Trialling a national approach using Condatis, and the tool's place in our Ecological Networks Handbook

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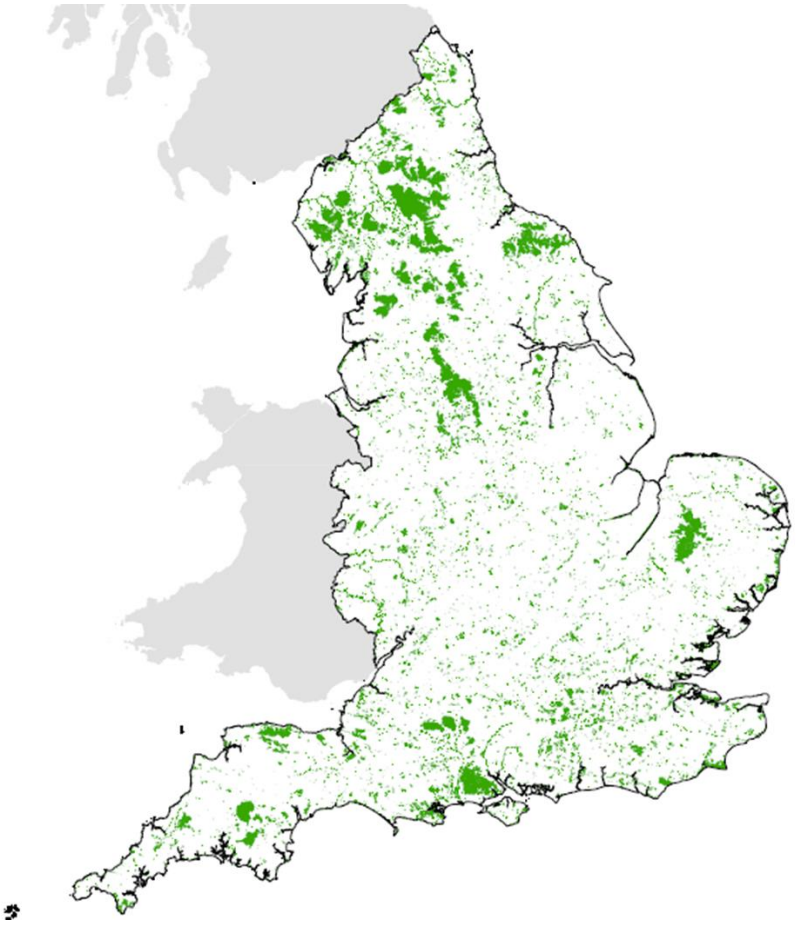
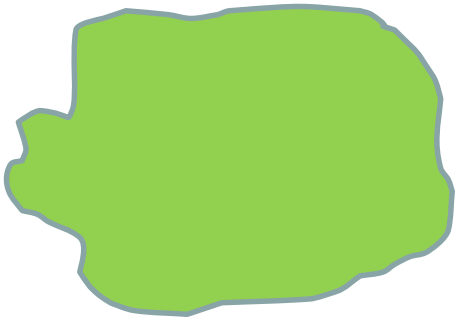
www.gov.uk/natural-england

Background

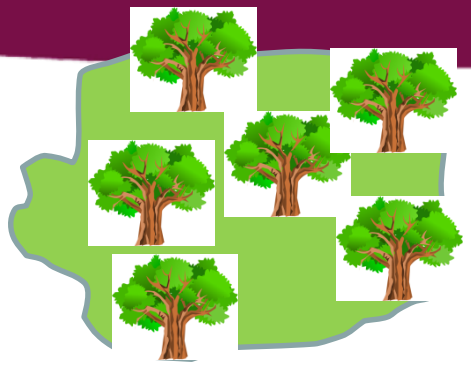
- 25 Year Environmental Plan
  - Nature Recovery Network
- But….
  - What does one look like?
  - How does it work at different spatial scales



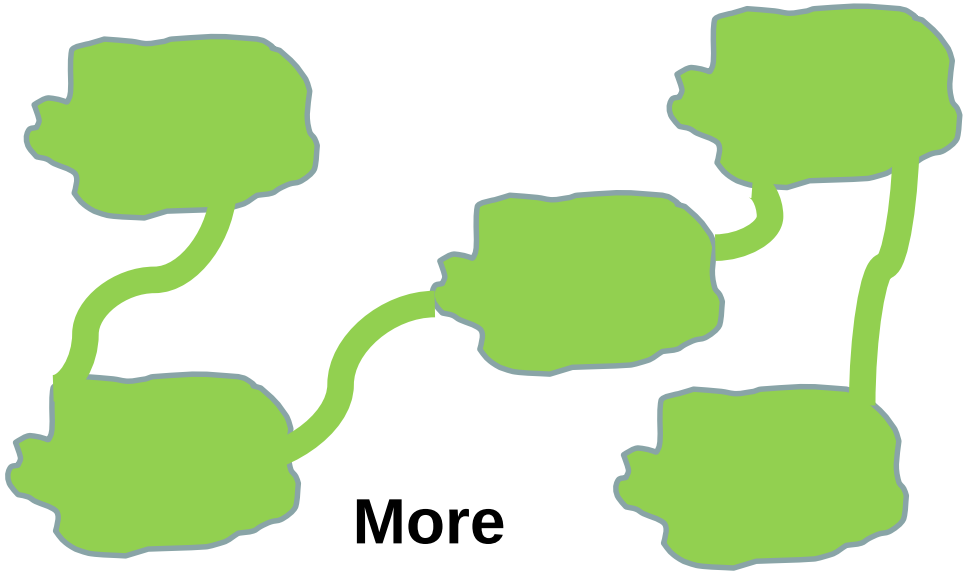
The Lawton et al. mantra



Bigger



Better



More

Joined

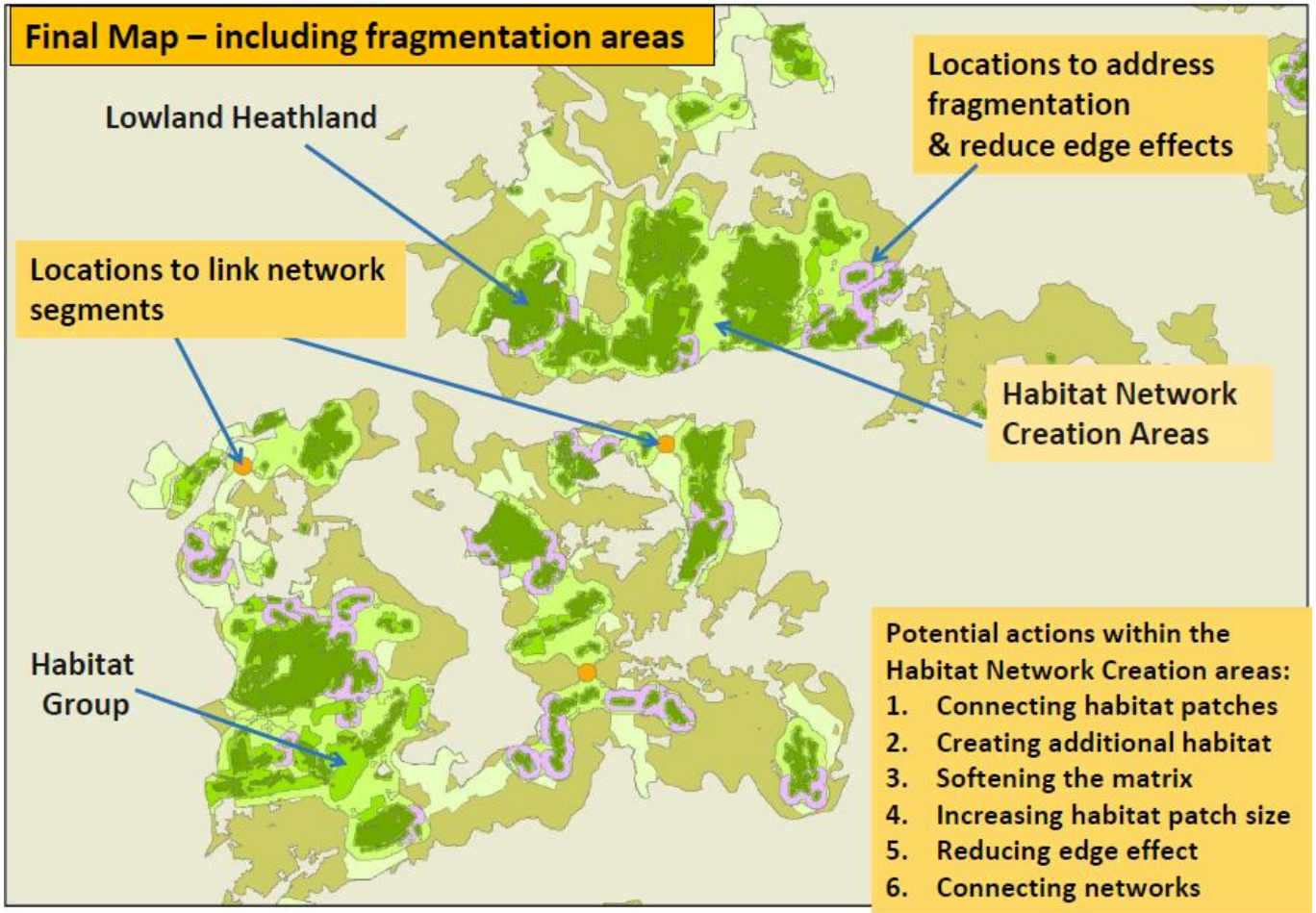
But….

- We have lots of questions about how to design ecological networks:
  - How big is big enough?
  - Are our current sites in the best place?
  - Where will we need new sites?
  - Bigger vs. more & how joined?
  - How to cope with the needs of different taxa?

Ecological Networks Handbook

- **To produce a clear and accessible summary of practical evidence to help conservation practitioners design ecological networks**
  - **1: overview of concepts, principles, definitions;**
  - **2: how to design ecological networks**
  - **3: ecological networks for people**
  - **4: a review of useful tools**

Thinking about where we need to concentrate our efforts….



Thinking about where we need to concentrate our efforts….

condatis

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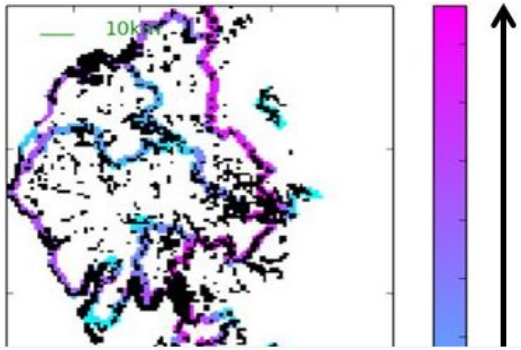
bigger, better and more joined-up habitat networks

Ecosystems are under threat worldwide and habitats are becoming more fragmented. Meanwhile, organisms interact with each other and the environment across long distances and, as the climate changes, will need to move to new sites as their old sites become unsuitable. Sites across a wide area can be thought of as an "ecological network" and to be really effective these networks need to be bigger, better and more joined up. This may require creation of new habitat or restoration of exisiting sites. Policy makers and nature conservation practitioners are increasingly thinking about conservation and biodiversity at large spatial scales, but continuing development leads to difficult decisions about how to prioritise habitat creation, restoration and even loss.

Condatis is a decision support tool to identify the best locations for habitat creation and restoration to enhance existing habitat networks and increase connectivity across landscapes.

Output from Condatis showing exisiting habitat in black and potential new habitat in colour. More pink colours indicate locations for restoration that will contribute more to north-south flow.

A clear route can be seen down the centre of the map in pink. Adding habitat in these locations will increase the overall connectivity from north to south, allowing species to move northwards, away from increasing temperatures.



RECENT POSTS

- Urban green infrastructure and Community forests meetings
- Connectivity and sustainable land use in rapidly developing, biodiversity-rich countries
- A 5-minute version of the latest Condatis paper
- First network meeting
- Welcome to the Condatis news blog

Tweets by @condatisKE

Condatis network
@condatisKE

Northern Forest of 50 million trees to be planted between Liverpool and Hull will connect the five Community Forests in the north of England. Wonderful news! @merseyforest

5h

22 habitat networks from PHI

NATURAL ENGLAND

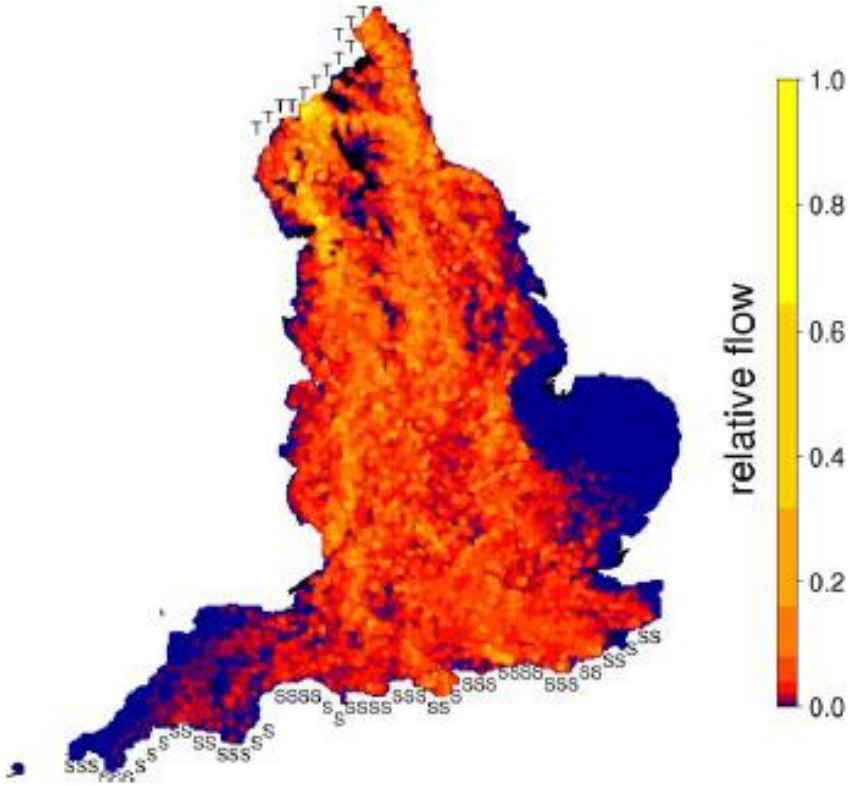
Table 1. Habitat networks identified for the present study in descending order of area.

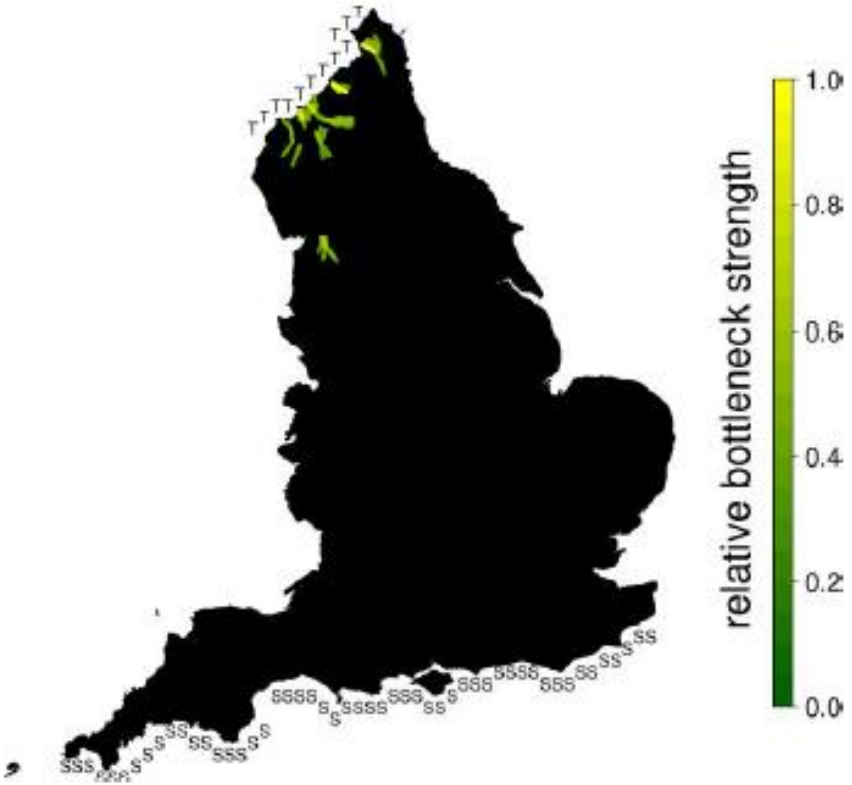
Habitat Network in Present Study	Code	PHI Main Habitat Type	Area (ha)
Deciduous woodland	DWOOD	Deciduous woodland	736511.0
Heathland	HEATH	Lowland heathland	56418.6
		Upland heathland	227646.3
		Mountain heaths and willow scrub	1411.2
Blanket bog	BLBOG	Blanket bog	230950.5
Coastal and floodplain grazing marsh	CFPGM	Coastal and floodplain grazing marsh	217556.5
Calcareous grassland	CAGRA	Lowland calcareous grassland	61856.6
		Upland calcareous grassland	9219.3
Mudflats	MUDFL	Mudflats	61260.7
Coastal saltmarsh	SALTM	Coastal saltmarsh	34111.1
Lowland meadows	LMEAD	Lowland meadows	21173.8
Lowland fens	LFENS	Lowland fens	20294.0
Traditional orchard	TORCH	Traditional orchard	16023.3
Lowland dry acid grassland	LDAGR	Lowland dry acid grassland	15178.9
Maritime cliff and slope	MCSLP	Maritime cliff and slope	13348.8
Coastal sand dunes	CSDUN	Coastal sand dunes	10227.2
Upland flushes, fens and swamps	UFFSW	Upland flushes, fens and swamps	10004.6
Purple moor grass and rush pastures	PMGRP	Purple moor grass and rush pastures	9104.8
Lowland raised bog	LRBOG	Lowland raised bog	7814.3
Coastal vegetated shingle	CVSHI	Coastal vegetated shingle	3984.6
Reedbeds	RBEDS	Reedbeds	3136.2
Upland hay meadow	UHMEA	Upland hay meadow	2439.1
Saline lagoons	SLAGO	Saline lagoons	1360.2
Limestone pavement	LPAVE	Limestone pavement	1267.8
Calaminarian grassland	CALAM	Calaminarian grassland	296.7

What they did….

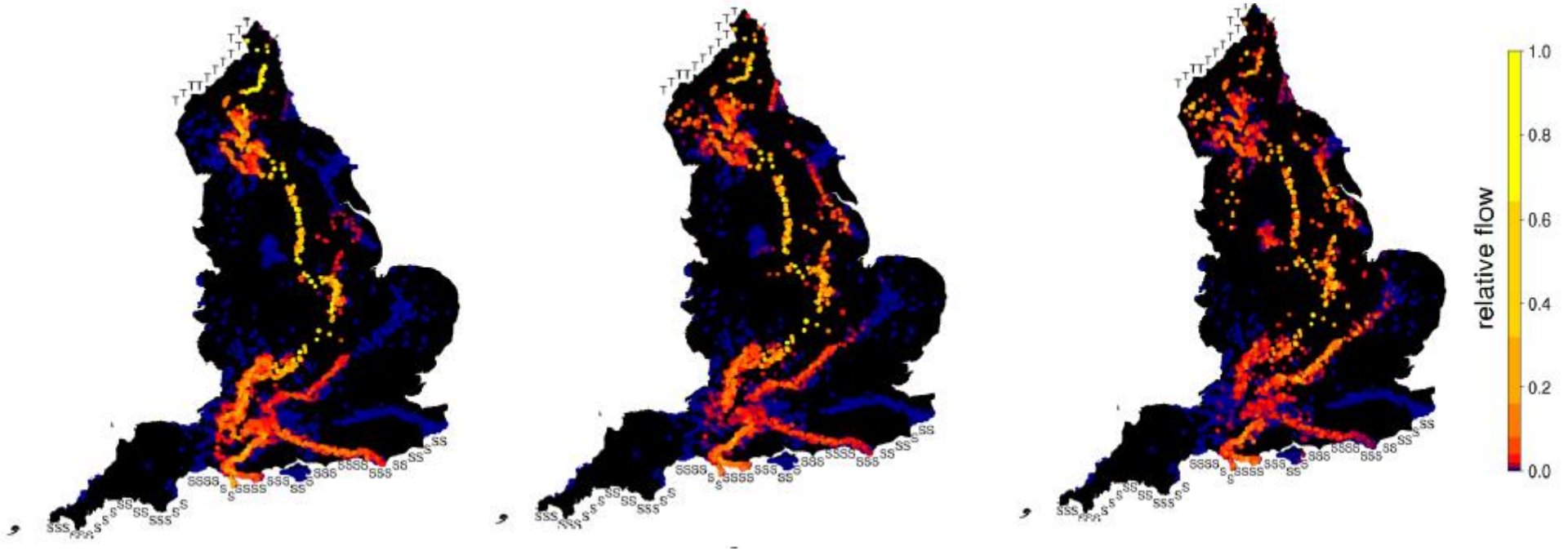
- South-north connectivity
- Looked at SSSIs and NNRs
  - What % of flow within PAs?
  - Where are the bottlenecks?
- How sensitive are the results to dispersal distance
  - 2,4,8 km

Results – Woodland 8km



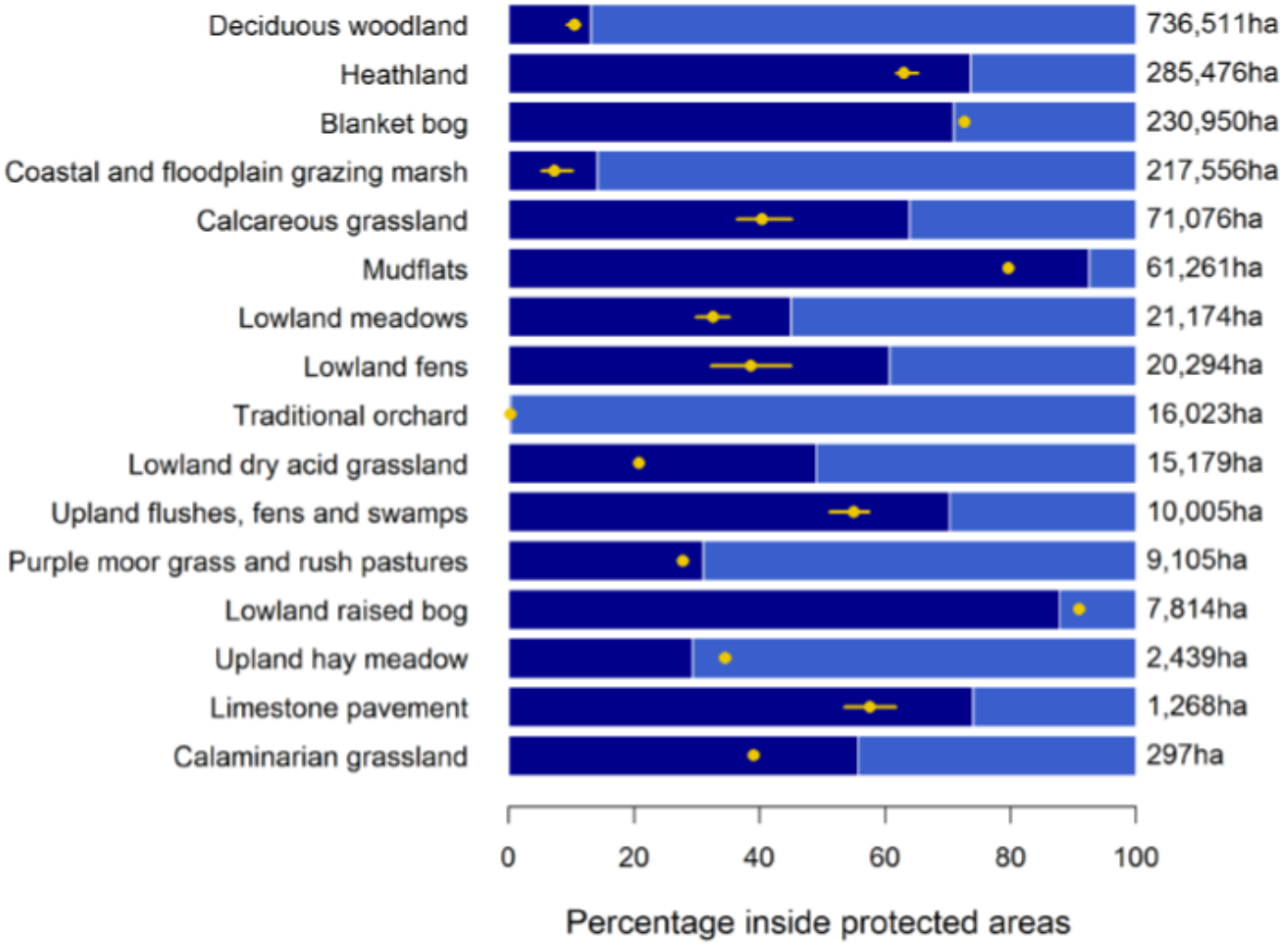


Main flows much the same with 2,4 8 km dispersal
eg calcareous grassland



Bottlenecks can difer with different dispersal abilities - eg heathland

How useful are PAs for connectivity?



Speed of flow through networks