

EcoservR

A tool for mapping natural capital
assets and public goods delivery
Upper Dane Test & Trial

Sandra Angers-Blondin, project officer
Colm Bowe, project leader



Cheshire
Wildlife Trust



Forest Research



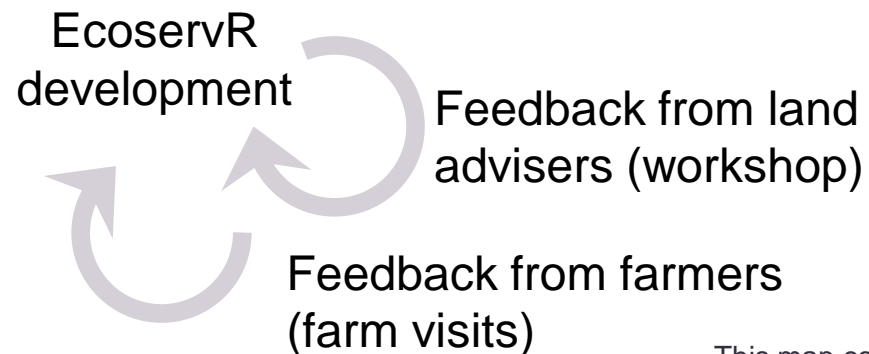
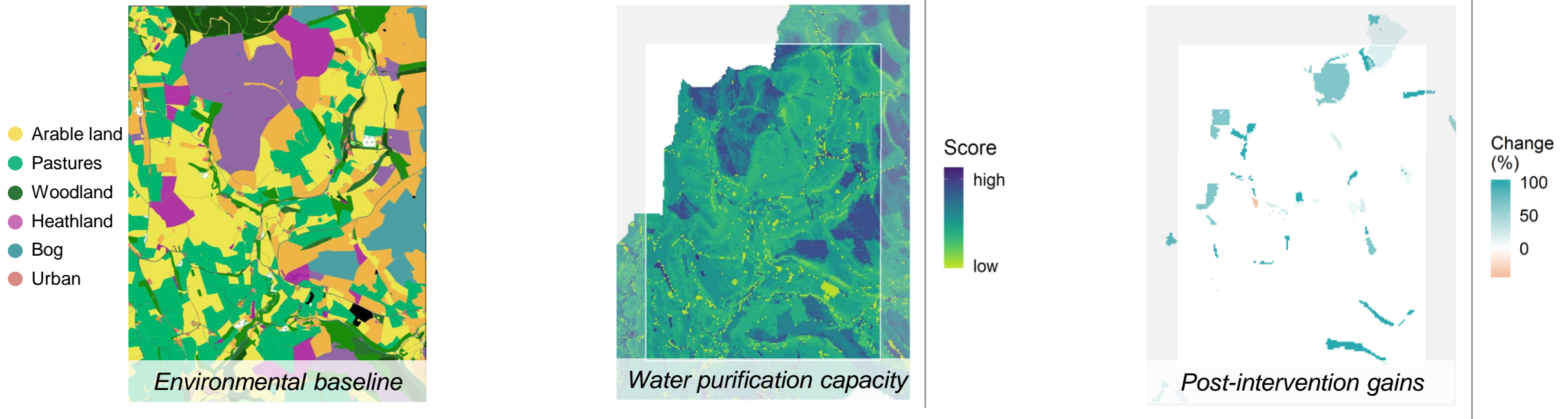
**Natural
Capital
Solutions**



**LIVERPOOL
JOHN MOORES
UNIVERSITY**

Our test and trial

Is a **spatial approach** effective for **measuring public goods** on farms and optimising future **delivery**?



Themes:
Land management plans
Spatial prioritisation

EcoservR: reviving Ecoserv-GIS

Strengths of Ecoserv-GIS:

- Simple but sound, **spatial** models
- Nationally available (& mostly free) datasets
- Baseline, capacity and demand maps

Challenges:

- Designed for use at county scale
- Relies on proprietary software (£££ and expertise)
- No longer maintained

Solution: rewrite and adapt in R

- R is free, open-source, growing community
- Incorporating new datasets

Datasets

- **OS MasterMap**
- *OS Greenspace* / **Open Greenspace**
- **Priority Habitat Inventory**
- CORINE
- Crop Map of England (CROME)
- Terrain data
- National Forest Inventory
- *Hedgerows (RPA)*
- Designated sites (NNR, LNR, etc)
- Public rights of way
- Census and IMD data

Required
Licenced dataset

Ecosystem services

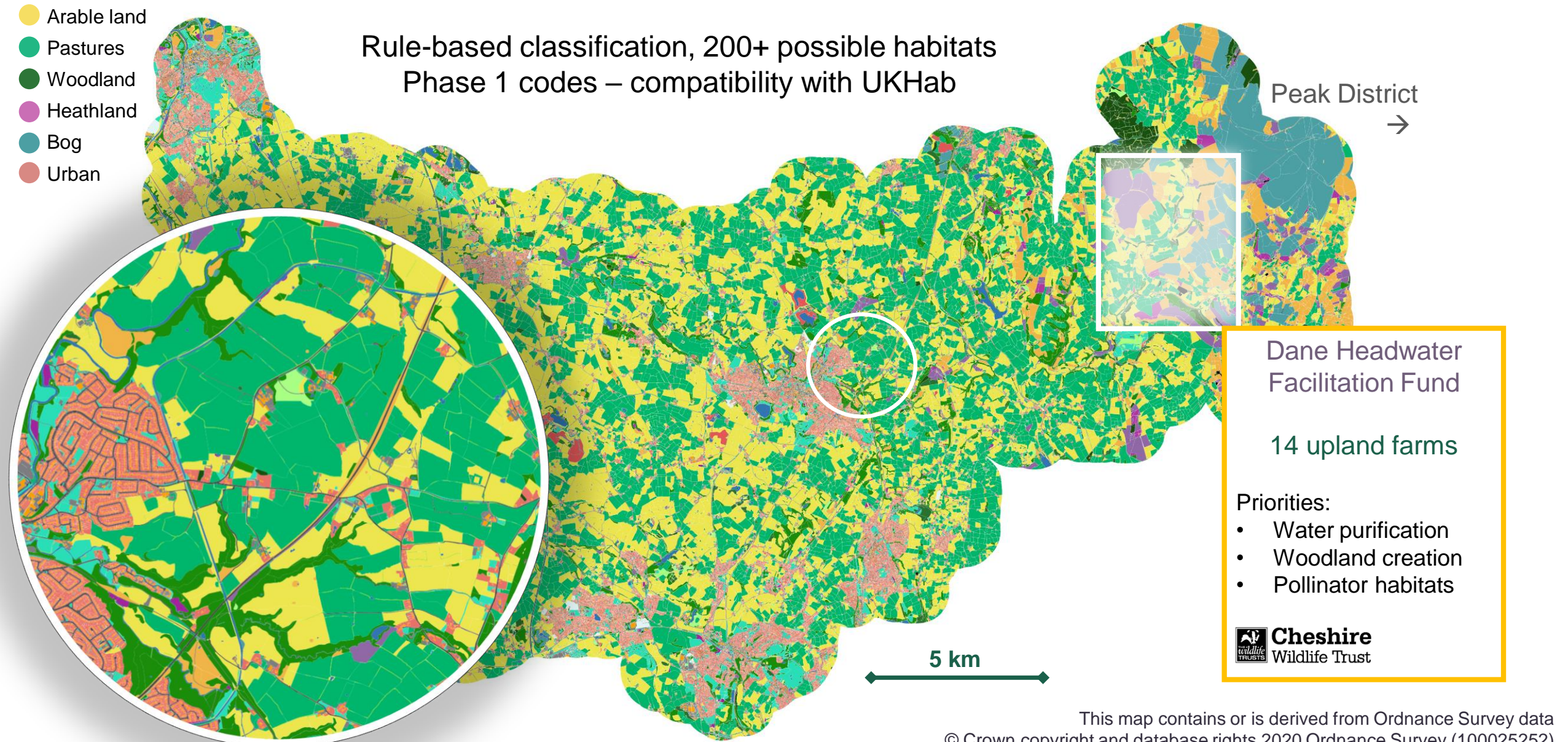
- Carbon storage
- Air purification
- Water purification
- Pollination
- Noise regulation
- Local climate regulation
- Accessible nature experience

Coming soon:

- Biodiversity
- Flood risk management
- Carbon sequestration



Baseline for the Dane river catchment



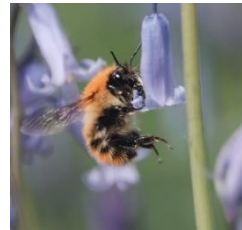
Strategic interventions in the farm group



Wetland restoration
+ 100 ha



Woodland creation / restoration
+ 165 ha



Pollinator habitat restoration
+ 70 ha

+ hedgerow creation & river improvements

Dane Headwater
Facilitation Fund

14 upland farms

Priorities:

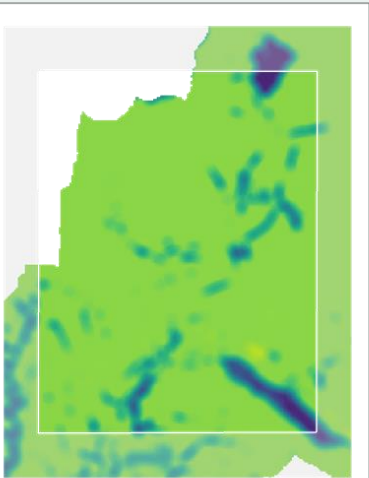
- Water purification
- Woodland creation
- Pollinator habitats



- Arable land
- Pastures
- Woodland
- Heathland
- Bog
- Urban

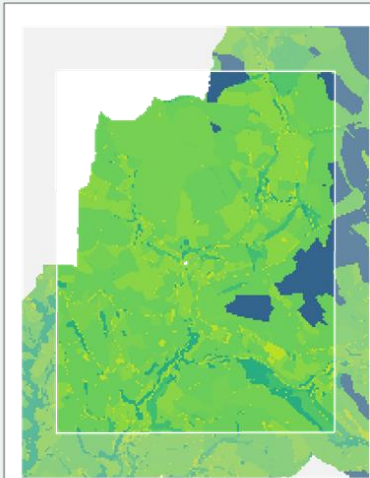
Measuring public goods with EcoservR

Air purification



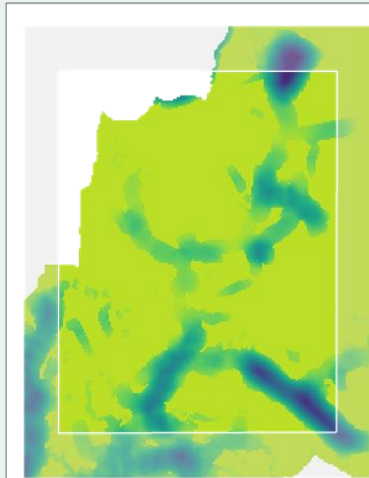
Score
high
low

Carbon storage



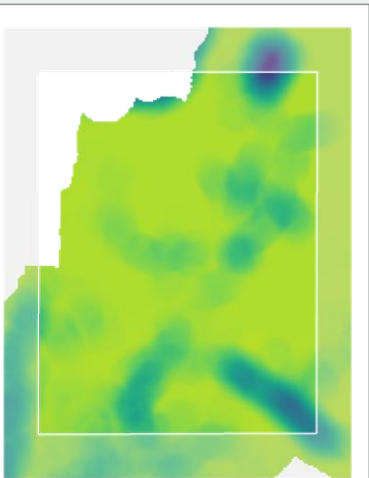
Score
high
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Local climate regulation



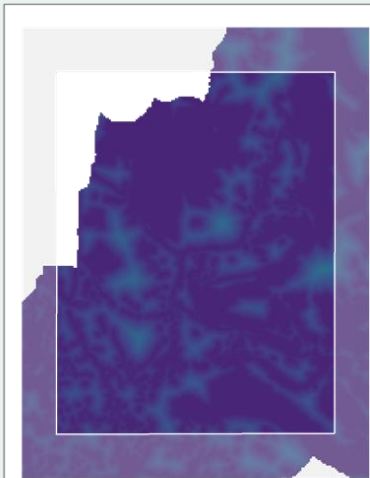
Score
high
low

Noise regulation



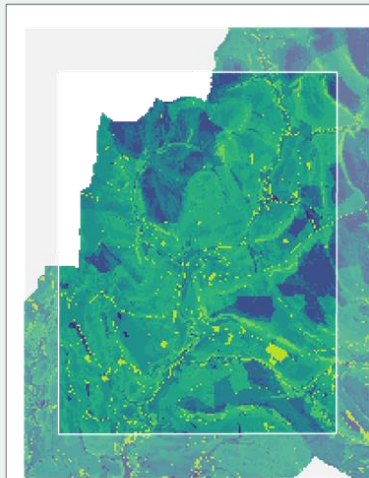
Score
high
low

Pollination



Score
high
low

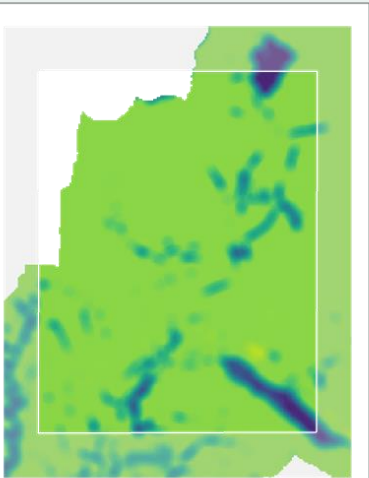
Water purification



Score
high
low

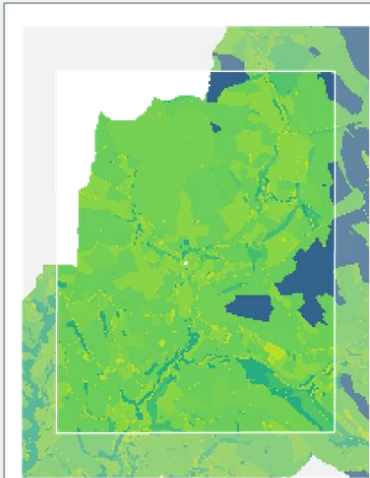
Measuring public goods with EcoservR

Air purification



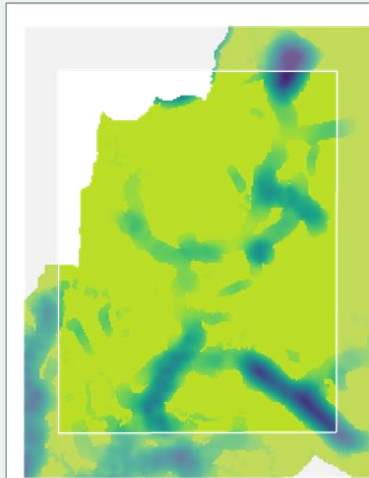
Score
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Carbon storage



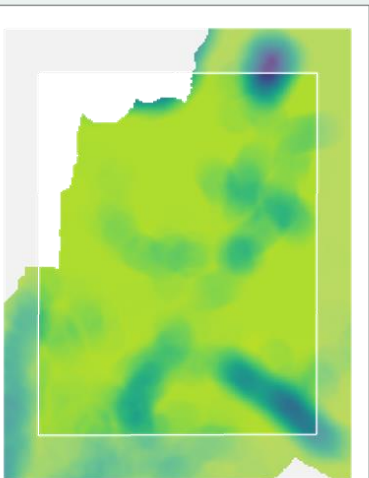
Score
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low

Local climate regulation



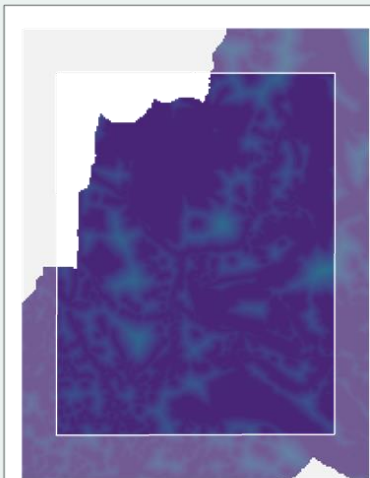
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Noise regulation



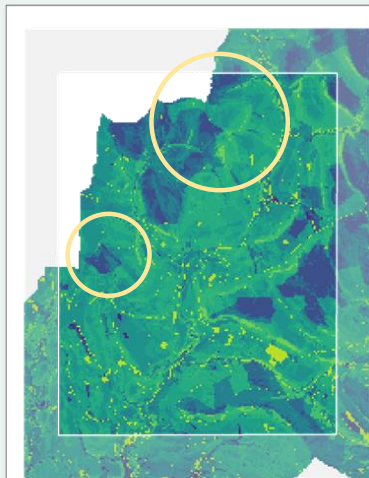
Score
high
low

Pollination



Score
high
low

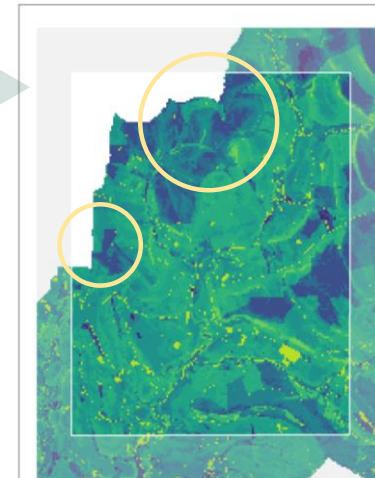
Water purification



Score
high
low

	Air	Carbon	Climate	Noise	Pollin.	Water
Farm 1	0.5	4.1	7.8	0.6	0.9	-1.3
Farm 2	0.1	1.0	6.7	0.1	0.1	-0.4
Farm 3	13.5	9.7	56.6	11.6	3.5	4.1
Farm 4	3.4	3.3	30.5	6.4	1.1	4.5
Farm 5	0.3	0.3	2.2	1.5	0.3	0.2
Landscape	5.2	2.2	22.5	6.8	0.5	2.8
Catchment	0.7	0.4	2.9	0.9	0.0	0.2

Capacity change post-interventions (%)



Change (%)
100
50
0

What we found so far....

...and next steps

EcoservR can:

- provide **standardised, evidence-based scores**
- identify **hotspots** and **opportunity gaps**
- pick up change at a range of **spatial scales**

Land advisers:

- welcomed the visual aspect
- would use tool to start discussion and plan interventions
- habitat condition a critical consideration
- concerned about user friendliness and data acquisition

Farm visits

- Ground-truthing
- Opinions same or different than trusted advisers'?

Beta release of EcoservR

- End August, script-based
- End of year (?), user interface

+ more services, automatic report generation, Scottish / Welsh datasets

THANK YOU

Sandra Angers-Blondin: S.AngersBlondin@ljmu.ac.uk

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Acknowledgements

Chloe Bellamy
Joe Pimblett
Jim Rouquette
Martin Varley
Alison Holt
Karl Busdieker



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