

# The UK National Ecosystem Assessment: a brief introduction

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## Framework

Introduce UK National Ecosystem Assessment

Illustrate the concept of the interaction between ecosystem services and human well being

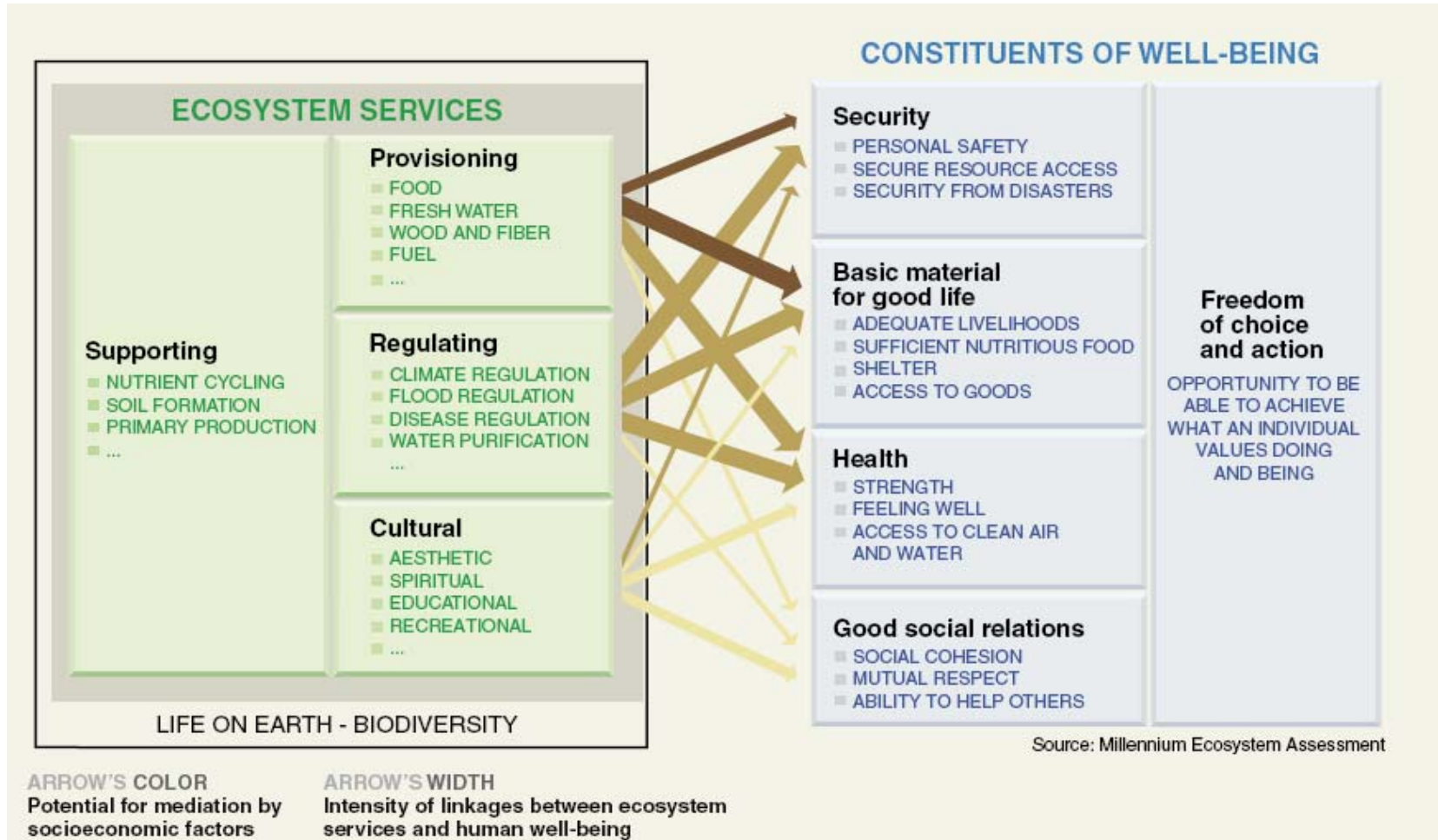
Provide examples and evidence for woodland



## Services



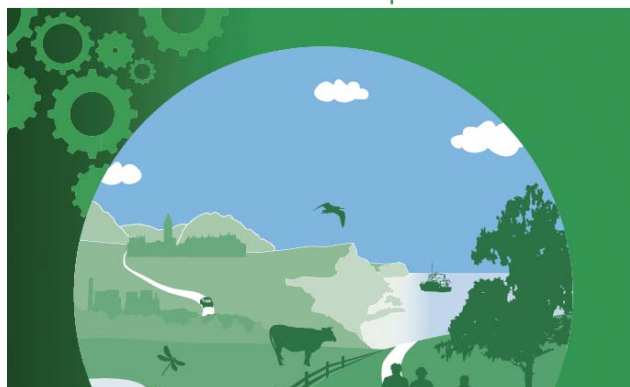
# Ecosystem services and human well-being



## The UK NEA



Technical Report



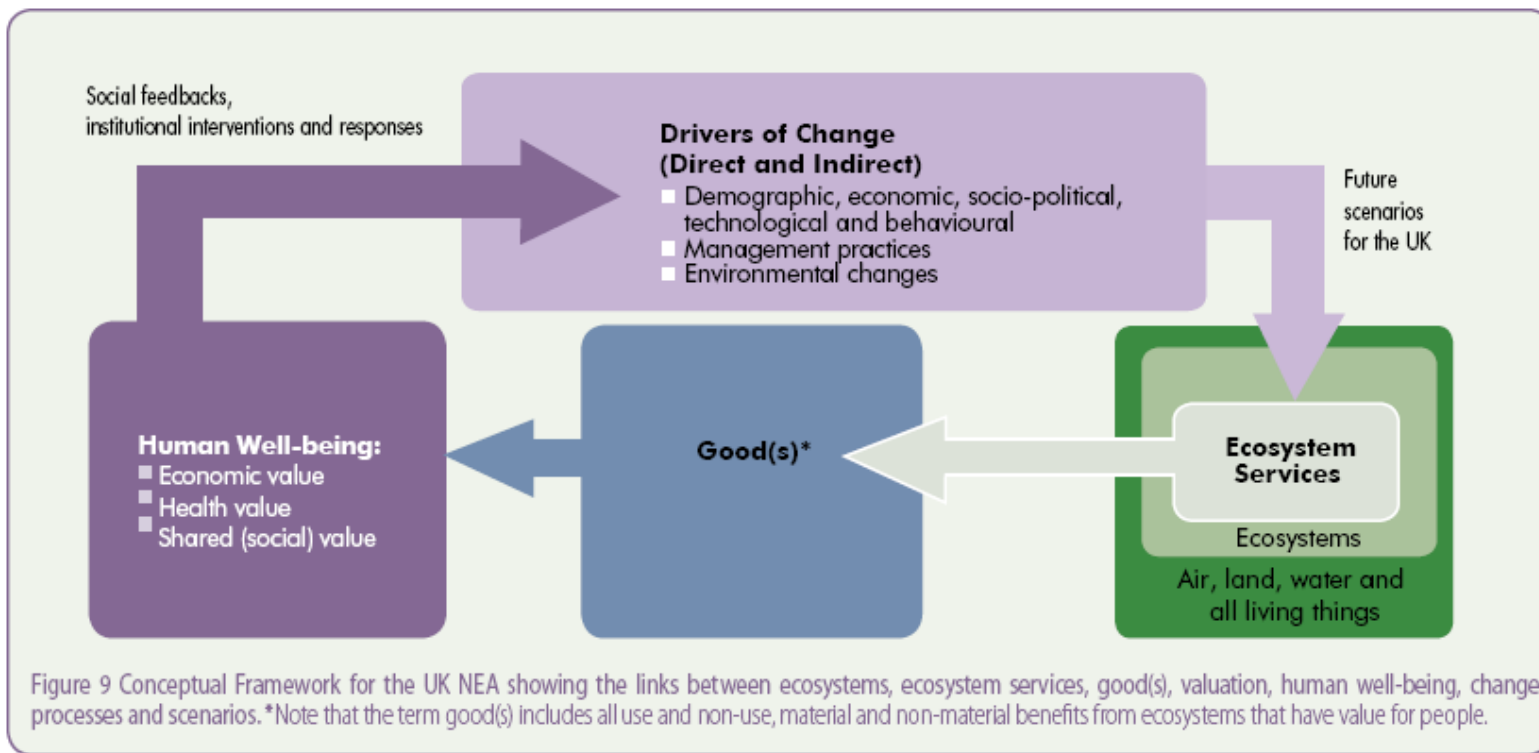
“Ecosystem Services are the benefits provided by ecosystems that contribute to making human life possible and worth living”

### Chapter 8: **Woodlands**

**Coordinating Lead Author:** Chris Quine  
**Lead Authors:** Christine Cahalan, Alison Hester, Jonathan Humphrey, Keith Kirby, Andy Moffat and Gregory Valatin



## Ecosystem services and human well-being



Service Group	Final Ecosystem Service	Mountains, Moorlands & Heaths	Semi-natural Grasslands	Enclosed Farmland	Woodlands	Freshwaters – Openwaters, Wetlands & Floodplains	Urban	Coastal Margins	Marine	
Provisioning	Crops		↔	↑		↓	↗	↘		
	Livestock/Aquaculture	↓	↗	↔	↔	↓	↔	↘	↗	
	Fish					↘	↔	↘	±	
	Trees, standing vegetation, peat	↘	↔	↗	↗	↘	↔	↘		
	Water supply	↔	↘	↘	↔	↘	↔	?		
	Wild species diversity	↔	↖	↖	↗	↘	↔	↘	↘	
Cultural	Environmental settings: Local places	↔	↔	?	↑	↗	↔	↔	?	
	Environmental settings: Landscapes/seascapes	↔	↔	↔	↗	↔	↔	↗	?	
Regulating	Climate	↔	↔	↗	↗	↔	↘	↗	↘	
	Hazard	↘	↔	↘	↗	↘	↘	↔	↖	
	Disease and pests	↔	↔	±	↘	↘	?	±	↘	
	Pollination	↘	↘	↘	↔					
	Noise	↔	↔	?	↗	↖				
	Detoxification & purification	Water quality	↔	↗	±	↔	±			
		Soil quality	↔	↘	↘	↔	↘			
Air quality		↔	↔	↗	↗	↖				

**Importance of Broad Habitat for delivering the ecosystem service**

- High
- Medium – High
- Medium – Low
- Low

**Direction of change in the flow of the service**

- ↑ Improving
- ↗ Some improvement
- ↔ No net change
- ± Improvement and/or deterioration in different locations
- ↘ Some deterioration
- ↓ Deterioration
- ~ Unknown

## Provisioning



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**Provisioning services**  
**9 million tonnes of wood in**  
**2009**  
**Non Timber Forest Products**





## Provisioning

The total Gross Value Added associated with Scottish timber is around £460 million, or 0.5% of the total for the Scottish economy. (F4P Indicator 8)

The participants in the Emery project collected over 200 NTFPs derived from 173 vascular plant and fungal species.



### The economic and social contribution of forestry for people in Scotland

David Edwards, Julia Murray, Liz O'Brien, Václav Štěpánek and Gregory Valenti September 2008

Over the past decade an increasingly diverse range of social and economic benefits has come to be recognised within the forestry sector. Scottish forestry is now seen to deliver on several 'new governmental agendas' such as improving quality of life, building social cohesion, and promoting sustainable lifestyles. Defining the benefits and new social dimensions have provided a means to measure their benefits and to demonstrate their value to stakeholders and the public.



## Regulating

**Regulating services:**

- Detoxification/purification**
- Water quality**
- Soil quality**
- Air quality**
- Hazard reduction**
- Flood risk**
- Carbon sequestration**



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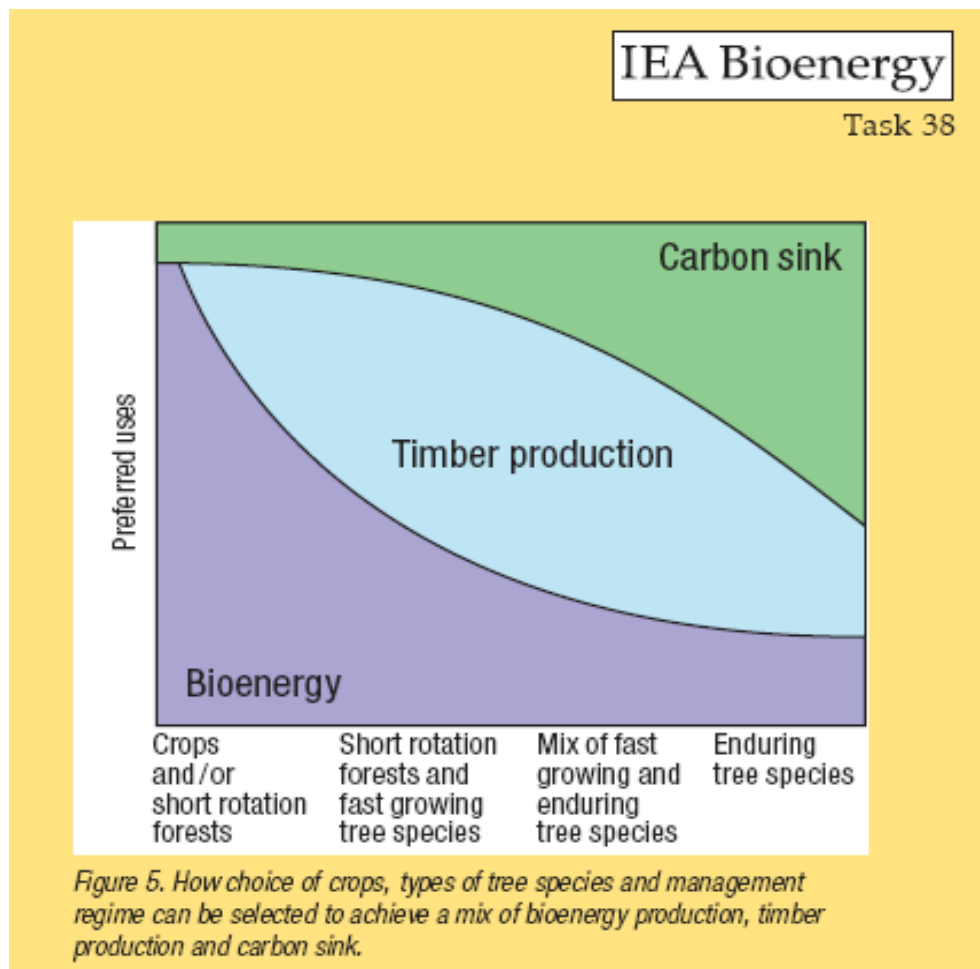
## Carbon sequestration and substitution

### Evidence:

Fast-growing plantations, such as Sitka spruce, can become carbon sinks by age 10

Increased use of wood can cut greenhouse gas emissions by 40 - 80% per building

Wood can be burnt directly as a source of energy, or used in bio-refining



## Cultural

**Social & cultural services**  
**250-300 million visits to UK woodlands a year**  
**Landscape amenity**  
**Educational value**



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## Recreation and Physical exercise



### Evidence:

Around 5% of Scottish adults exercise on three or more days per week in woodlands.

The annual number of visits to forests by Scottish adults ranges between around 37 and 89 million.

The non-market value of forest recreation is estimated to lie between £44 and £76 million per year.



## Restorative environments

### Evidence:

Around 82% of Scottish adults agree (or strongly agree) that woodlands are places to reduce stress and anxiety.

The annual value of health benefits of Scottish woodlands is between £10 m and £111 m.

### ***but***

The average number of visits is lower (half in 2005/06) for people living in deprived areas than remaining areas

(F4P Indicators 19, 20 & 21)



## Supporting

- **Biodiversity**
- **Nutrient and water cycles**



## Importance for woodland management?



## Chapter 22: Economic Values from Ecosystems

Coordinating Lead Author: Ian J. Bateman  
Lead Authors: David Abson, Nicola Beaumont, Amii Darnell, Carlo Fezzi, Nick Hanley, Andreas Kortoleon, David Maddison, Paul Morling, Joe Morris, Susana Mourato, Unai Pascual, Grischa Perino, Antara Sen, Dugald Tinch, Kerry Turner and Gregory Valatin

Figure 2 – UK softwood production by country (million green tonnes).

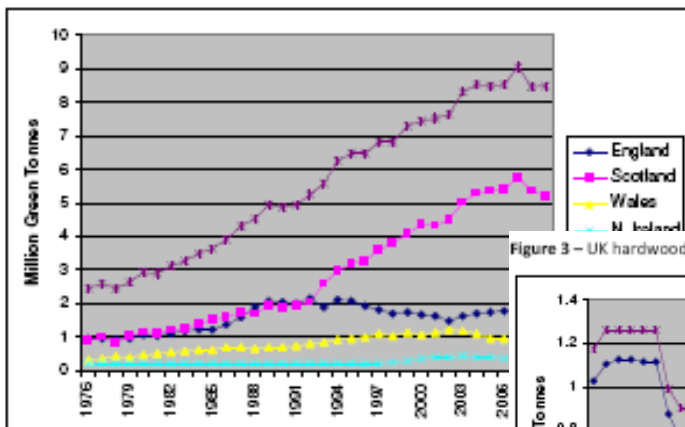
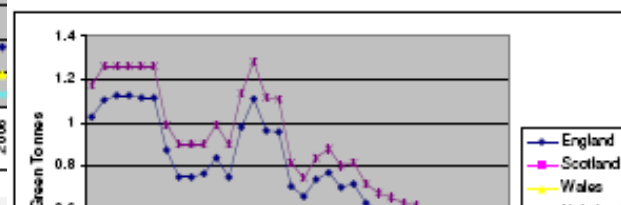
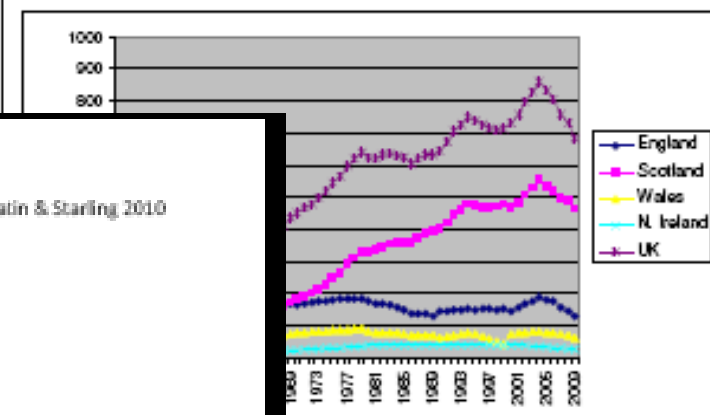


Figure 3 – UK hardwood production by country (million green tonnes).



Source - Forestry Commission.

Figure 17 – Value of annual carbon sequestration by UK woodlands (at 2010 prices).



Note: based upon CEH estimates and the DECC (2010) central estimate of £53/tCO<sub>2</sub>

in 2009

## Valuation

The social value of carbon sequestration per hectare of woodland (£239/ha) in 2009 was more than double the market value of the wood produced (£73-£91/ha)

UK NEA Economic Analysis Report

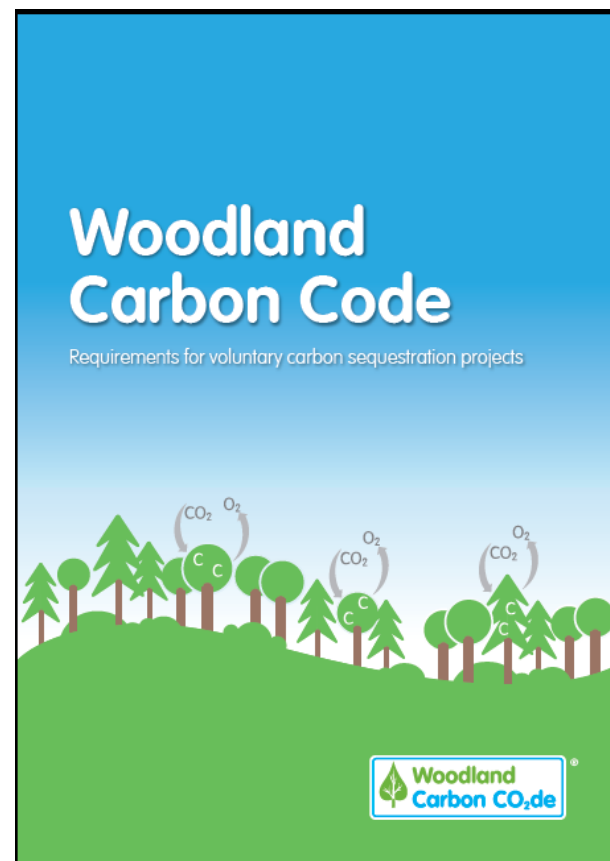
Valuation of services from Woodlands: Valatin & Starling 2010

B - Valuation of ecosystem services provided by UK woodlands

Gregory Valatin and Jonathan Starling

## Mechanisms for capturing Ecosystem Service Values

- Payments for ecosystem services (PES)
- Competitive ecosystem service contracts
- Green infrastructure investments
- Carbon trading
- Biodiversity offsetting/habitat banking
- Access payments
- Education and research





## Concluding remarks

An information source

A language that will be used in land use policy and by other sectors

A catalyst for new markets

A confirmation of the positive role of sustainable forest management

