Using Condatis to predict national ecological flows

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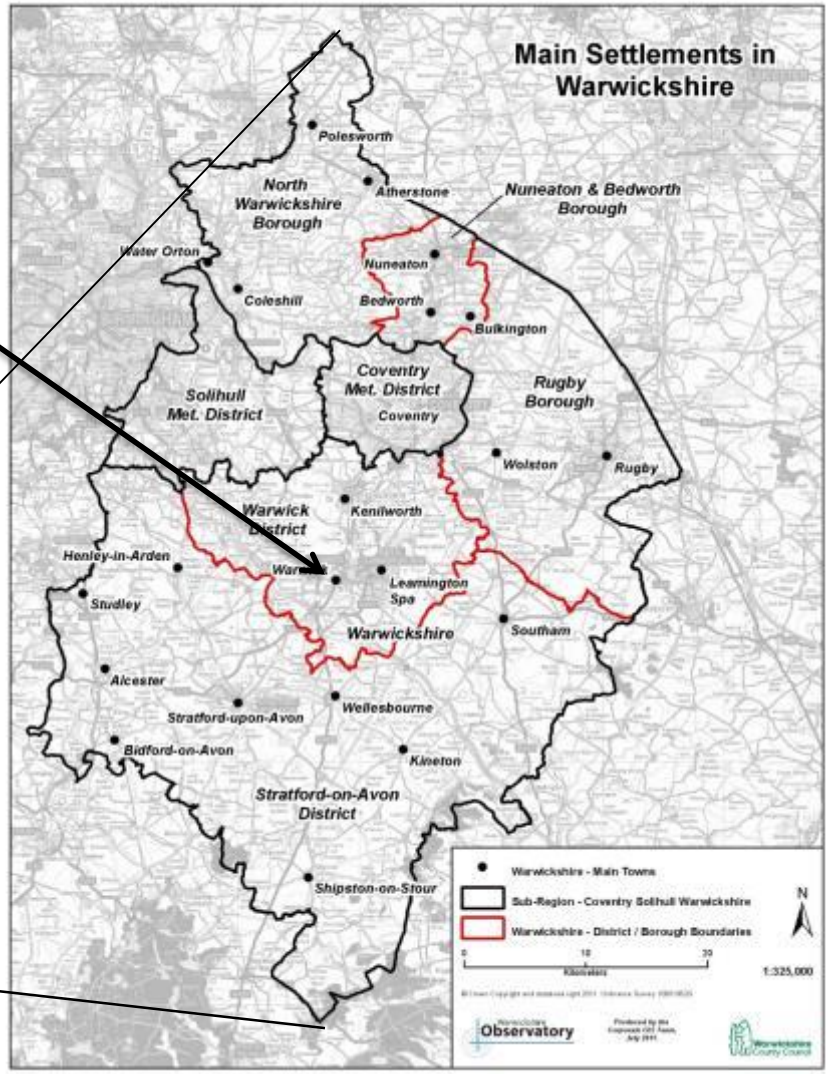
1. Background
2. The problem
3. Methodology (2015-16)
4. Outputs (2015-16)
5. Validation
6. Update: Progress 2016-2018
7. Conclusions

1. Background

Where are we?

WCC Ecological Services



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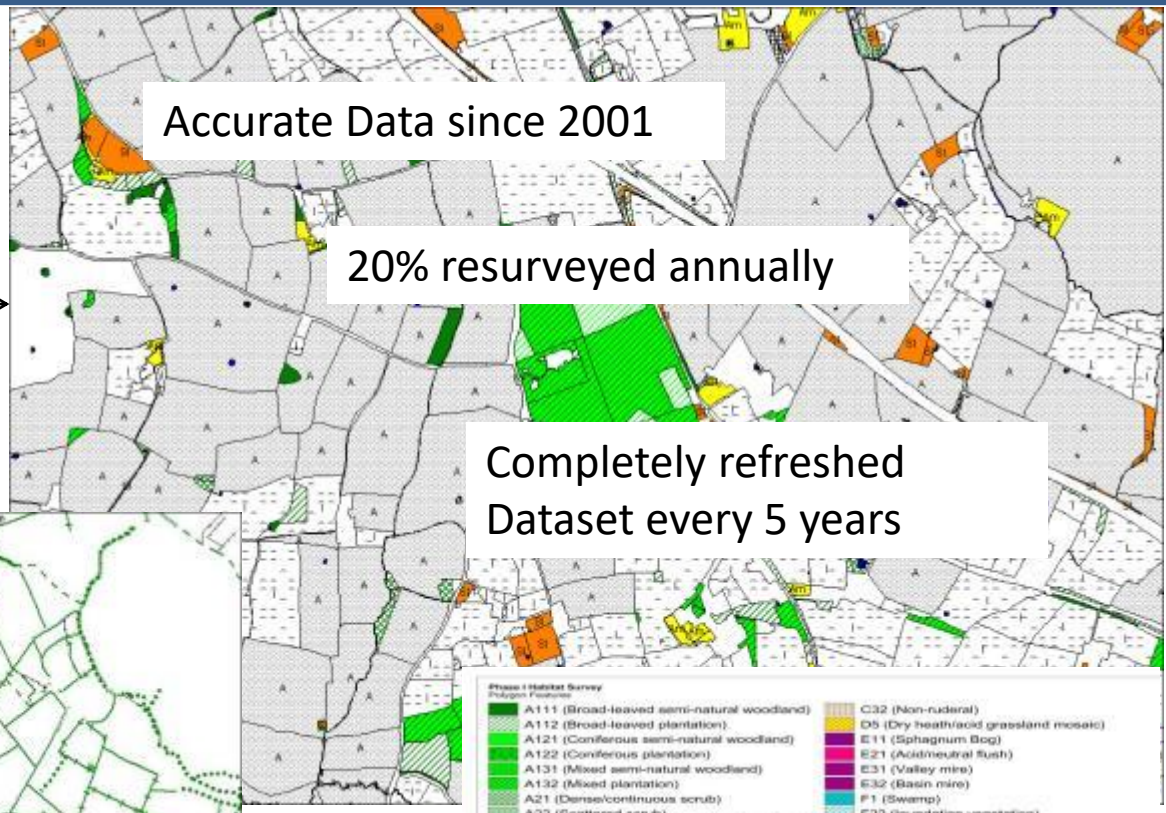
Habitat
Biodiversity
Audit
&
Wildlife Sites
Project

Phase 1 - Polygon

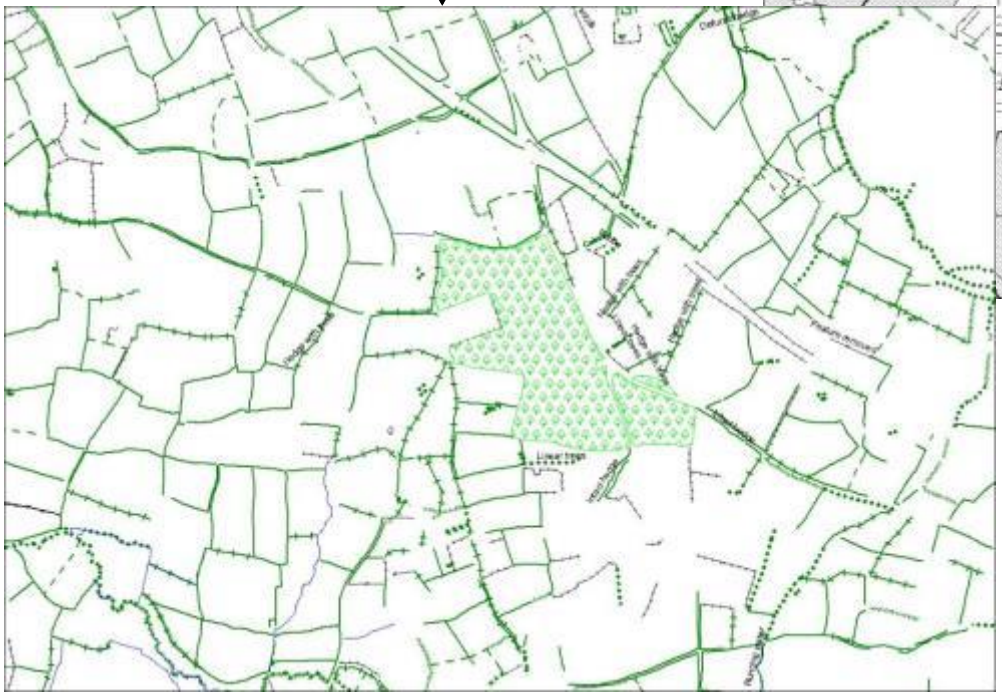


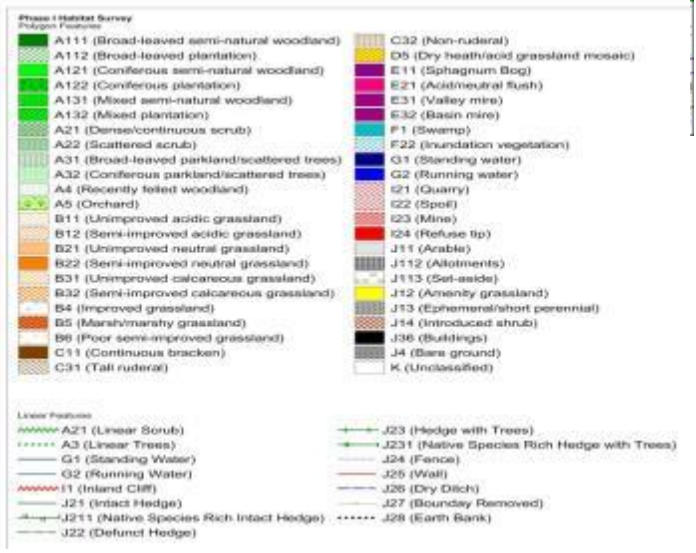
Accurate Data since 2001

20% resurveyed annually

Completely refreshed
Dataset every 5 years

Phase 1 - Linear





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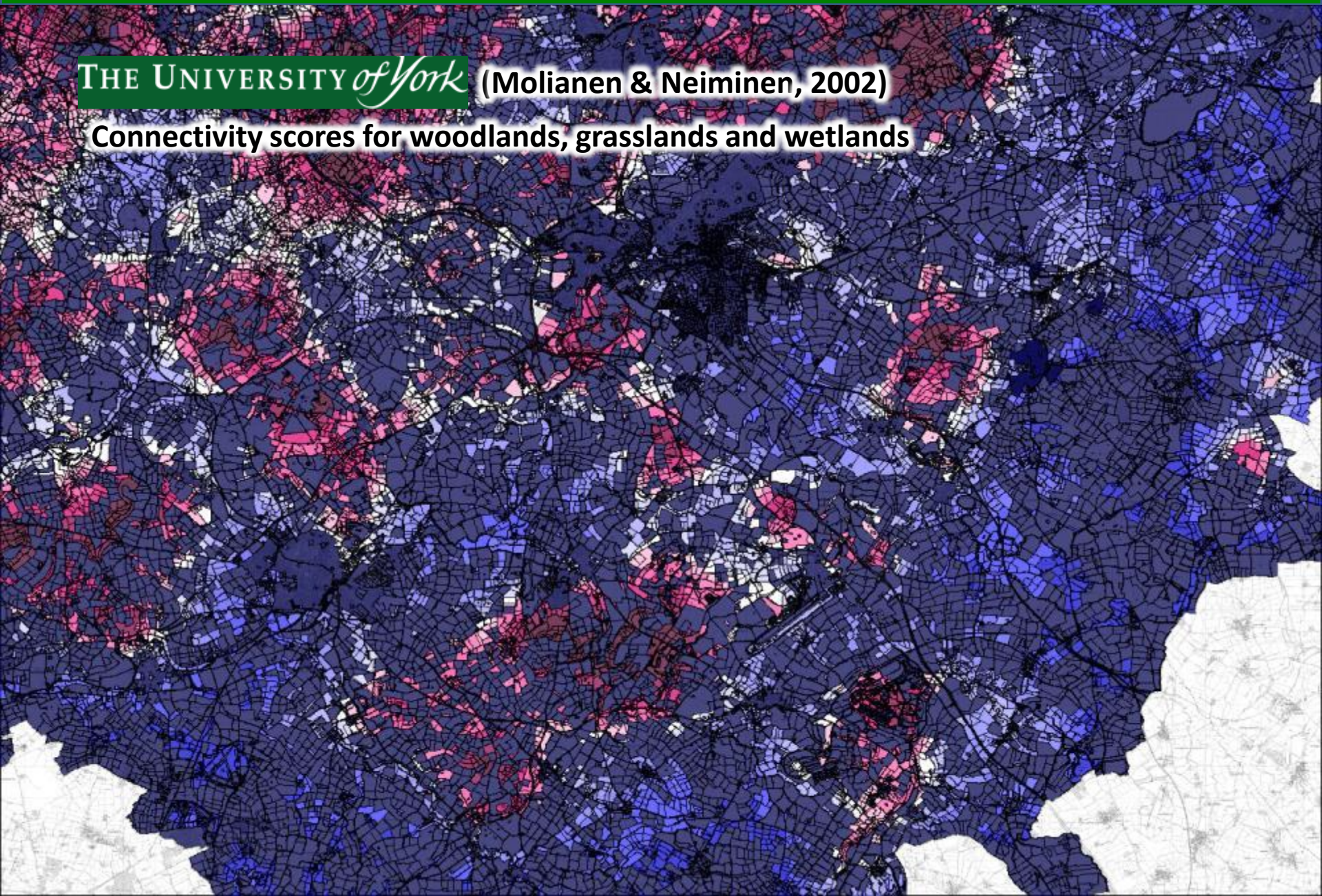
THE UNIVERSITY of York

(Molianen & Neiminen, 2002)

Connectivity scores for woodlands, grasslands and wetlands



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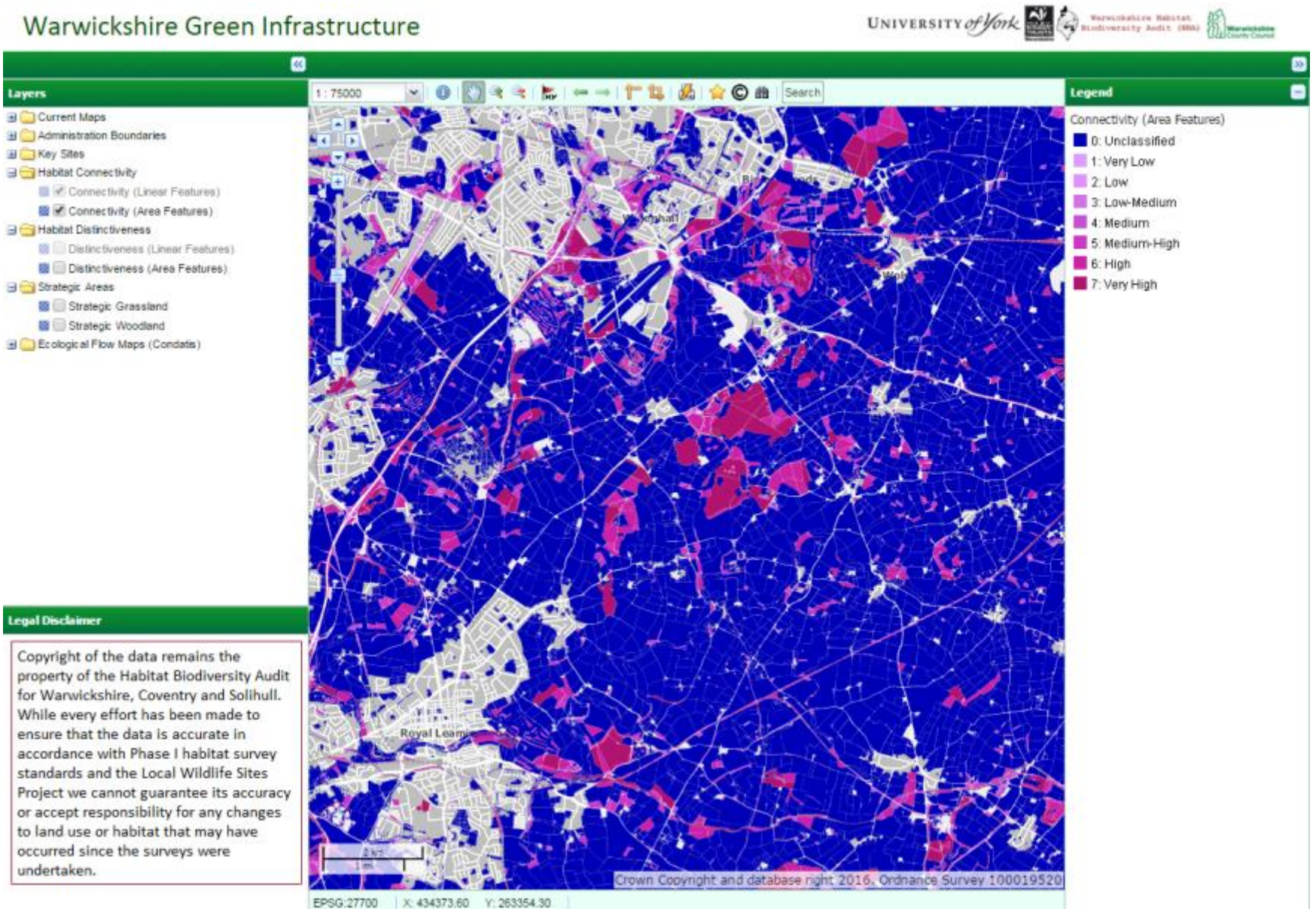
maps.warwickshire.gov.uk/greeninfrastructure



2. The problem

How do we communicate to planners how important these connective habitats are?
How do we identify whether connective links are of Local or National Importance?
We would need to create connectivity data at a National or Regional scale

But how can a Local Authority quickly produce this sort of predictive mapping on a Local Authority budget?

Condatis

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3. Methodology

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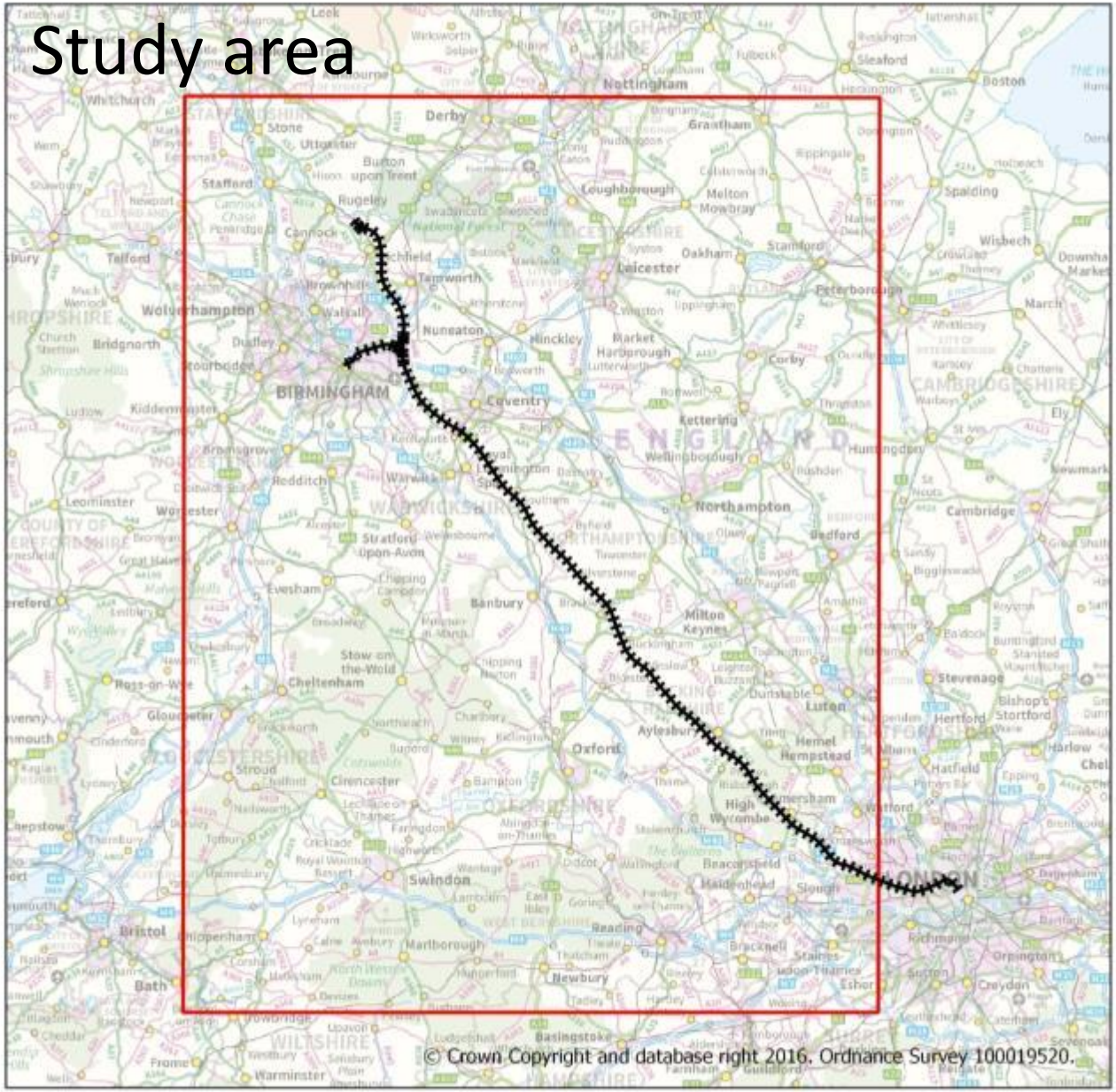
Study area



Warwickshire Biological Records Centre

Additional data sourced from:

EcoRecord – the ecological database for Birmingham and the Black Country

TVERC

Staffordshire Ecological Record

Buckinghamshire and Milton Keynes Environmental Records Centre

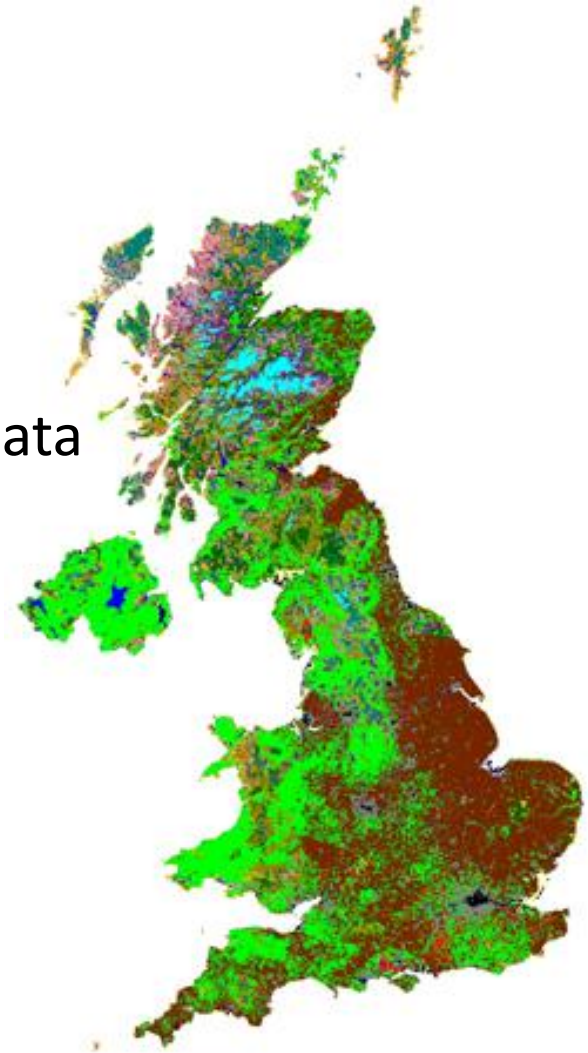
Worcestershire Biological Records Centre

Missing data within study area:

- Leicestershire
- Nottinghamshire
- Gloucestershire
- Parts of Worcestershire
- Parts of Oxfordshire

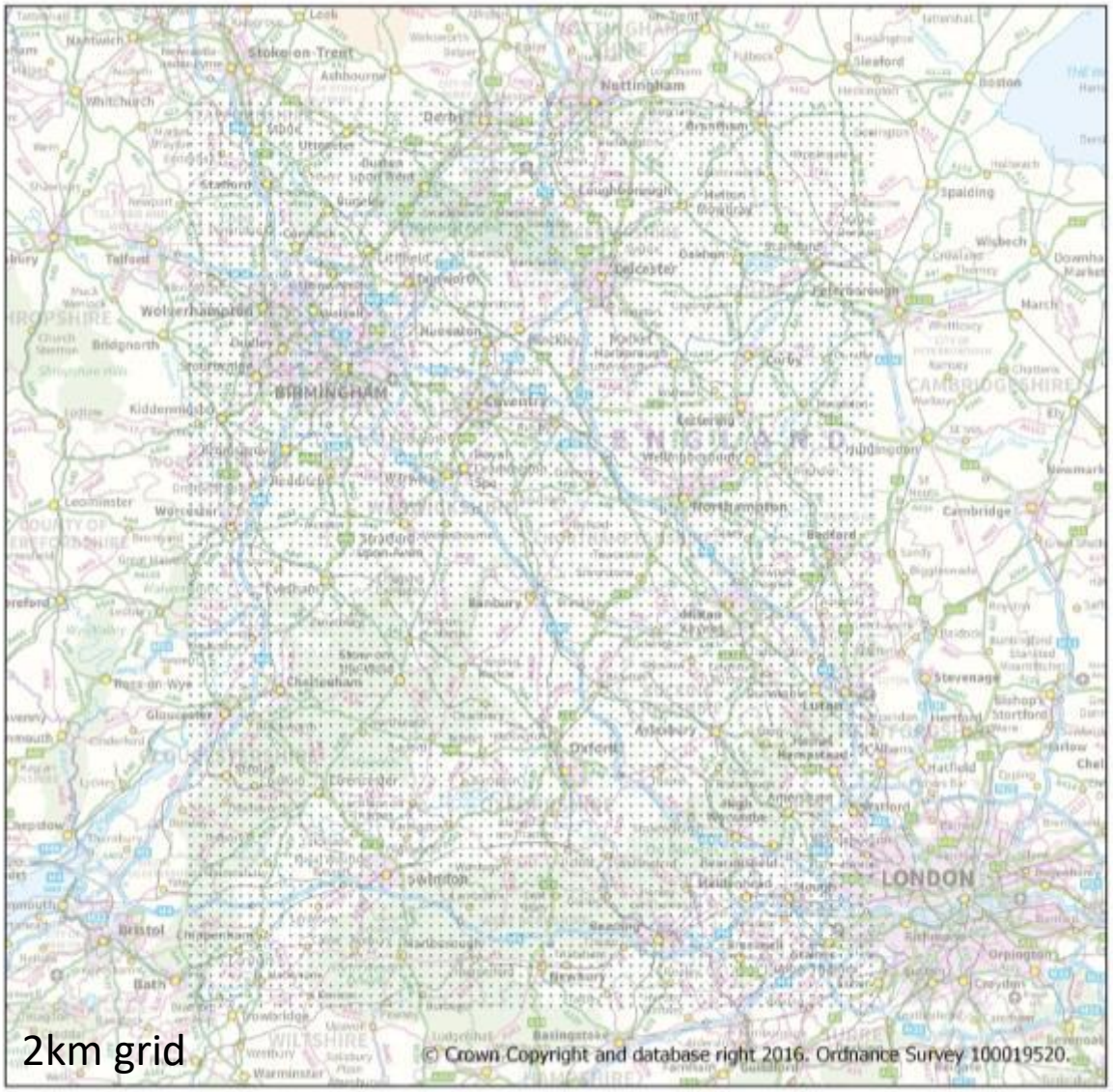
Information gaps identified by spot-checking data sets with OS mapping and aerial photography

Land Cover Map 2007
(LCM2007)



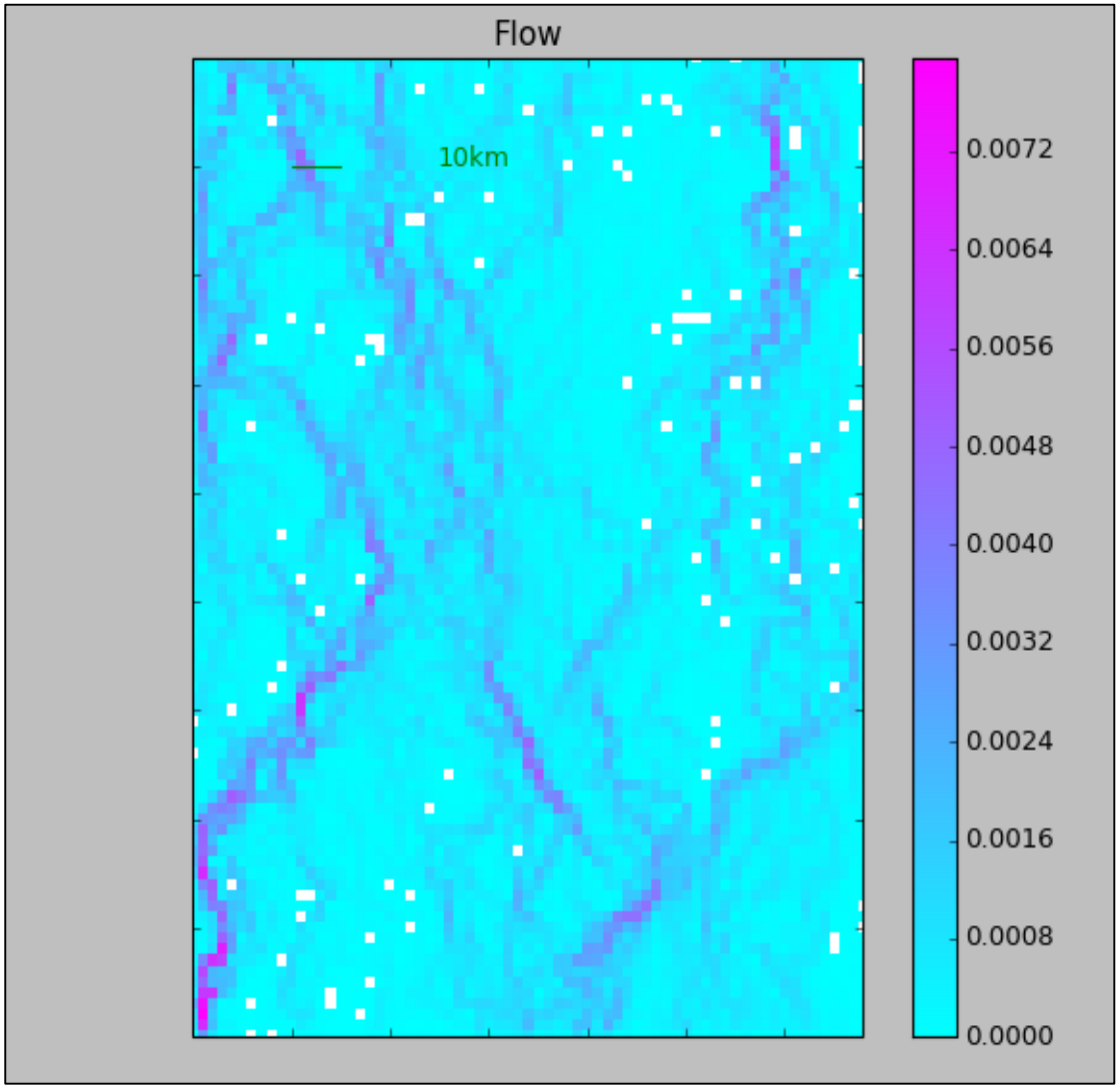
Preparing the data using QGIS:
Raster images drawn from a point grid

Preparing the data using QGIS:

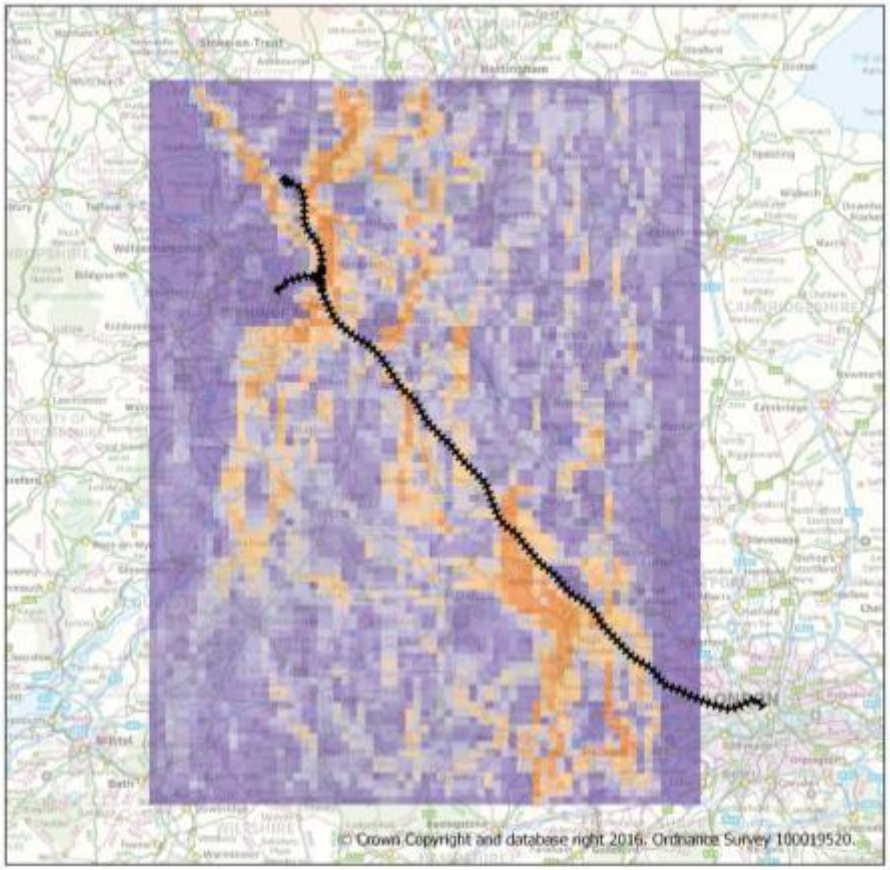


4. Outputs

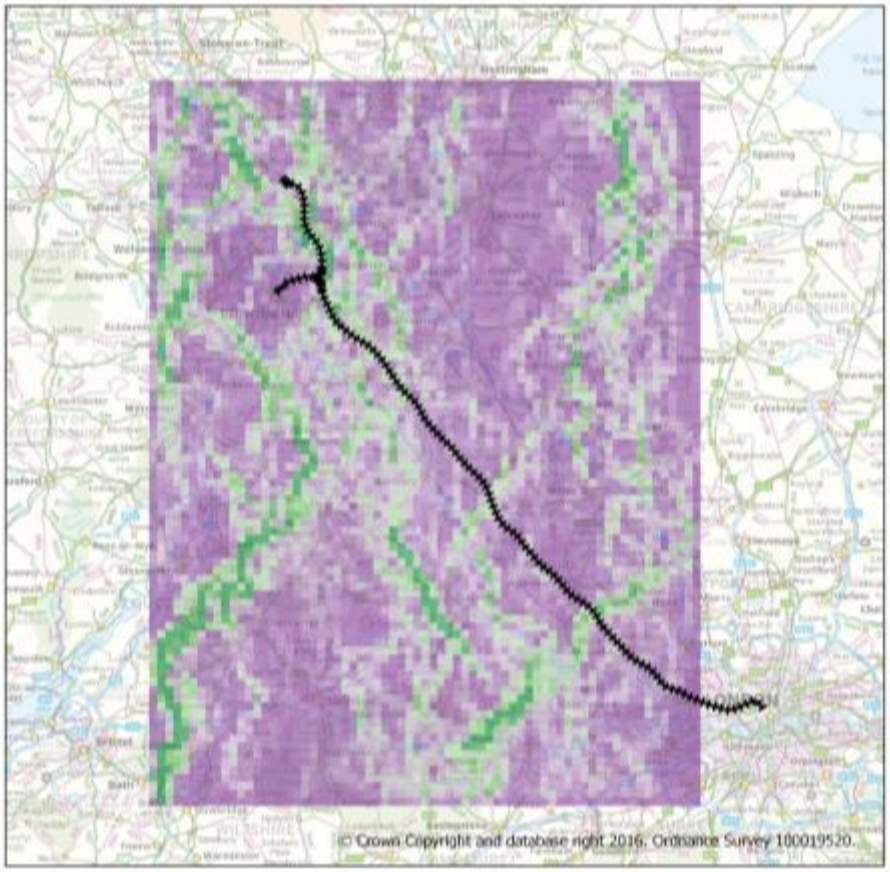
Condatis flow outputs: 1km flow



Condatis flow outputs:



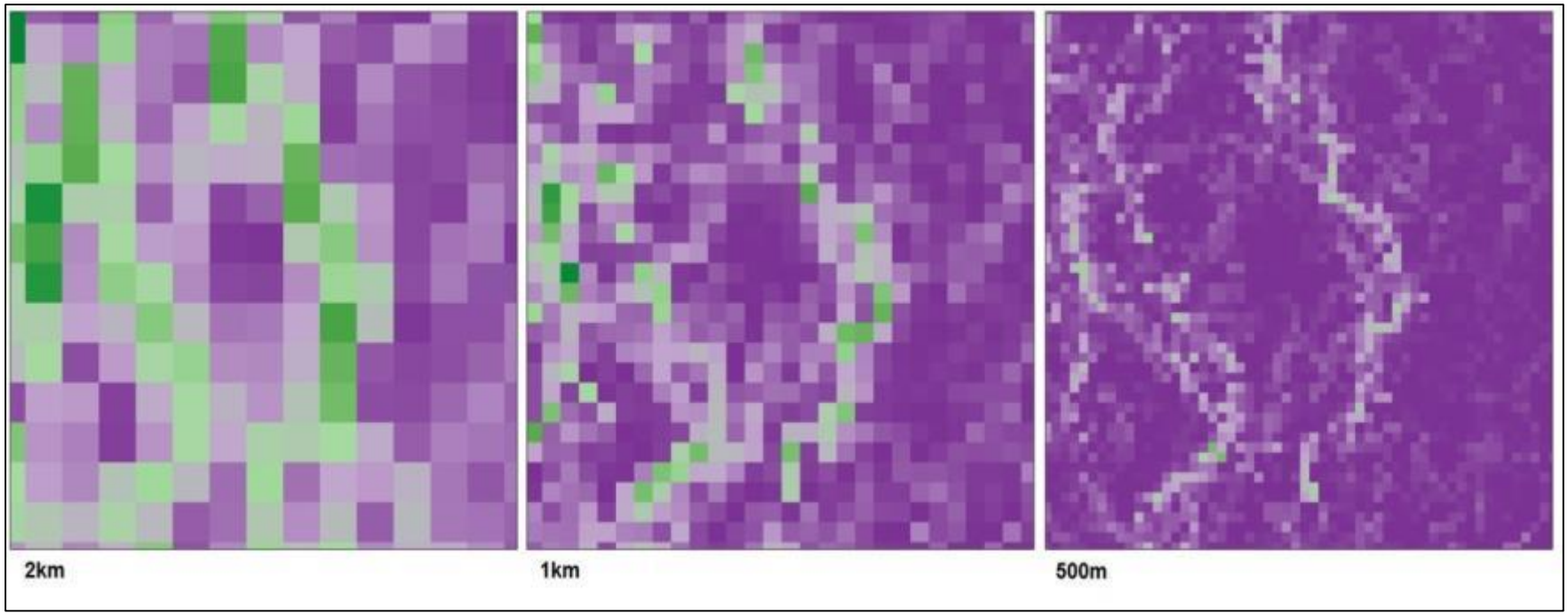
Grassland



Woodland

5. Validation

Condatis flow outputs: 1km flow



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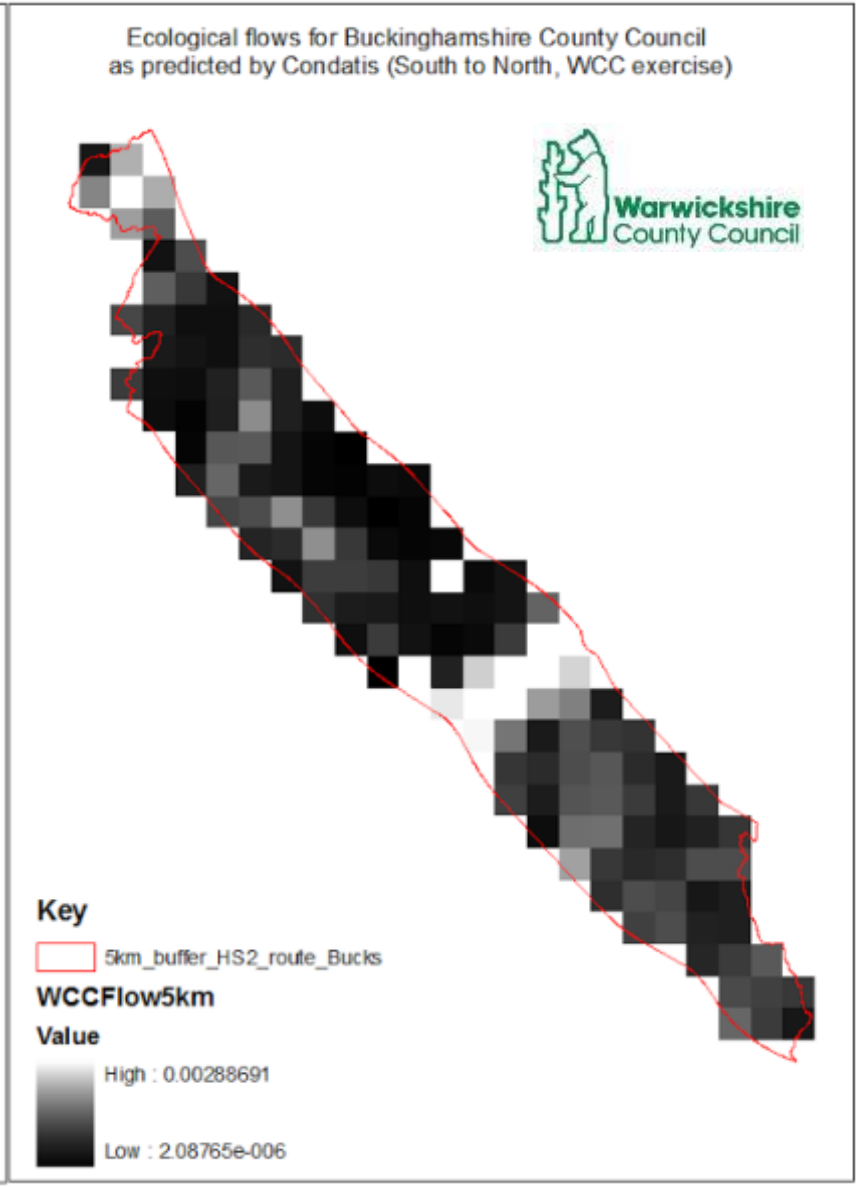

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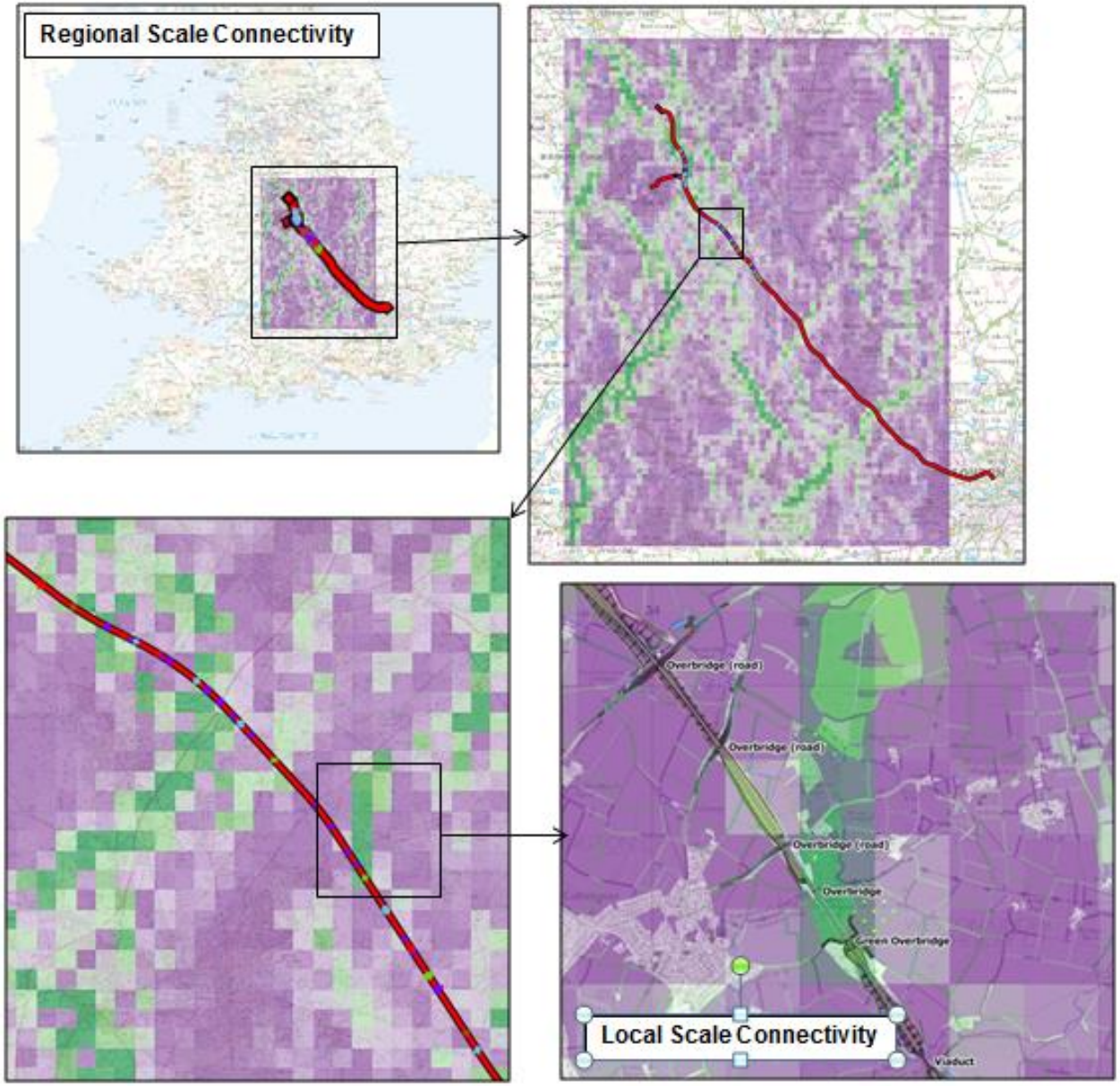
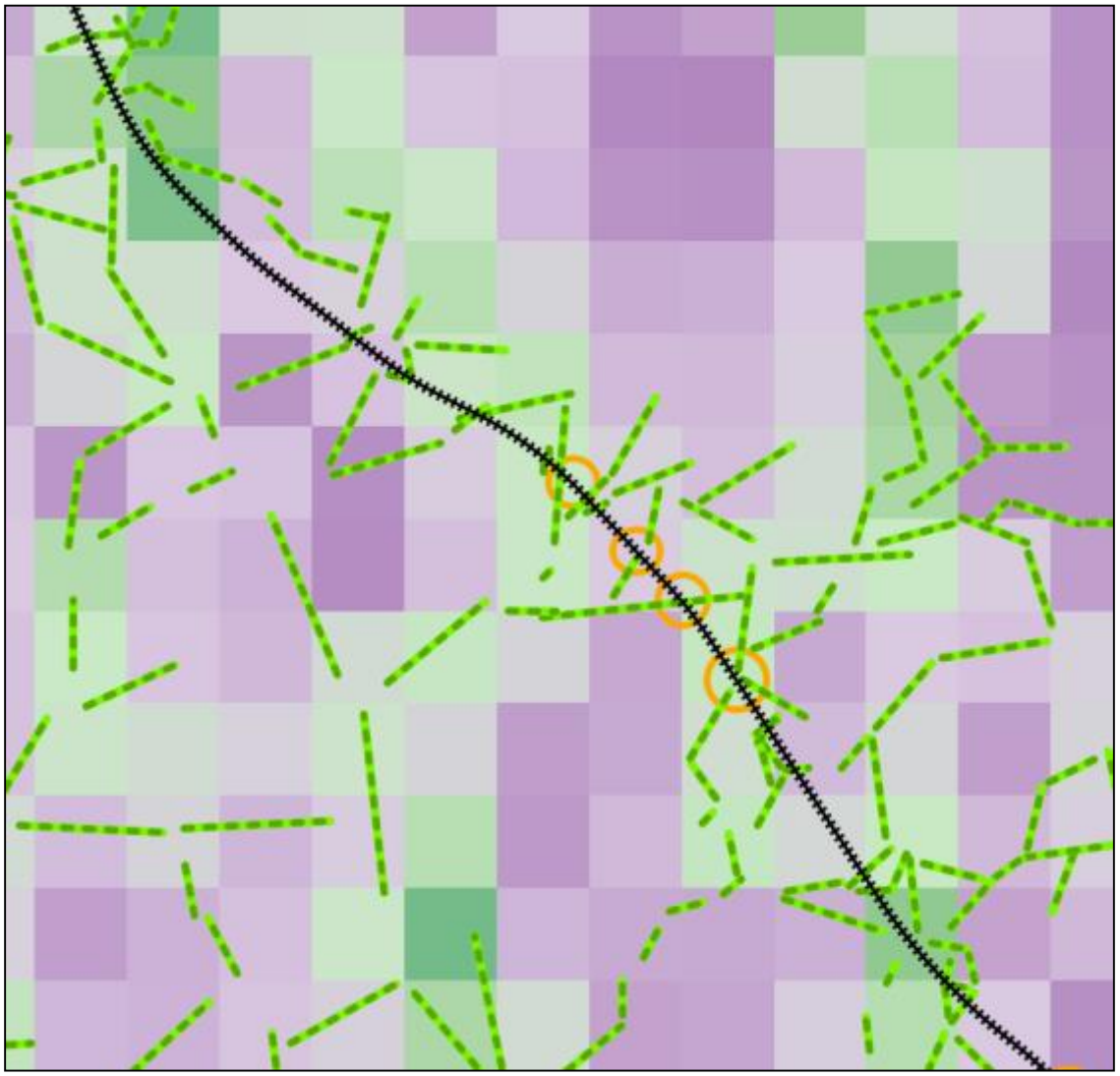


A validation exercise:



6. Progress in 2016-2017

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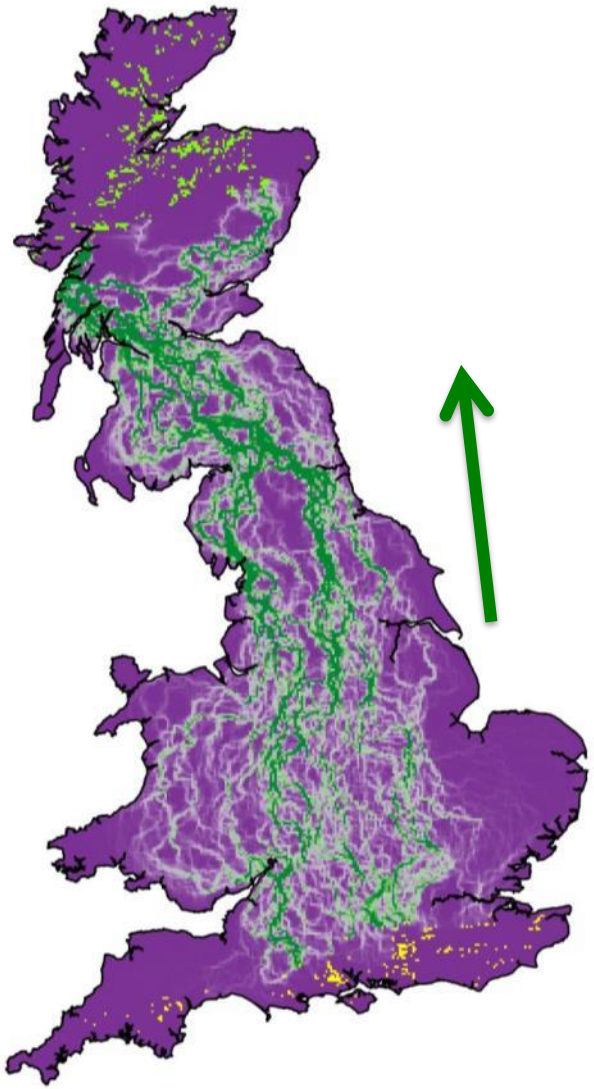
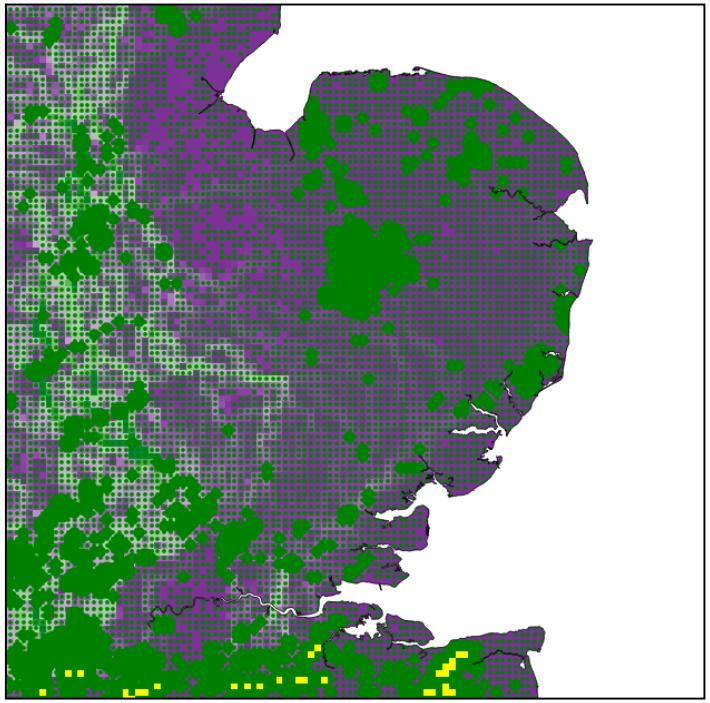


- GB Landcover 2007 data from Natural England
- 2km resolution
- Source and target: Cells with >50% woodland cover
- Processed using Linux server in Liverpool



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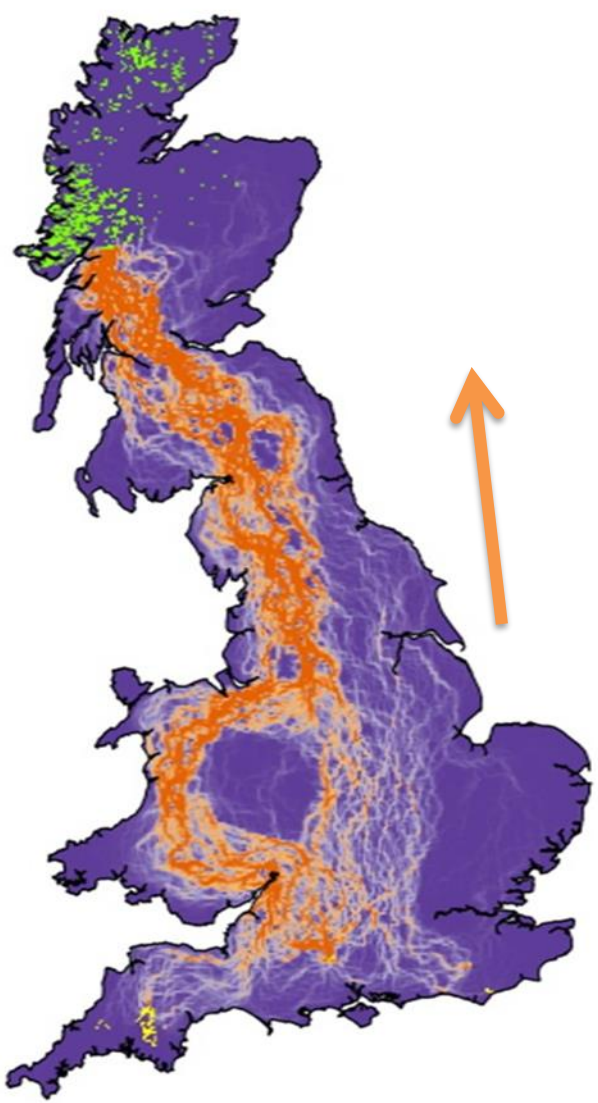

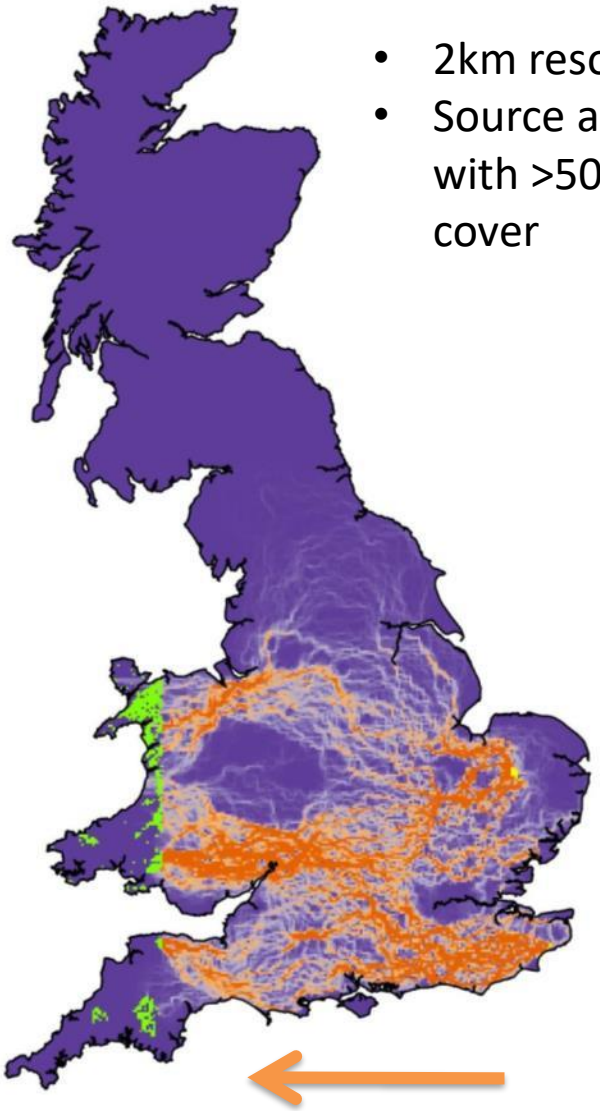

- 2km resolution
- Source and target: Cells with >50% grassland cover

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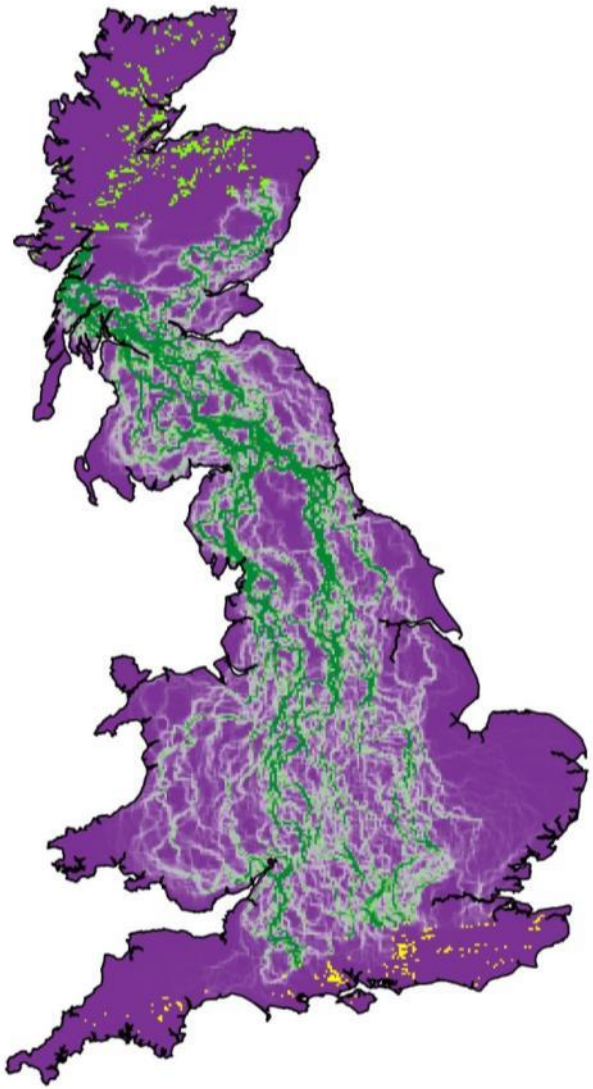

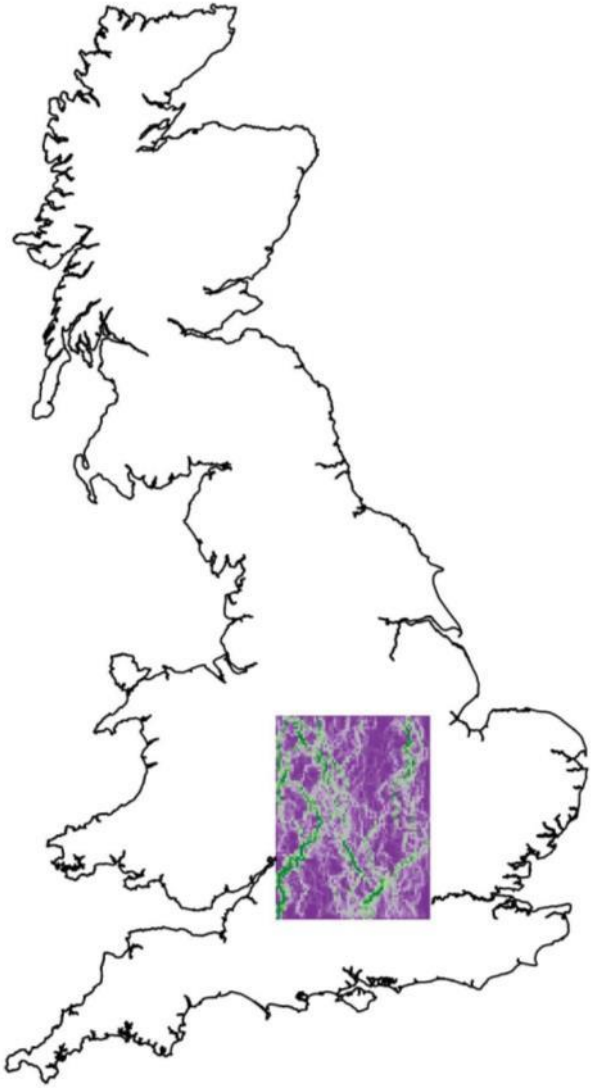

6. Progress in 2018

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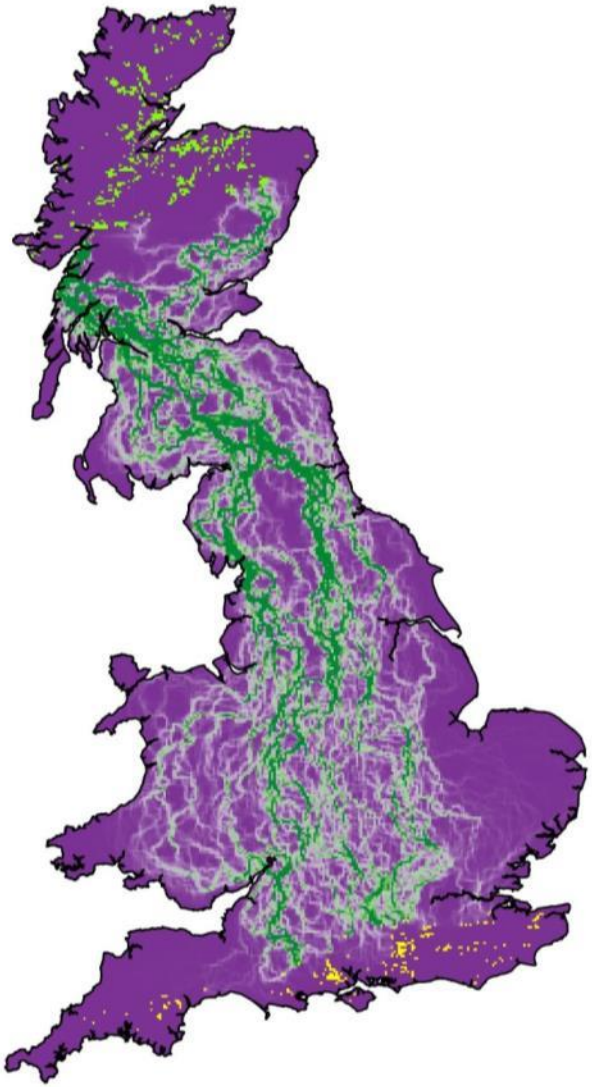
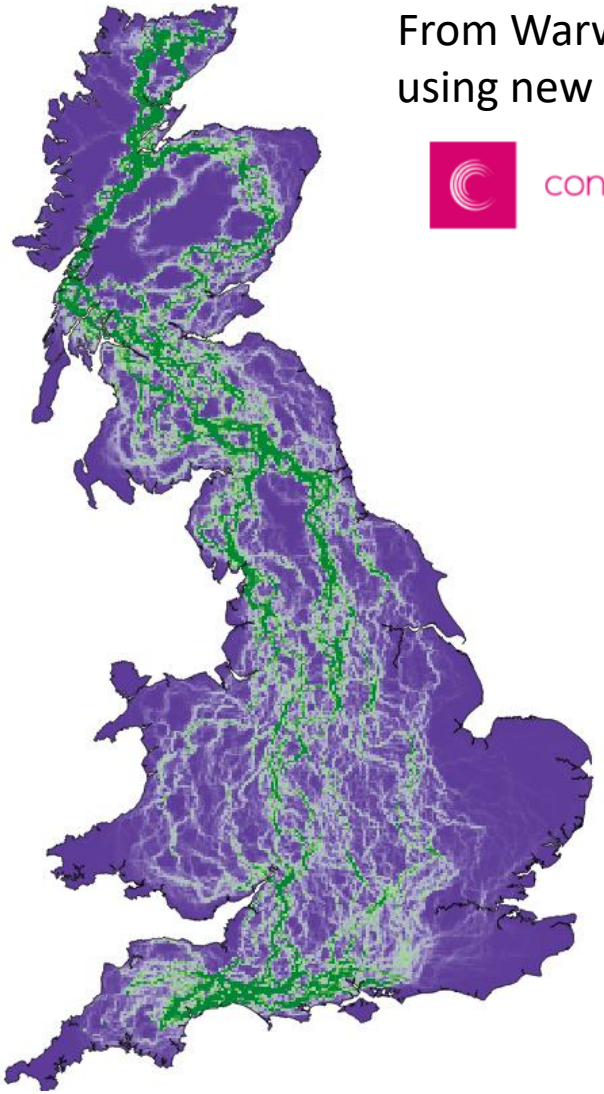


Liverpool Output



From Warwickshire using new web app

condatis

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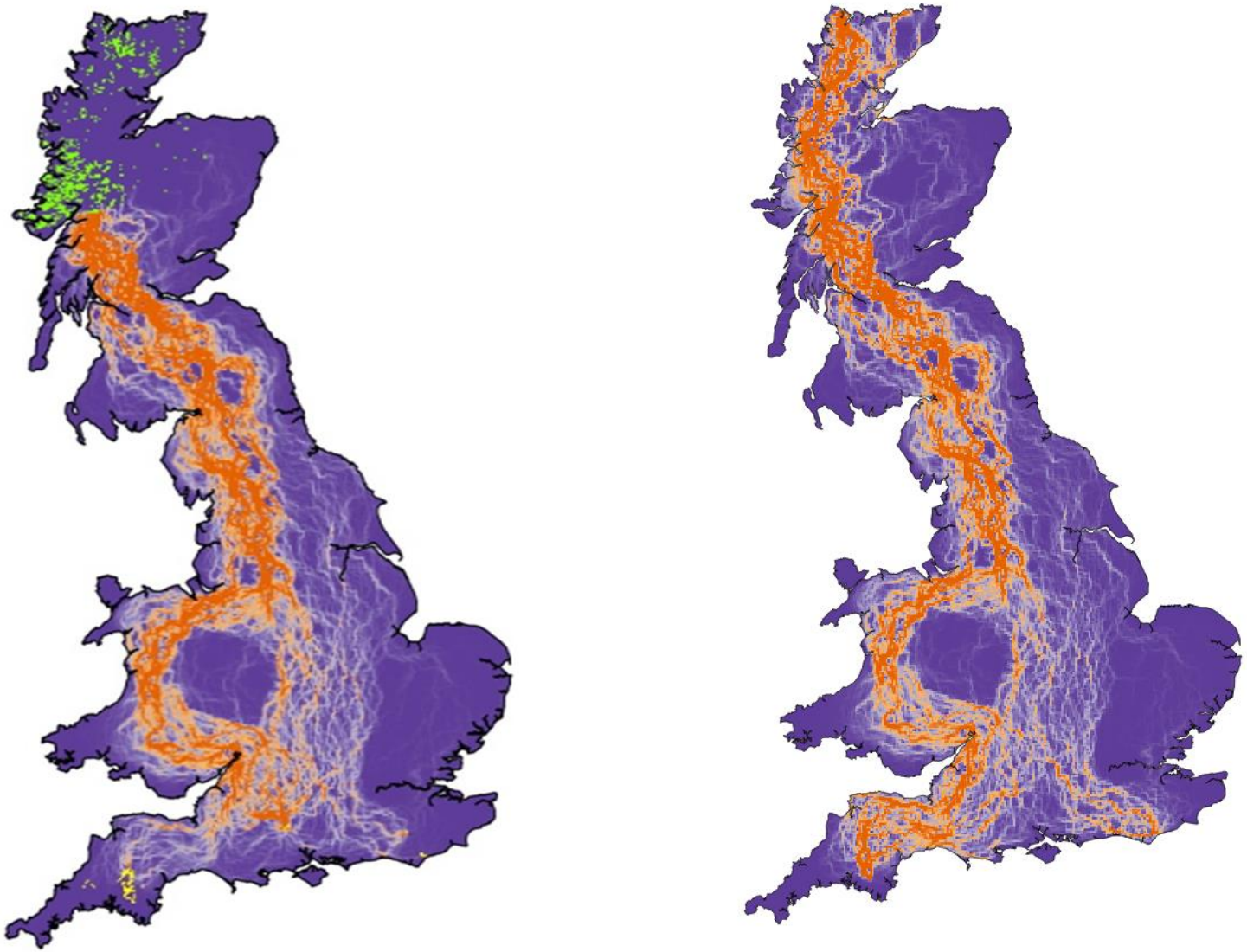

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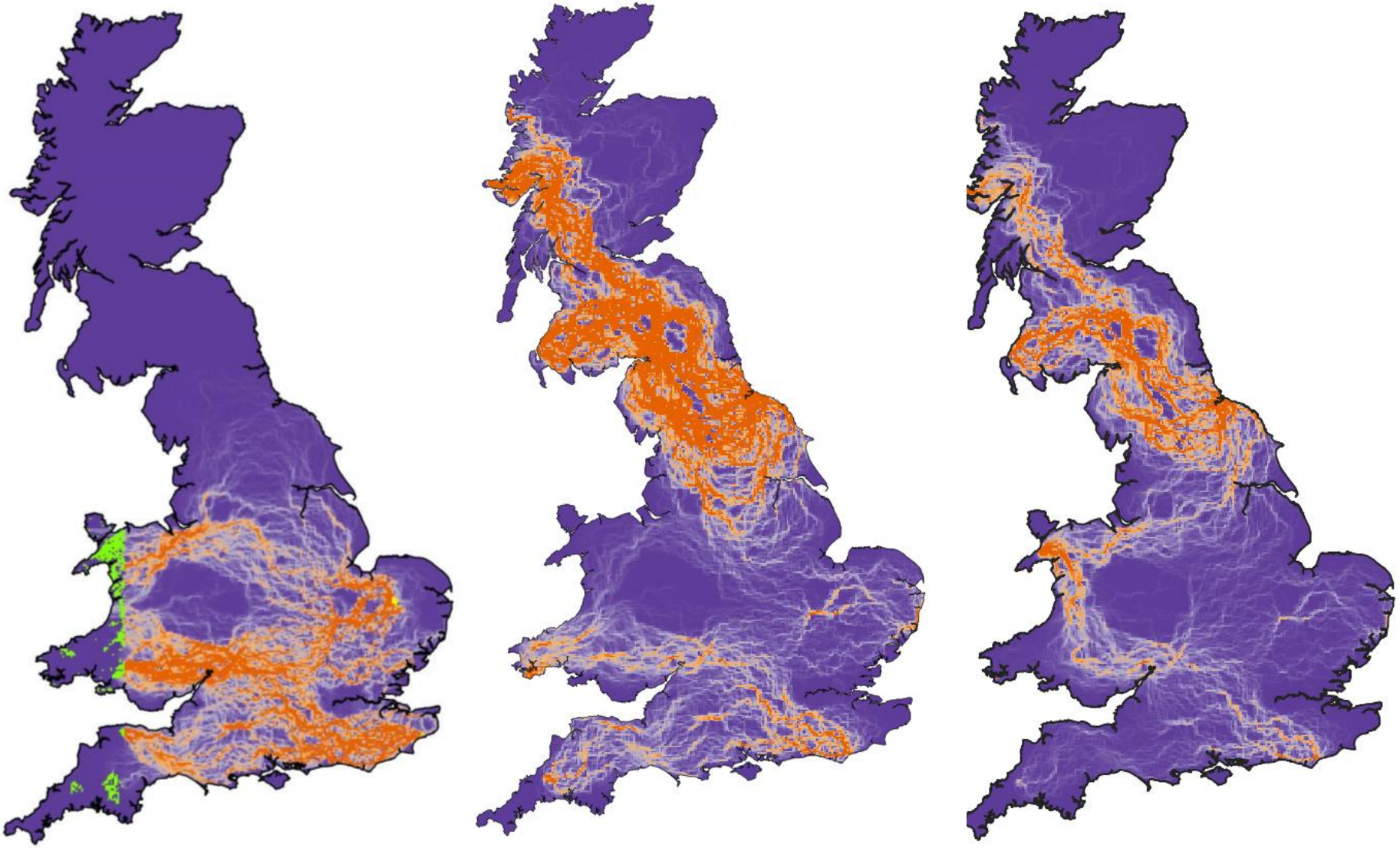

7. Conclusions (and some limitations)

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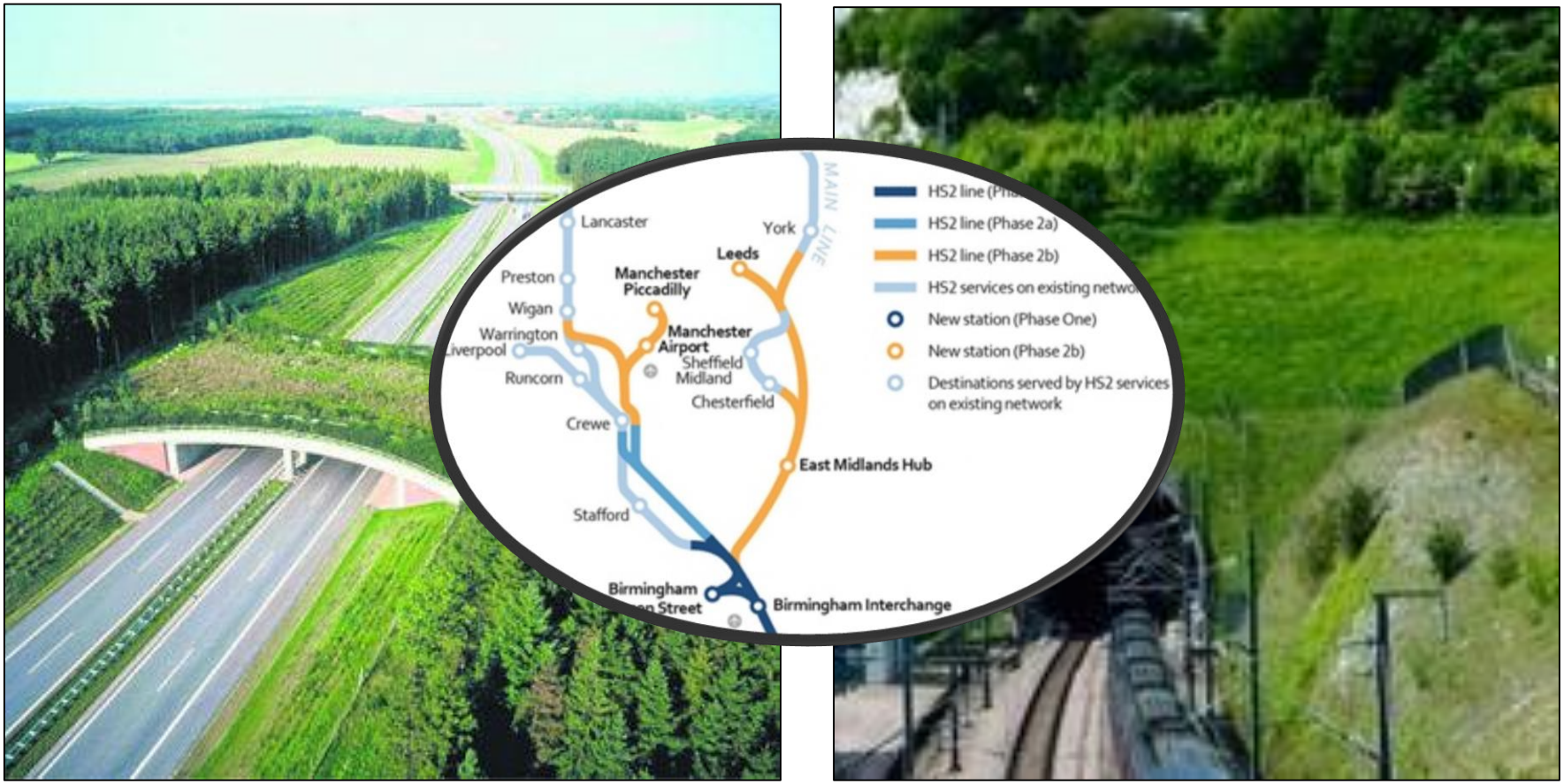

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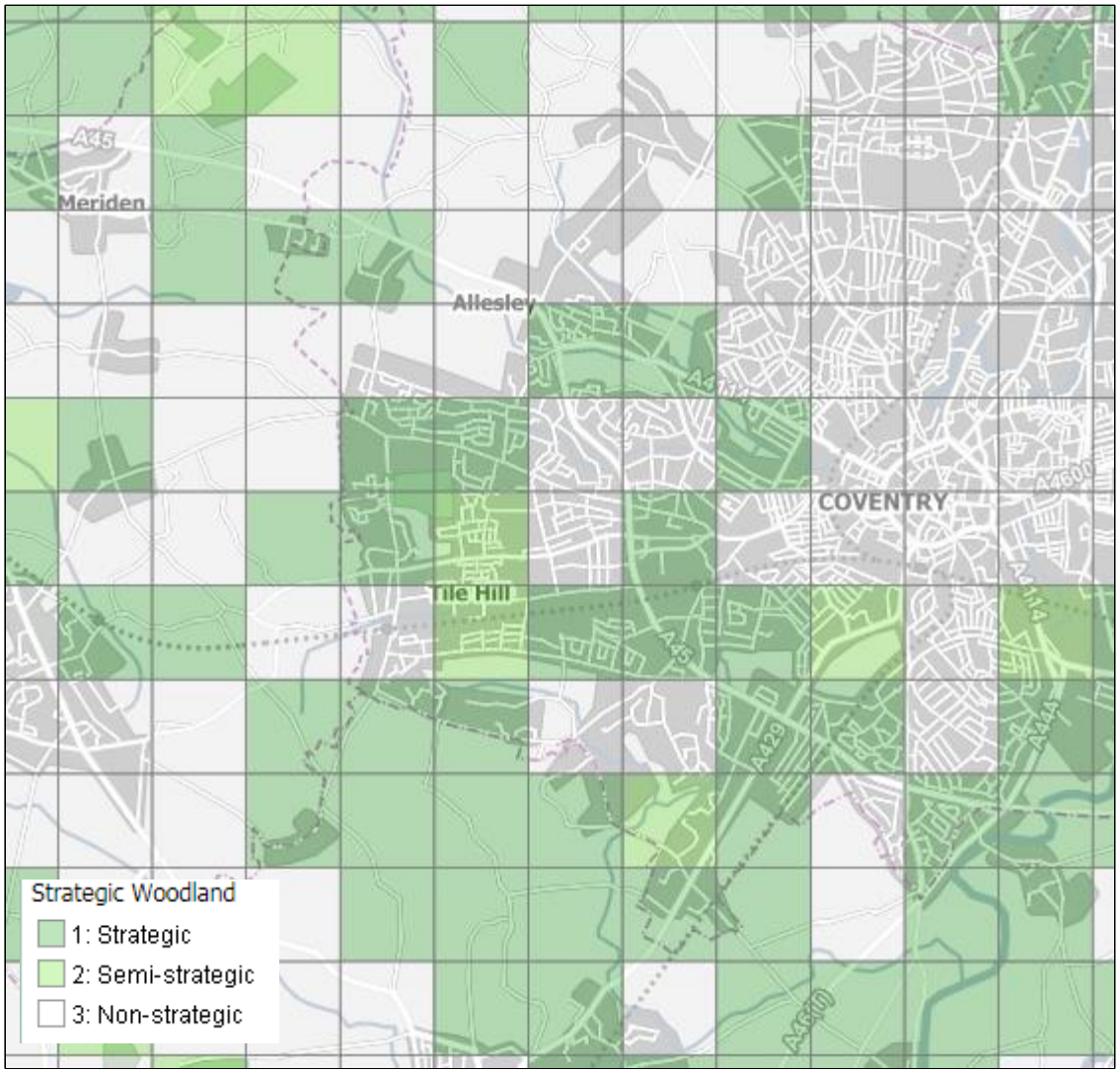

WCS core areas are currently determined by % habitat cover.

Vectorised output could be used to create ‘strategic zones’ to steer habitat creation into areas in need of connectivity.

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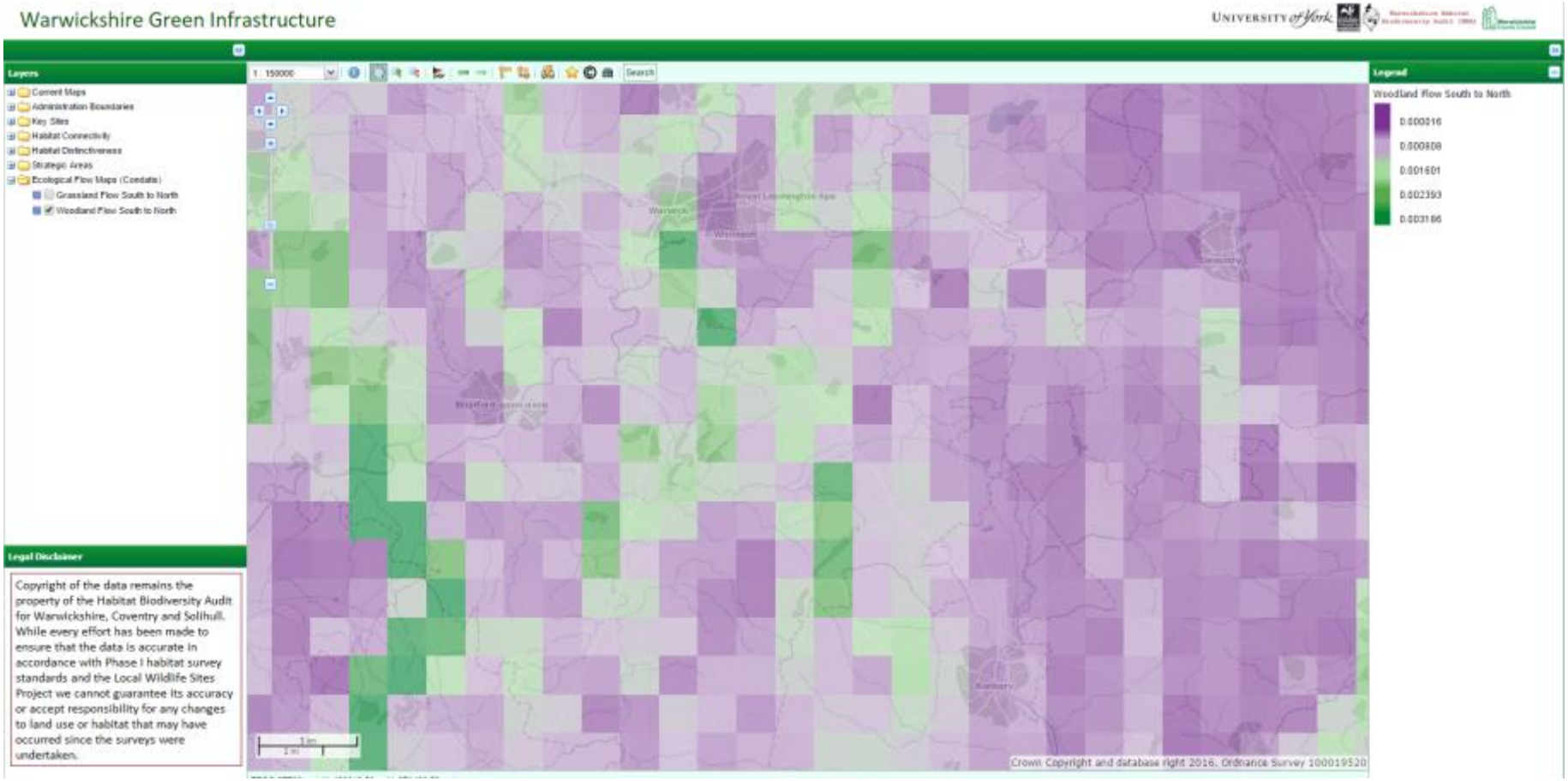

A few limitations…

A few thoughts

- Processing time no longer a problem – web app has resolved this.
- Condatis valuable as a illustrative tool. Results still need to be validated and explained in context to inform decision making.
- Variation in outputs associated with source/target location in combination with islands and coastlines. More pronounced with grassland habitats
- The government's 25 year plan states that a 'Nature Recovery Network' should be established.

Some ideas for future work:

- Standardise and vectorise outputs to define strategic flow routes
- Run models with more recent habitat data: 2015 Landcover data
- Flow maps for more specific habitat types i.e. ancient woodland,
- Wetland habitats, *i.e.* pond density/km^2