Local Natural Capital Accounting

Steering Group, 17/12/19

1. Background
2. Asset quality indicators
3. Ecosystem services and benefits
4. Significance ratings
5. Next steps

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Why natural capital accounts?

- Natural Capital Accounts (NCAs) extend traditional accounts by putting economic values on benefits from nature that are not provided through the market.
- They can
  - support **internal decision making** – by adding aspects that are not included in management accounts
  - improve **external accountability** – by adding aspects that are not included in audited accounts
  - **communicate environmental benefits** and the state of natural assets managed by organisations.

Objectives / Outputs

Build on the outputs from the Local Natural Capital Atlases, to produce:

- a natural capital account for the selected combined authority
  - in the form of an extended balance sheet
- a supporting technical statement
  - to enable users to replicate this approach for other local natural capital atlases; and
- recommendations for further work

NNR Extended balance sheet 2018

NATURAL ENGLAND

Ecosystem asset

Natural capital asset baseline		
Asset Attribute	**Indicator**	
Extent	**Total area (ha)**	**66839.7**
Hydrology	Ground water status (% good) Water Framework Directive (WFD)	24.1
	Surface Water status (% good) WFD	18.6
Nutrient/ chemical status	Mean sulphur dioxide concentration (µg m-3)	0.32
	Mean nitrogen acid deposition (kg N ha-1 year-1)	12.3
Soil	Mean Estimates of Soil Organic Carbon in 30cm Topsoil (% of total) from NATMAP	9.13
Vegetation	% of NNR (ha) under a Site of Special Scientific Interest (SSSI) which is in favourable condition	51.3
Species composition	Nectar plant diversity – Mean Estimates of Number of Nectar Plant Species for Bees (per 2x2m plot)	5.05
	Soil Invertebrates Abundance – Mean Estimates of Total Abundance of Invertebrates in Topsoil (0–8cm depth soil core)	65.3
Cultural	Tranquillity (mean score)	13.8
	Scheduled monuments at risk (ha)	74.7

Ecosystem services

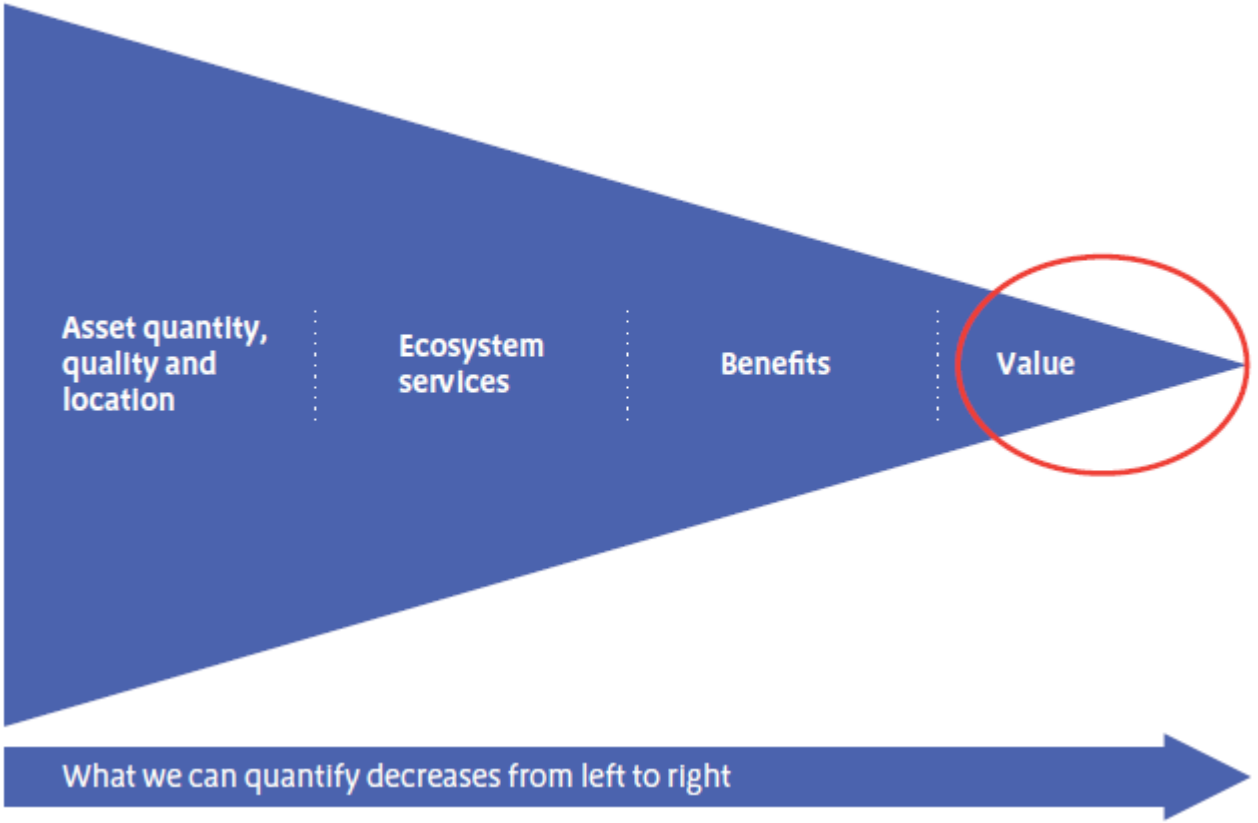
Ecosystem service	Significance (1 small to 3 large)	Indicator	Quantity where available
Timber, hay and other materials	2	Sale of timber	3000t
Game and fish	1		
Water supply	1		
Livestock	1		
Water quality	1		
Air quality	1		
Erosion control	1		
Flood protection	1		
Pollination	1		
Thriving wildlife	3		
Pest and disease control	1		
Climate regulation	3	Carbon Sequestered – tonnes of CO_2 equivalent	185,000
Recreation, tourism and volunteering	3	No. of recreational visits	5.5 million
		No. of volunteering hours	150,000
Scientific and educational	3	No. of educational visits	37,000
Cultural appreciation of nature	3		

Benefits and values

Benefit	Significance (1 small to 3 large)	Indicator	Annual benefit	Asset value	Confidence in the values (Red is low, Amber is Medium & Green is High)
Timber, wood and hay	2	Sale of timber	£56,000	£2 million	●
Food	1	Income from grazing	£281,000	£9 million	●
		Sporting rights income	£28,000	£1 million	●
Clean and plentiful water	1				
Clean Air	1				
Protection from floods and other hazards	1				
Pollination and pest control	1				
Biodiversity	3				
Equable climate	3	Carbon sequestered	£12 million	£1 billion	●
Health	2				
Cultural wellbeing	3	No. of recreational visits	£22 million	£710 million	●
		No. of volunteer hours	£1.8 million	£60 million	●
		No. of educational visits	£123,000	£4 million	●
Total quantified monetary benefits			**£36 million**	**£1.8 billion**	●
Significance of unquantified benefits			**Very large**		
Total annual costs			**£14 million**		●

Loss of information

Figure 3: **Loss of information across the logic chain**



Links with Atlases

- Atlas data rarely sufficient to estimate services for the Account

Hierarchy of evidence:

- The Accounts should draw on the same data and indicators as the Atlases in any cases where this is possible.
- Where data and indicators have to be drawn from other sources – these sources should be public data sets/reports where the general method to be followed will be the same for any local account.
- These public data sets/reports may be supplemented in an appendix that refers to and summarises key elements of information specific to each particular area.

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Asset quality indicators

Ecosystem asset

Natural capital asset baseline		
Asset Attribute	**Indicator**	**Indicator Value**
Extent	Total area (ha)	78,700
Hydrology	Ground water quantity status (% good) Water Framework Directive (WFD)	data in progress
	Surface water quantity status (% good) WFD	data in progress
Nutrient/Chemical status	Surface water quality status (% good) WFD	data in progress
Soil	Mean Estimates of Soil Organic Carbon in Topsoil, 0-15cm depth (tonnes per ha)	method under review
Vegetation	% of Sites of Special Scientific Interest in favourable condition	data in progress
Species Composition	Nectar plant diversity, mean estimates of number of nectar plant species for bees (per 2×2m plot)	method under review
	Soil invertebrate abundance, mean estimates of total abundance in topsoil (0–8cm depth soil core)	method under review
Cultural	Tranquility	method under review
	Area of designated historic environment assets (ha)	535 (under review)

Designated historic environment assets

Ecosystem asset

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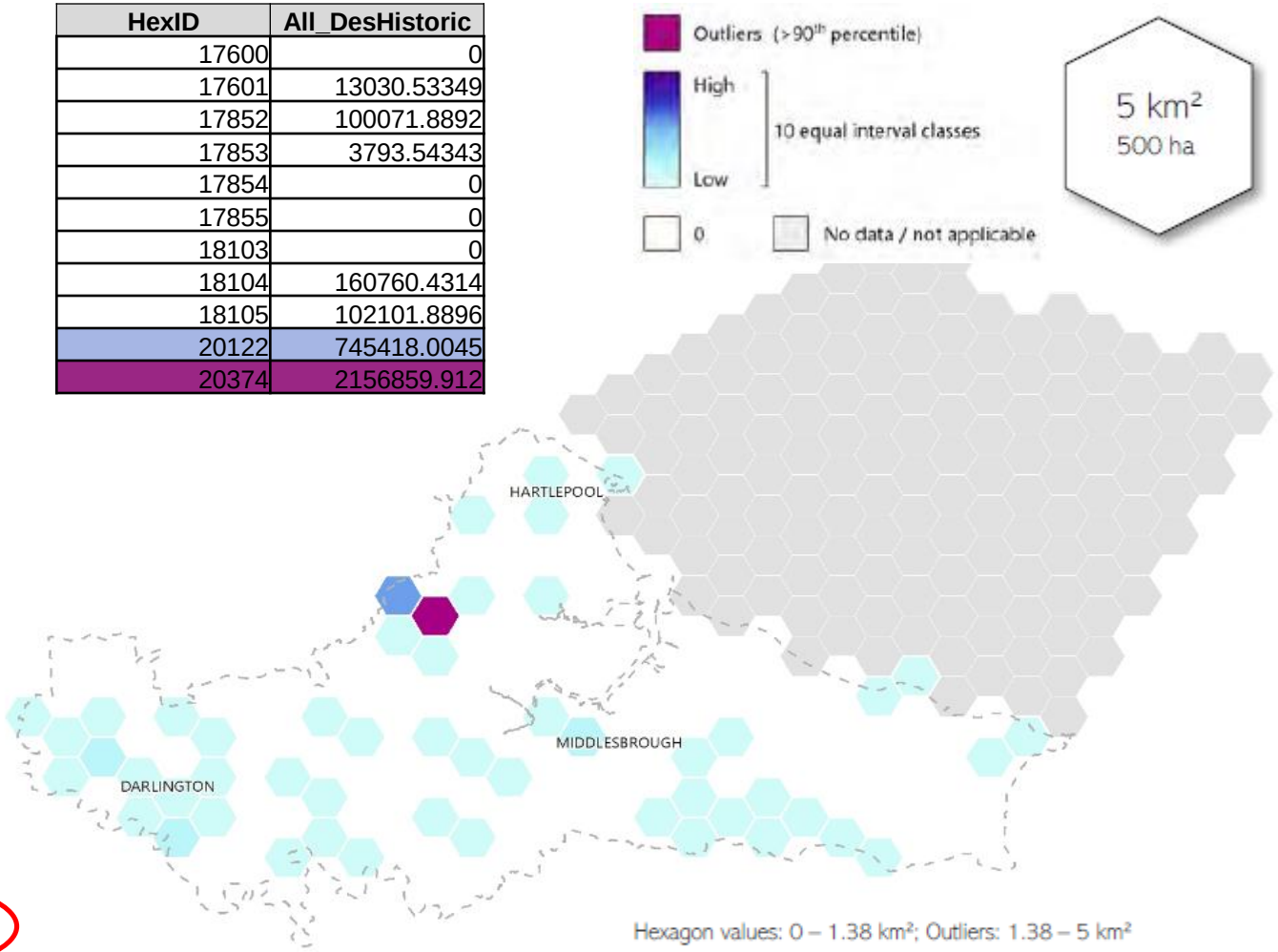

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Ecosystem services

Ecosystem service (common name)	Significance (1 small to 3 large)	Indicator	Quantity where available
Timber and other materials	1	Area of broadleaved, mixed & coniferous woodland (ha)	4,660
Fish and marine products	2	Fish and marine products landed (tonnes)	1,080
Aquaculture		Sales of aquaculture products	*~ 0*
Livestock		Number of cattle, sheep and pigs	130,000
Crops		Cropped area (ha)	21,000
Water supply	?	Quantity abstracted for public water supply	
Water quality	?		
Air quality	?		
Erosion control	1		
Flood protection	?		
Thriving wildlife	3		
Climate regulation	3	Carbon emitted tonnes of CO_2 equivalent/year	~135,000
Other regulating services	?	PM2.5 removed by woodland (tonnes/year)	
Cultural	3		
Experiential and physical use		Number of recreational visits (million/year)	25
Scientific and educational use			
Cultural apprec-iation of nature			

Benefits and values

Benefit	Significance (1 small to 3 large)	Indicator	Annual benefit	Asset value	Confidence in the values
Timber, hay and other materials	1	Timber and wood products, stumpage value			
Food	2	Net income from fisheries and aquaculture	~ £	~ £	
		Resource rent from crop and livestock production	~ £	~ £	
Clean and plentiful water	?	Value of water abstraction			
Clean air	?	Health benefits from PM2.5 removal	£	£	
Protection from floods and other hazards	?	Value of flood protection benefits provided by natural capital			
Biodiversity	3				
Equable climate	3	Social cost of carbon emission	(£9 million)	(£840 million)	
Cultural wellbeing	3	Social benefit of recreational visits (parks, beaches & paths)	£100 million	£3.3 billion	
		Other physical and mental health benefits			
		Increase in property value			
Total quantified monetary benefits					
Significance of unquantified monetary benefits			**Very large**		

Social Benefit of Recreation

- Number of recreational trips estimated using ORVal recreation demand model based on
  - Data from Monitor of Engagement with the Natural Environment (MENE) survey
  - Socioeconomic characteristics, availability and qualities of alternative greenspaces etc
- ~ 25 million recreation trips per year
    - Paths 3.1 million, Parks 20.5 million, Beaches 1.1 million
    - Welfare value ~ £ 100 million, ~ £ 4 million per visit
      - "monetary equivalent of the welfare enjoyed by individuals as a result of having access to a greenspace"
- Confidence in this value  (order of magnitude)
  - ORVAL does not provide confidence intervals
  - No local estimates of quantity or value
  - Other physical and mental health benefits

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Clean air	?	Health benefits from PM2.5 removal	£	£	
Protection from floods and other hazards	?	Value of flood protection benefits provided by natural capital			
Pollination and pest control	1	Value of pollination and pest and disease control			
Biodiversity	3				
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Timescales / Next steps

- Draft account and method statement – Early Jan 2020
- Presentation of draft outputs (Tees) – 15th Jan 2020
- Final outputs – 29th February 2020
- Publish – End of March(?)