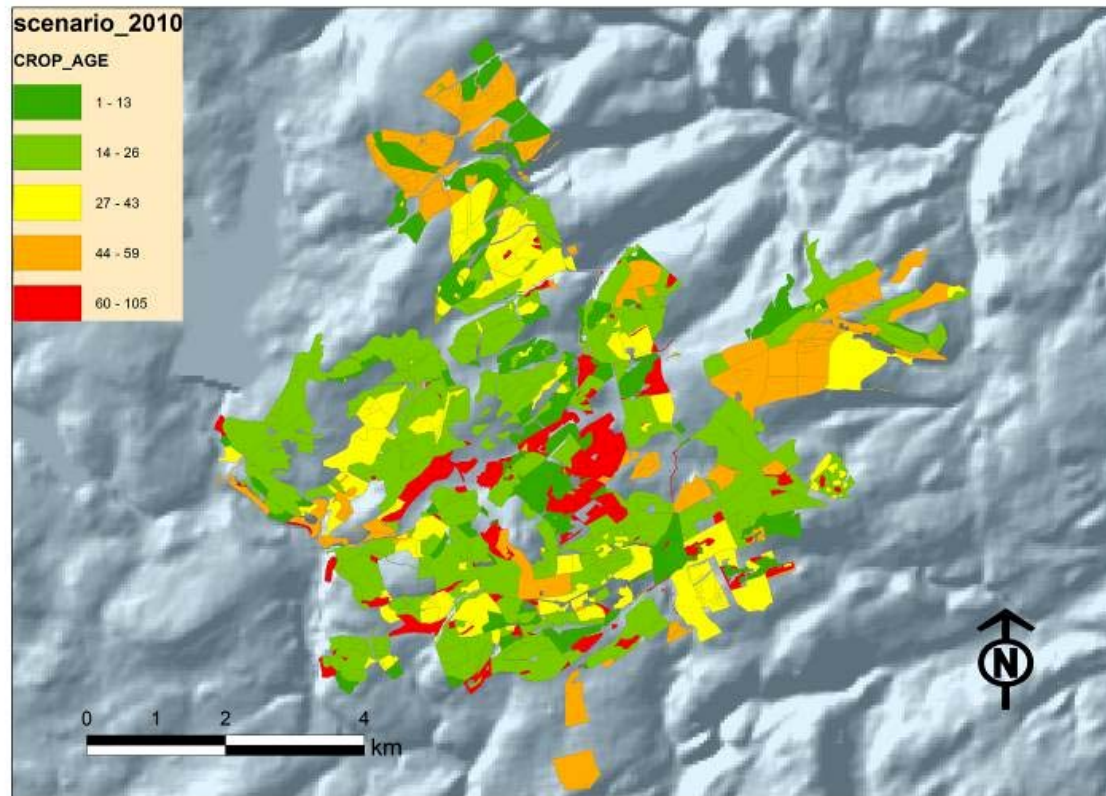


Forest plan evaluation - Clocaenog

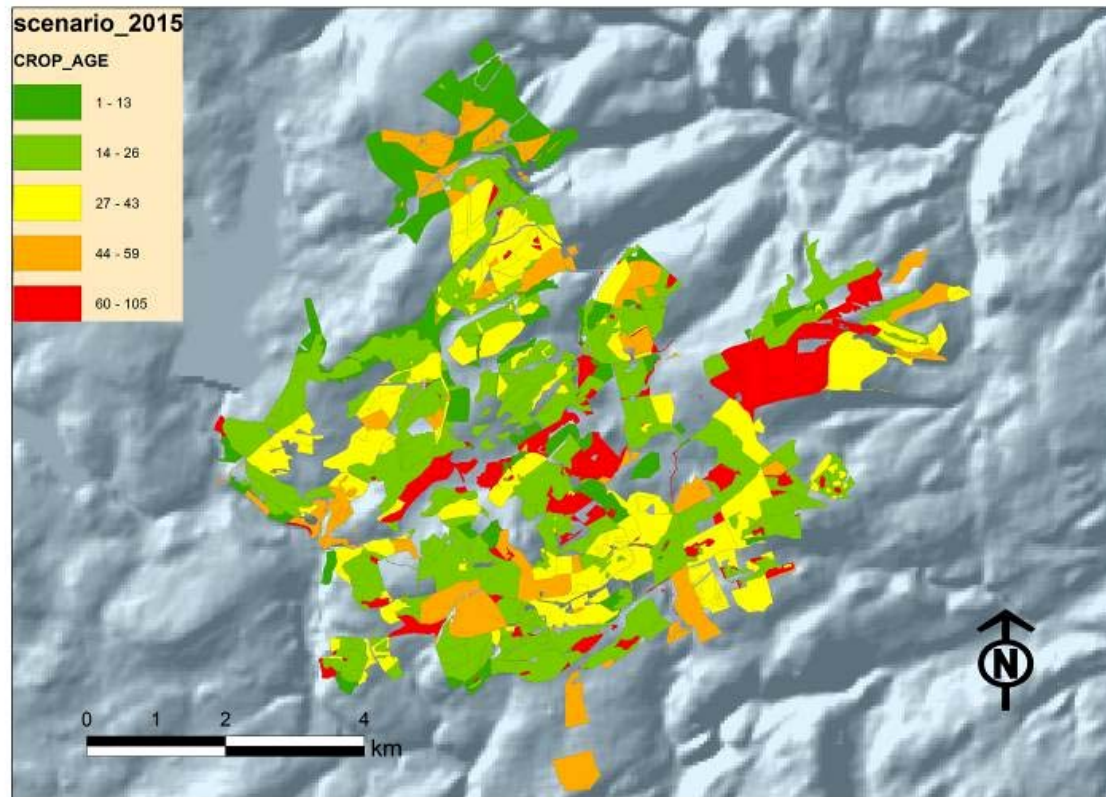


- Using the forest design plan, the forest structure for the next 30 years is sequenced

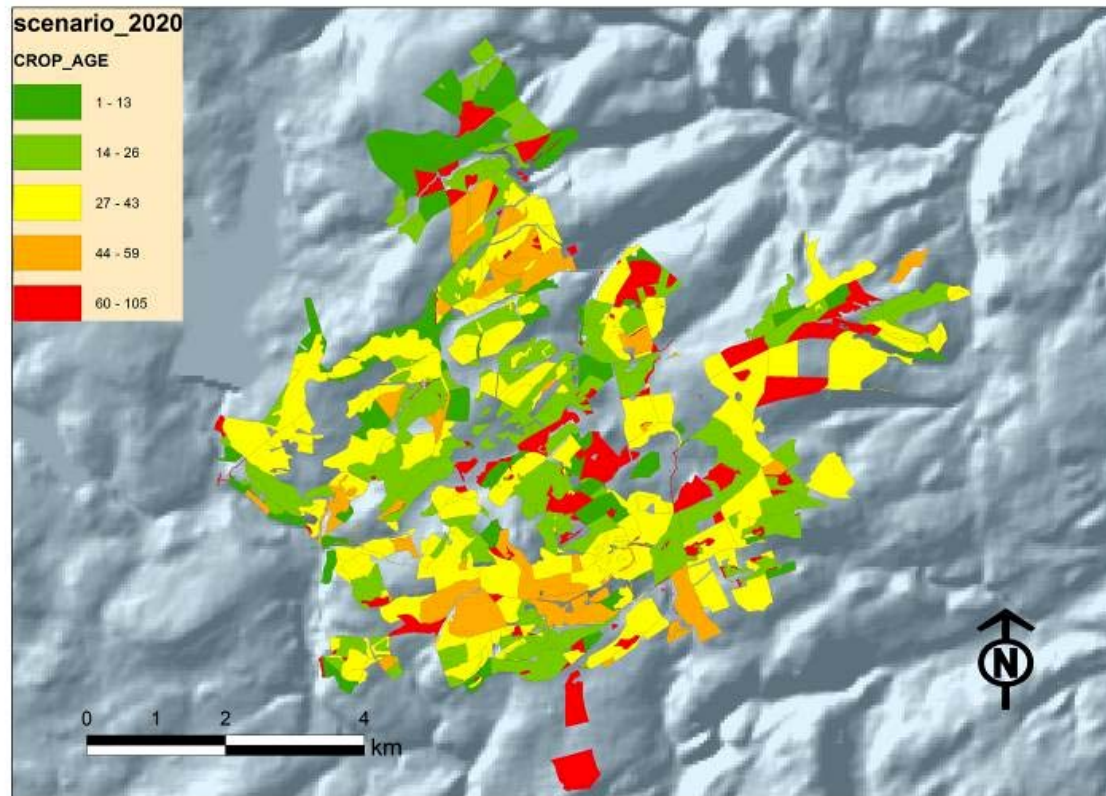
Forest plan evaluation - Clocaenog



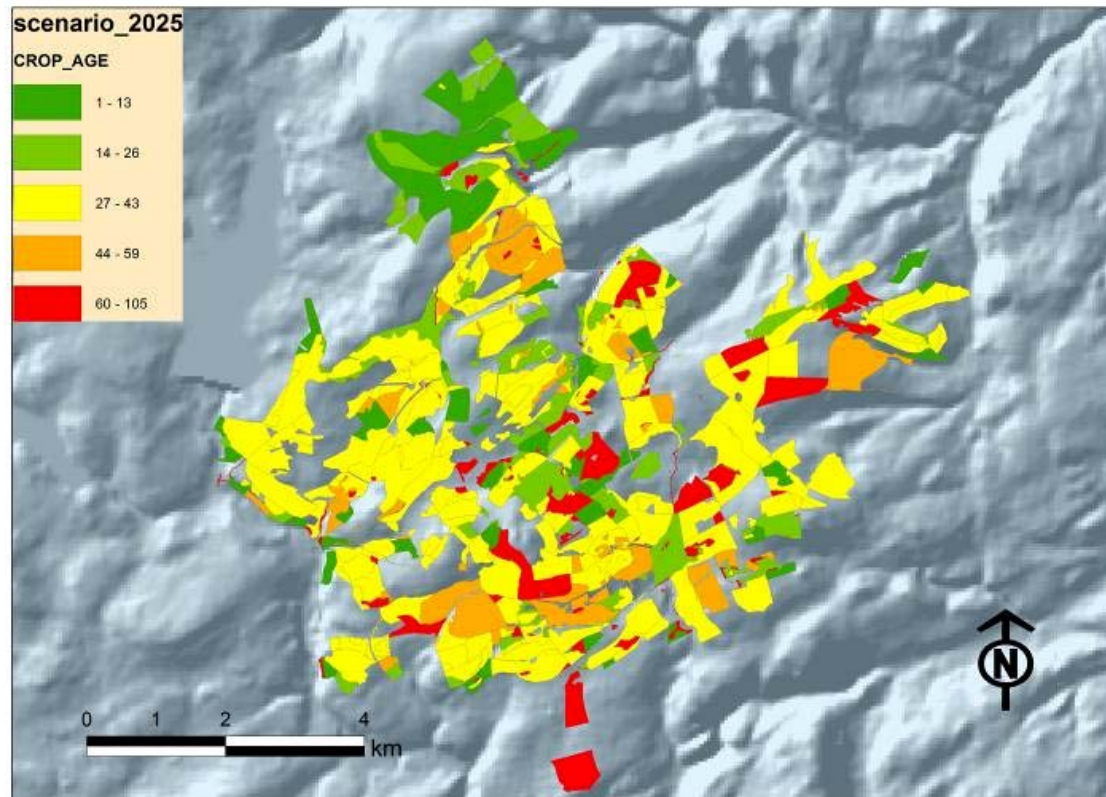
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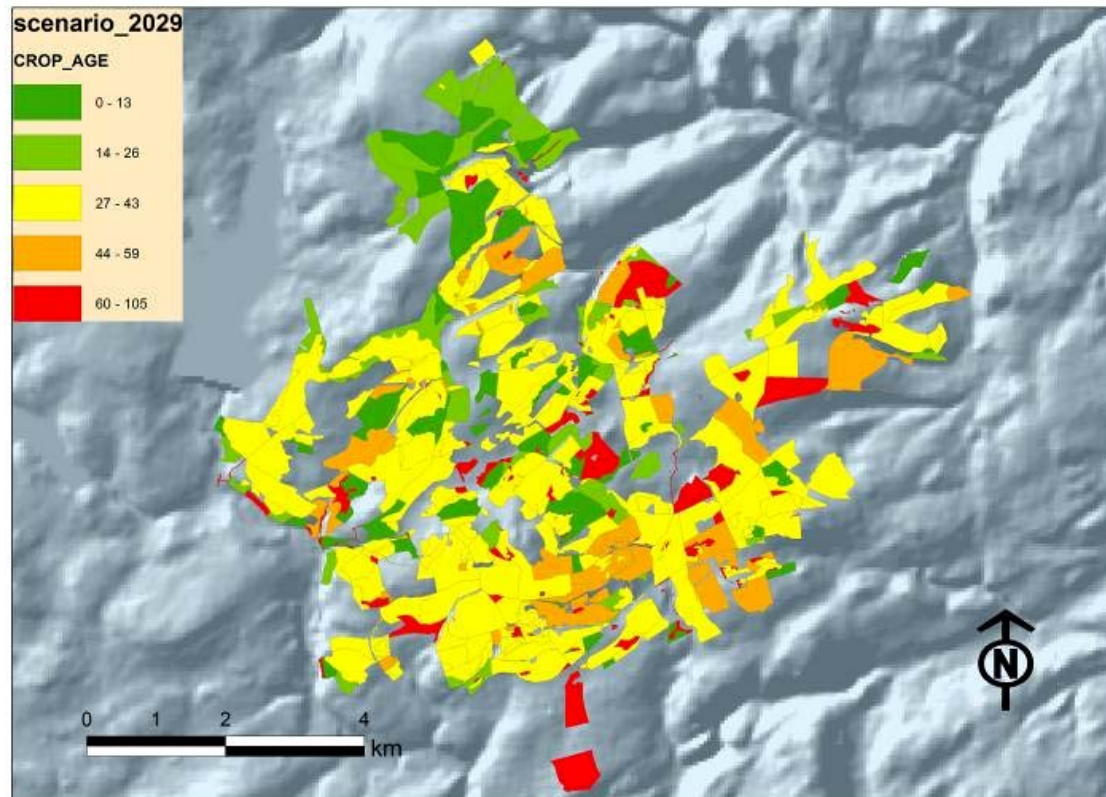
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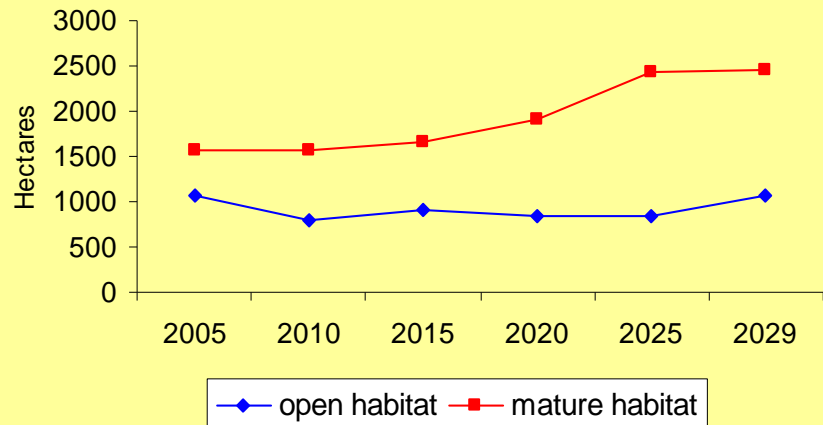
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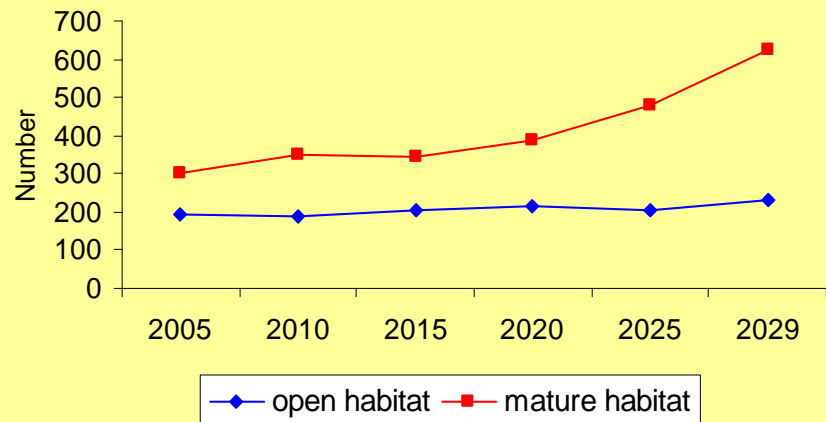


Area of open and old habitat 2005 - 2029

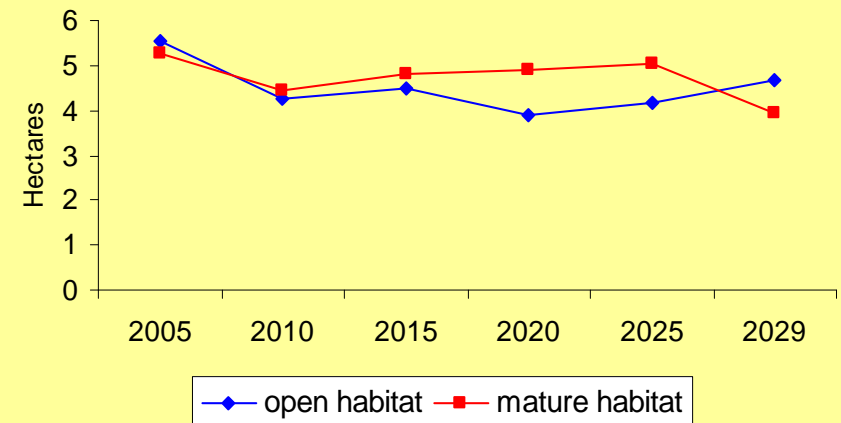


- Two important species in Clocaenog are red squirrels, which need mature forest, and small pearl-bordered fritillary butterflies, which need open space. The impact of the future forest structure on these species can be evaluated, and the forest design plan changed if necessary

Number of patches of open and old habitat 2005 - 2029



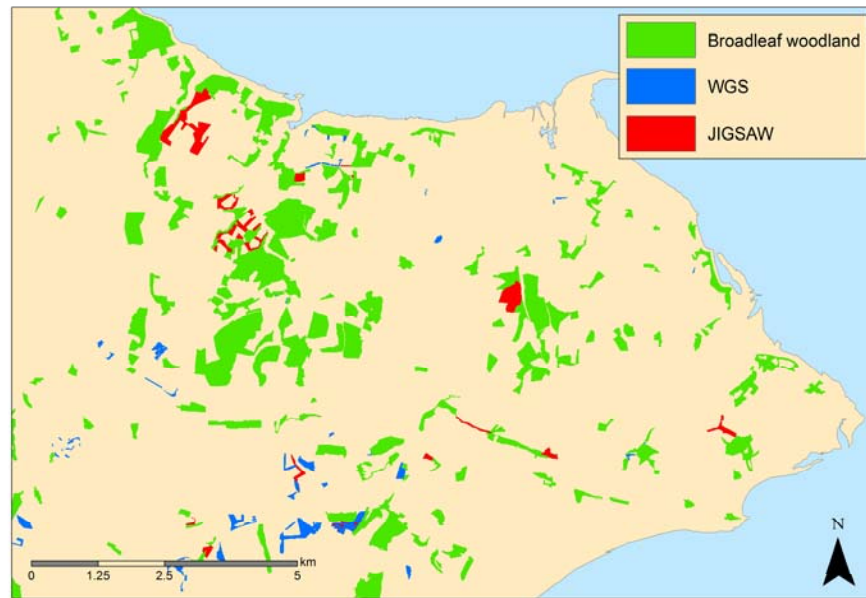
Mean patch area of open and old habitat 2005 - 2029



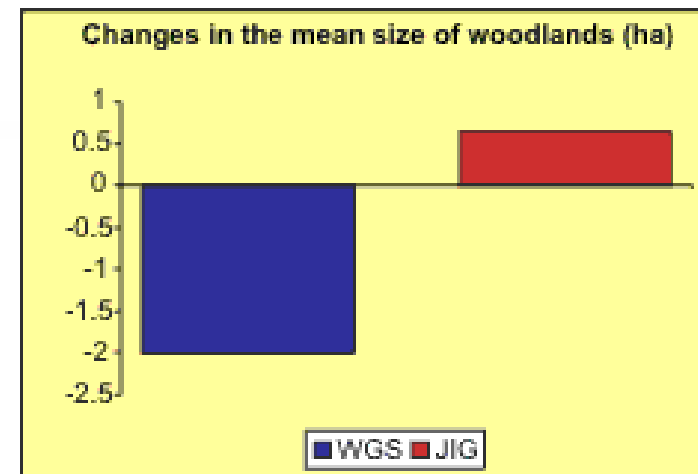
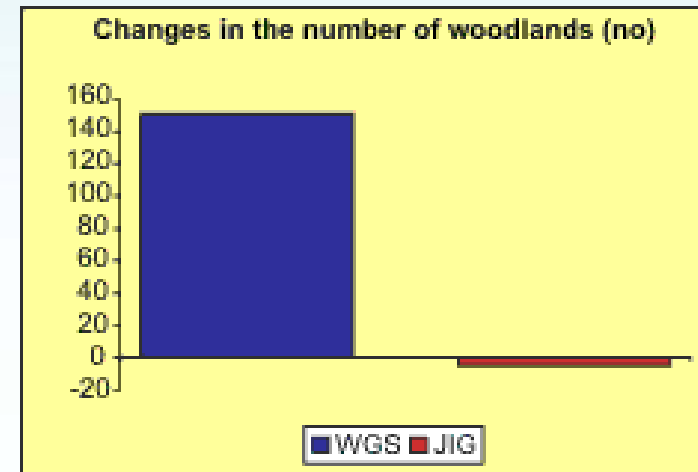
Example 4: Strategic evaluation



Regional Evaluation: IOW JIGSAW



- Jigsaw was a grant scheme that gave a financial incentive to planting schemes which joined or increased ancient woodland patches on the Isle of Wight. It was possible to compare it to non-targeted regional planting grants (WGS) which encompassed a similar area of planting.



The East Midlands: Potential for Landscape Ecology Tools

- Lincolnshire limewoods
 - PAWS restoration spatial targeting
- Sherwood
 - Integrating biodiversity needs with potentially conflicting heavy/informal recreational use
- National Forest
 - Targeting new planting for connectivity



Where next?

- BEETLE tools roadshow
- Improve the underlying scientific evidence base
 - Landscape genetics: wood cricket, damselfly, dormice?
 - Deer movement models/data
 - Retrospective data mining (e.g. Bunce survey)



Where next?

- Climate change
 - Do current networks allow species to move?
 - Will the networks themselves shift?

Role of local-scale vs. large scale links



Thank you

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