University of Brighton

UNIVERSITY OF EXETER

Cultural Ecosystem Services & Natural Capital

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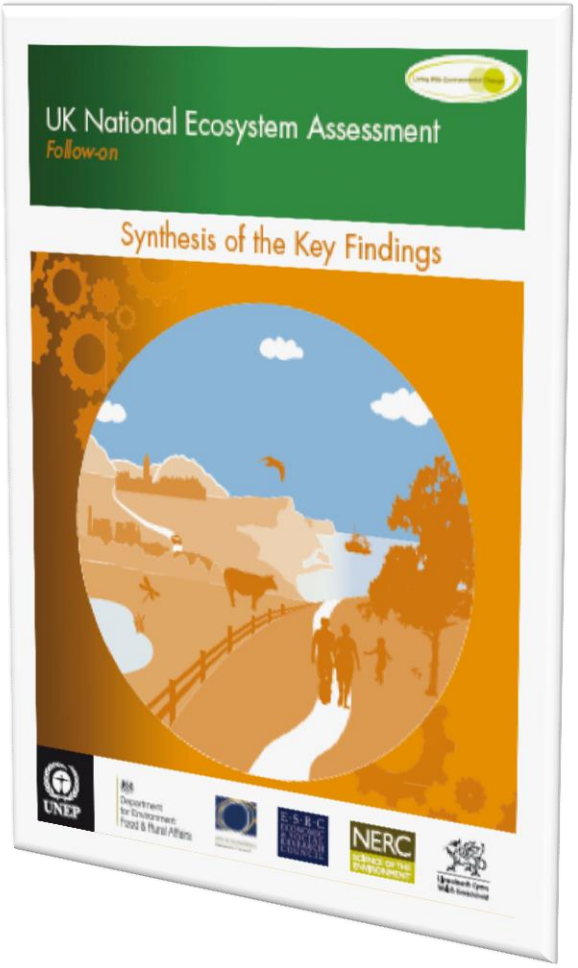
Context

Insights based on theoretical and applied research for the UK National Ecosystem Assessment Follow on (2014)

Context to NEAFO

- Further our understanding of the economic and social value of nature
- Develop tools and products to further operationalise the Ecosystems Approach in decision making
- Support the inclusion of natural capital in the UK's National Accounts



Cultural Ecosystem Services

- If we take natural capital to refer to 'the elements of nature that produce value or benefit to people', then cultural ecosystem services provide one distinctive way of thinking about these values or benefits.
- Cultural ecosystem services conveys the way that natural capital enriches our lives as individuals, as members of families, and as part of communities.
- Natural environment provides us with spaces we value culturally and where we can do things that allow us to flourish: playing, working, relaxing, creating and learning.

Cultural ecosystem services

- Cultural ecosystem services routinely assigned significance with resource management literatures:
  - Inspire "deep attachment" in communities (Chan et al. 2011)
  - Help build public support for ecosystem protection (Daniel et al., 2011)

'Naturally Speaking …'

a public dialogue on

valuing and managing our environment

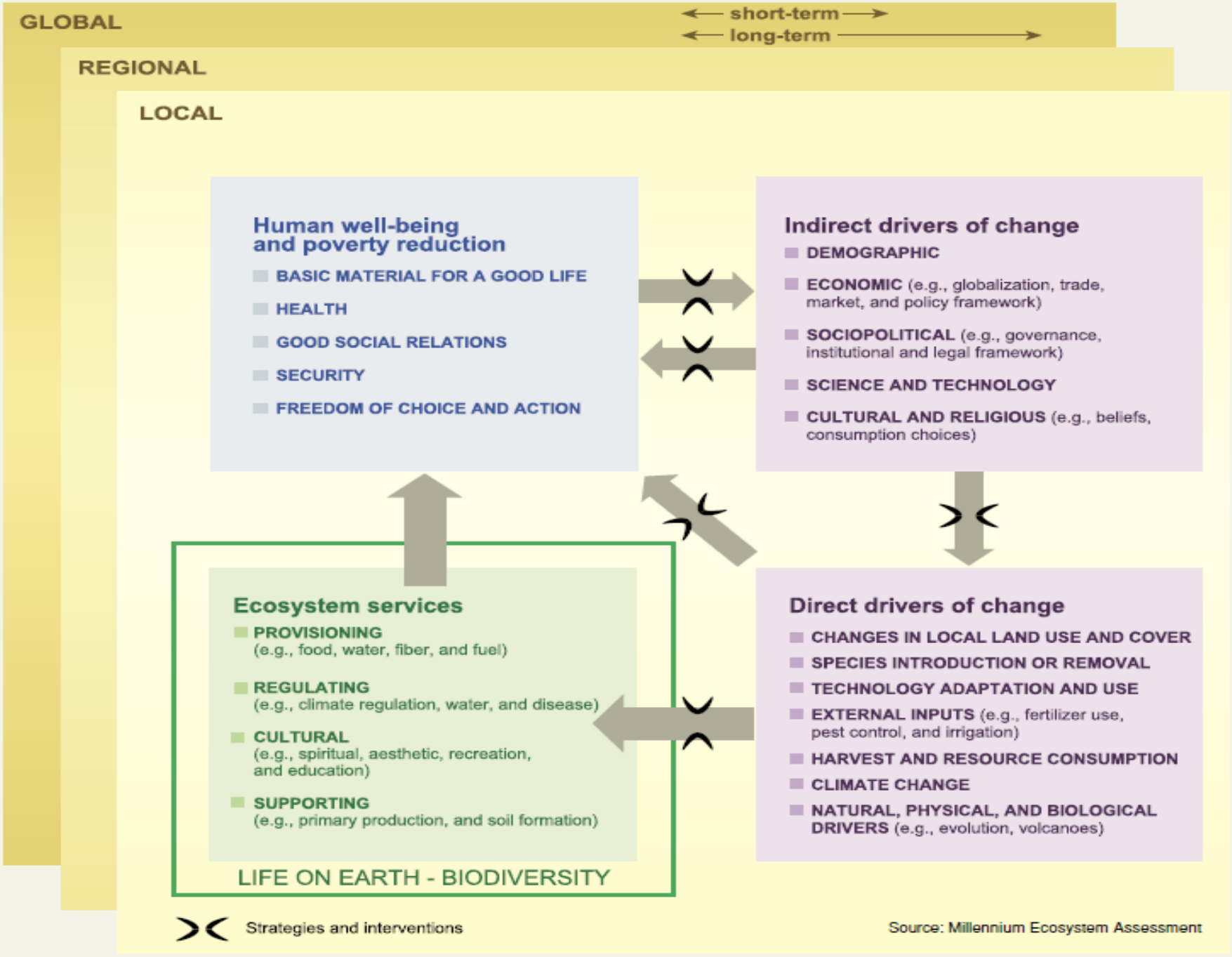
Dialogue Cartoons by Luke Warm

Yet…….

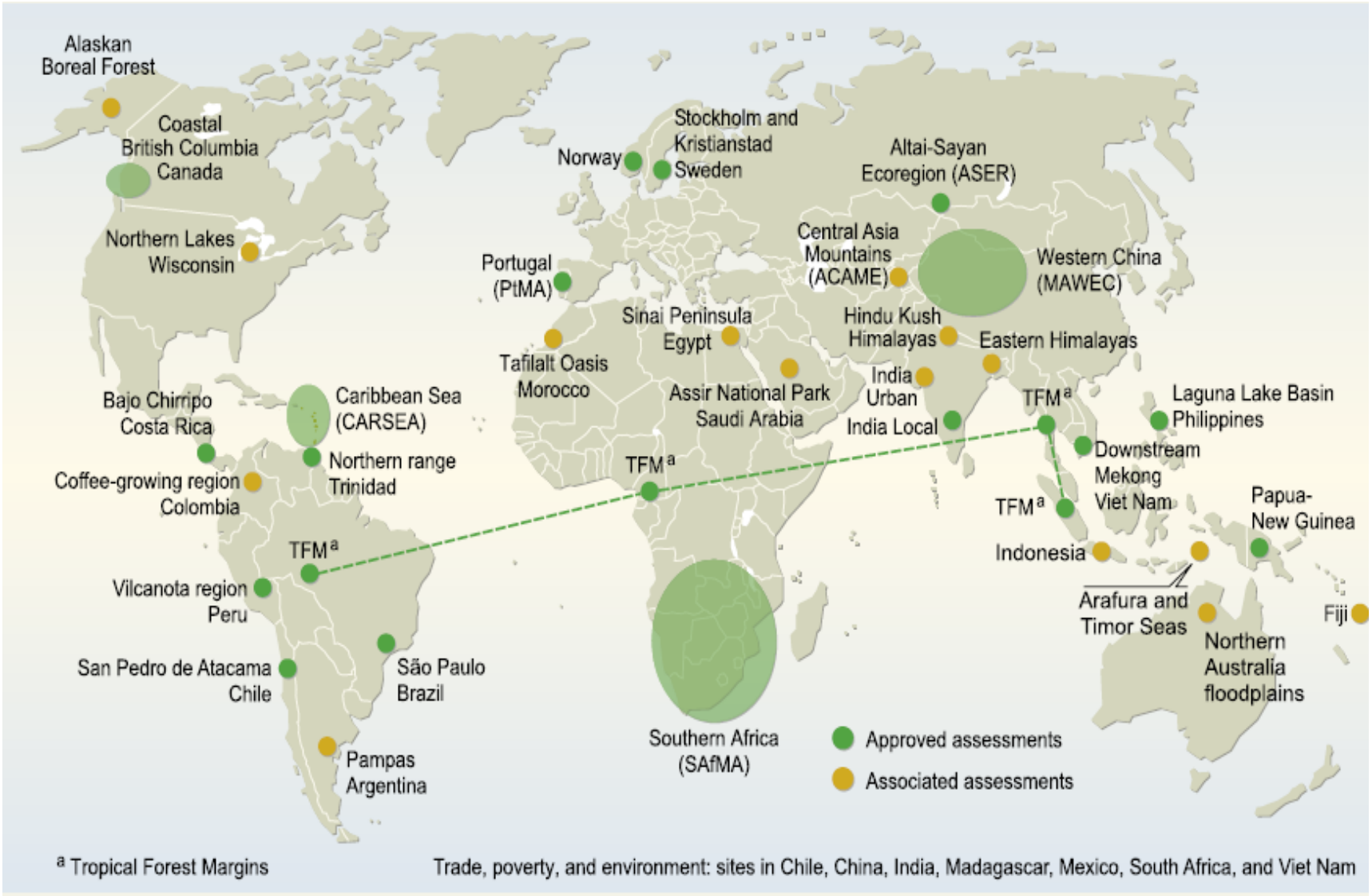
….cultural ecosystem services also routinely considered slightly elusive:

> "differ[ing]" in various aspects from other ecosystem services, presenting strong barriers toward their broader incorporation" (Plieninger *et al*. 2013: 119)

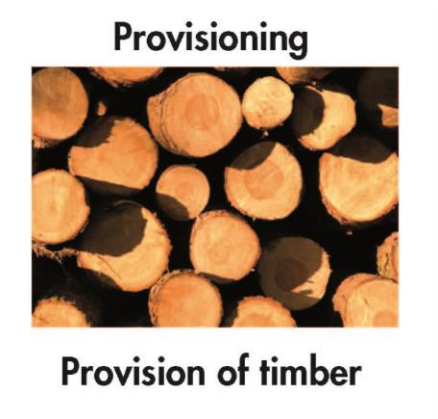
Strong sense of a category invented in a theoretical vacuum…..

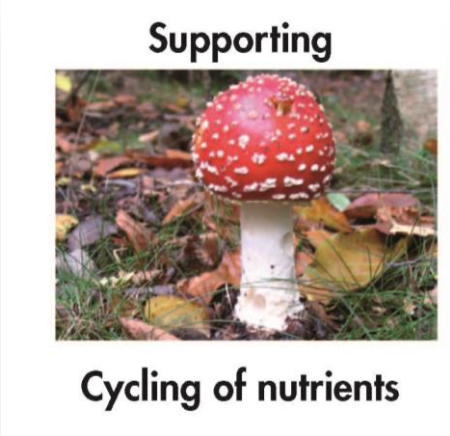

GLOBAL
short-term
long-term
REGIONAL
LOCAL
Human well-being and poverty reduction
BASIC MATERIAL FOR A GOOD LIFE
HEALTH
GOOD SOCIAL RELATIONS
SECURITY
FREEDOM OF CHOICE AND ACTION
Indirect drivers of change
DEMOGRAPHIC
ECONOMIC (e.g., globalization, trade, market, and policy framework)
SOCIOPOLITICAL (e.g., governance, institutional and legal framework)
SCIENCE AND TECHNOLOGY
CULTURAL AND RELIGIOUS (e.g., beliefs, consumption choices)
Ecosystem services
PROVISIONING (e.g., food, water, fiber, and fuel)
REGULATING (e.g., climate regulation, water, and disease)
CULTURAL (e.g., spiritual, aesthetic, recreation, and education)
SUPPORTING (e.g., primary production, and soil formation)
LIFE ON EARTH - BIODIVERSITY
Direct drivers of change
CHANGES IN LOCAL LAND USE AND COVER
SPECIES INTRODUCTION OR REMOVAL
TECHNOLOGY ADAPTATION AND USE
EXTERNAL INPUTS (e.g., fertilizer use, pest control, and irrigation)
HARVEST AND RESOURCE CONSUMPTION
CLIMATE CHANGE
NATURAL, PHYSICAL, AND BIOLOGICAL DRIVERS (e.g., evolution, volcanoes)
Strategies and interventions
Source: Millennium Ecosystem Assessment

Post UN-MA sub-global assessments



UN MA - Ecosystem Services



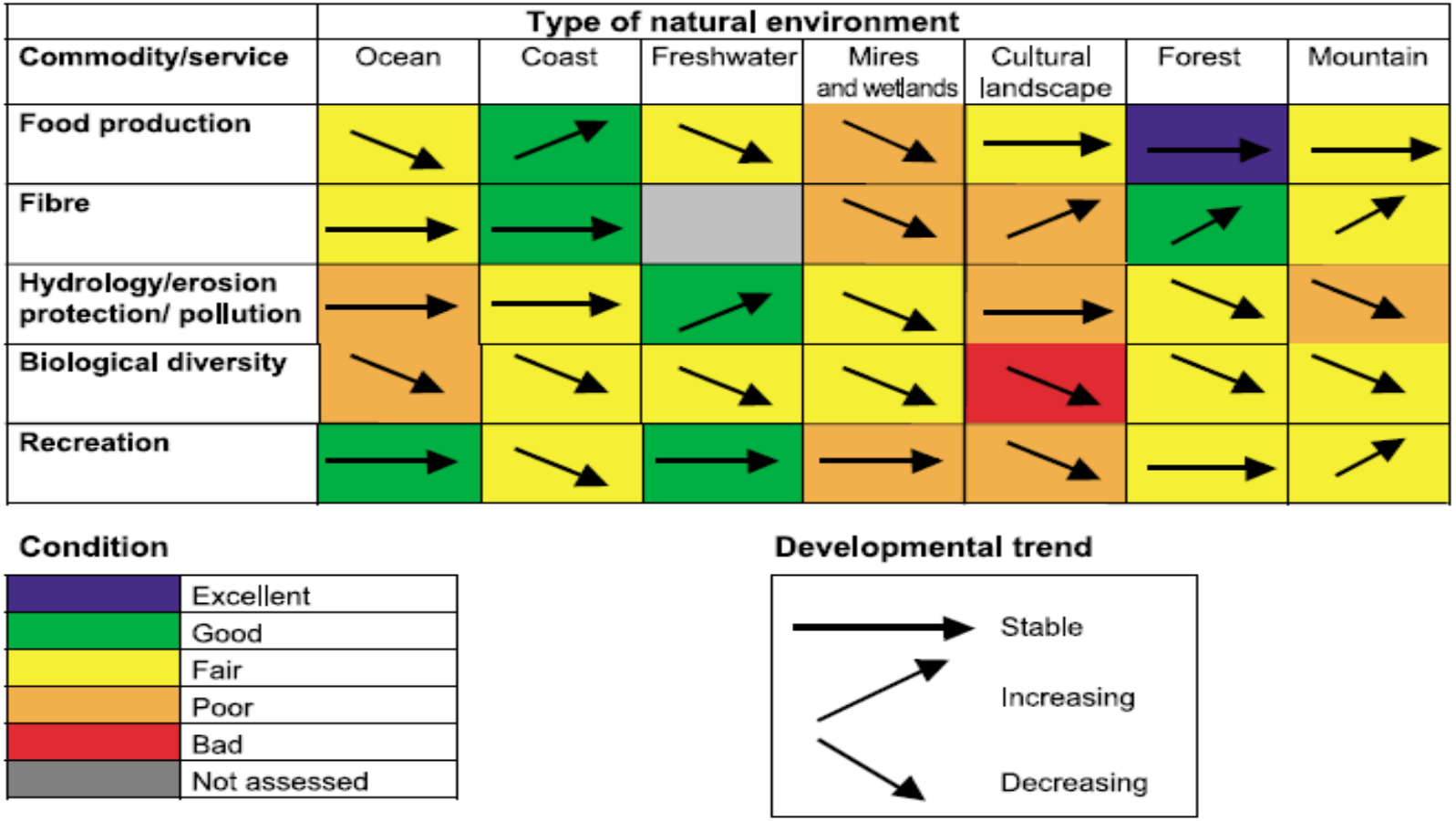


Services - The benefits ecosystems provide

Cultural services = Non-material benefits

- Cultural identity
- Heritage values
- Spiritual experiences
- Inspiration
- Aesthetic appreciation
- Recreation and tourism

Status and trends - Glomma river basin - Norway 2002



Drivers - Satoyama & Satoumi landscapes - Japan 2010

A dynamic mosaic of managed socio-ecological systems producing a bundle of ecosystem services for human well-being.

Table 1 Changes in ecosystem services and direct drivers (cntd. on p. 20)

Ecosystem Services			Human Use	Enhanced or Degraded	Indicators and Criteria	Direct Drivers: Urbanisation	Loss of mosaic	Under-use	Over-exploitation	Global/regional warming	Increase in alien invasive species	Pollution
PROVISIONING	FOOD	Rice	↘	→	Crop yield, cultivated area, yield per 10a	✓		✓		✓	✓	
		Livestock	NA	NA	-							
		Matsutake mushrooms	↘	↘	Yield			✓				
		Marine Fishery	↘	↘	Catch	✓		✓	✓	✓		✓
		Aquaculture	↗	NA	Catch	✓						✓

Table 1 ctnd. Changes in ecosystem services and direct drivers

Ecosystem Services			Human Use	Enhanced or Degraded	Indicators and Criteria	Direct Drivers: Urbanisation	Loss of mosaic	Under-use	Over-exploitation	Global/regional warming	Increase in alien invasive species	Pollution
CULTURAL	SPIRITUAL	Religion	NA	-	Number of temples and shrimes, area of sacred groves	✓						
		Festival	↘	-	Variety (number) of festivals, use of plants for flower dedication	✓						
		Scenery	↘	-	Number of applications for '100 best satoyama selection'	✓						
	RECRE-ATION	Education	→	-	Number of participants, number of NGOs working for satoyama conservation, area of activities, time to spend outdoors	✓						
		Game-hunting and fishing, Gathering clams and wild vegetables	↘	-	Number of participants (described in leisure white paper), number of facilities	✓						
		Climbing, Travel, Green-tourism	↗	-	Number of participants (described in leisure white paper), number of facilities	✓						
	ART	Traditional art	↘	-	Number of professionals, production, average age (in terms of education of successors)	✓						
		Contemporary art	NA	-	Number of professionals, production, average age (in terms of education of successors)							

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Cultural ecosystem services and the NEAFO

1. Develops the **theoretical** basis of cultural ecosystem services, in particular attempts to disentangle the links between ecosystems, cultural services and benefits.

2. Illustrates **techniques** that decision makers might use to measure and interpret cultural ecosystem services, including quantitative & analytical, as well as qualitative and deliberative approaches

Underpinning argument: cultural ecosystem services are not **'special case'**

Cultural Ecosystem Services as a special case

Ecosystem services typically treated as if *a priori* products of nature that people utilise for a particular benefit to well-being: this makes them amenable to observation, counting and measurement and valuation.

Three grounds for exceptionalism:

1. **Highly interpretive:** *not* external components nature awaiting discovery and allocation by people: they are constructed.
2. **Non materiality**: "property of intangibility is central to cultural ecosystem services …[ ]… and often renders them difficult to classify and measure" (Chan *et al*. 2011: 206)
3. **Non-economic** - this has *epistemological* and *ontological* dimensions:
   - *Epistemological* - applying valuation techniques to processes that often lie out of market processes Thus measuring what is easy rather than what matters (Milcu *et al.,* 2013)
   - *Ontological* - what makes a service cultural is precisely its non-economic character – Valuation of cultural ecosystem services is doubly problematical: Not just whether nature can be valued as an economic asset, but culture as well.

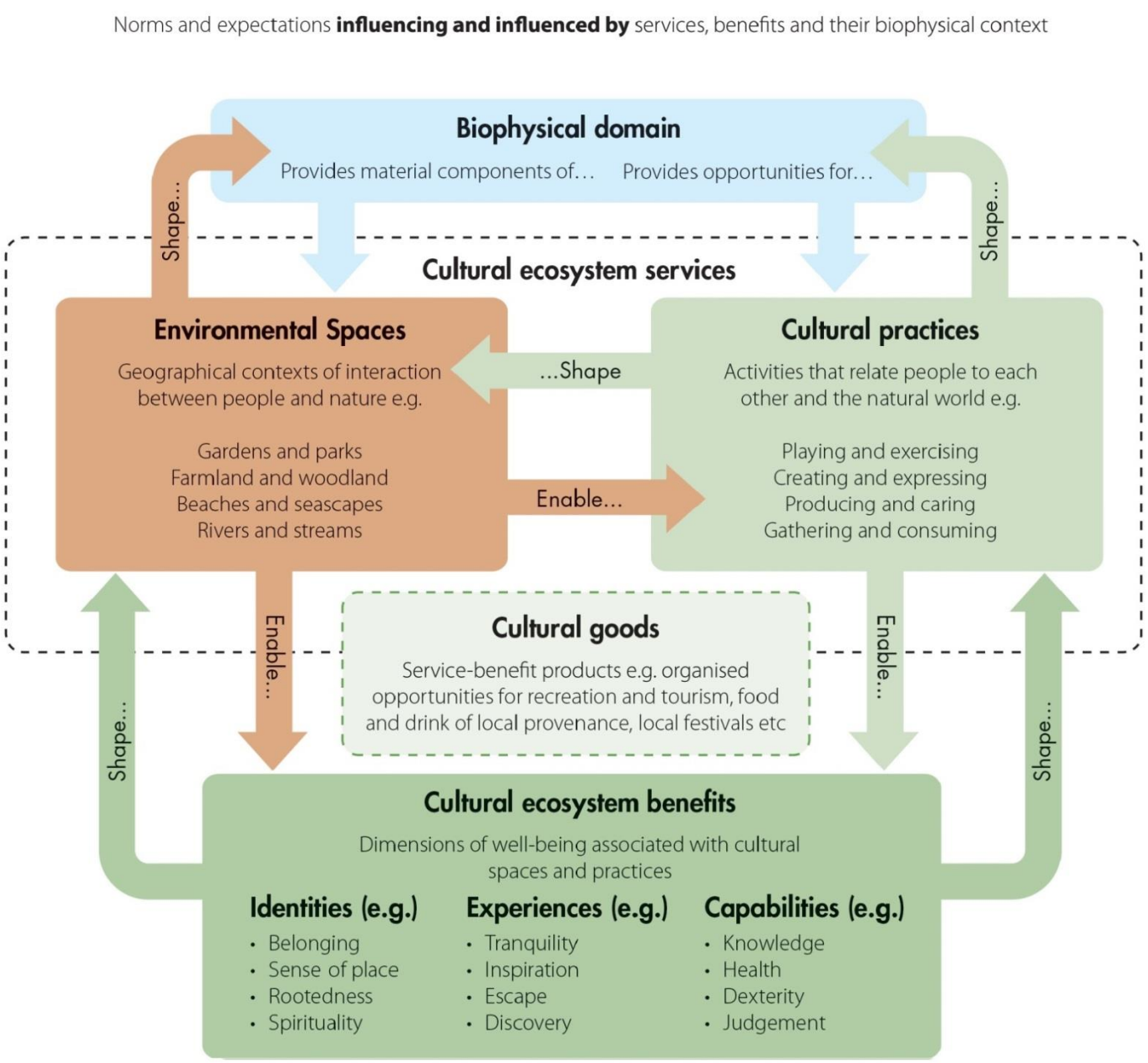
Cultural Ecosystem Services and the NEA

We advance a definition of CES as:

> "*The contributions ecosystems make to human well-being in terms of the identities they help frame, the experiences they help enable and the capabilities they help equip*

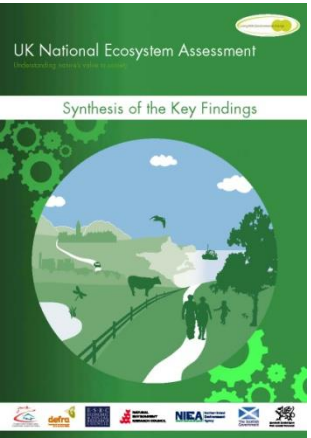
Our evolving framework:

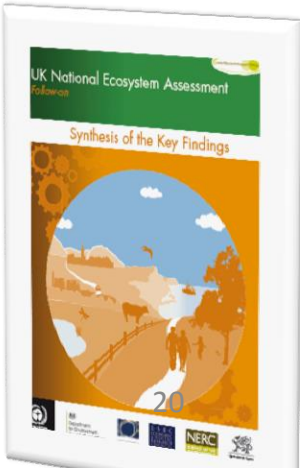
- Shares scepticism of viewing cultural ecosystem services as *a priori* products of nature.
  - We take a relational approach: CES are *processes and things that people actively create and express through interactions with ecosystems*
- Does not share the idea that cultural ecosystem services are 'non-material', which strikes us as a disempowering mistake & theoretically flawed.
- Recognises that culture ecosystem services are not reducible to the formal economic sphere, but neither are they outside of it.


Cultural Values
Norms and expectations influencing and influenced by services, benefits and their biophysical context
Biophysical domain
Provides material components of…
Provides opportunities for…
Shape…
Shape…
Cultural ecosystem services
Environmental Spaces
Geographical contexts of interaction between people and nature e.g.
Gardens and parks
Farmland and woodland
Beaches and seascapes
Rivers and streams
…Shape
Cultural practices
Activities that relate people to each other and the natural world e.g.
Playing and exercising
Creating and expressing
Producing and caring
Gathering and consuming
Enable…
Enable…
Cultural goods
Service-benefit products e.g. organised opportunities for recreation and tourism, food and drink of local provenance, local festivals etc
Enable…
Shape…
Shape…
Cultural ecosystem benefits
Dimensions of well-being associated with cultural spaces and practices
Identities (e.g.)
• Belonging
• Sense of place
• Rootedness
• Spirituality
Experiences (e.g.)
• Tranquility
• Inspiration
• Escape
• Discovery
Capabilities (e.g.)
• Knowledge
• Health
• Dexterity
• Judgement

The UK NEA and NEAFO indicates potential roles for different ways of measuring cultural ecosystem services in decision-making:

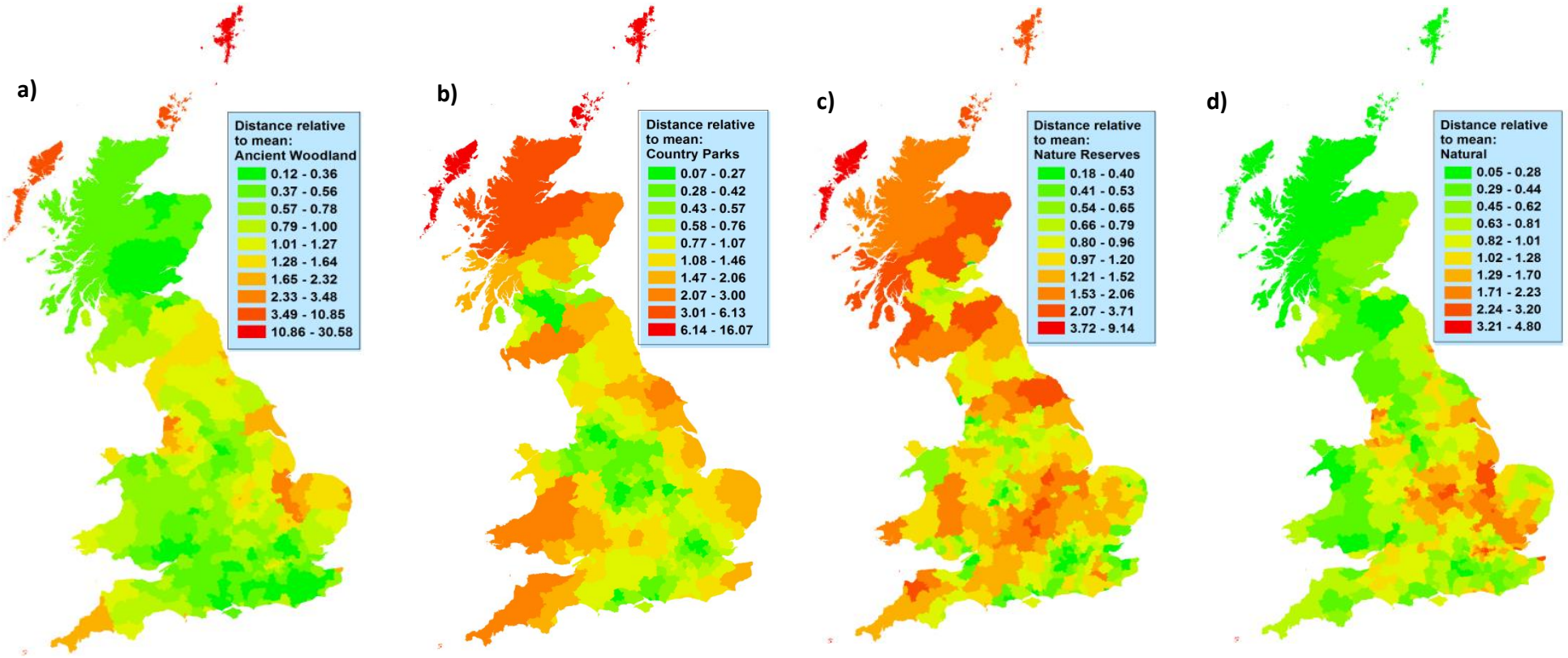
- Identifying priorities
- Advocacy
- Scenarios and future thinking
- Local plans
- Identifying PES and markets
- Public engagement
- Better informed decision-making





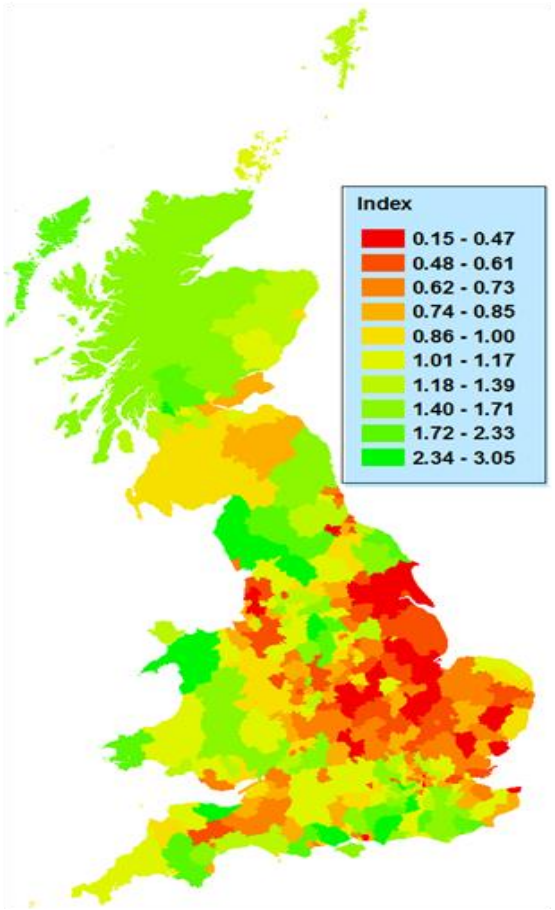
Priorities and advocacy

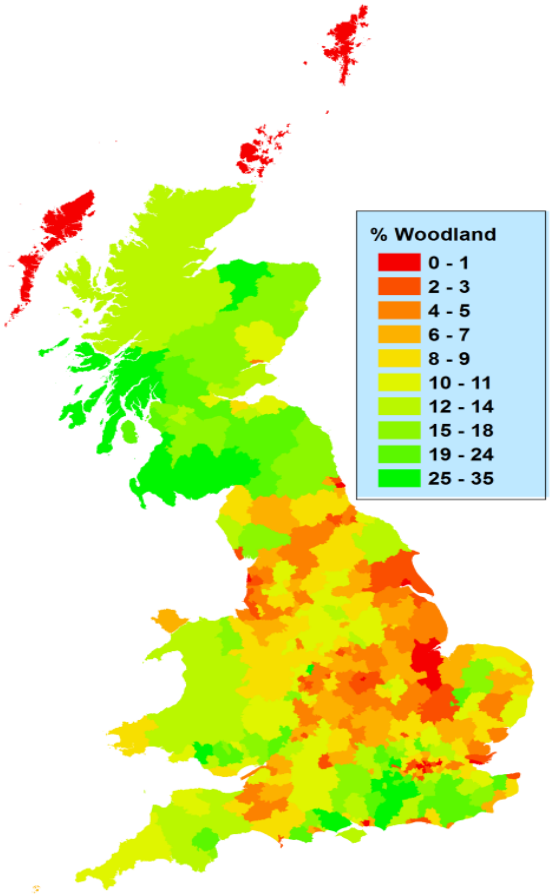
Average distance per resident for local authorities to patches of 2, 20, 100 and 500 ha, relative to the mean over all local authorities: Ancient Woodland (a), Country Parks (b), Nature Reserves (c), Natural Habitats.



Cultural Ecosystem Services

Indicators of the supply of different types of environmental spaces

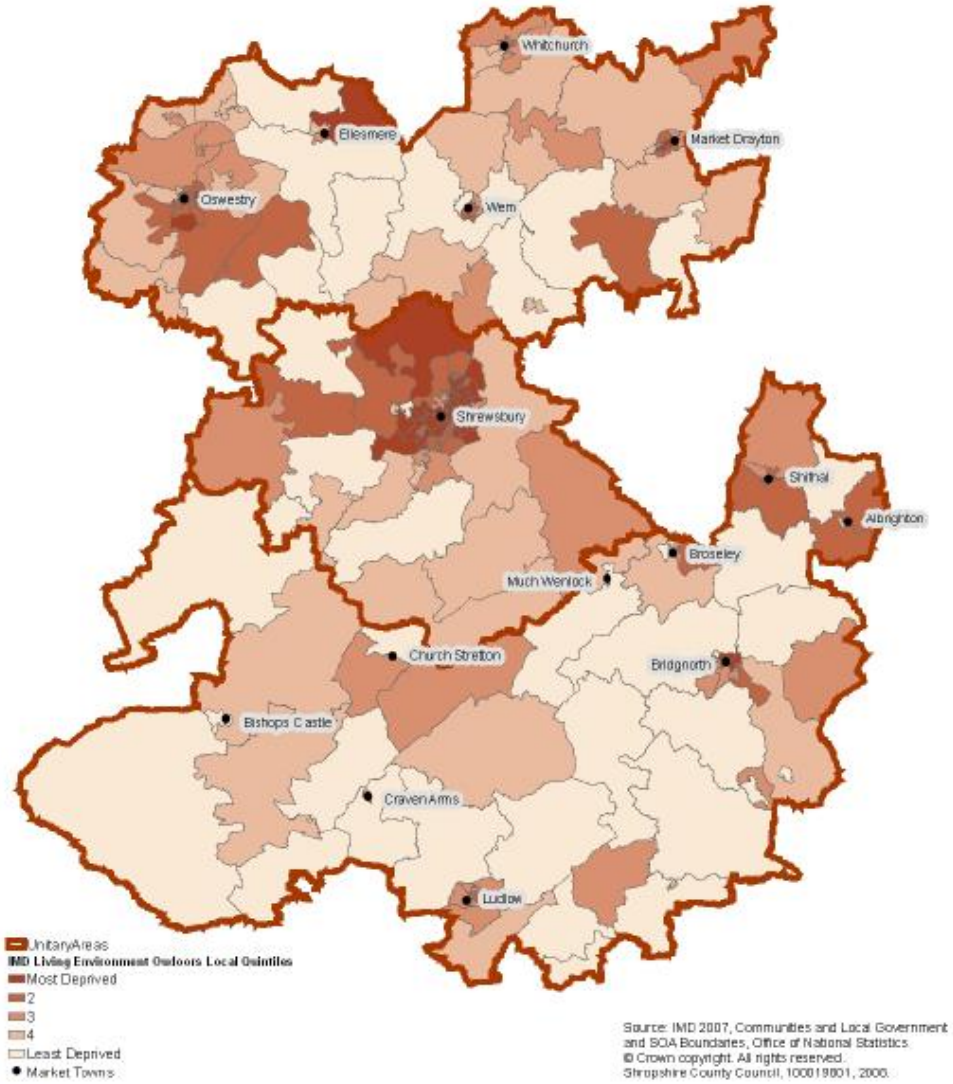




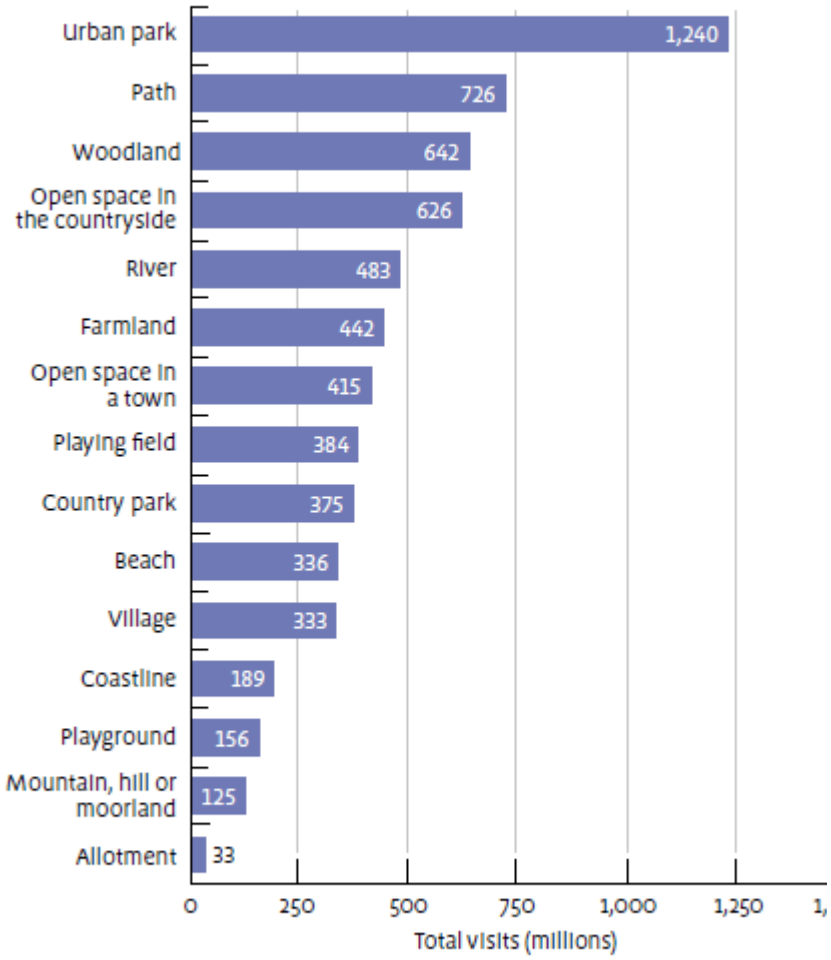
LIVING ENVIRONMENT DEPRIVATION IN SHROPSHIRE – OUTDOORS SUB DOMAIN

IMD07/15

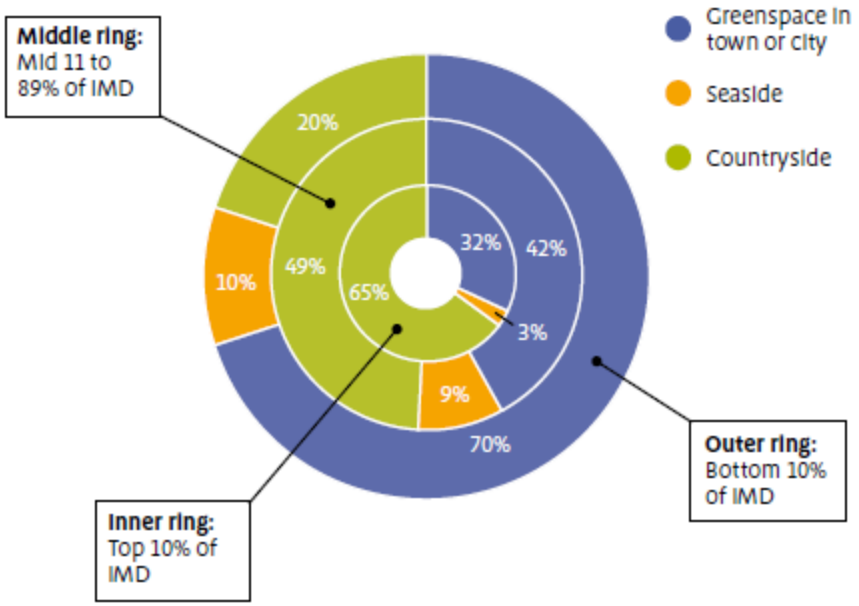
SHROPSHIRE RANK



2. Volume of visits to specific place: MENE 2009-2011



7. Percentage of IMD category visiting general types of place: MENE 2009-2011



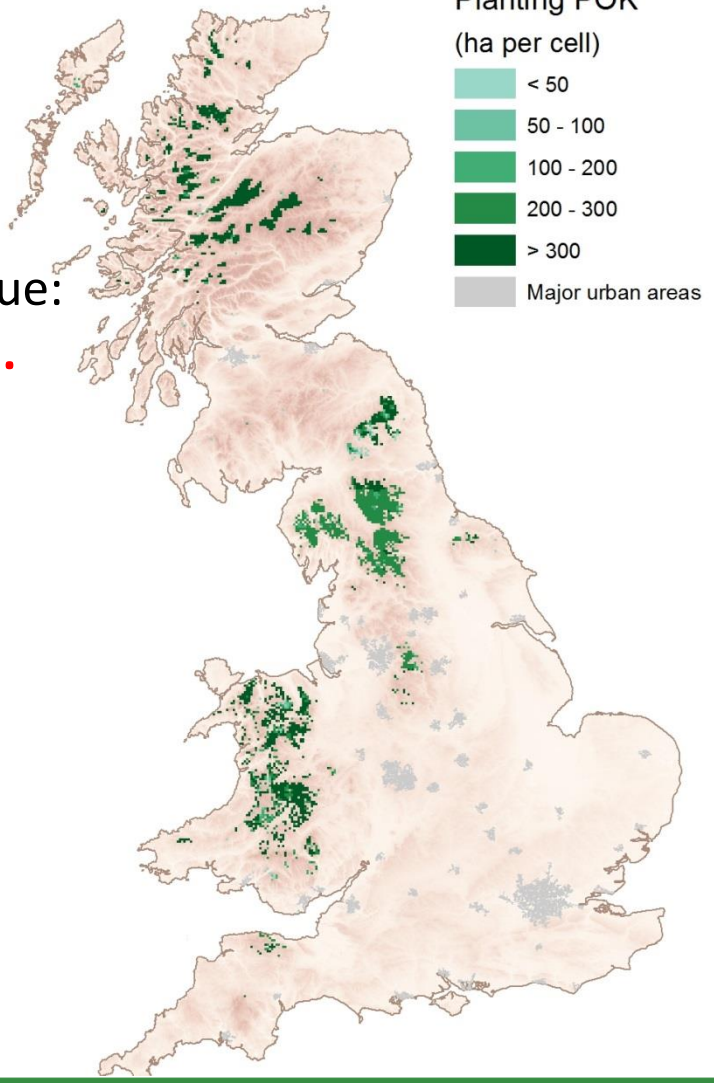
The Natural England 'Monitor of Engagement with the Natural Environment' (MENE)

- **Evidence base for monitoring cultural ecosystem services in England**
- **Beaches are considered as the most well-being-enhancing environments (35%), woodlands or forests (21%) and private gardens (19%) also significant.**

Scenarios - Optimal land use case study: Where to plant Britain's new forests

Location determined by
Market values only:
food
+ timber
(i.e. ignoring externalities)

Cost benefit value:
- £66million p.a.



Research conducted by Bateman *et al* 2014

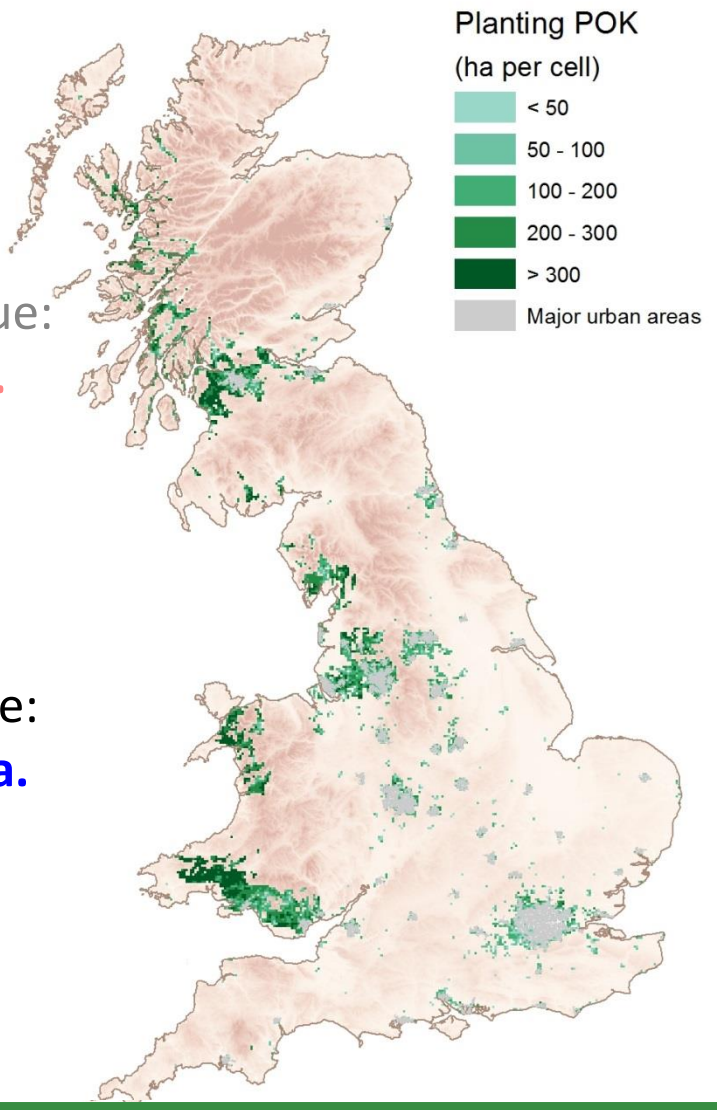
Optimal land use case study: Where to plant Britain's

Location determined by
Market values only:
food
+ timber
(i.e. ignoring externalities)

Cost benefit value:
- £66million p.a.

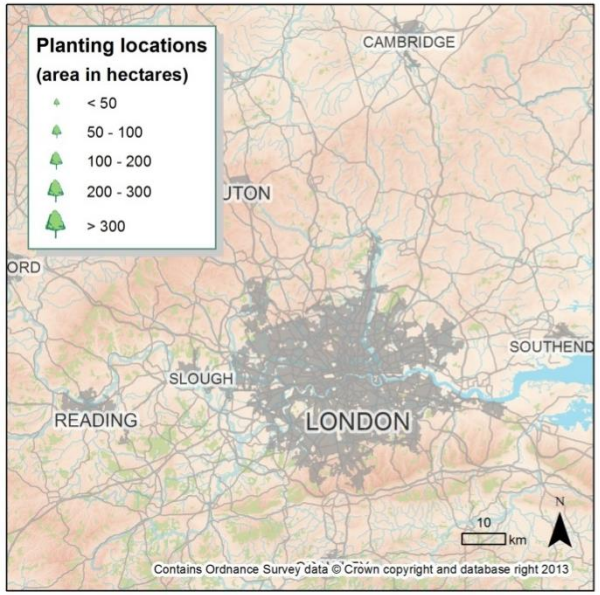
Location determined by
Market + Non-Market Values
food
+ timber
+ greenhouse gases
+ recreation
+ water quality improvement
+ biodiversity improvement

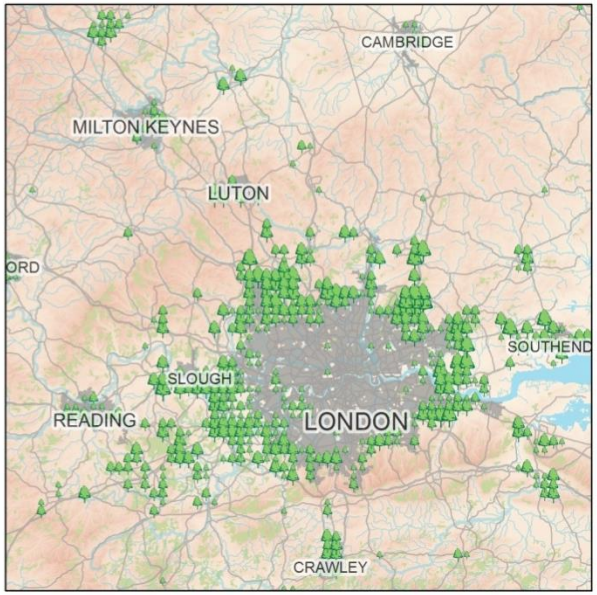
Cost benefit value:
+ £546million p.a.

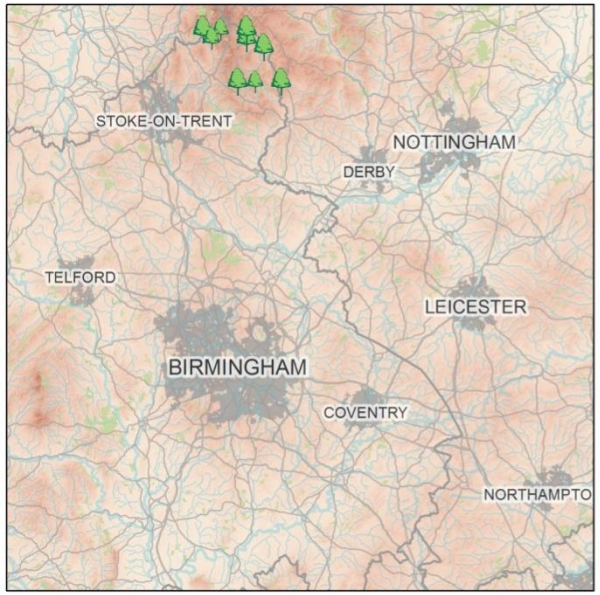


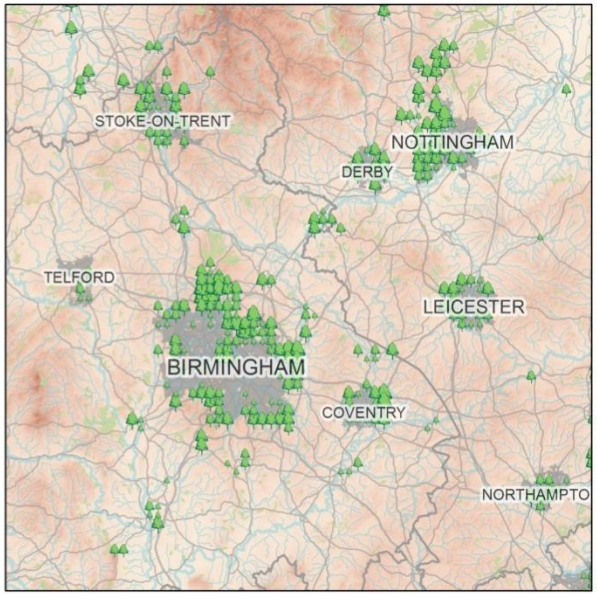
Omitting non-market goods

Including non-market goods



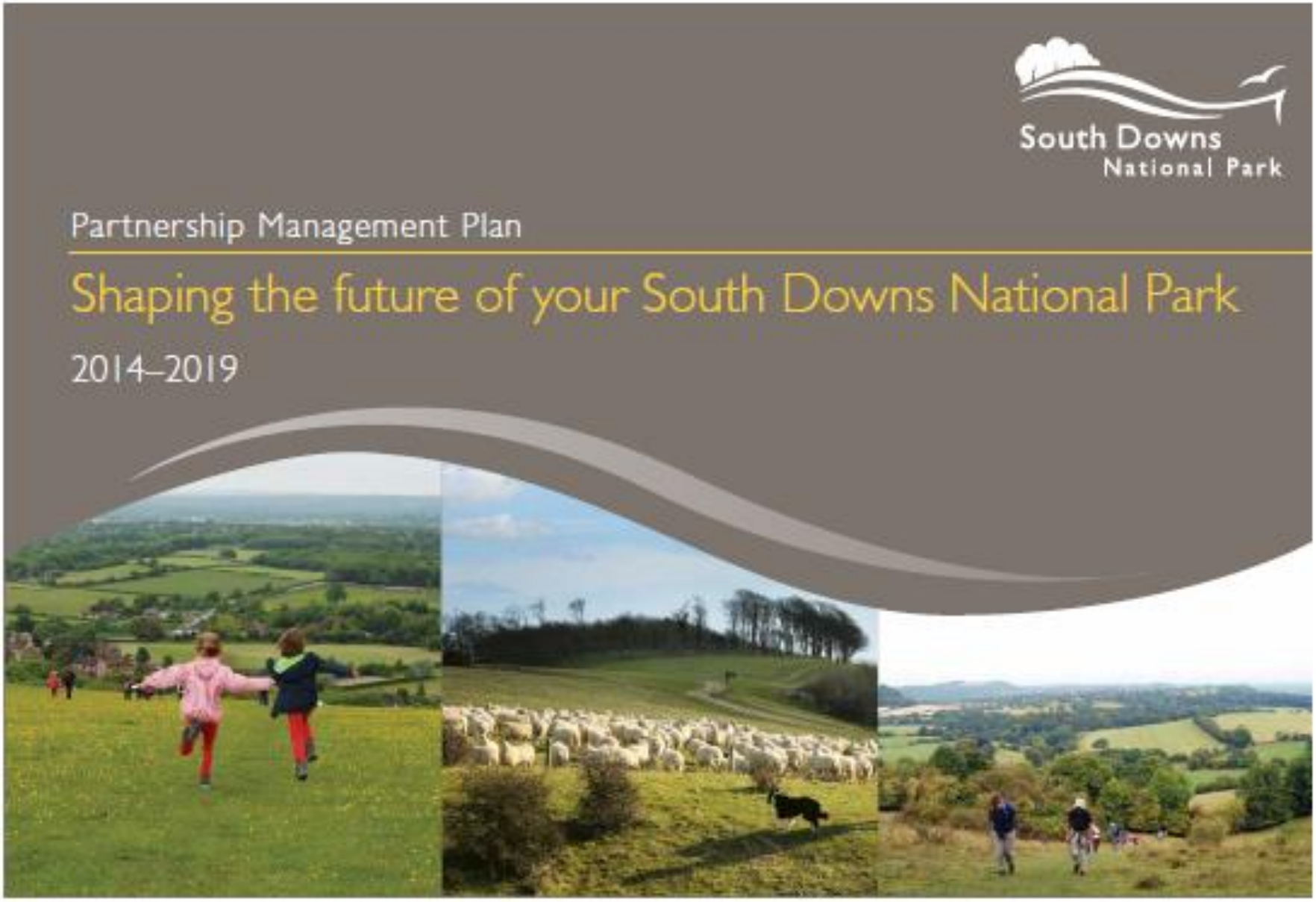






Research conducted by Bateman *et al* (2014)

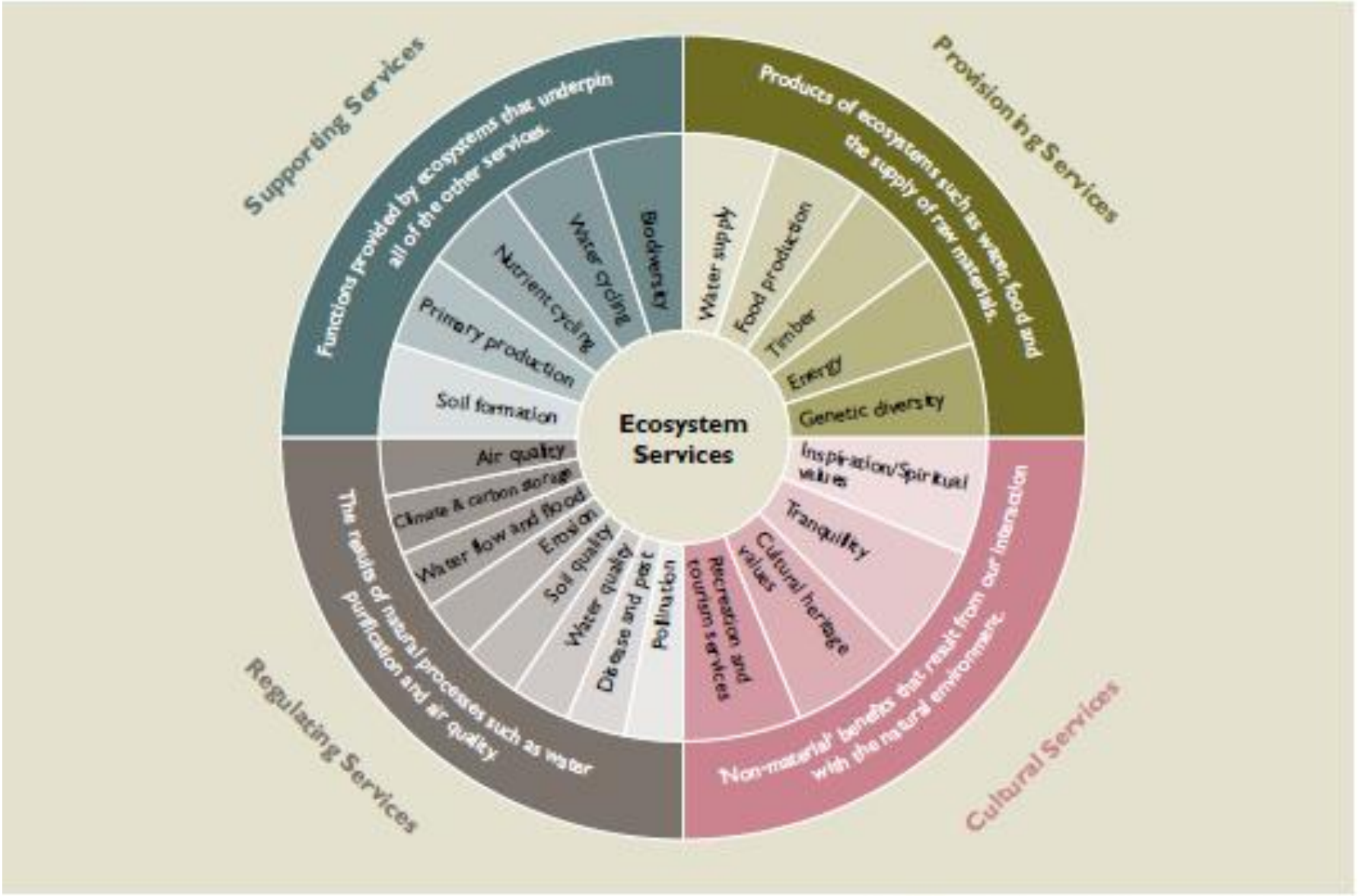
Local land use and management plans



South Downs Partnership Management Plan

Policy 2: Develop landscape-scale partnerships and initiatives to focus on enhancing the key **ecosystem services** delivered by the National Park.

Ecosystem Services Delivered in the South Downs National Park



Local planning and PES?

This will focus on: supporting sustainable farming in the National Park, **incentive schemes for ecosystem services**, carbon offsetting, biodiversity offsetting, targeting resources for greatest impact, developing better food and fuel networks, product branding, and encouraging more self-sustaining local agricultural systems that are less resource intensive. **South Downs Partnership Management Plan**

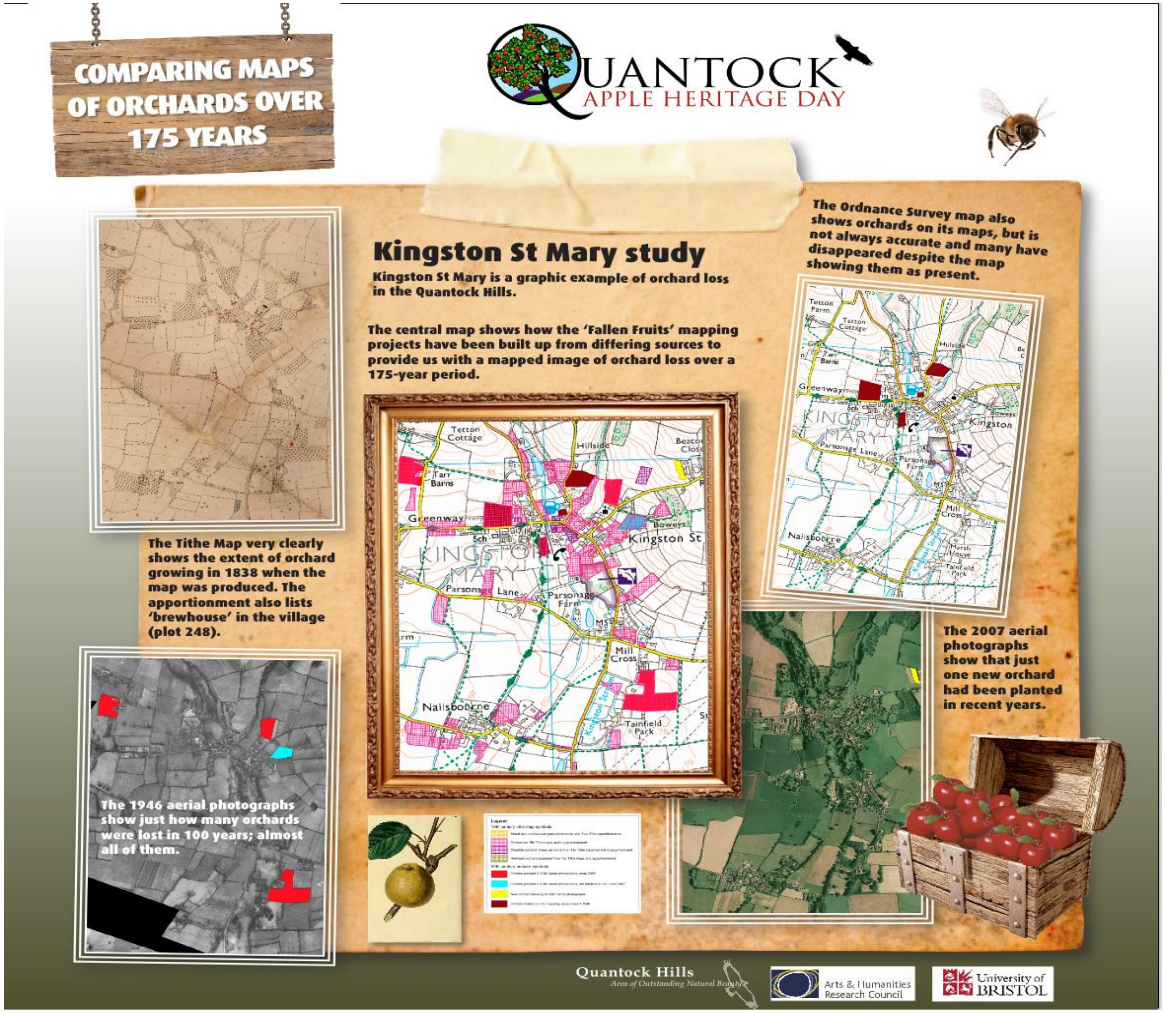
Public engagement

Participatory approaches

Understanding people's social values towards the environment

Quantitative and qualitative data

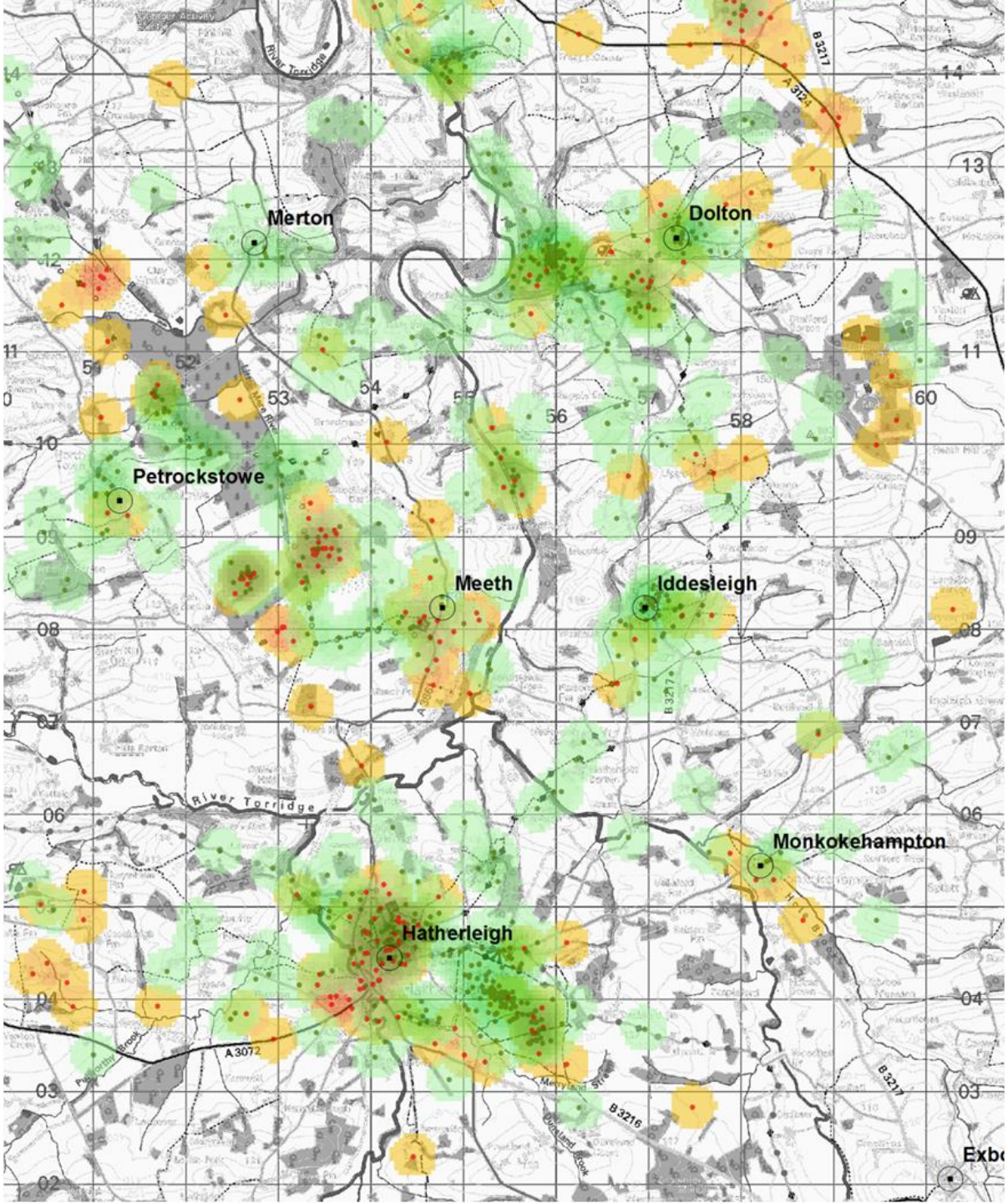
Value of mapping and case studies



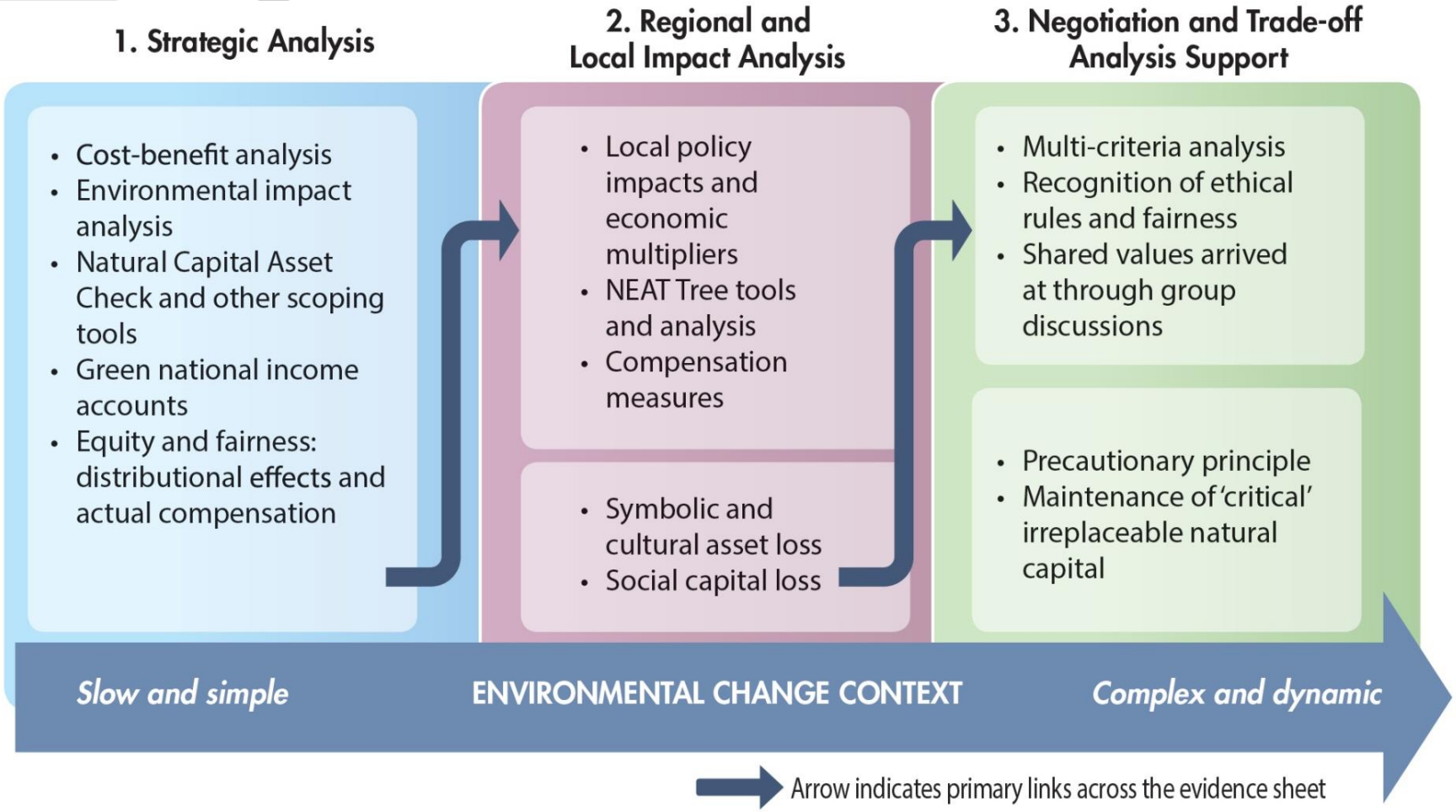
Display boards presenting the 'Fallen Fruits' project's research to the public on Quantock Apple Heritage ©University of Bristol/ Quantock Hills AONB Service

North Devon NIA

Participatory mapping



Better decision-making? Balance Sheet Approach



Cultural Values

Norms and expectations **influencing and influenced by** services, benefits and their biophysical context