



EFORWOOD: Timber Flows in the EU

Applicability to the UK

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Forest Research

Thanks to Mike Smith, Monica De Ioanni and Elisabeth Le-Net





Outline of Talk

- **What is EFORWOOD?**
- **Case Study in Craik Forest**
- **Regional Case Studies**
- **Summary**





BACKGROUND

- Forestry, forest-based and related industries comprise a major economic cluster in Europe
- Annual turnover - €550 billion p.a., - about 8% of the total value added in manufacturing industry in the EU
- 3 - 4 million people are directly employed in forest-based industries in Europe
- Multi-dimensional aspects of sustainability - timber, fibre, bio-energy, protection of water, soil, biodiversity and recreation
- Changing demands and expectations of stakeholders





WHAT IS EFORWOOD ?

- Sixth Framework Programme of the EU Commission – Global Change and Ecosystems priority
- Four-year integrated project involving 38 organisations in 18 countries
- Budget of €20 million – of which the European Commission contribution is approximately €13 million
- Co-ordinated by Skogforsk, Sweden
- More information at <http://www.eforwood.net>



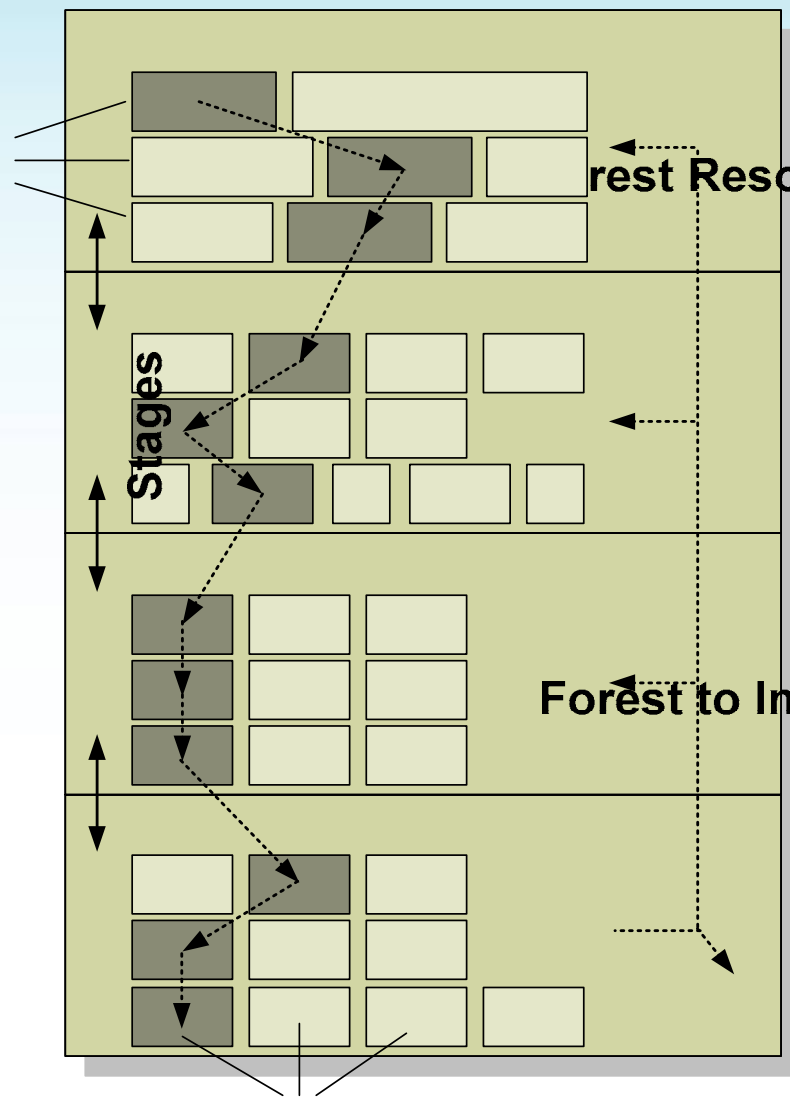


OVERALL OBJECTIVE

To develop a tool for the Sustainability Impact Assessment (SIA) of Forestry-wood Chains (FWC) that is capable of examining different geographical areas over different periods for existing and future management scenarios

ToSIA





Forest Resources Management

The Analytical Framework

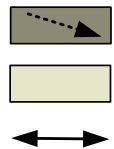
A production process

Schematic presentation of the processes in a Forestry-wood Chain as introduced in EFORWOOD.

Forest to Industry Interactions

Industrial Processing, Manufacturing and Converting

Re-cycling



Craik Forest

EFORWOOD



Eforwood Indicators

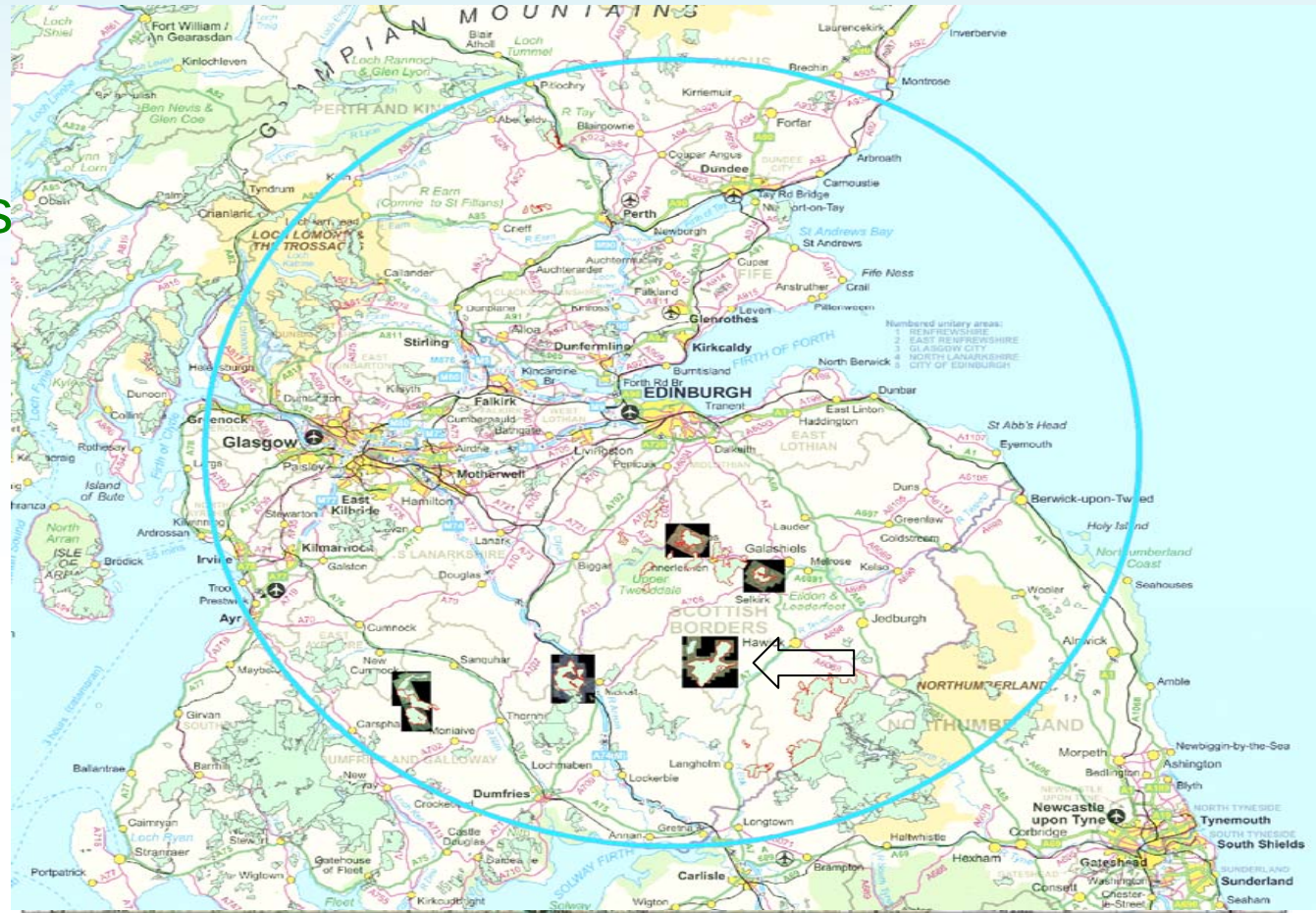
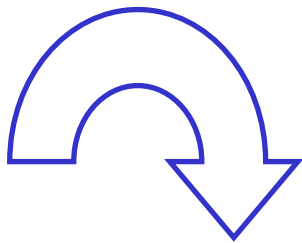
Wood-chain model

Relationships

Economic

Environmental

Social



AID to management decisions





GISMT

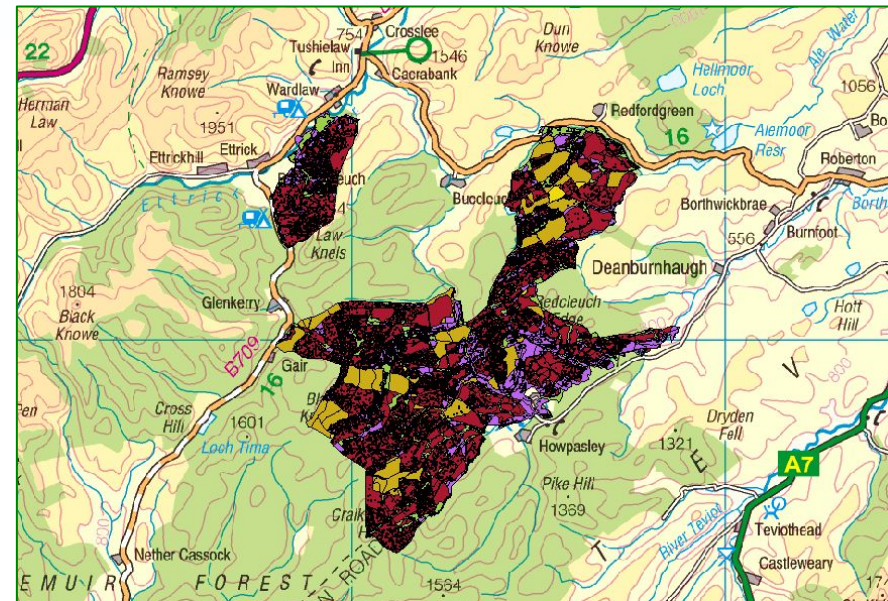
Geographic Information System based Modelling Tools



Spatial prioritisation of:

- Biodiversity
- Production
- Recreation

At the forest scale





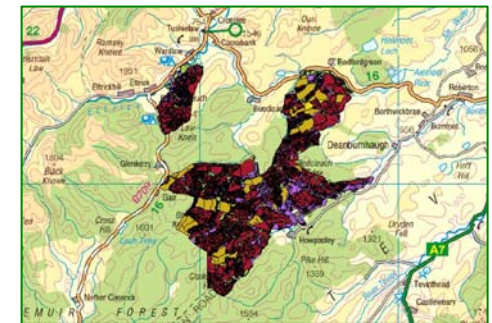
Sustainable Forest Wood-chain Indicators*

Economic: *Timber Value*

Social: *Visitor Numbers*

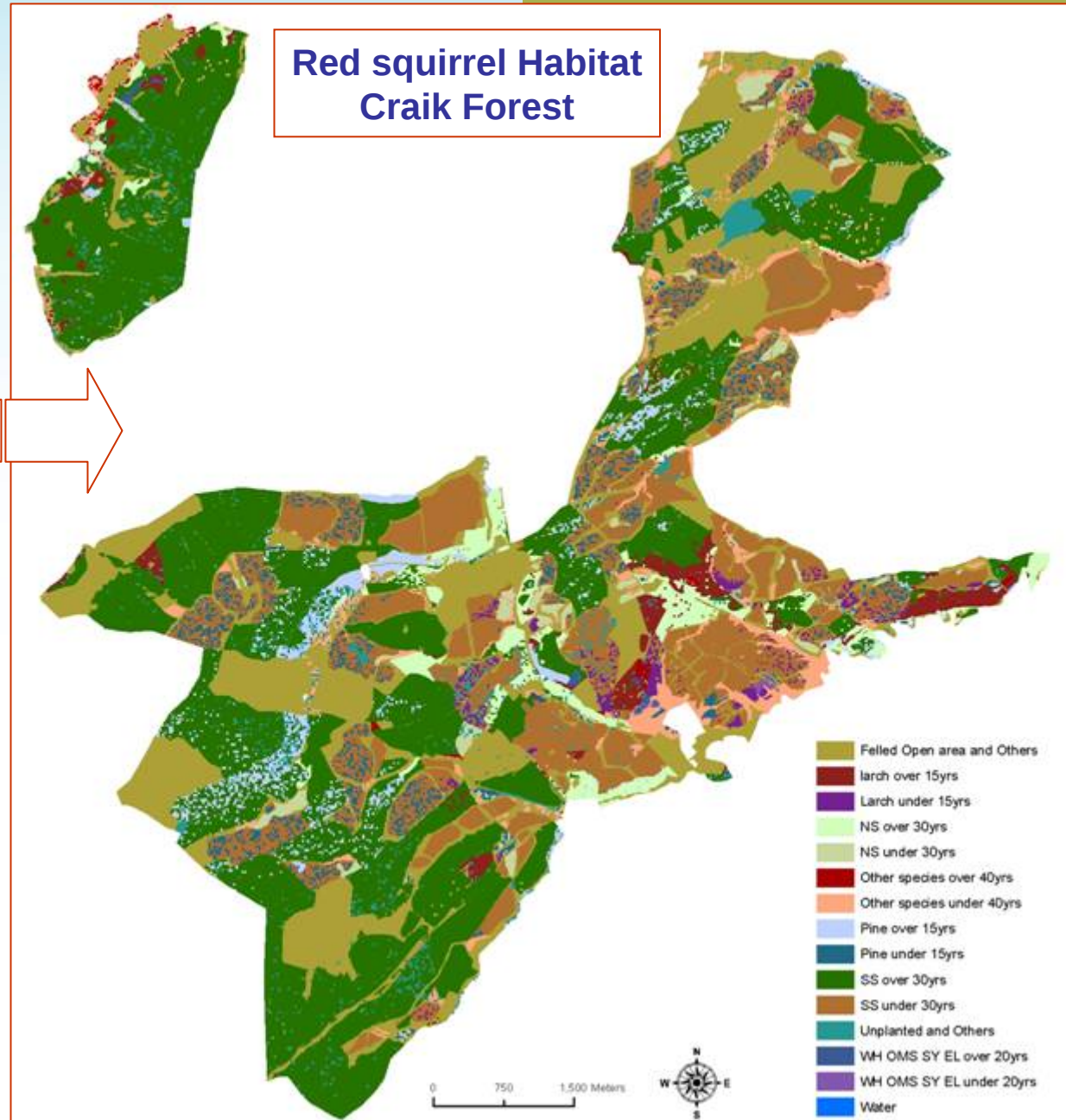
Environmental: *Red Squirrel Numbers*

*selected for modelling simulation in GISMT in *Craik Forest*



Landcover data
(SCDB, Design Plan)

landscape layer
reflecting the variation
in the ability for
dispersal of red
squirrel



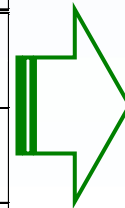


Identify areas of habitat for Red Squirrel (no dispersal constraint)

- **Red Squirrel potential densities in different crop types (Habitats)**
(results based on fieldwork study)

- **Score values for cost distance friction analysis in (GISMT)**

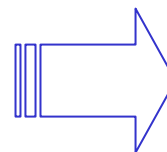
Red Squirrel Habitats		
Pine	over 15 years	Age Good crop
Sitka spruce	over 30 years	
Pine	under 15 years	Age bad crop
Sitka spruce	under 30 years	
Other Species		
Felled -Open Areas - Others		



Red Squirrel density (ha ⁻¹)	
Low	High
4	0
9	4
20	20
20	20
9	9
50	50

Cost scale
0 (highest density)
50 (lowest density)

GIS-Modelling tool (beetle)



Networks

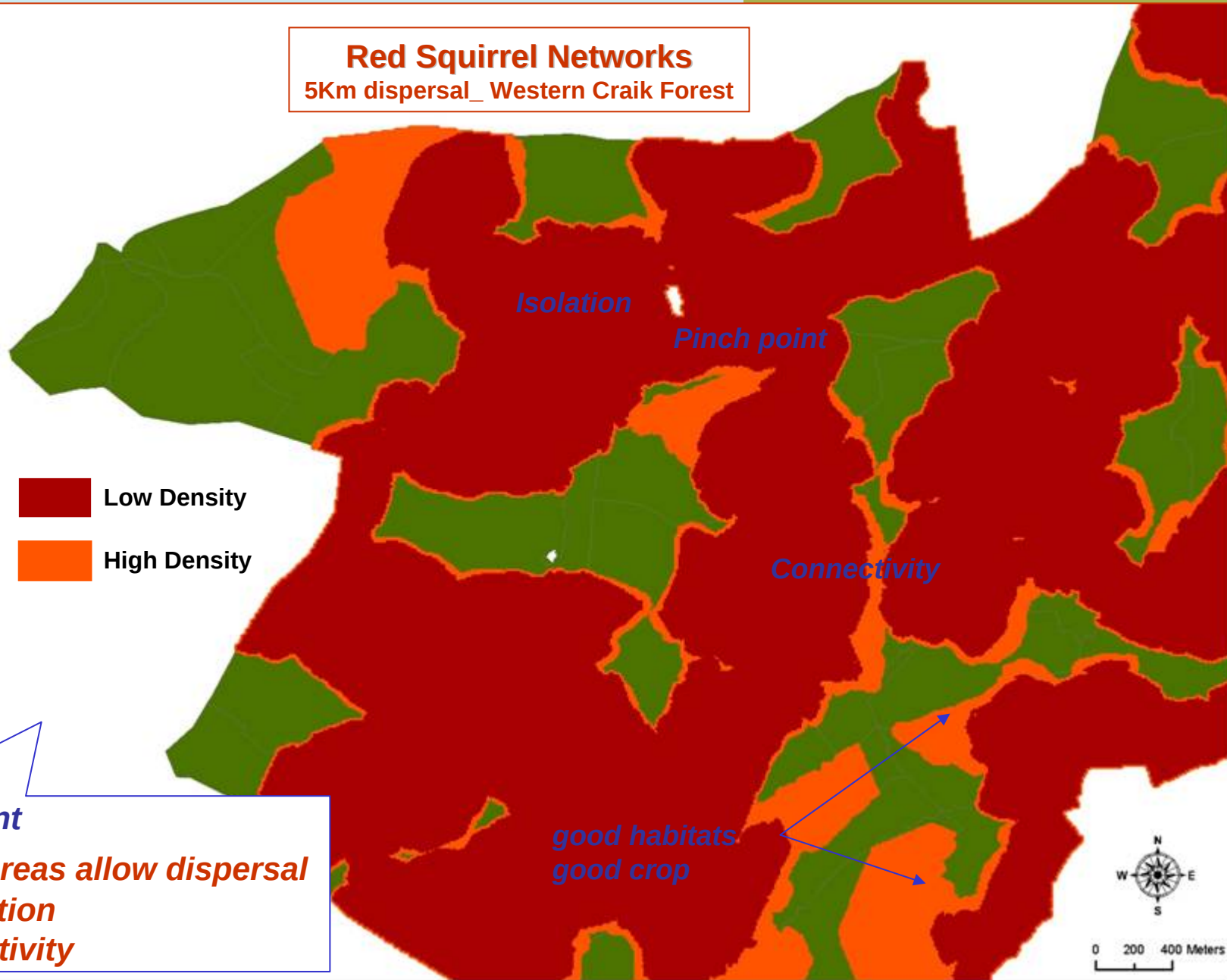
areas of habitat that are functionally connected



Analyse whether red squirrel can disperse from one patch of habitat to other patches through the landscape.

Red Squirrel Networks

5Km dispersal_ Western Craik Forest



Management

Adjoining areas allow dispersal
Avoid isolation
Aid connectivity



Social Indicator: *Recreation*



People visitors of the forest



Visitor 1
Low
Dispersal Ability



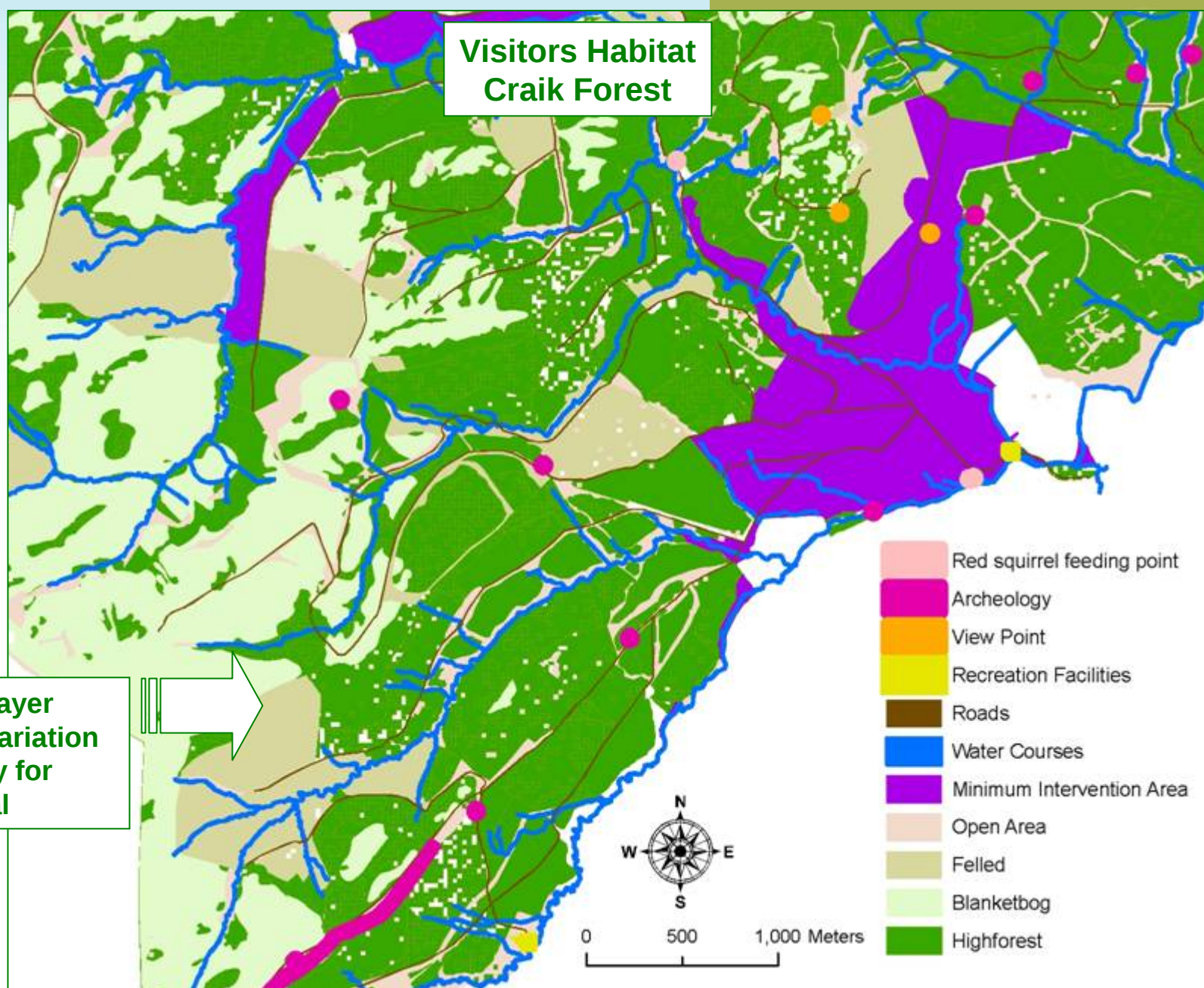
Visitor 2
Intermediate
Dispersal ability



Visitor 3
High
Dispersal ability



Visitors Habitat
Craik Forest



- Visitors potential densities
(results based on fieldwork study)

Visitor Type	Dispersal Distance (km)	Percentage of visitors number
Sedentary	1	75%
Intermediate	5	20%
Active	10	5%

- Score values for cost distance friction analysis in (GISMT)

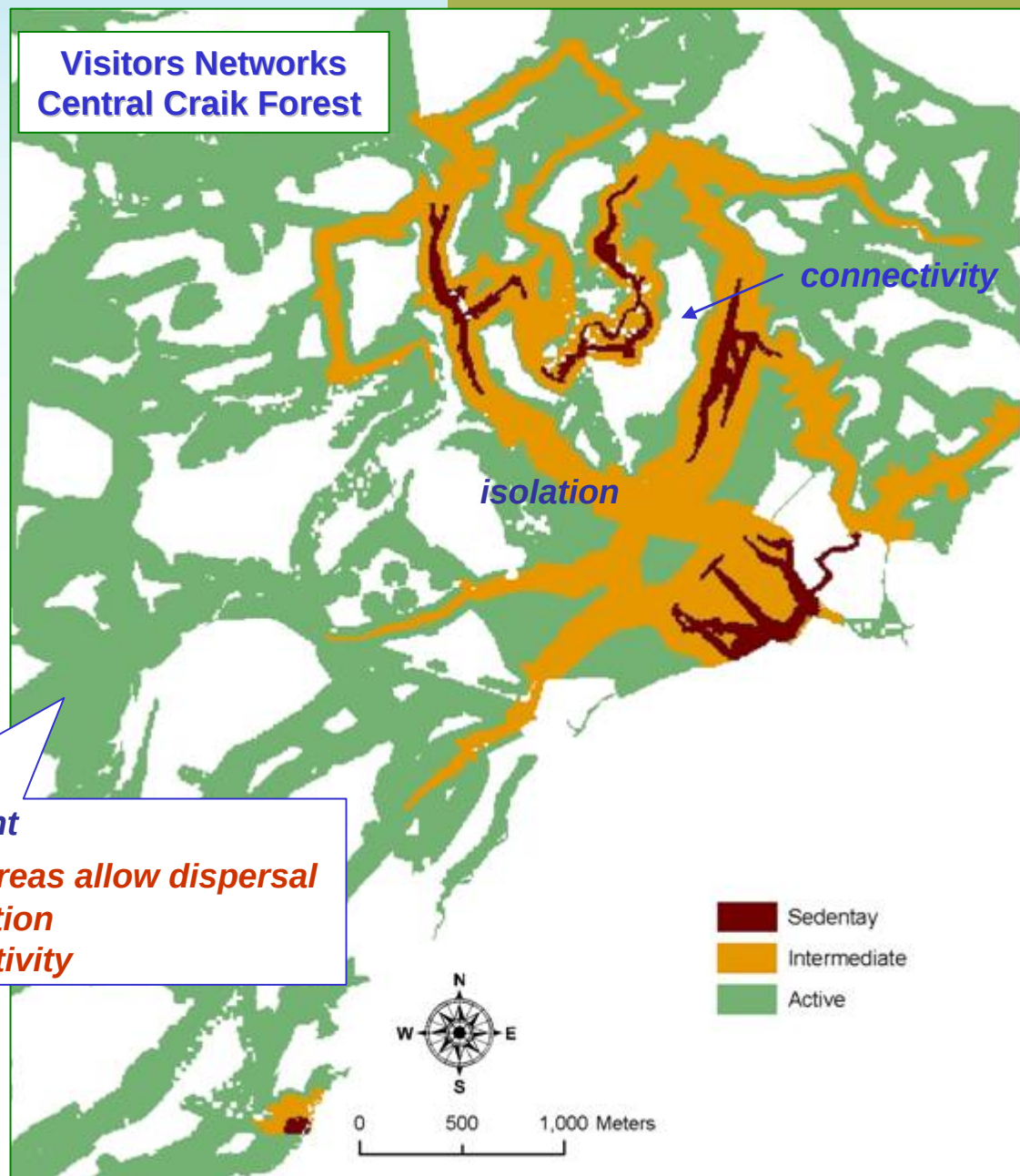
Management

Adjoining areas allow dispersal
Avoid isolation
Aid connectivity

GIS-Modelling tool (beetle)



**Visitors Networks
Central Craik Forest**



Timber value

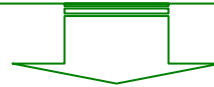


- Yield class
- Elevation
- Soils
- Forecast Volume of **Timber** for Sitka Spruce
Period 2007-2011
- Class diam. 18cm, 18-14cm, 14-7cm OB
% of **Green** Logs and **Red** Logs

Less

Costs at the saw mill (per tonnes)

- Harvesting
- Extraction
- Haulage
- Restocking

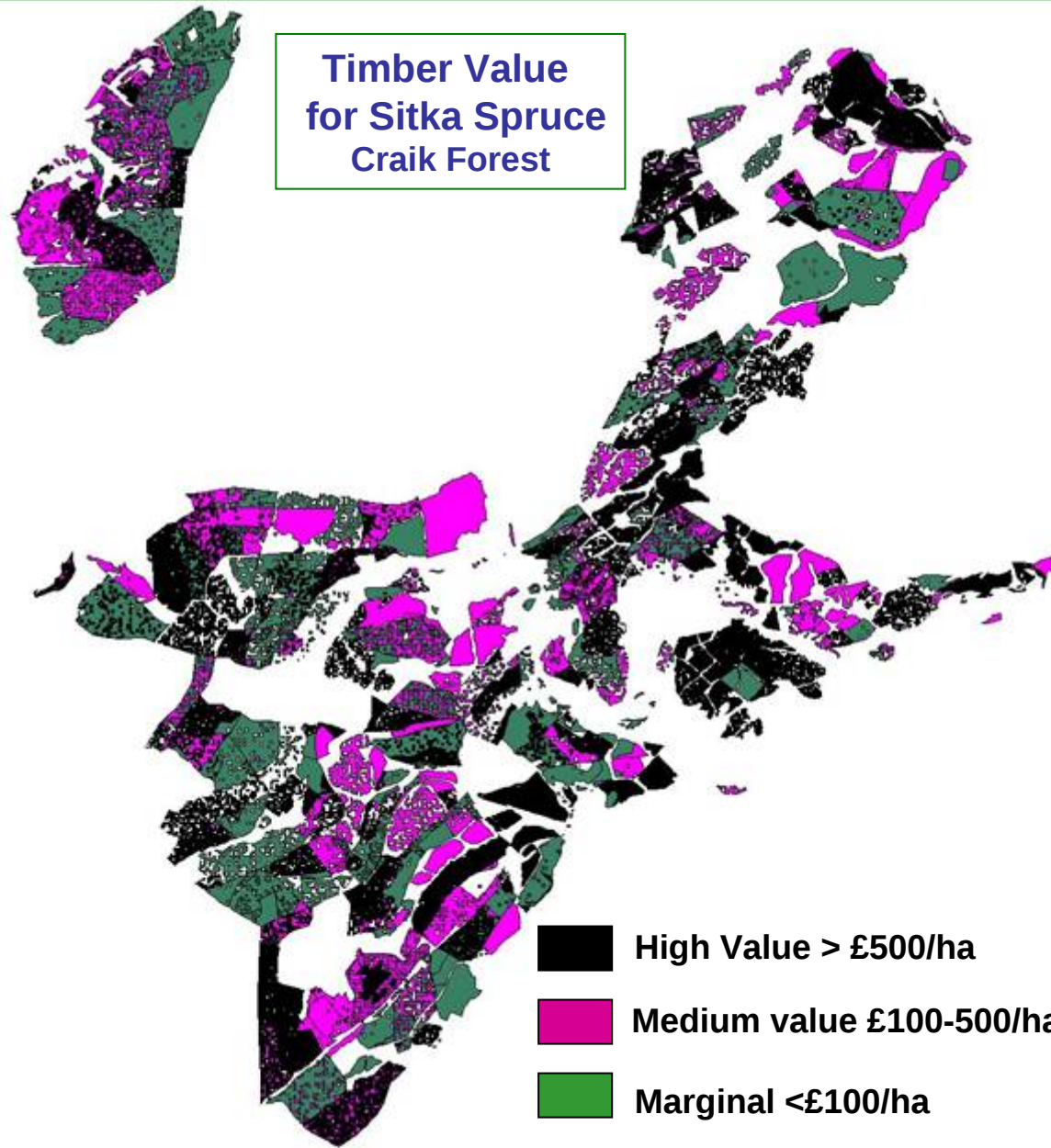


**Timber Values/Ha of
Management Units**





**Timber Value
for Sitka Spruce
Craik Forest**

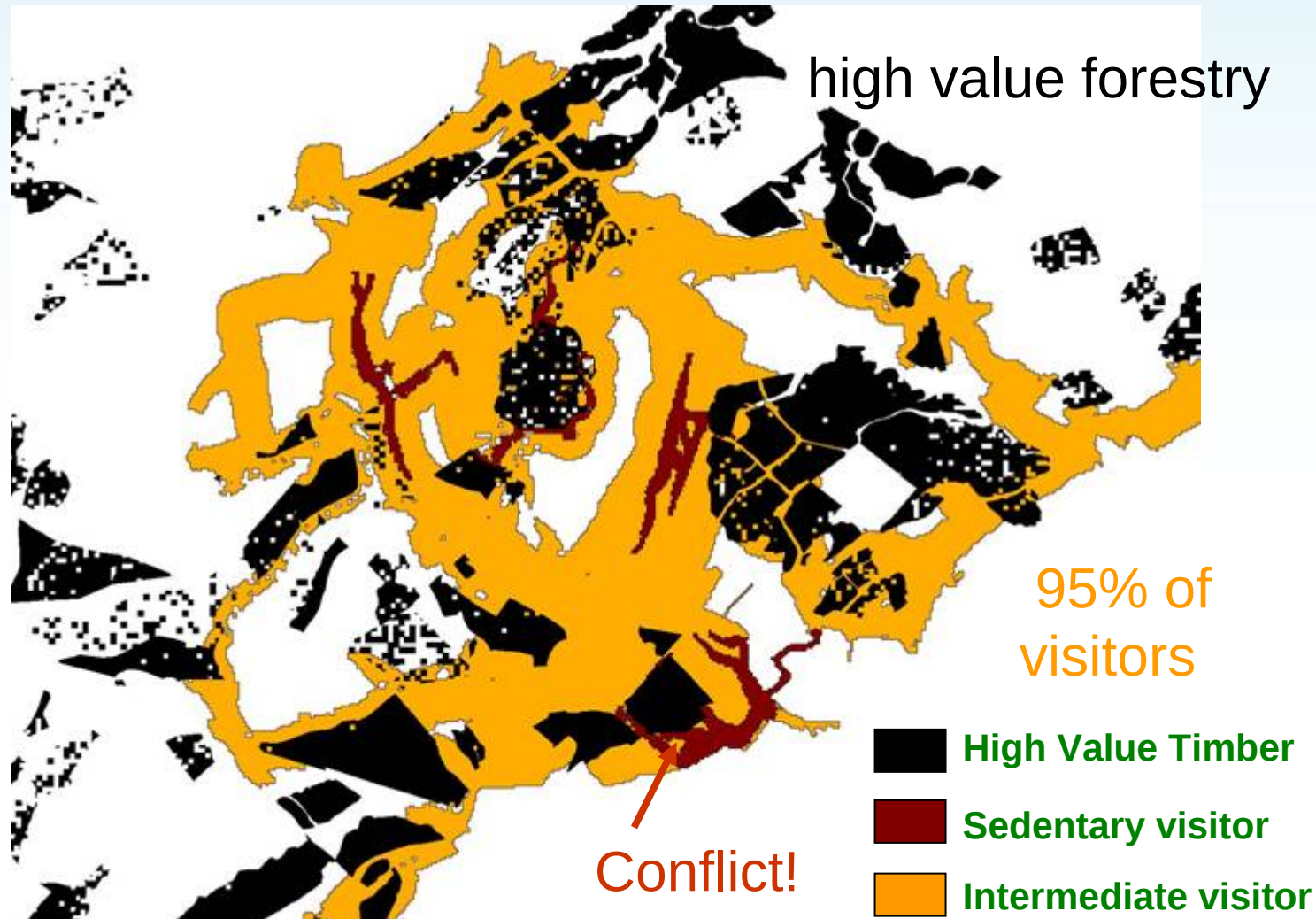




Economic Indicator Vs Social Indicator:

Timber value

Recreation

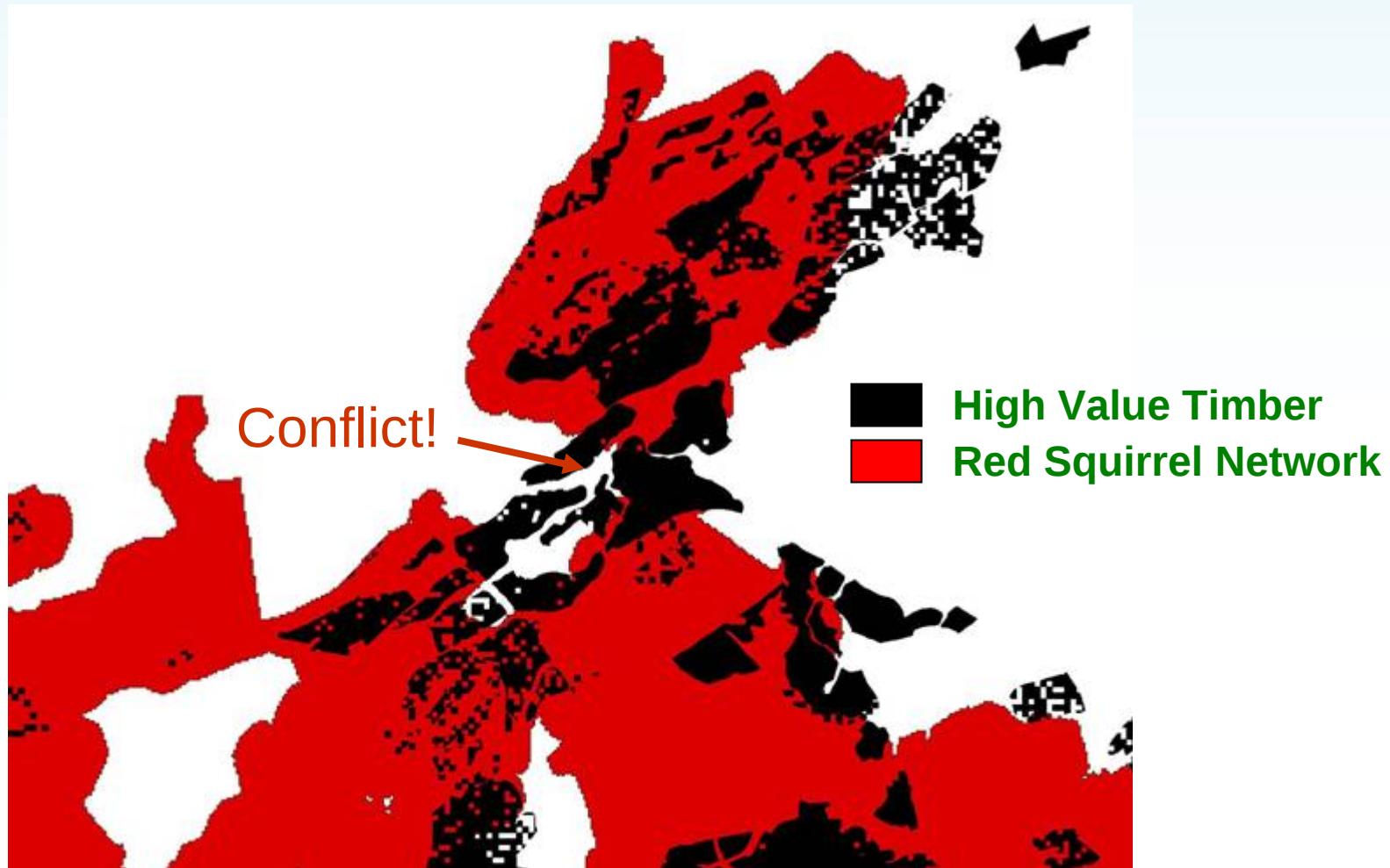




Economic Indicator Vs Environmental Indicator:

Timber value

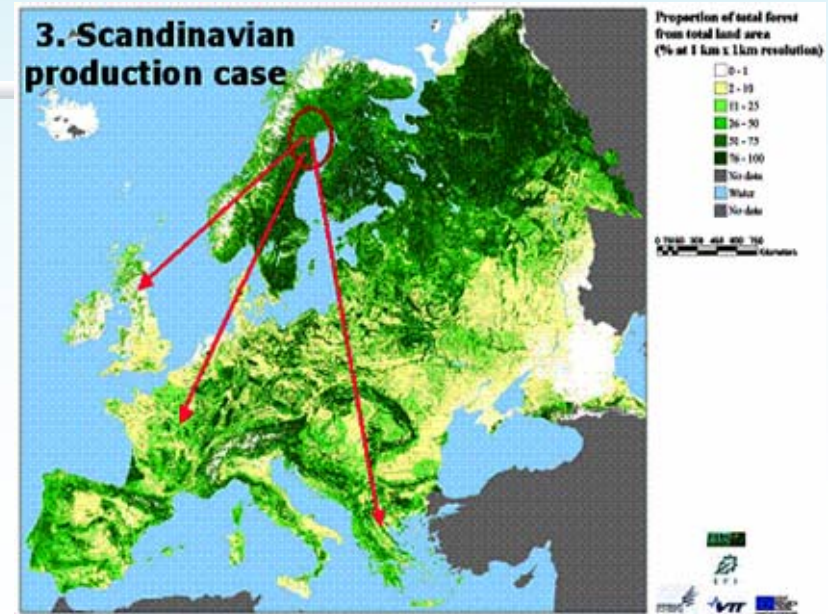
Red Squirrel



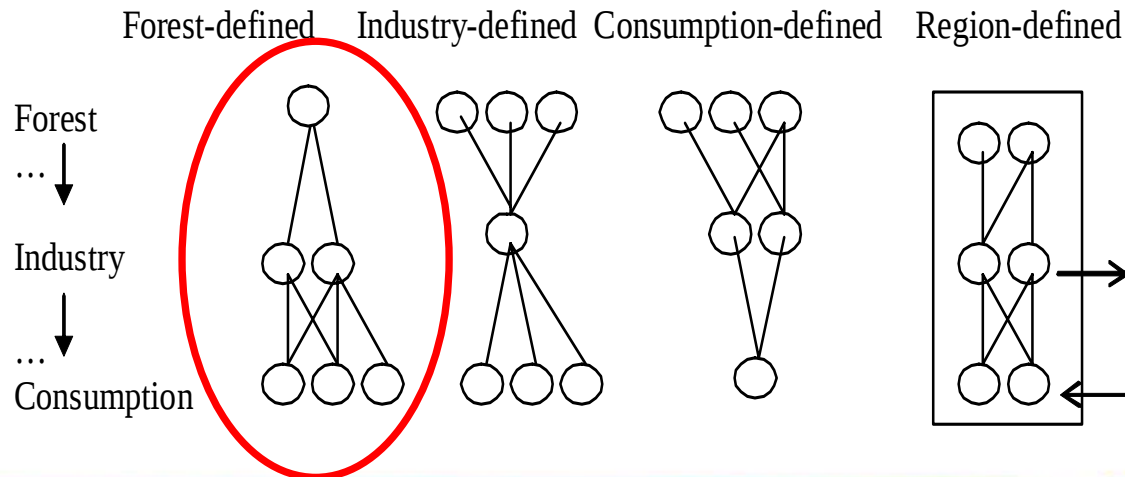


Case Studies

Identify transport/logistics scheme(s)
Existing
Alternatives (scenarios)



Alternative concepts for definition of Regional Forest Wood Chains





Summary

- EFORWOOD is a major 4 year project on the sustainability of the entire European forestry wood-chain
- Forest Research is working on developing a GIS based system to measure the sustainability of social/environmental/economic indicators
- Using Craik Forest, Scottish Borders as a trial area with a few key indicators to begin with
- Will now extend set of indicators in Craik and introduce different scenarios, including different harvesting (terrain dependent machinery) and transport scenarios (transport type and distances to market)
- Over next 2 years analysis will be extended to regional (South Scotland), national (Scotland) and British Isles scale

