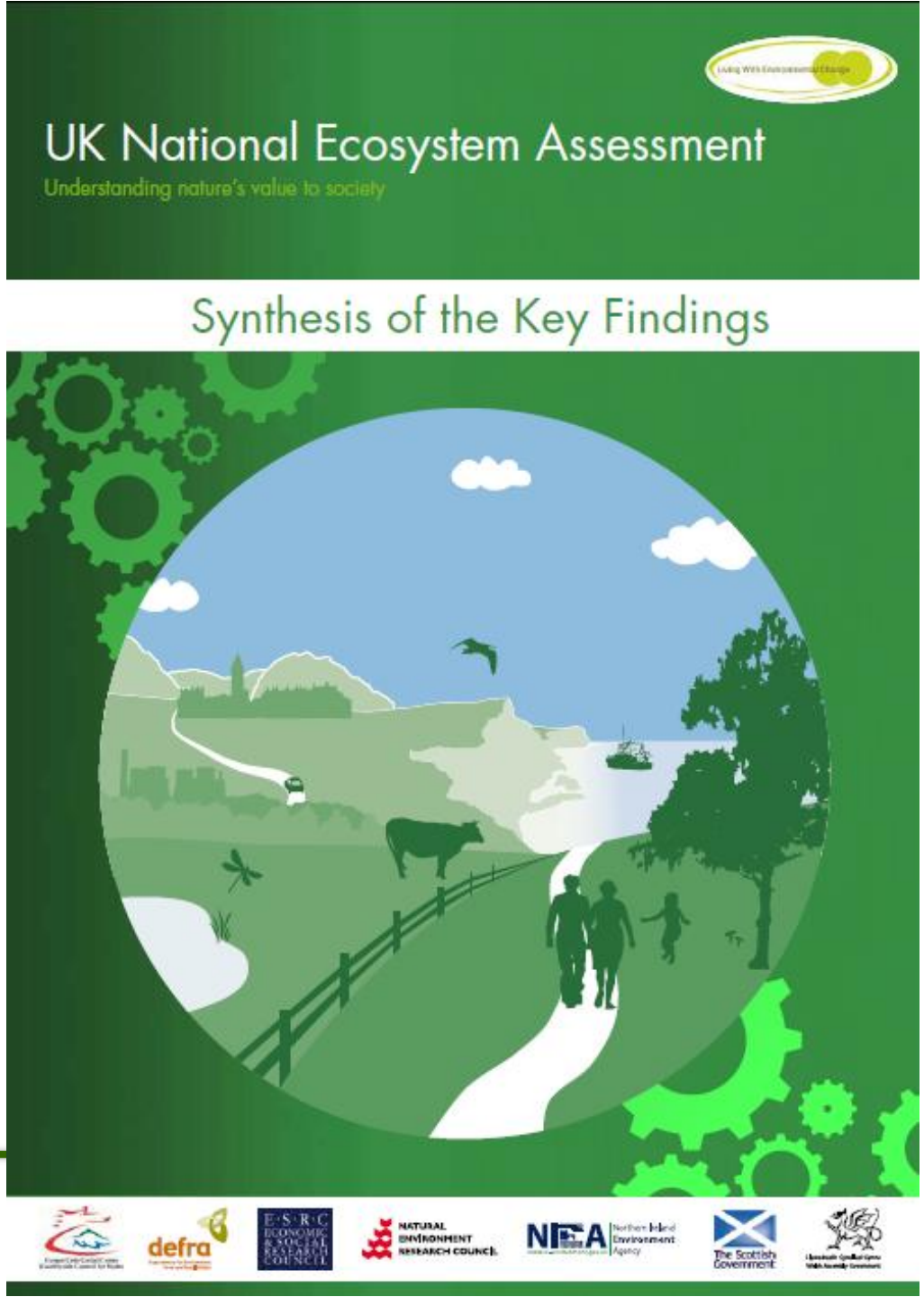
UK National Ecosystem Assessment in Scotland

LINK Seminar

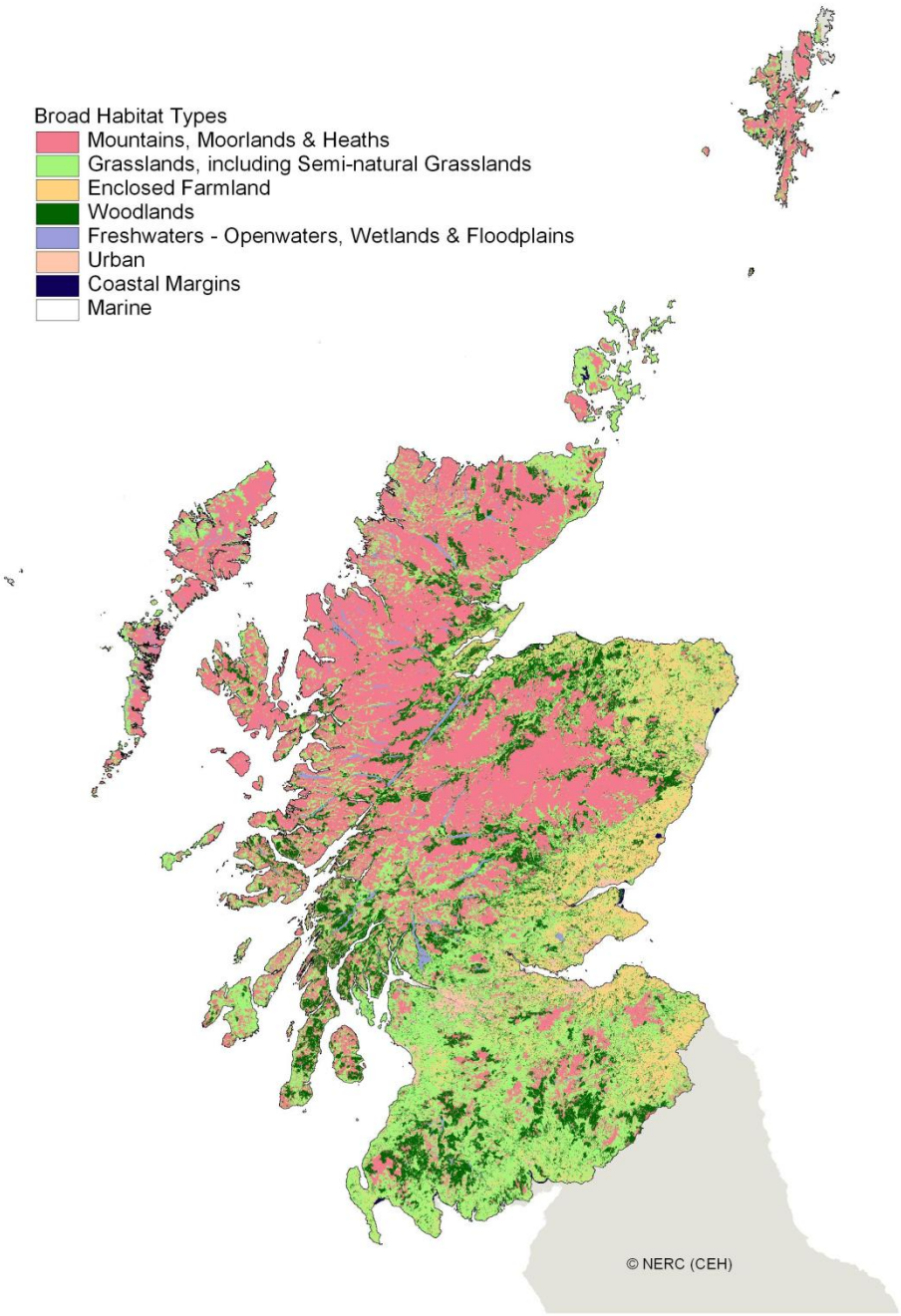
Greening the Economy for a Prosperous and Sustainable Scotland

Richard Aspinall

- A biodiversity-based assessment
- Identifies ecosystem services
  - status and trends
  - goods and benefits
  - values
    - economic
    - social
    - cultural
- Demonstrates diverse benefits of healthy environments



UK NEA


Broad Habitat Types
Mountains, Moorlands & Heaths
Grasslands, including Semi-natural Grasslands
Enclosed Farmland
Woodlands
Freshwaters - Openwaters, Wetlands & Floodplains
Urban
Coastal Margins
Marine
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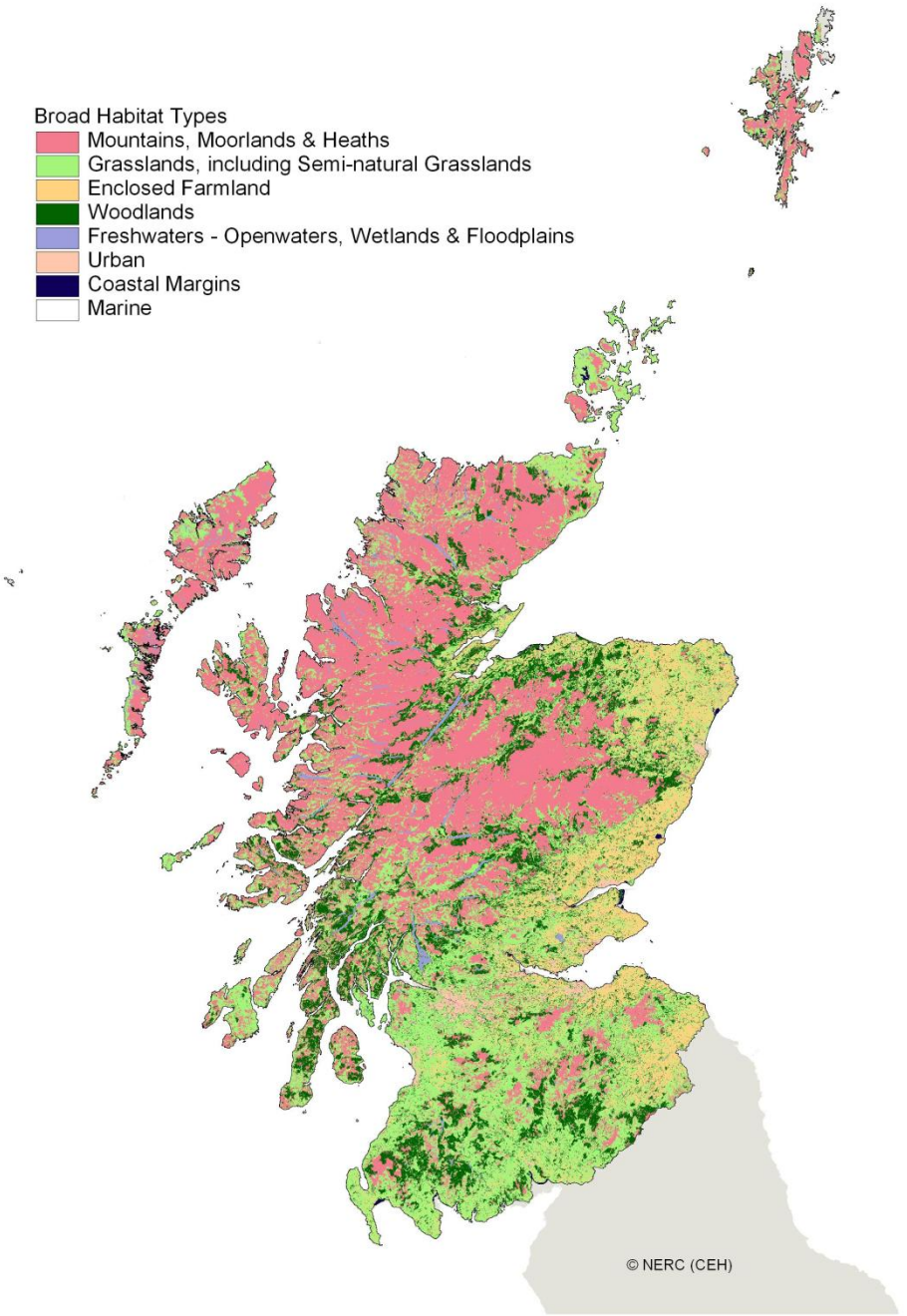

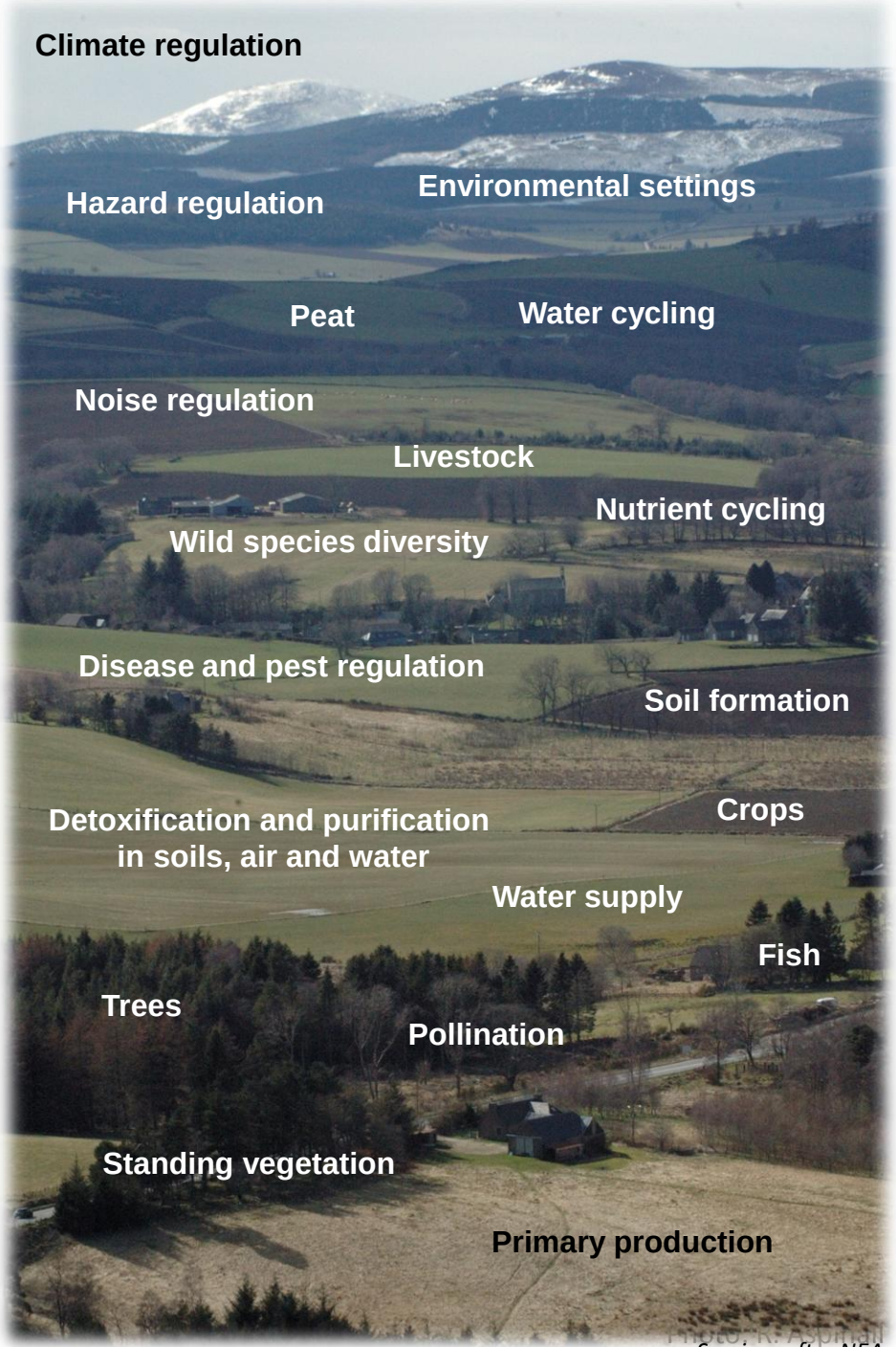

Services after NEA

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UK countryside worth £30bn a year

Caroline Stocks
Thursday 02 June 2011 12:30

Maintaining the UK's countryside provides the country with benefits worth more than £30bn a year, a DEFRA report has found.

The UK National Ecosystem Assessment says that rather than incurring costs, measures taken to protect the natural environment bring benefits to Briton's health and wellbeing.

According to the study, maintaining inland wetlands is worth up to £1.5bn a year to the UK, while pollinators are worth £430m to British agriculture annually.

Living close to rivers and other wetlands was calculated to be worth £1.3bn a year to the population, while health benefits of living with a view of a green space are worth up to £300 each year.

Funded by governments across the UK and carried out by more than 500 experts, the independent assessment found that some ecosystems were getting better at delivering services, such as crop production from farmland.

But almost a third, such as wild species diversity and soil quality, were in decline.

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Nature 'worth billions' to UK economy, say scientists

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2 June 2011 Last updated at 00:06

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Nature 'is worth billions' to UK

By Richard Black
Environment correspondent, BBC News

The UK's parks, lakes, forests and wildlife are worth billions of pounds to the economy, says a major report.

The health benefits of merely living close to a green space are worth up to £300 per person per year, it concludes.

The National Ecosystem Assessment (NEA) says that for decades, the emphasis has been on producing more food and other goods - but this has harmed other parts of nature that generate hidden wealth.

Ministers who commissioned the NEA will use it to re-shape planning policy.

Urban parks and their attractions are worth up to £300 per person each year, the NEA concludes

"The natural world is vital to our existence, providing us with essentials such as food, water and clean air - but also cultural and health benefits not always fully appreciated because we get them for free," said Environment Secretary Caroline Spelman.

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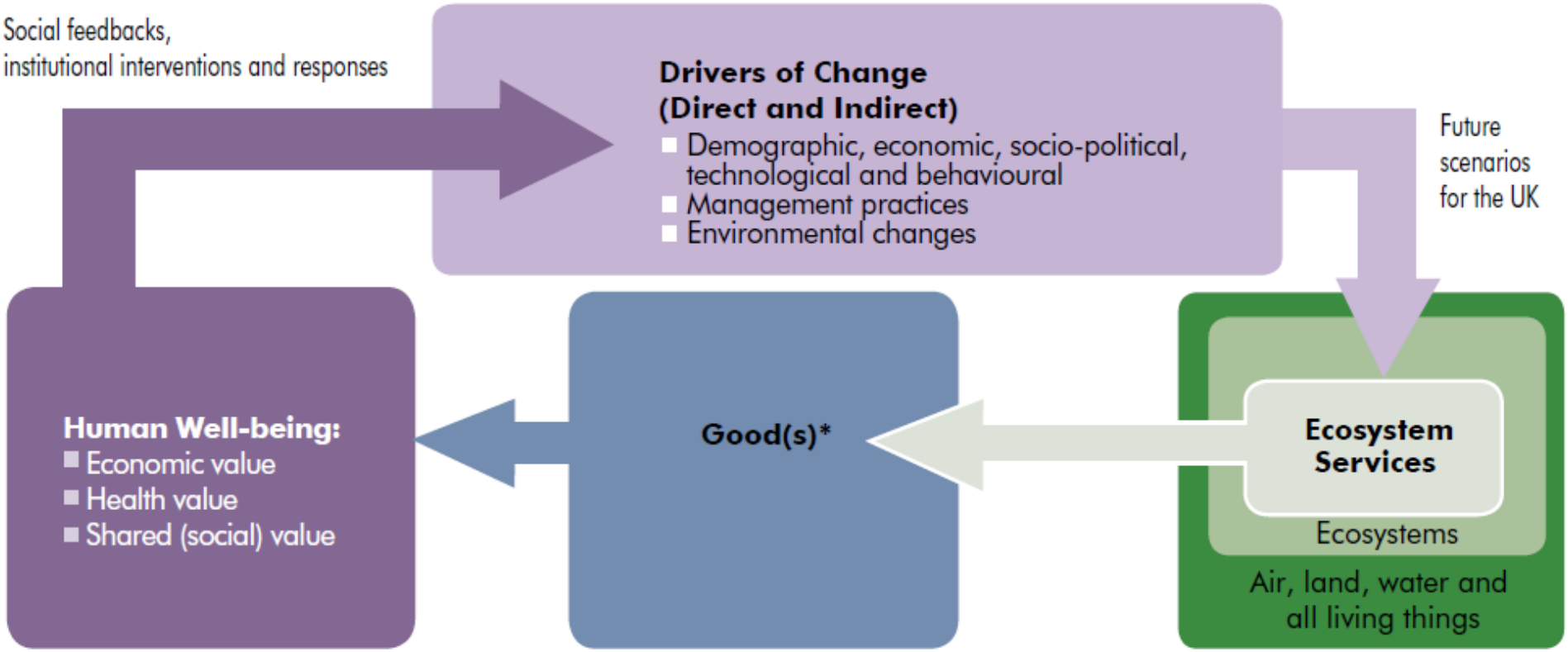
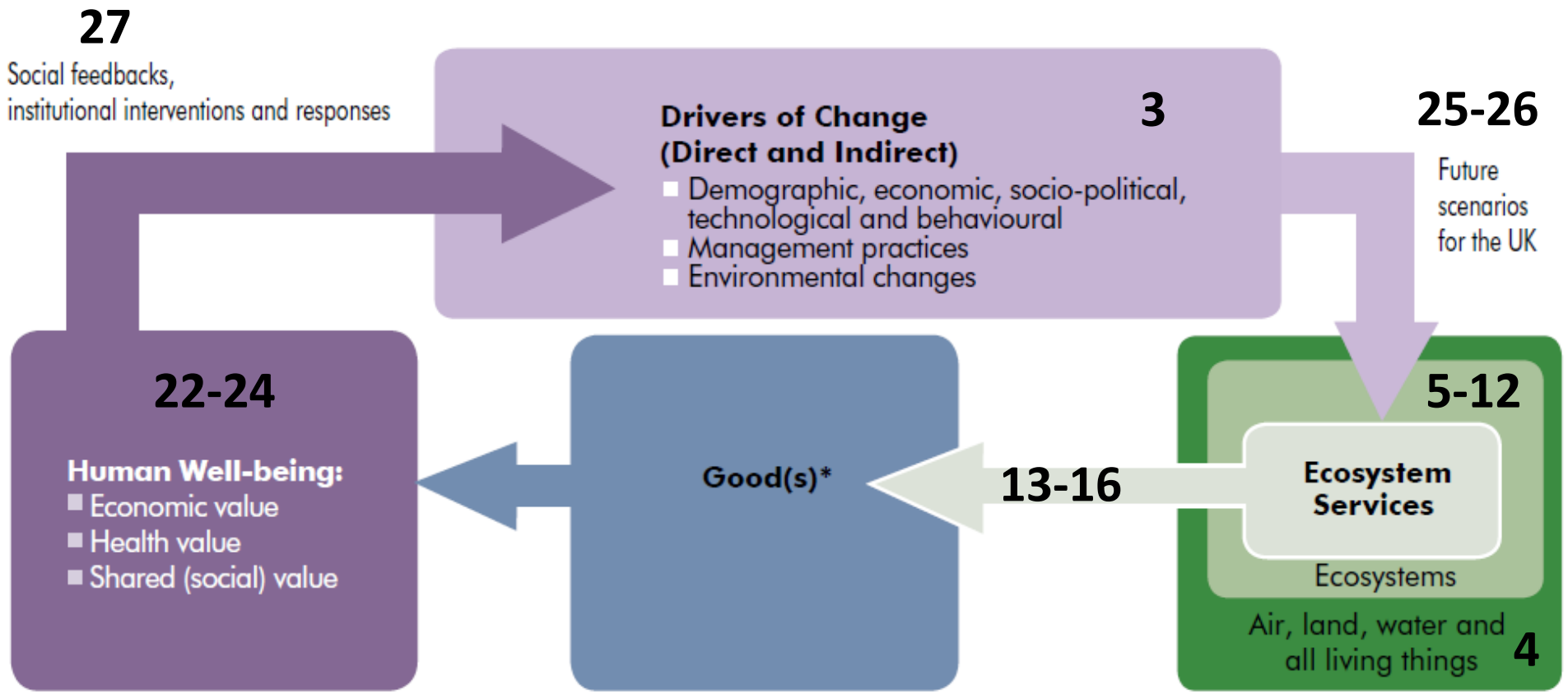


Figure 2.1 Overall Conceptual Framework for the UK NEA showing the links between ecosystems, ecosystem services, good(s), valuation, human well-being, change processes and scenarios. *Note that the term good(s) includes all use and non-use, material and non-material outputs from ecosystems that have value for people.

Source: NEA Technical Report Chapter 2
Synthesis Report Figure 9



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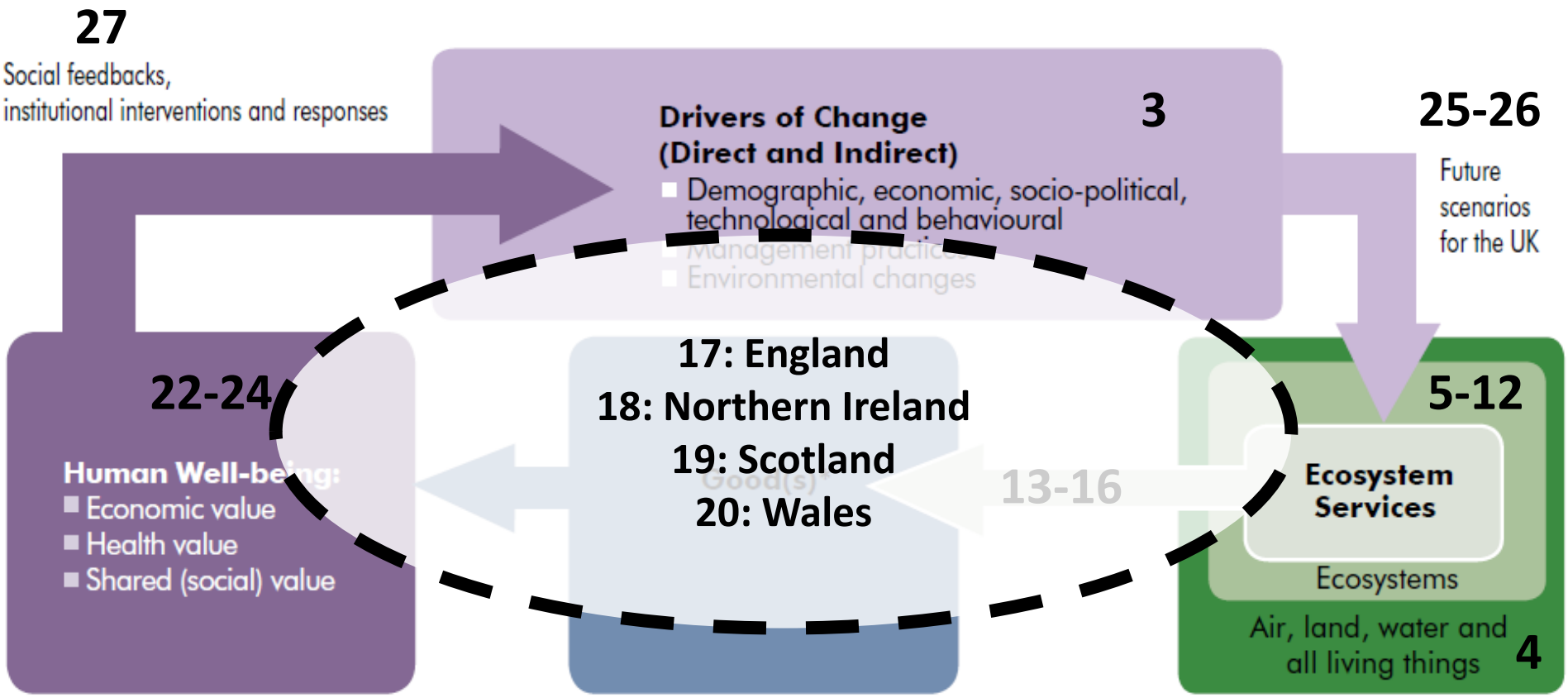

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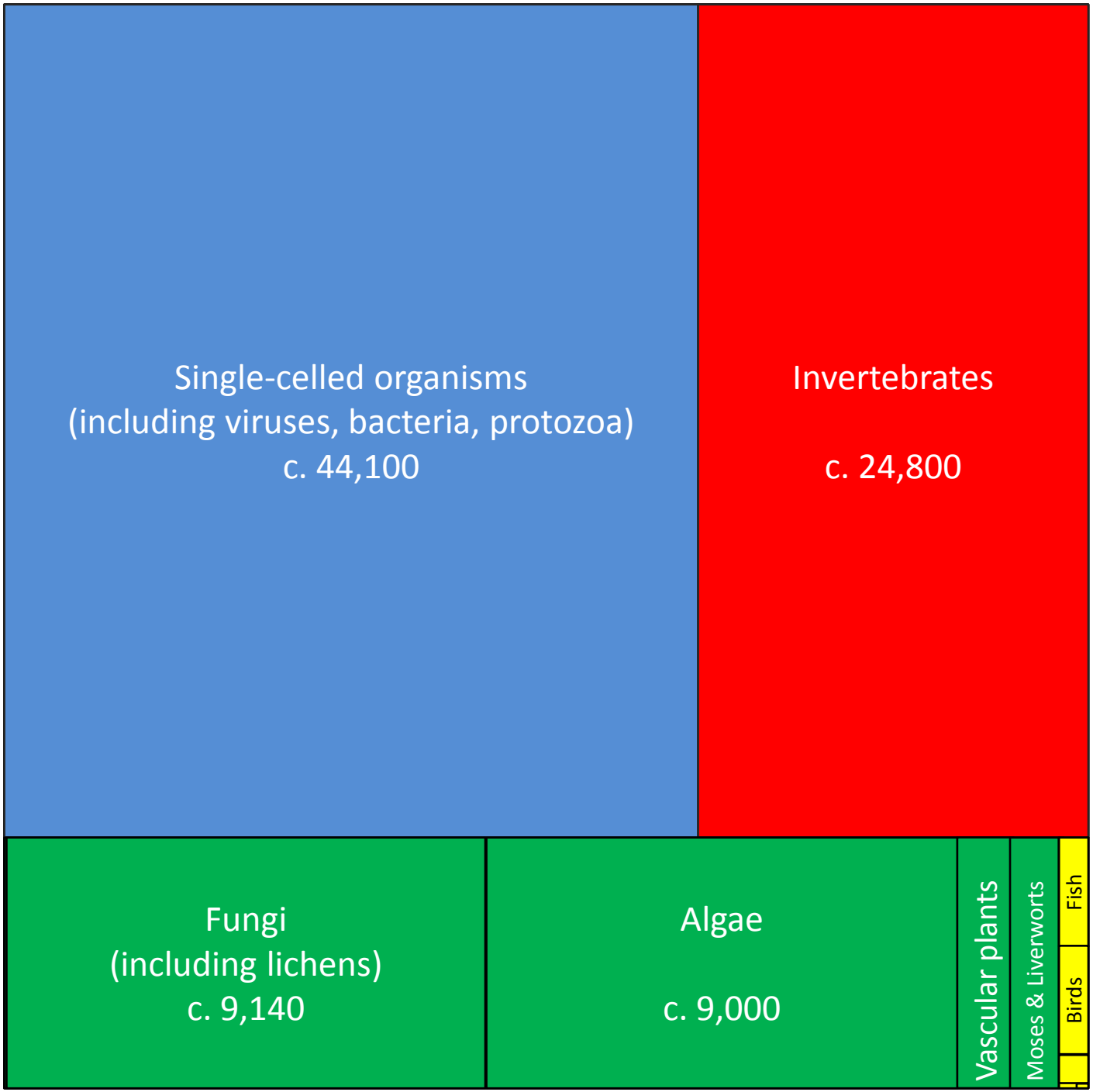
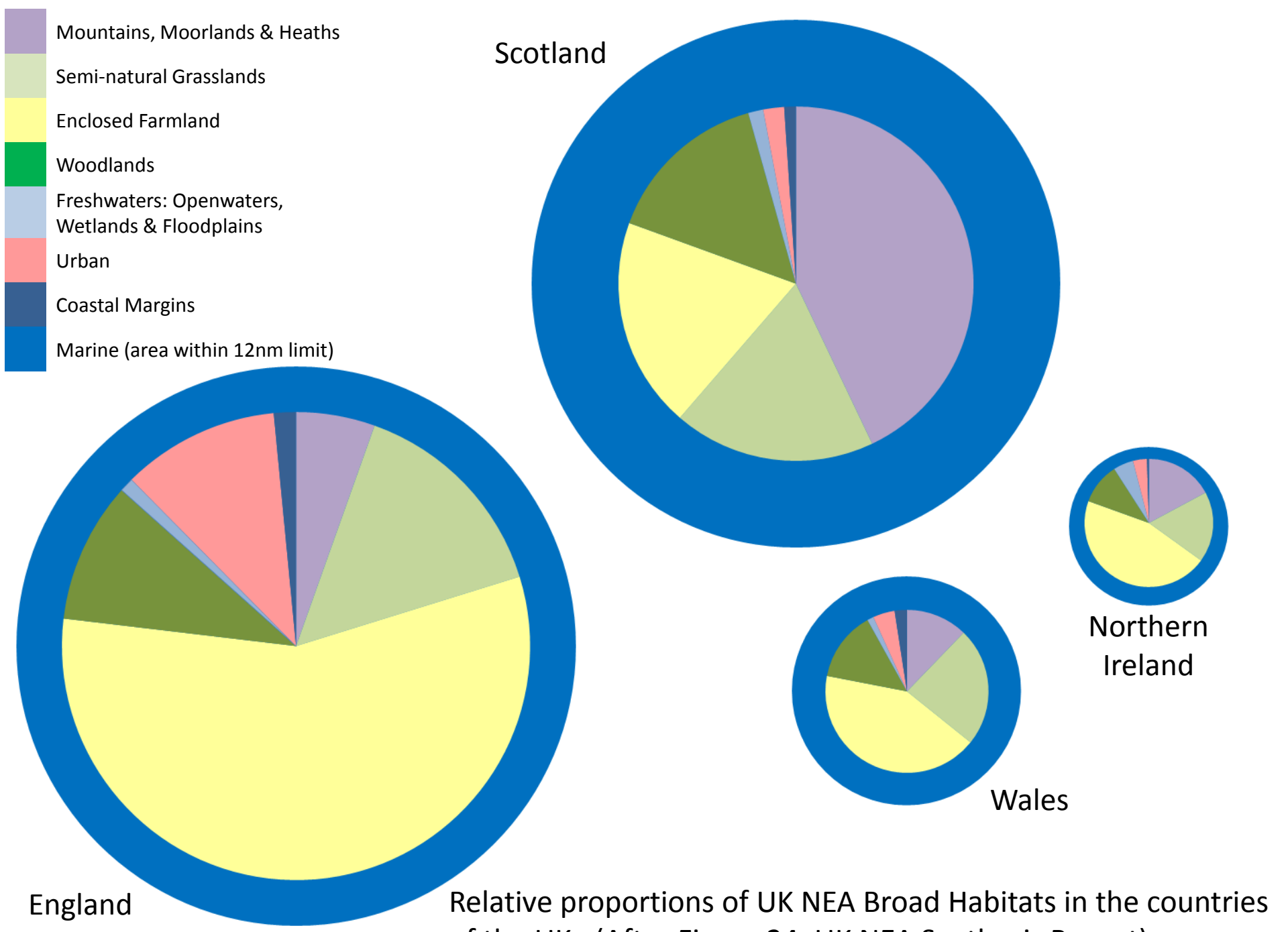


Source: data from *Action for Scotland's Biodiversity*

Priority species

Single-celled organisms	c. 44,100
Invertebrates	c. 24,800
Fungi, including lichens	c. 9,140
Algae	c. 9,000
Vascular plants	1,080
Mosses and liverworts	928
Fish	244
Birds	242
Mammals	63
Amphibians	6
Reptiles	4
TOTAL	c. 90,000



Relative proportions of UK NEA Broad Habitats in the countries of the UK. (After Figure 24, UK NEA Synthesis Report)

Source:
Baxter. M., Boyd, I. L., Cox, M., Donald, A. E., Malcolm, S. J., Miles, H., Miller, B. & Moffat, C. F. (2011) *Scotland's Marine Atlas – Information for the National Marine Plan*. Scottish Government. 191pp

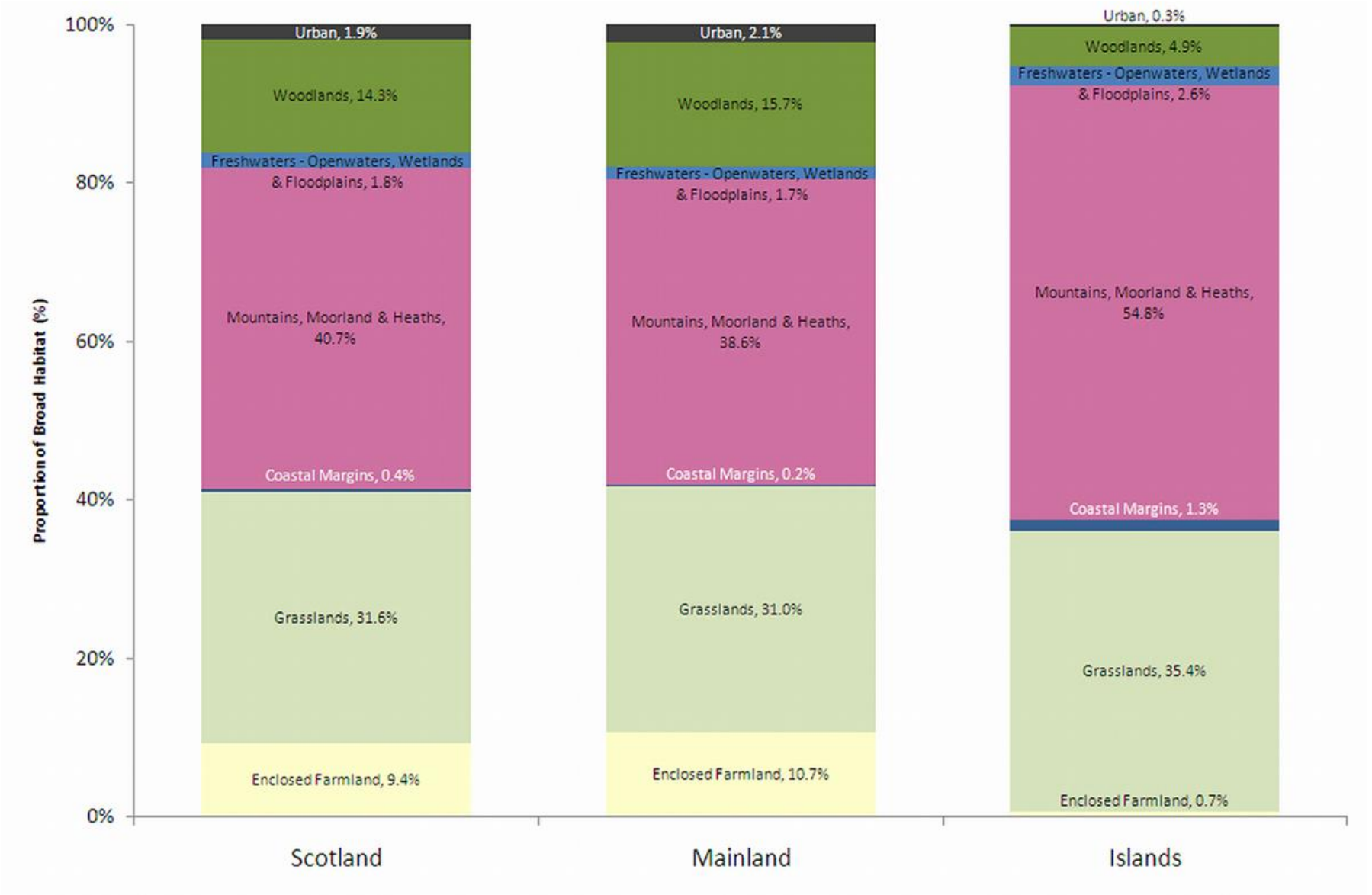


Figure 19.7. Proportion of NEA Broad Habitat types in Scotland (all Scotland, mainland, islands). Source: Land Cover Map 2000 (Fuller et al 2002)

Table 2.2 Ecosystem services in the NEA classified according to both ecosystem service type and whether or not they are final ecosystem services or intermediate services and/or processes.
For each final ecosystem service an example of the good(s) it delivers is provided in italics

<table>
<tr><th colspan="2">Ecosystem processes/intermediate services</th><th colspan="2">Final ecosystem services (examples of goods)</th></tr>
<tr><td>Supporting services</td><td>Primary production
Soil formation
Nutrient cycling
Water cycling</td><td>Provisioning services</td><td>Crops, livestock, fish (food)
Trees, standing vegetation, peat (fibre, energy, carbon sequestration)
Water supply (domestic and industrial water)
Wild species diversity (bioprospecting, medicinal plants)</td></tr>
<tr><td colspan="2" rowspan="2">• Decomposition
• Weathering
• Climate regulation
• Pollination
• Disease and pest regulation
• Ecological interactions
• Evolutionary processes
• Wild species diversity</td><td>Cultural services</td><td>Wild species diversity (recreation)
Environmental settings (recreation, tourism, spiritual/religious)</td></tr>
<tr><td>Regulating services</td><td>Climate regulation (equable climate)
Pollination
Detoxification and purification in soils, air and water (pollution control)
Hazard regulation (erosion control, flood control)
Noise regulation (noise control)
Disease and pest regulation (disease and pest control)</td></tr>
</table>

1	What are the **status and trends** of the UK's ecosystems and the services they provide to society?	5-12, 13-16, 17-20
2	What are the **drivers** causing changes in ecosystems and their services?	2, 3
3	How do the ecosystem services affect **human well-being**, who and where are the beneficiaries, and how does this affect how they are valued and managed?	22-24
4	Which vital UK provisioning services are not provided by UK ecosystems?	21
5	What is the current **public understanding** of ecosystem services and the benefits they provide?	16
6	Why should we incorporate the **economic value** of ecosystem services in to decision-making?	22
7	How might ecosystems and their services change in the UK under **plausible future scenarios**?	25, 26
8	What are the **economic implications** of different plausible futures?	26
9	How can we secure and improve the **continued delivery** of ecosystem services?	27
10	How have we advanced our **understanding** of the influence of ecosystem services on human well-being and what are the **knowledge constrain**ts on more informed decision-making?	1-27

Box 1.4 Key questions addressed by the UK NEA

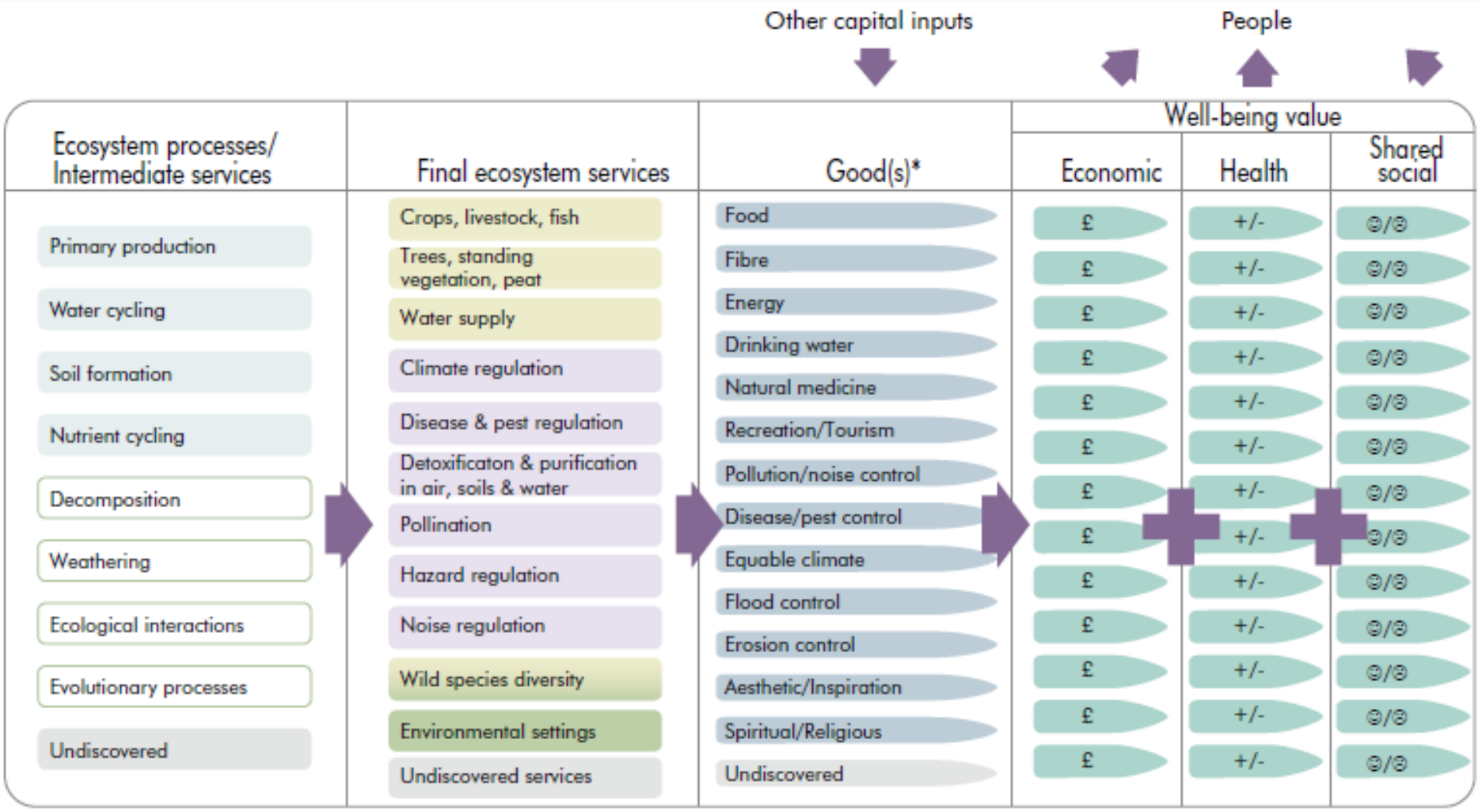
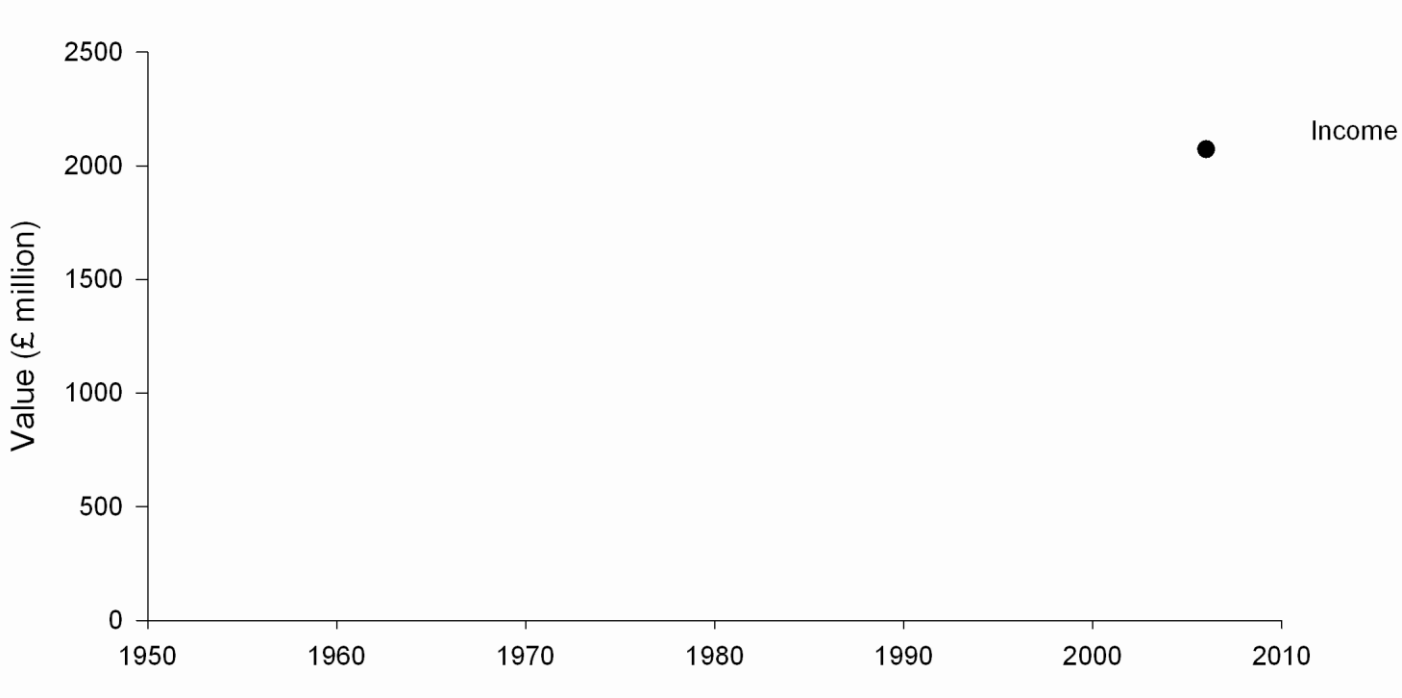
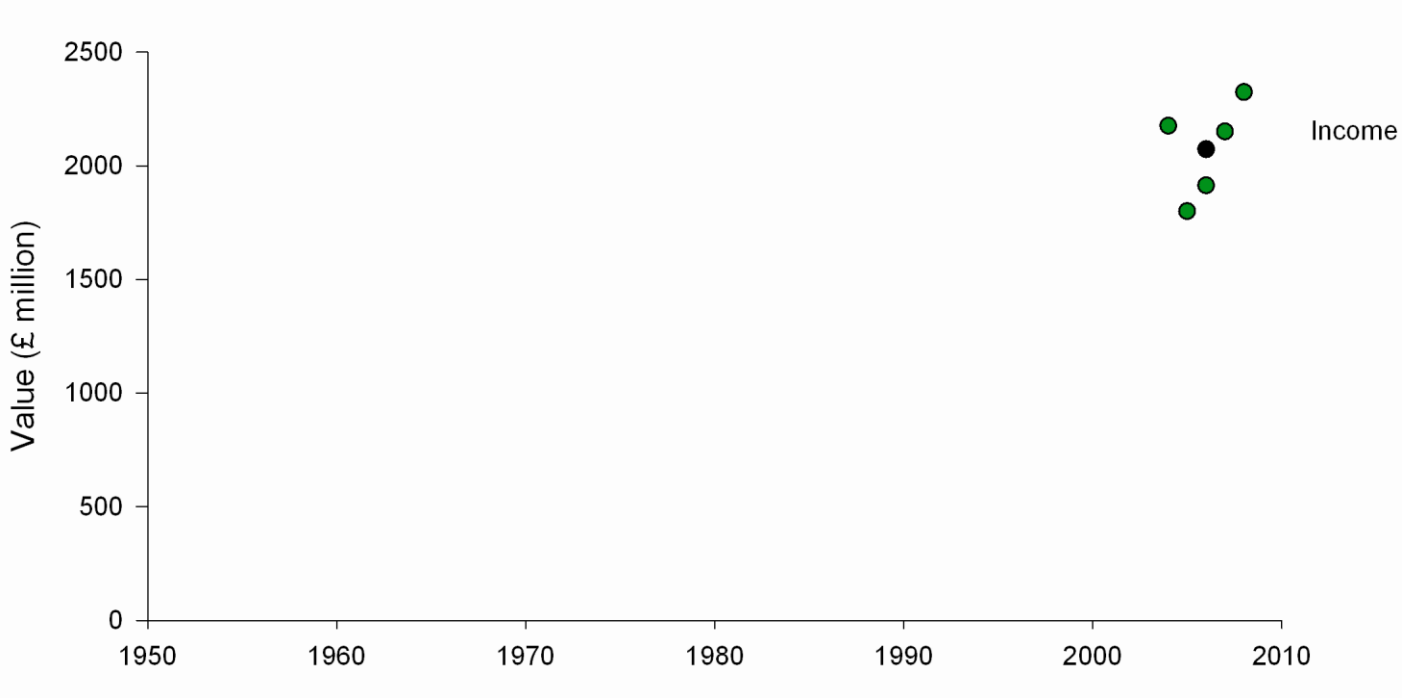


Figure 2.3 The full set of ecosystem processes, services, goods/benefits and values used in the UK NEA. Note that some ecosystem services can be both intermediate and final services. For simplicity, in this figure, services are shown only in the most final position that they occupy. Services such as pollination and climate regulation that also play important roles further back in the chain are not represented here. Cells with no colour are ecosystem processes/services that were not in the Millennium Ecosystem Assessment classification. *Note that the term good(s) includes all use and non-use, material and non-material outputs from ecosystems that have value for people. Source: adapted from Fisher *et al.* (2008).



Value of services: food from agriculture



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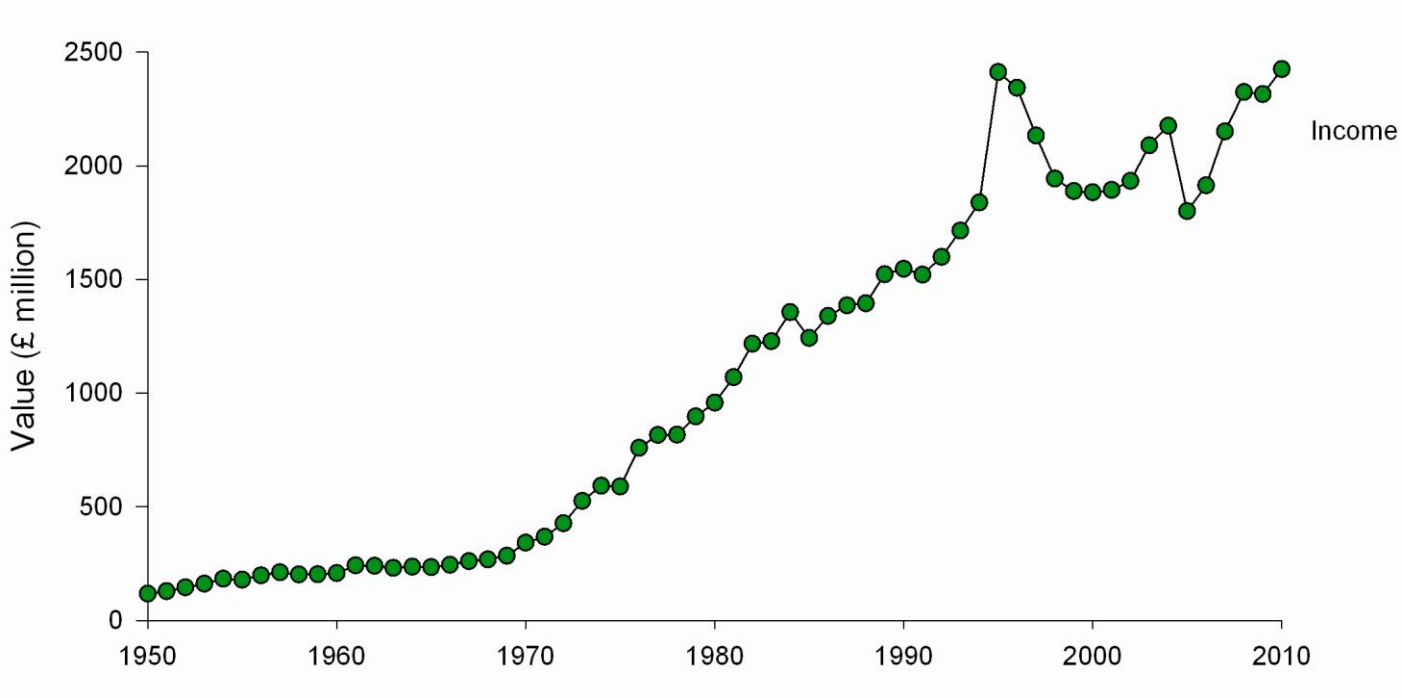

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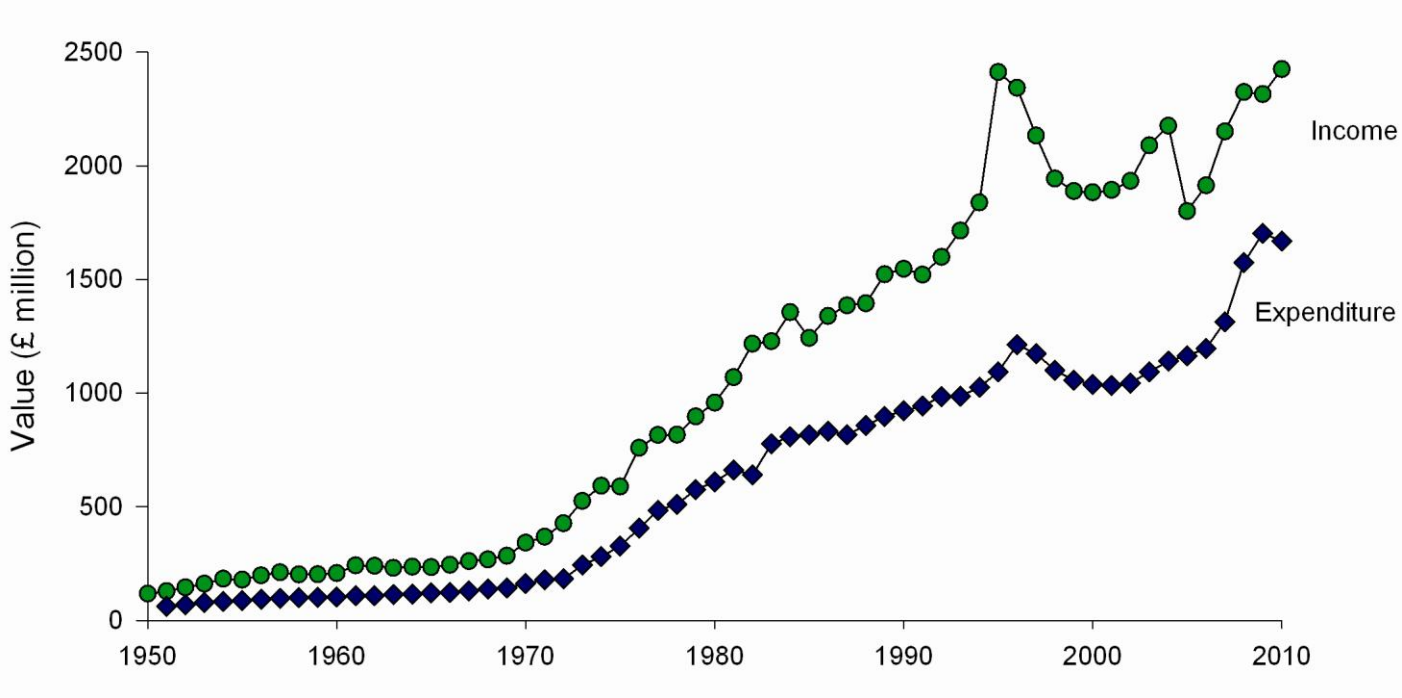

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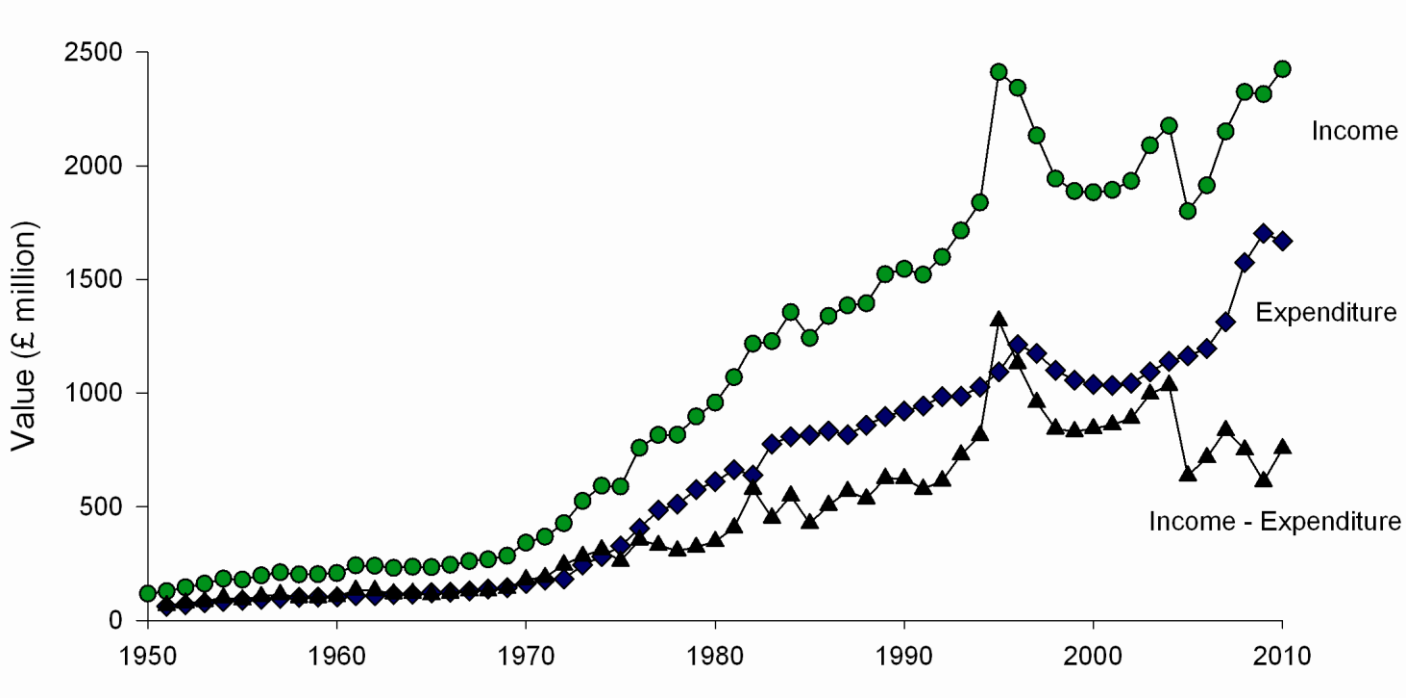

Value of services: food from agriculture

“Without the environment we’re all dead –
so the total value is infinite.”

Ian Bateman, UEA

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