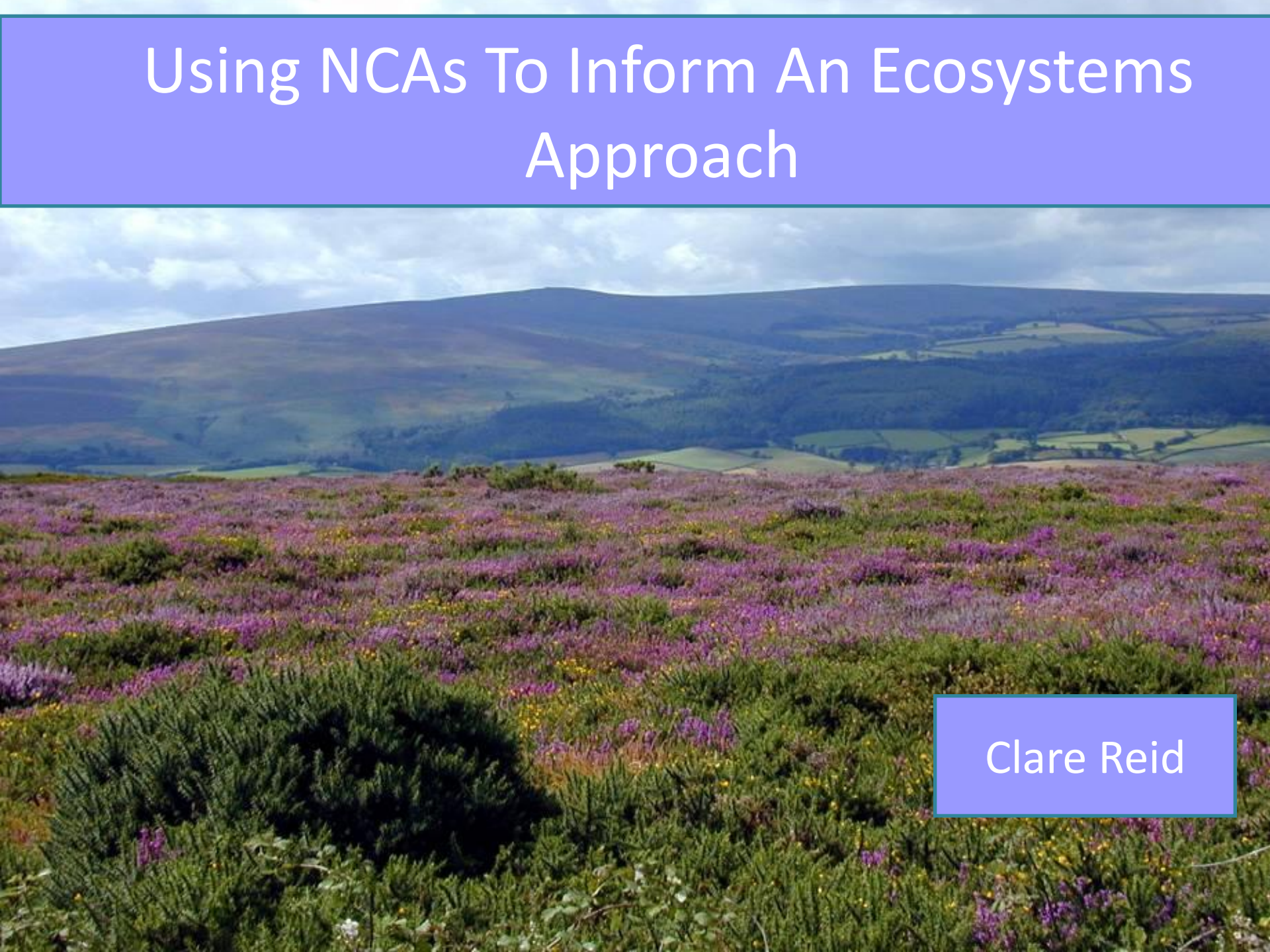
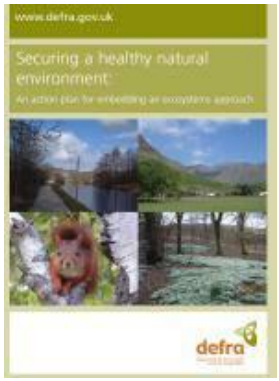
Using NCAs To Inform An Ecosystems Approach

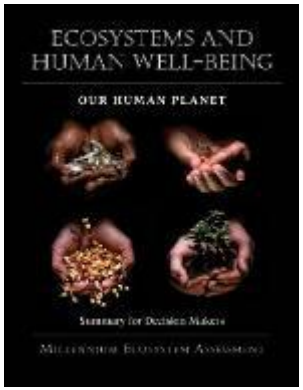


Clare Reid

Broad advocacy of an ecosystems approach originates in science-policy debate at the intergovernmental level, most notably through the *Convention on Biological Diversity (1995)*

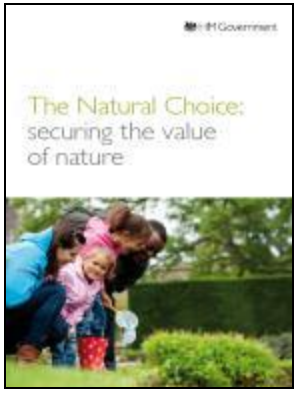


'Securing a healthy natural environment' Defra published first action plan in 2007 to support policy innovation in this area (since updated 2010)

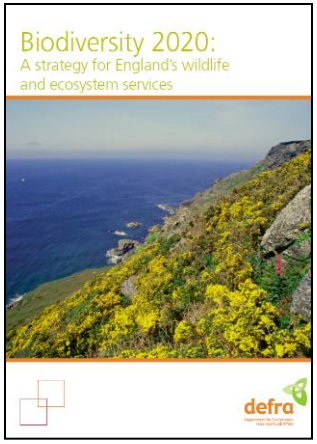


Millennium Ecosystem Assessment 2005

UK NEA 2011 "The first analysis of the UK's natural environment in terms of the benefits it provides to society and continuing economic prosperity"



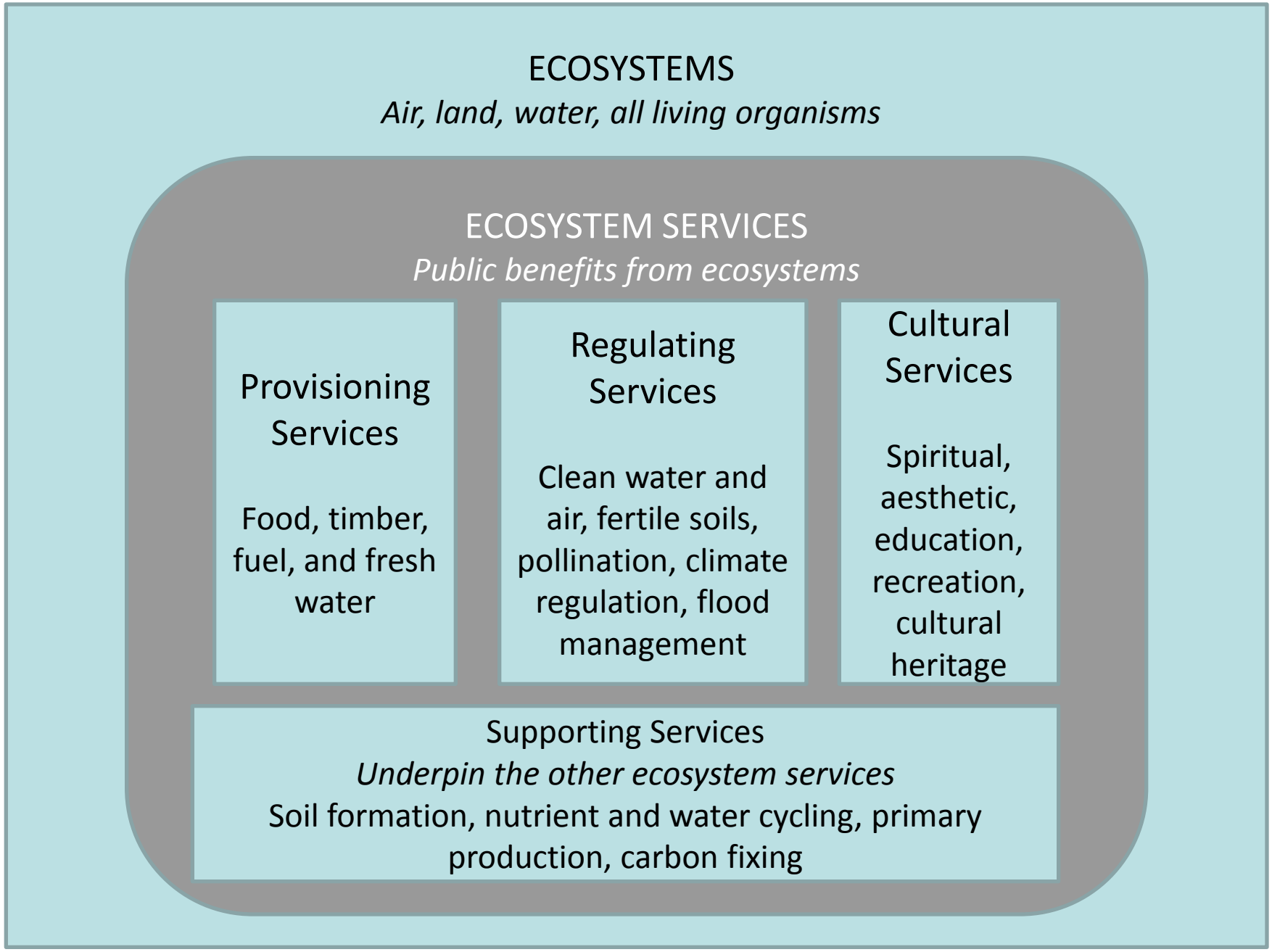
Natural Environment White Paper 2011 – taking forward many of the ideas from the NEA



Biodiversity 2020 – "*to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people*

What is an ecosystems approach?

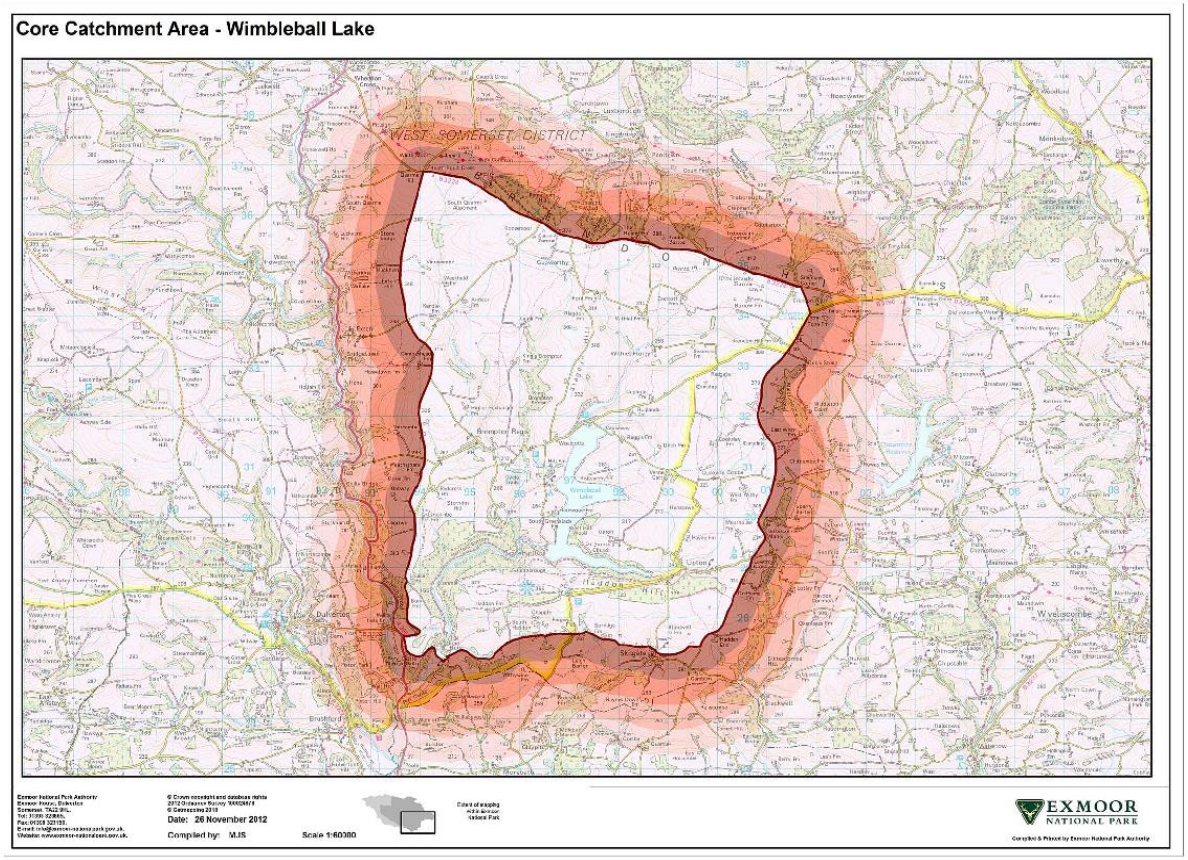
'An ecosystems approach is designed to promote integrated thinking about the environment and its management. It encourages a much greater range of services provided by nature to be considered more fully in decision making'


ECOSYSTEMS
Air, land, water, all living organisms
ECOSYSTEM SERVICES
Public benefits from ecosystems
Provisioning Services
Food, timber, fuel, and fresh water
Regulating Services
Clean water and air, fertile soils, pollination, climate regulation, flood management
Cultural Services
Spiritual, aesthetic, education, recreation, cultural heritage
Supporting Services
Underpin the other ecosystem services
Soil formation, nutrient and water cycling, primary production, carbon fixing

How can NCAs help an ecosystems approach?

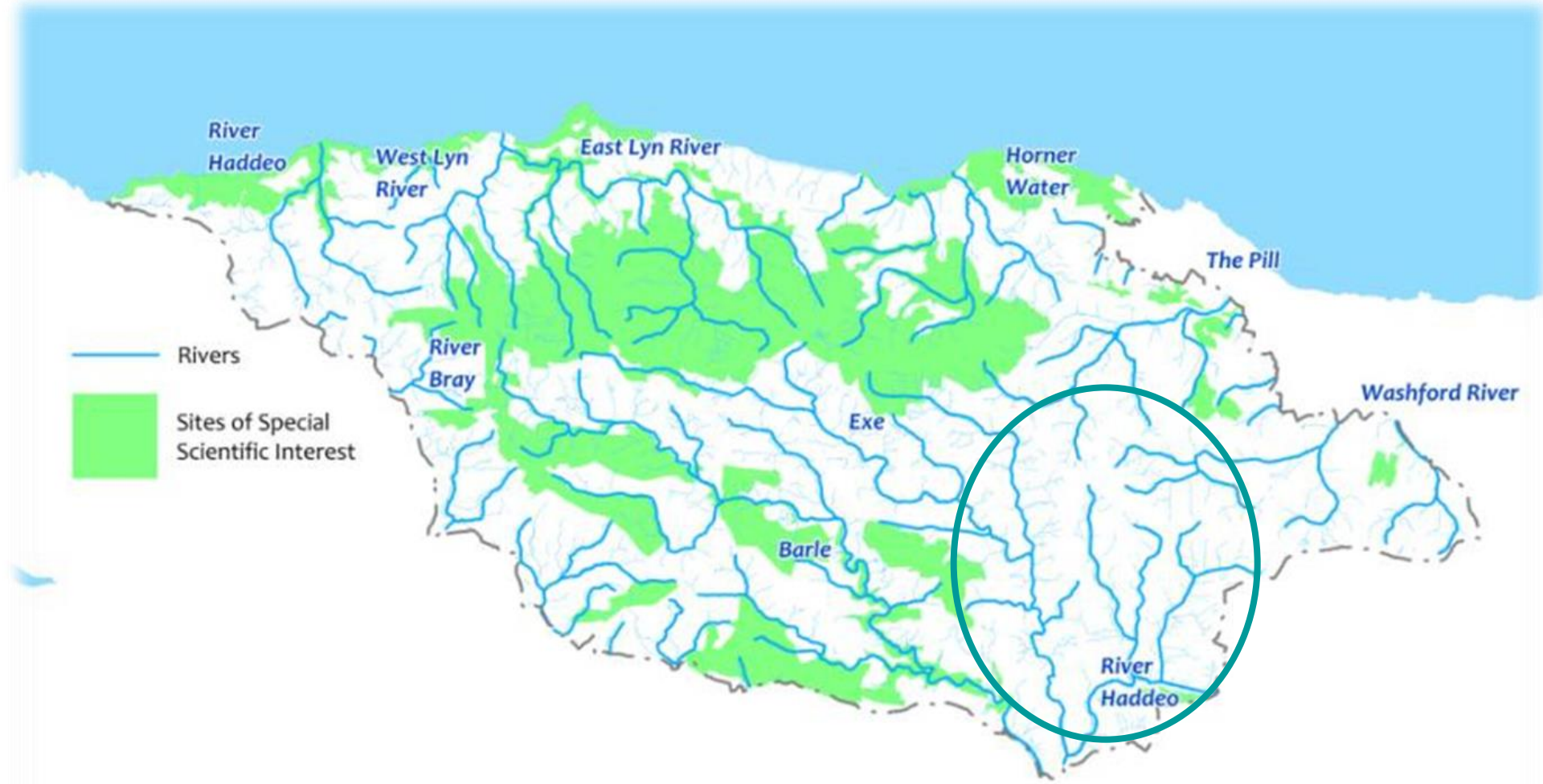
- NCAs provide an evidence base with descriptions of ecosystem services
- ‘Statements of Environmental Opportunity’ help to prioritise key issues and opportunities for delivering ecosystem services
- Provide information and data for potential indicators and monitoring
- Support funding bids or schemes, e.g. payments for ecosystem services

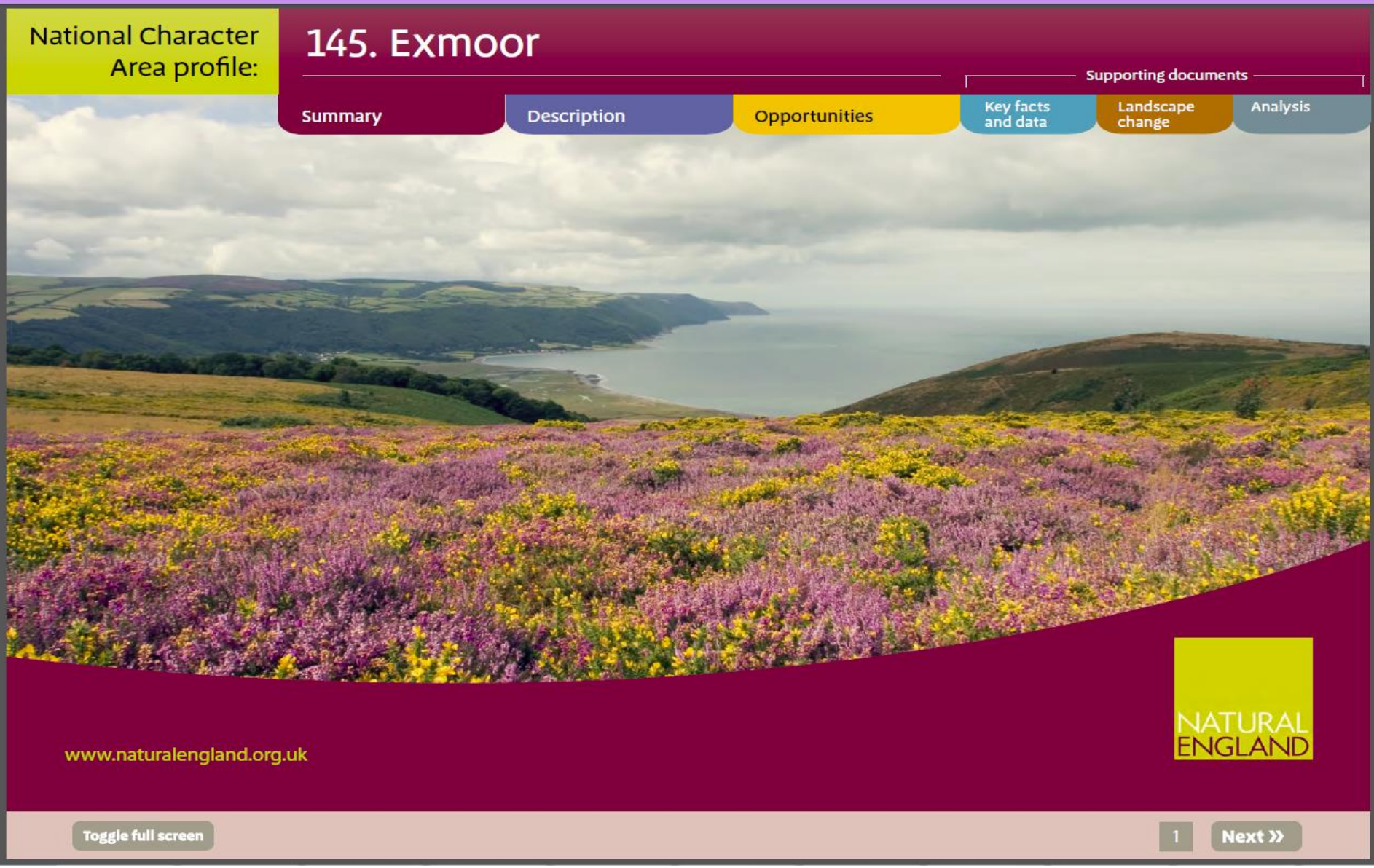
‘Unlocking the Potential’
Wimbleball Catchment Ecosystem Services Project



- SW Uplands Ecosystem Services Pilot
- An ecosystem services pilot in the South West – building a framework for delivery, CCRI (2011) Janet Dwyer and Chris Short
- Failed NIA bid

Background to the project





http://publications.naturalengland.org.uk/publication/2303045

Using the NCA to prioritise

Exmoor National Park Partnership Plan

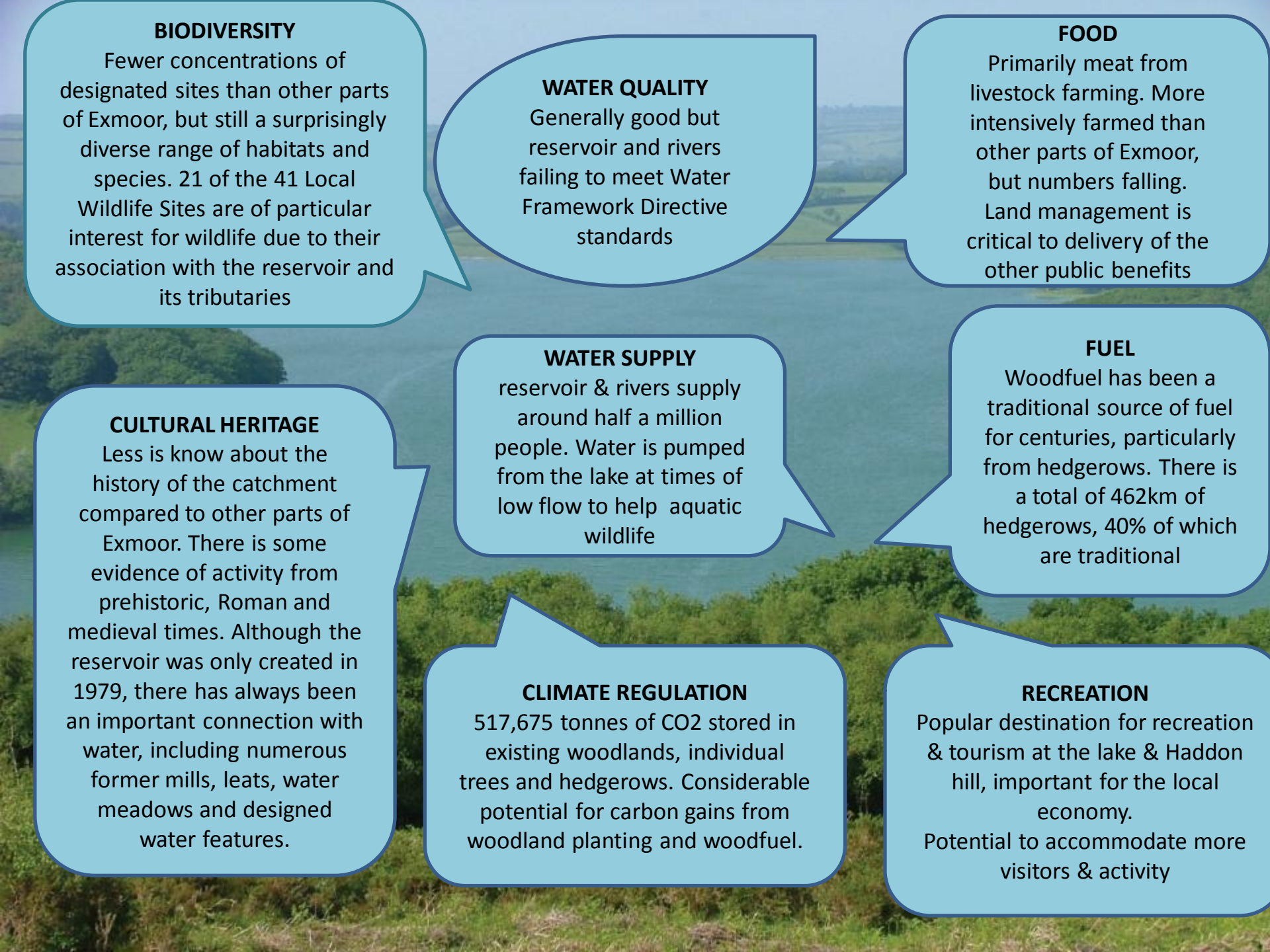
Priority C3: Helping farmers, foresters and land managers to produce food, timber and other produce while protecting and enhancing Exmoor's special qualities and delivering ecosystem services

Exmoor NCA 145

SEO 1: Protect, manage and enhance the landscape of large areas of open, 'wild' moorland and Atlantic coast, and deep wooded combes, supporting internationally important habitats and species, helping to regulate water quality and quantity, storing carbon dioxide and protecting soil structure and water resources across the area

Wimbleball Pilot Project – Aims

- Explore what makes the Wimbleball catchment special
- Identify and recognise the range of benefits it provides to local people and more widely
- Identify the issues and opportunities arising from looking at ecosystem services within the catchment
- Explore implications of an ecosystems approach on farm management and economics
- Use this understanding to shape decisions on how the catchment can be cared for and managed in the future



BIODIVERSITY

Fewer concentrations of designated sites than other parts of Exmoor, but still a surprisingly diverse range of habitats and species. 21 of the 41 Local Wildlife Sites are of particular interest for wildlife due to their association with the reservoir and its tributaries

WATER QUALITY

Generally good but reservoir and rivers failing to meet Water Framework Directive standards

FOOD

Primarily meat from livestock farming. More intensively farmed than other parts of Exmoor, but numbers falling. Land management is critical to delivery of the other public benefits

WATER SUPPLY

reservoir & rivers supply around half a million people. Water is pumped from the lake at times of low flow to help aquatic wildlife

FUEL

Woodfuel has been a traditional source of fuel for centuries, particularly from hedgerows. There is a total of 462km of hedgerows, 40% of which are traditional

CULTURAL HERITAGE

Less is know about the history of the catchment compared to other parts of Exmoor. There is some evidence of activity from prehistoric, Roman and medieval times. Although the reservoir was only created in 1979, there has always been an important connection with water, including numerous former mills, leats, water meadows and designed water features.

CLIMATE REGULATION

517,675 tonnes of CO_2 stored in existing woodlands, individual trees and hedgerows. Considerable potential for carbon gains from woodland planting and woodfuel.

RECREATION

Popular destination for recreation & tourism at the lake & Haddon hill, important for the local economy.
Potential to accommodate more visitors & activity

Using the NCA to provide data

National Character Area profile:

145. Exmoor

Supporting documents

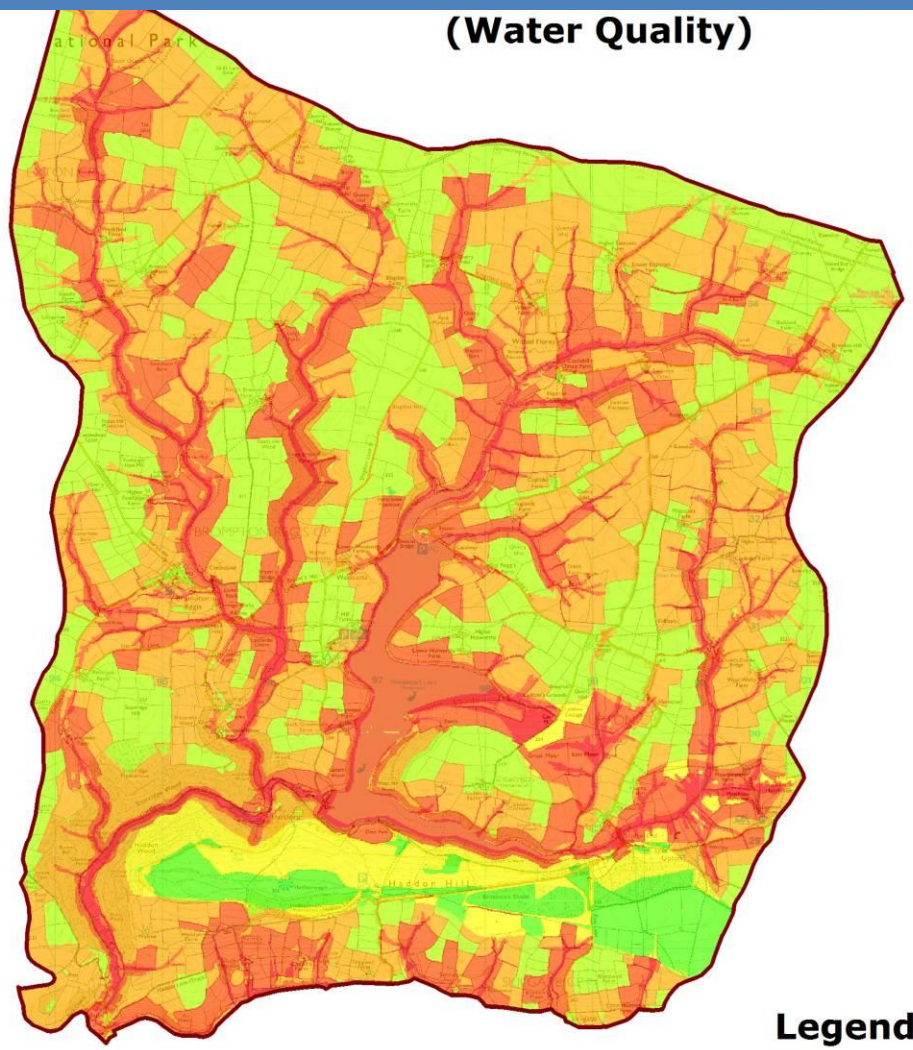
Summary | Description | Opportunities | Key facts and data | Landscape change | Analysis

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principle services offered by opportunities
Regulating water quality	Fast flowing streams and rivers, including the rivers Exe and Barle. Extensive areas of semi-natural habitats including moor, rush pasture, semi-improved grassland and woodland. An area of high rainfall.	The ecological quality of the majority of rivers is considered 'good', particularly the River Barle and its' tributaries. Some stretches of river are classified as only moderate, primarily within the Exe catchment. The catchment of the Exe is a Priority Catchment under the ECSFDI although the main areas of key concern lie outside this NCA. Key issues relate to nutrient leaching (phosphates bound to soil particles and slurry) and soil erosion particularly from fields on steep valley slopes under arable production or where soils have become compacted from high livestock numbers[4]. (See also regulating soil erosion.) A third of the area is classified as a Nitrate Vulnerable Zone (NVZ).	Regional	Water quality is important to this area in support of much of the biodiversity resource found in the area. Particularly the quality of the Exe and Barle and their tributaries is significantly and directly influenced by the management of the surrounding moor and farm land. Careful management of livestock, particularly controlling access to watercourses and waste management, is essential to maintaining good water quality. Moorland burning increases levels of dissolved organic carbon (DOC), acidity, colouration and sediment transfer.	Seek opportunities to establish extensively managed permanent grassland, and areas of scrub and woodland along combes, steep valley sides and near watercourses. Increase amount of farmland managed under principles established by the Catchment Sensitive Farming initiative. Fencing watercourse and introducing cross-field hedge and tree planting, where appropriate will reduce sedimentation and nutrient loading. Landscape and visual impacts from such activities could be minimised by reference to local Landscape Character Assessment. Reduce the rate of flow from moorland areas through restoration of moorland habitats, reinstating more natural forms of fluvial systems which see a return to meandering stream and river channels to reduce turbidity and sediment transfer.	**Regulating water quality** **Regulating soil erosion** **Regulating water flow** **Biodiversity**

England Catchment Sensitive Farming Delivery Initiative: catchment priorities:

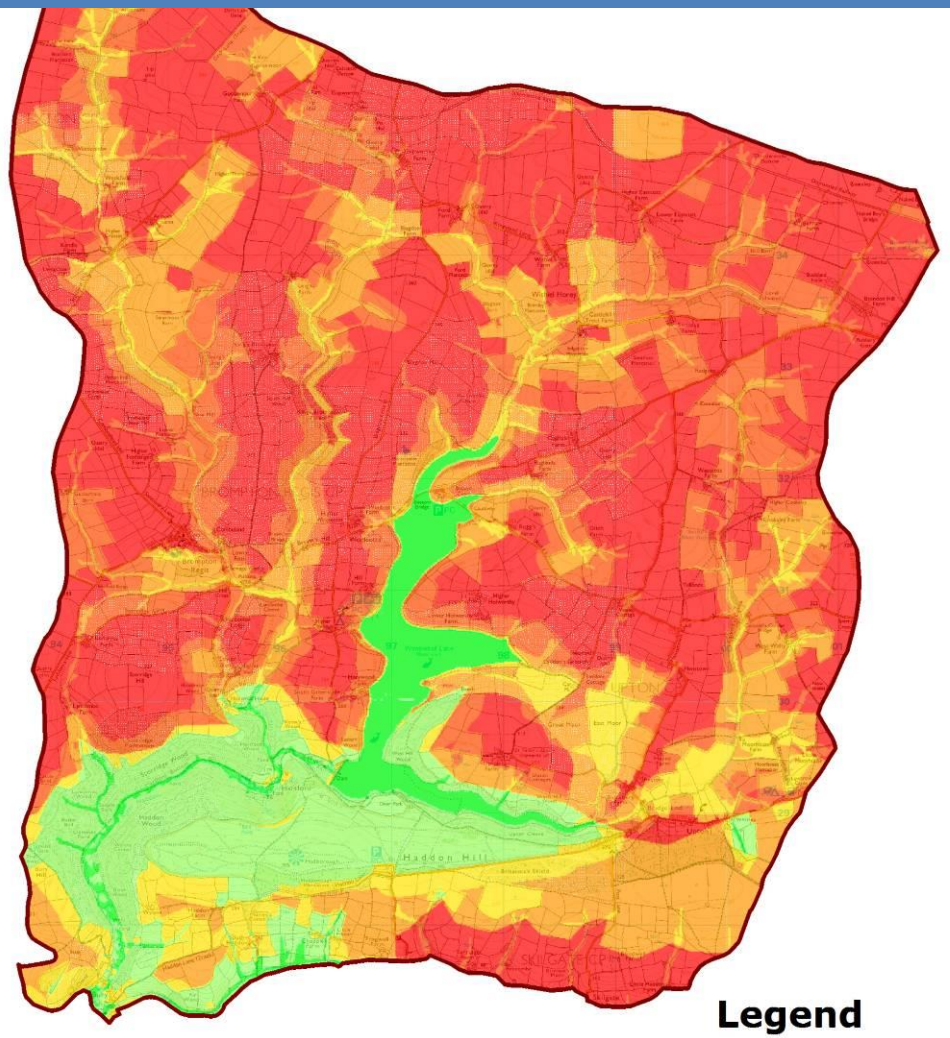
[4] http://www.defra.gov.uk/foodfarm/landmanage/water/csf/documents/catchment-priorities.pdf

Regulating services – Water Quality



Synthesis: Once each parameter has been mapped it can then be rasterised and reclassified according to the risk criteria identified. A simple raster calculation can then be undertaken to identify areas that score multiple points as a result of fulfilling a number of the criteria.

Cultural Services – Biodiversity



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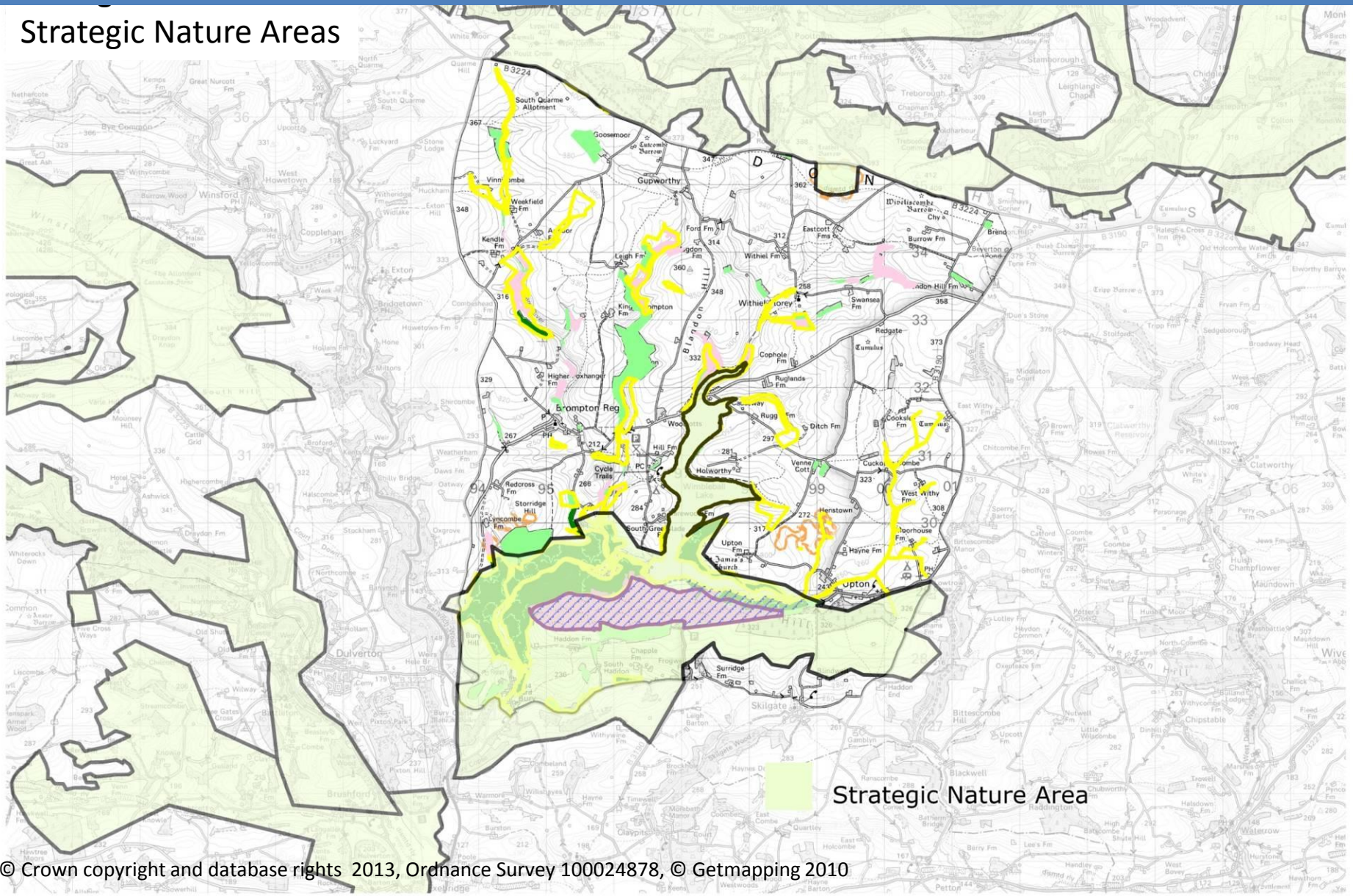
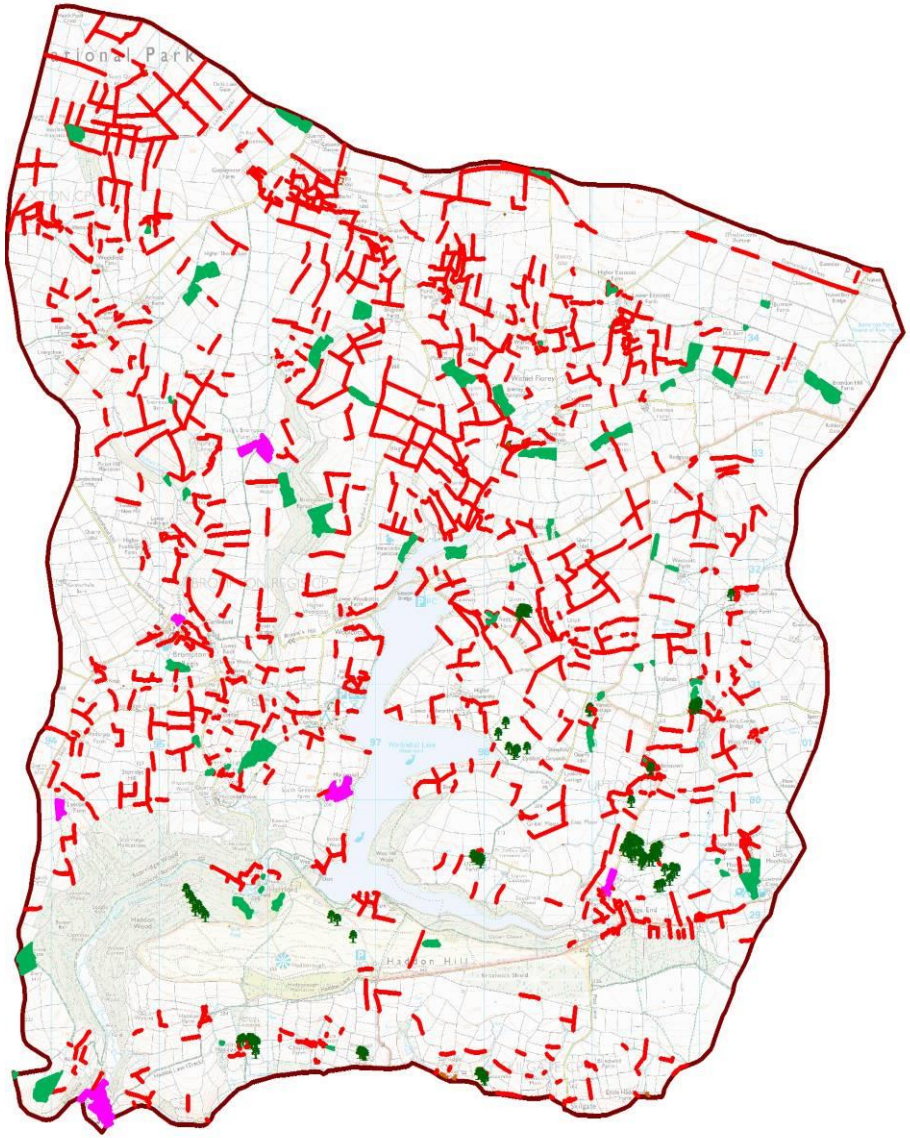
Cultural Services – Biodiversity

Strategic Nature Areas

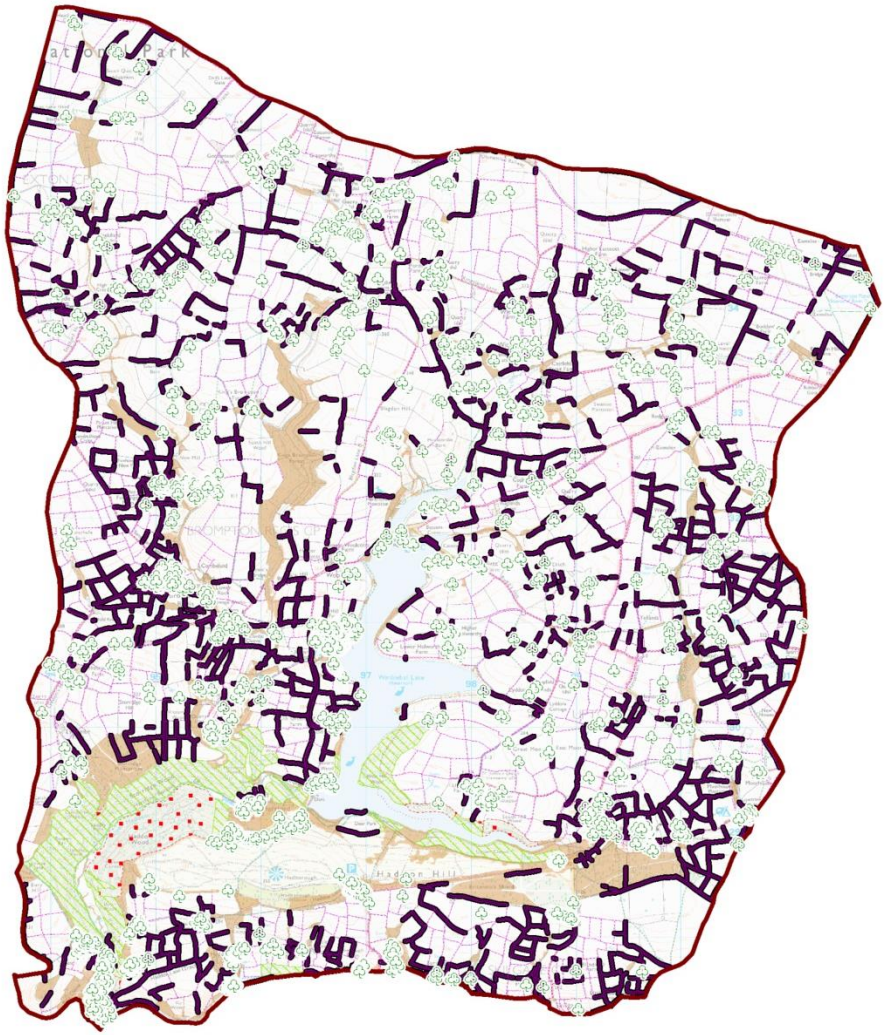


Cultural Services – Landscape change



Core Catchment Area
Signle Tree
Mising Hedgerow
Mising Plantation
Mising Building
Mising Orchard

Multiple Services – Woodlands & Hedgerows



Wimbleball Ecosystem Services Project

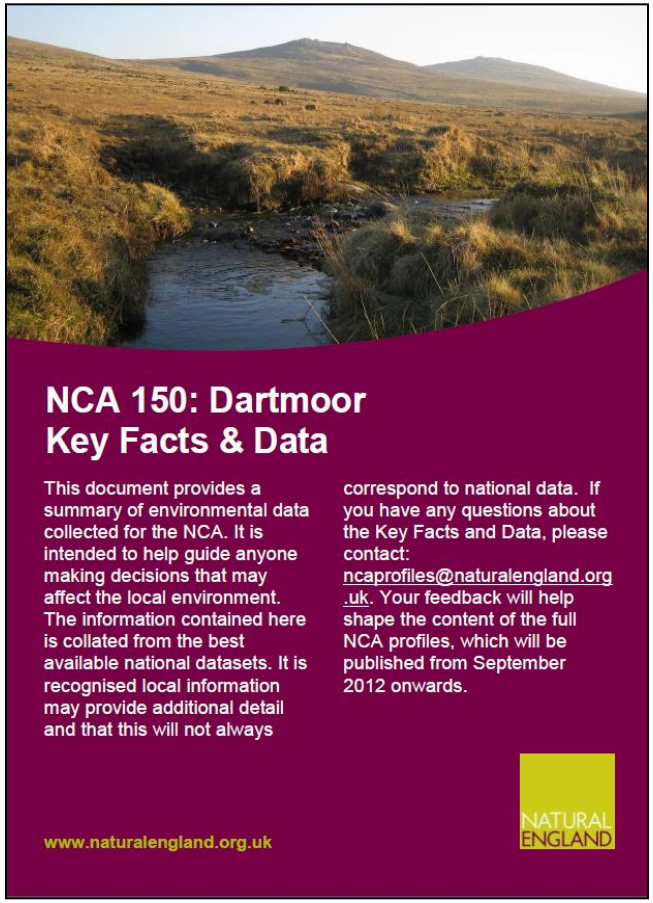
- Farm scale ecosystem service audits
- Woodland carbon audit
- Community engagement
- Perceptions study
- PR14 & catchment based approach

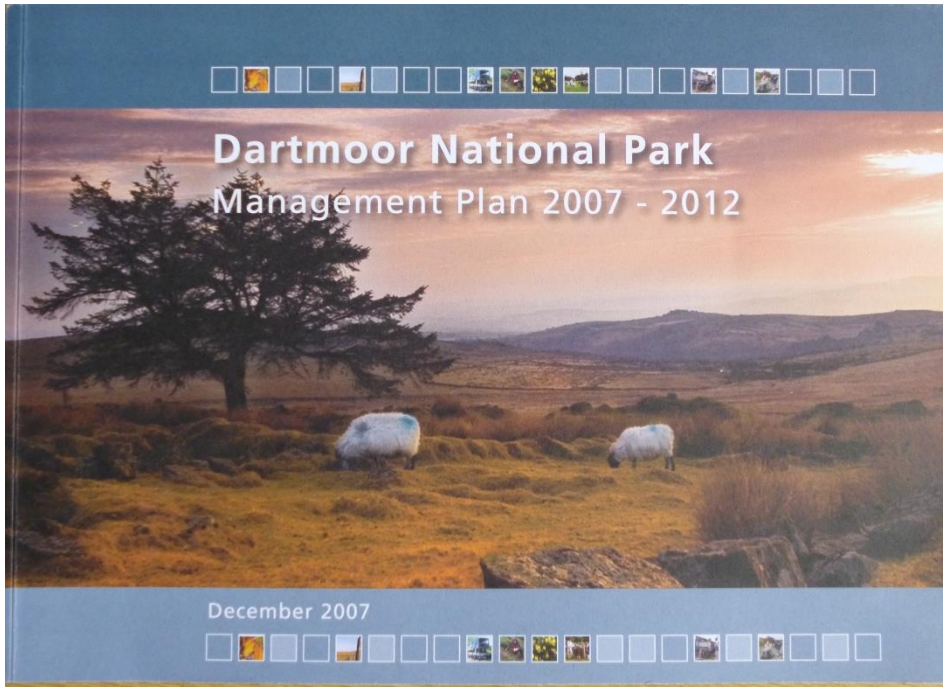
www.exmoor-nationalpark.gov.uk/wimbleball

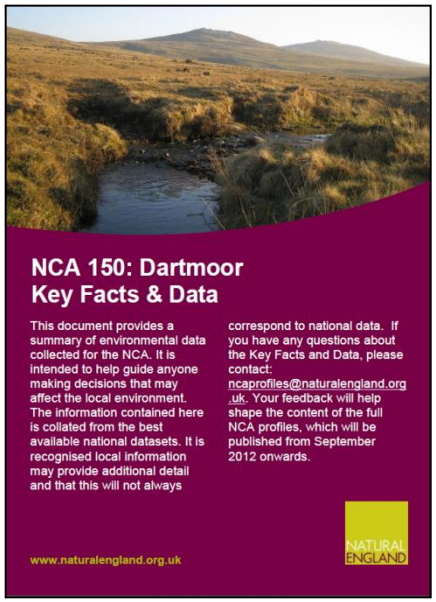
National Park Management Plans

- Statutory duty
- Plan for the National Park, not the Authority
- Shared Vision and framework for management
- Strategic 5 year Plan
- Framework for partnership working
- Communication tool
- Focus for resources and drawing in funding

Using NCA to inform Dartmoor National Park Management Plan

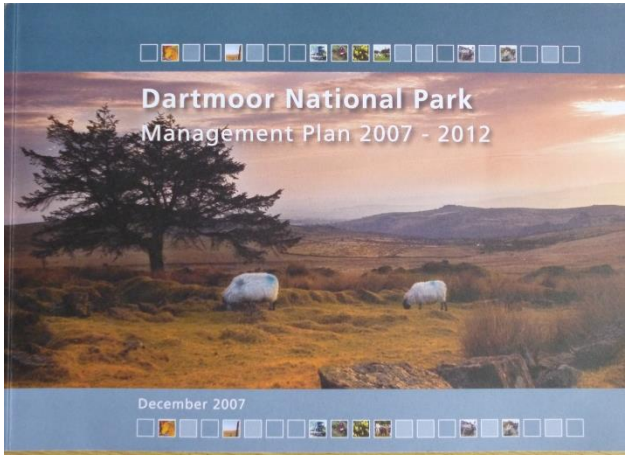






NCA 150 Dartmoor

- **Key characteristics/attributes**
- Statements of Environmental Opportunity
- Ecosystem Services
- Key facts and data



Dartmoor NP Management Plan

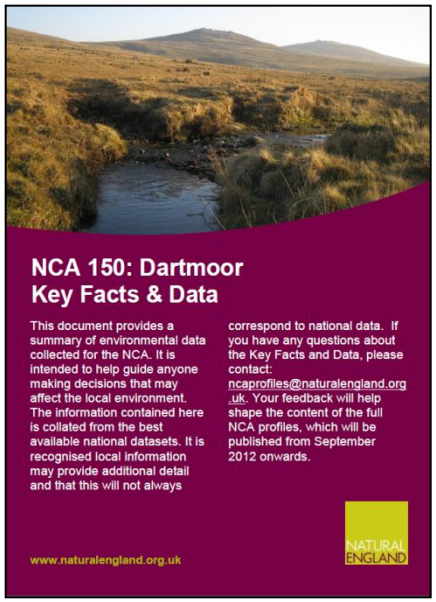
- **Special qualities**
- Priorities
- Ecosystem Services
- Evidence base
- Indicators and monitoring

NCA Landscape attributes

- Open, windswept upland moors with wide views and a sense of remoteness and wildness, where the skyline is broken only by the outline of granite tors, clitter and occasional blocks of coniferous plantation
- Sheltered valleys with steep wooded sides and wild, fast-flowing rivers descending at the moor fringes
- Surrounding the main moor a gentler landscape of small, irregular pasture fields, bounded by dry stone walls and banks topped with hedges and mature trees

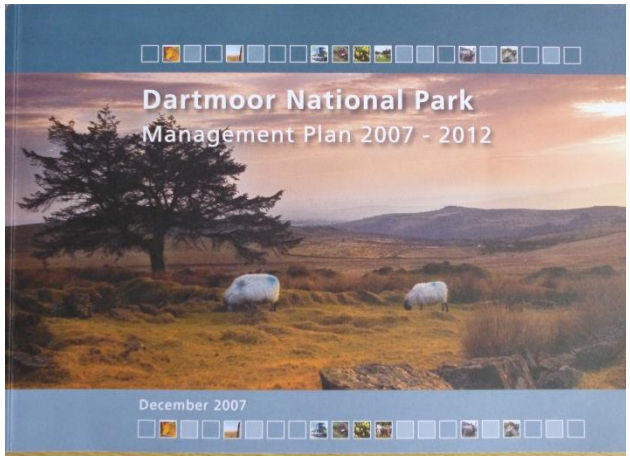
Dartmoor's **special qualities** include:

- Open, windswept **upland moors** with far reaching views and a sense of remoteness and wildness, distinctive granite tors surrounded by loose rock or 'clitter', and large expanses of grass and heather moorland**,** blanket bogs and valley mires providing habitats for distinctive wildlife such as skylark and cuckoo, and rarities including vigur's eyebright and southern damselfly
- **Sheltered valleys** with upland oak woodland, rhôs pasture and fast-flowing boulder strewn rivers, home to characteristic wildlife including the pied flycatcher and salmon, and rare species such as the marsh fritillary butterfly
- Surrounding the moor a landscape of **enclosed farmland** with small irregular pasture fields bounded by dry stone walls and hedgebanks providing a mosaic of different wildlife habitats including hay meadows and species rich dry grasslands with wildlife such as the beautiful greater butterfly orchid



NCA 150 Dartmoor

- Key characteristics
- Statements of Environmental Opportunity
- **Ecosystem Services**
- Key facts and data



Dartmoor NP Management Plan

- Special qualities
- Priorities
- **Ecosystem Services**
- Evidence base
- Indicators and monitoring

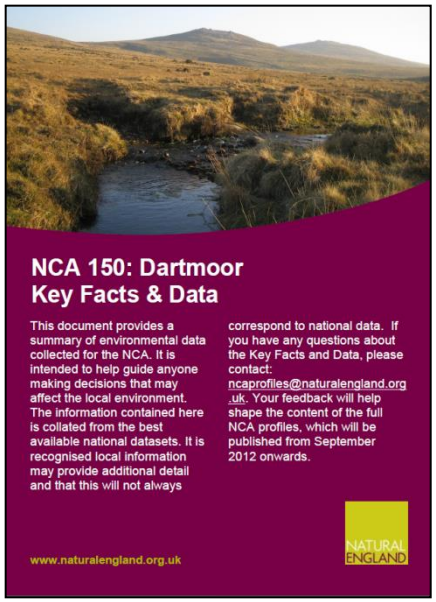
Supporting document 3: Analysis supporting Statements of Environmental Opportunity

The following analysis shows the projected impact of Statement of Environmental Opportunity on Service Provision:

Statement of Environmental Opportunity	Ecosystem Service: Food provision	Timber provision	Water availability	Genetic diversity	Biomass provision	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/ inspiration	Sense of history	Tranquility	Recreation	Biodiversity	Geodiversity
SEO 1: Protect, manage and enhance the landscape of large areas of open, 'wild' moorland and Atlantic coast, and deep wooded combes, supporting internationally important habitats and species, helping to regulate water quality and quantity, storing carbon dioxide and protecting soil structure and water resources across the area.	○ *	↗ **	↗ **	↔ *	↗ *	↑ **	↑ ***	↗ **	↑ ***	↗ ***	↗ *	○ *	↔	↑ ***	↗ **	↑ **	↗ **	↑ *	↗ **
SEO 2: Protect and enhance the nationally important, highly distinctive and diverse landscape, the wealth of geodiversity, extreme tranquillity and dark skies, the rich cultural heritage and traditions, and inspirational qualities of the area that contribute to the attraction of the area for leisure, recreational and sporting activities.	○ *	○ *	○ *	↔ *	○ *	○ *	○ *	○ *	○ *	○ *	○ *	○ *	○ *	↑ ***	↑ ***	↑ ***	↑ ***	↗ **	↑ ***

Note: Arrows shown in the table above indicate anticipated impact on service delivery: ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease. Asterisks denote confidence in projection (*low **medium***high) ° symbol denotes where insufficient information on the likely impact is available.

Dark plum = National Importance; Mid plum = Regional Importance; Light plum = Local Importance



NCA 150 Dartmoor

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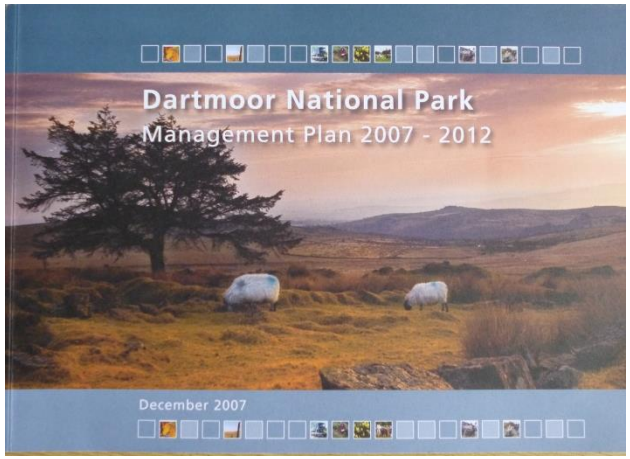

Dartmoor NP Management Plan

- Special qualities
- Priorities
- Ecosystem Services
- **Evidence base**
- **Indicators and monitoring**

Supporting document 1: Key facts and data

Area of Exmoor NCA: 129, 978 ha

1. Landscape and nature conservation designations

Over 52% (68,235 ha) of the area is designated as National Park and a further 6% (7,317 ha) lies within the North Devon Area of Outstanding Natural Beauty (AONB).

Management Plans for the protected landscape(s) can be found at:

- www.exmoor-nationalpark.gov.uk/

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	% of NCA
European	Special Protection Area (SPA)	n/a	0	0
	Special Area of Conservation (SAC)	Exmoor Heaths SAC, Exmoor & Quantock Oakwoods SAC, Braunton Burrows SAC	13,129	10
National	National Nature Reserve (NNR)	The Dunkery & Horner Wood NNR, Hawkcombe Woods NNR, Tarr Steps Woodland NNR	1,736	1
	Site of Special Scientific Interest (SSSI)	A total of 33 sites wholly or partly within the NCA	20,352	16

Source: Natural England (2011)

Please Note: (i) Designated areas may overlap (ii) all figures are cut to Mean High Water Line, designations that span coastal areas/views below this line will not be included.

There are 769 Local sites in Exmoor NCA covering 9,759 ha which is 8% of the NCA.

Source: Natural England (2011)

How can NCAs help an ecosystems approach - conclusions

- *An ecosystems approach is designed to promote integrated thinking about the environment and its management*
- NCAs provide an important evidence base and focus for plans and projects, including highlighting potential conflicts
- Timing affects their usefulness
- Boundaries are not always co-terminous which can complicate their use
- The template for NCAs provides consistent approach, definitions and data sources

Any Questions?

Clare Reid

email: clare.reid@clarereidconsultancy.co.uk