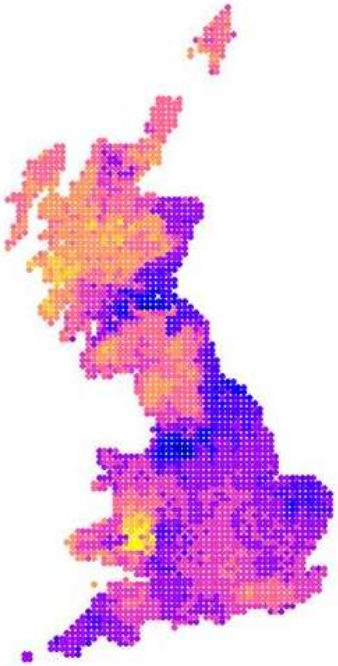
Plant recording and the BRC

Getting closer to the point in a world of squares



Oli Pescott
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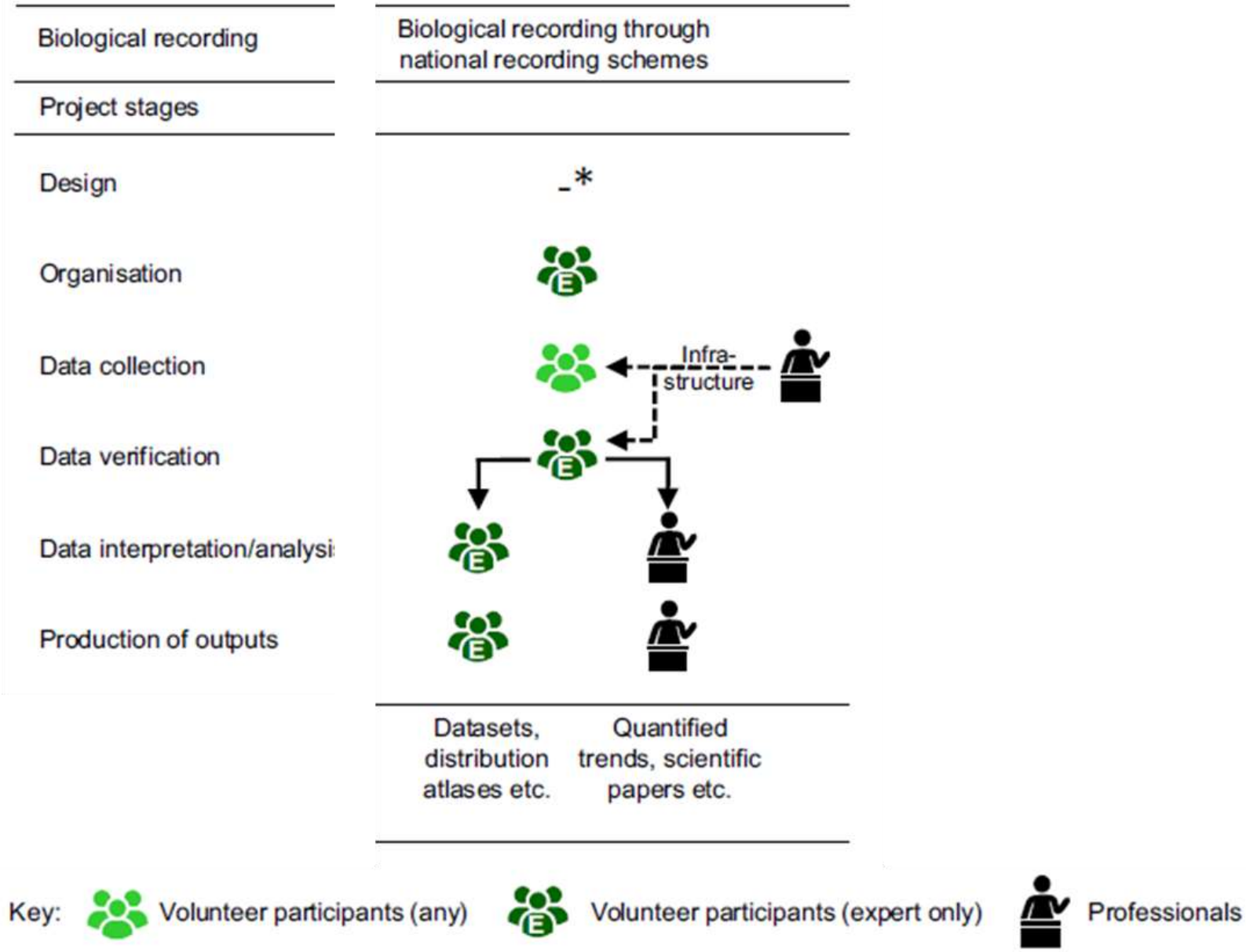

Figure adapted from Pocock, Roy, Preston & Roy (2015)

Future opportunities for collaboration

David Roy, BRC 50th (4 years ago)

- Atlases
- Measuring change and understanding causes
- Technology to support recording and verification
- Specific surveys to understand the impacts of new threats, e.g. non-natives, new diseases
- Establishing a (structured) National Plant Monitoring Scheme

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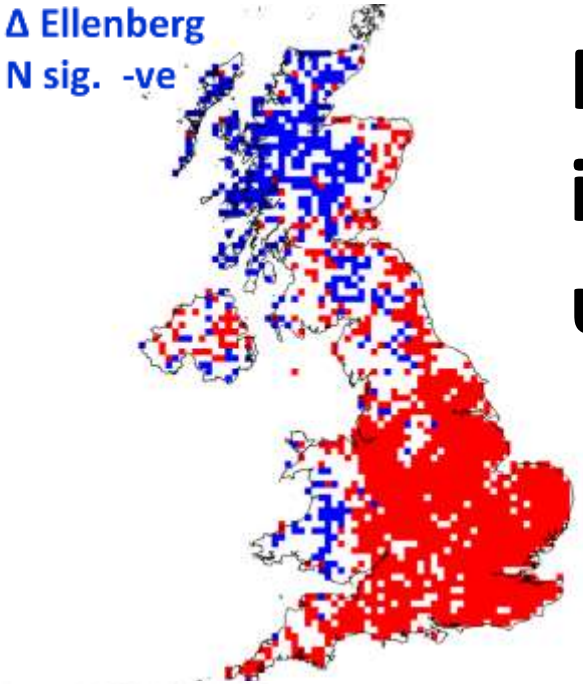
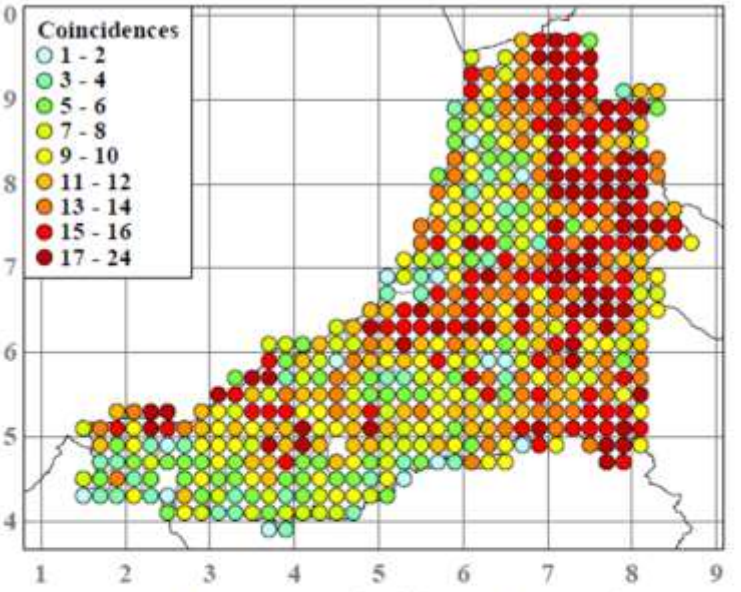


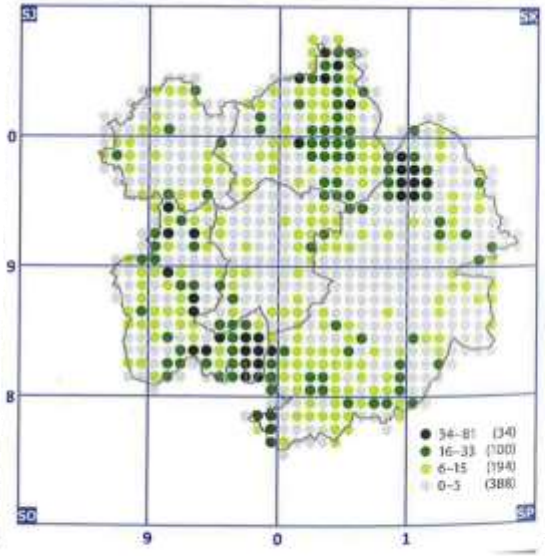
McClean *et al.* (2011) *Global Change Biology* **17**: 2882-2892

Plenty of innovative uses!

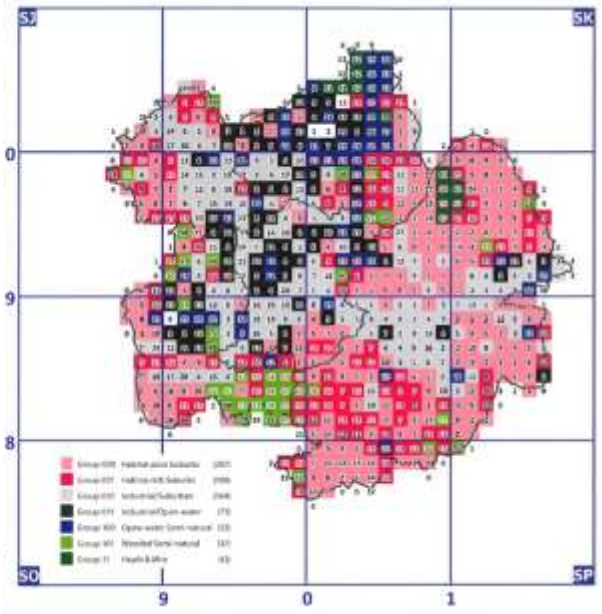
Δ Ellenberg
N sig. +ve



Map 11: Coincidence map of natives of heathland (BH10)



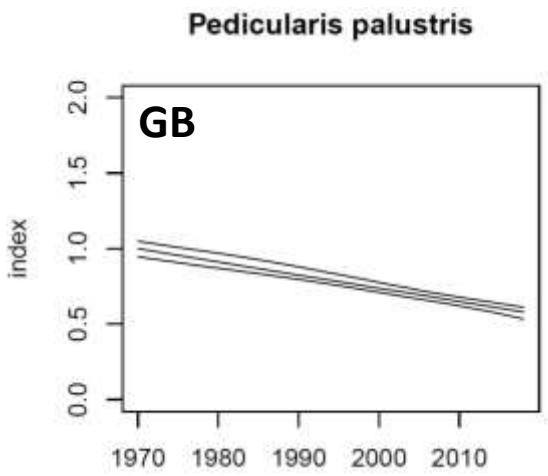
Trueman (2013) in Trueman *et al.* (2013) *Flora of Birmingham and the Black Country*

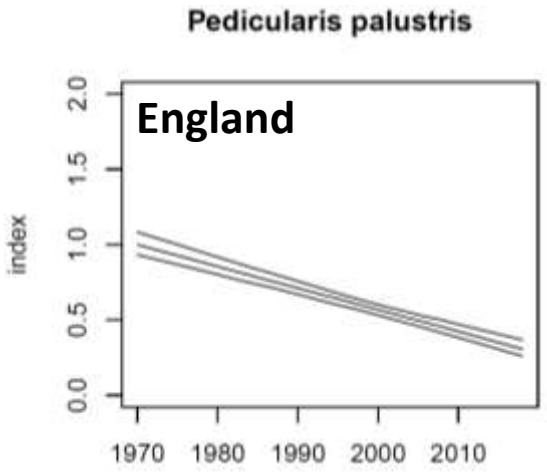


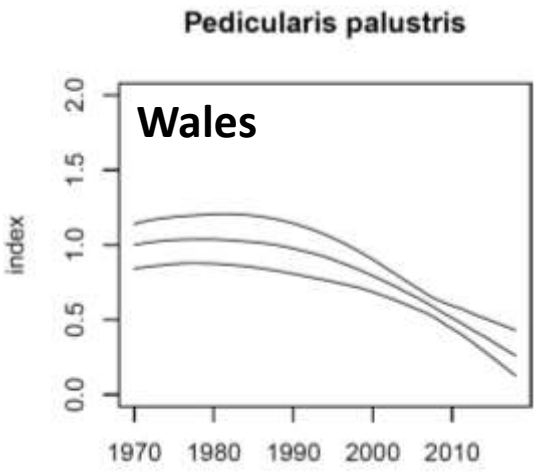
Preston *et al.* (2010) in Chater (2010) *Flora of Cardiganshire*

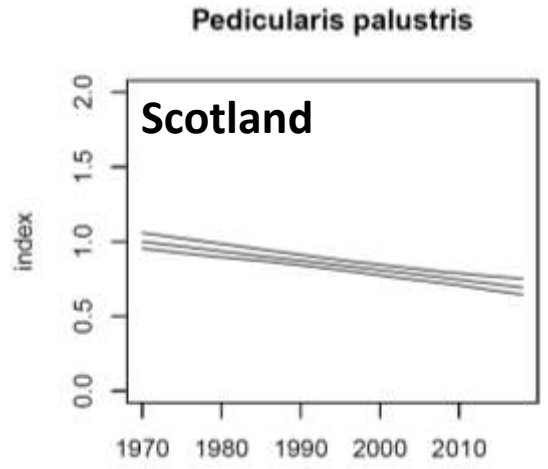
New national trends, accounting for recording effort

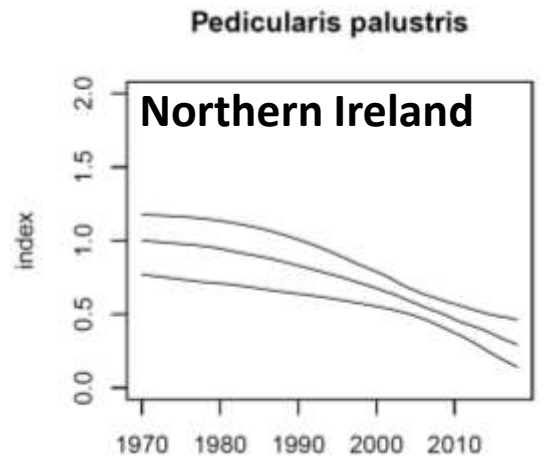
Mark Hill's Frescalo, followed by 100 GAM fits to capture uncertainty and interpolate











Pescott, Walker, Stroh, Powney (unpublished)

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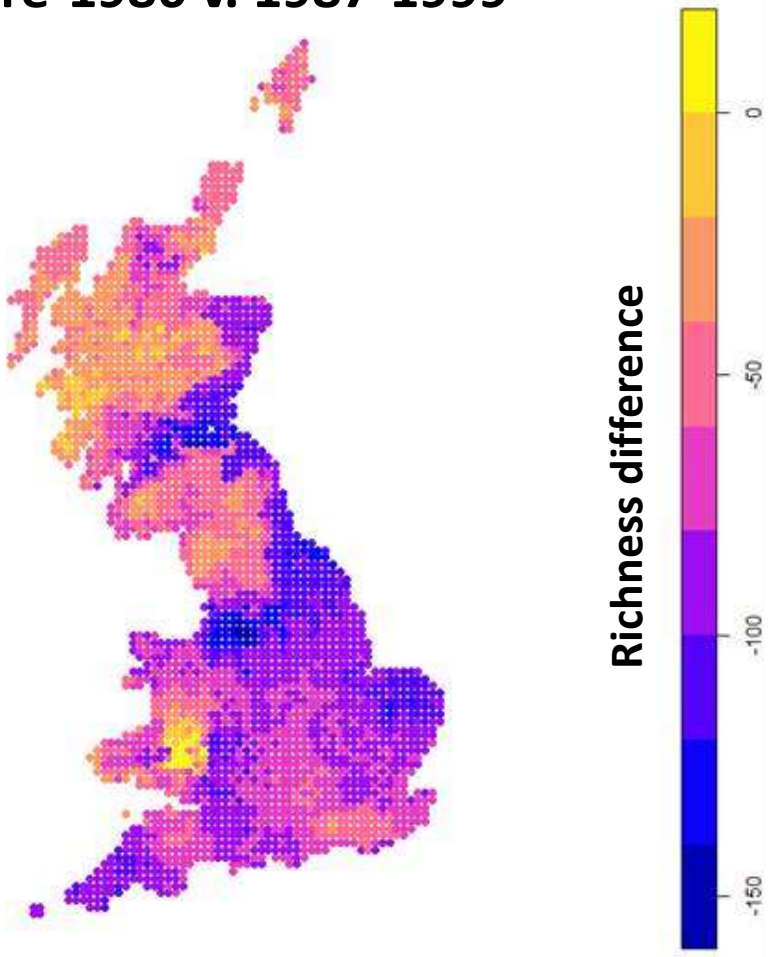
state of nature

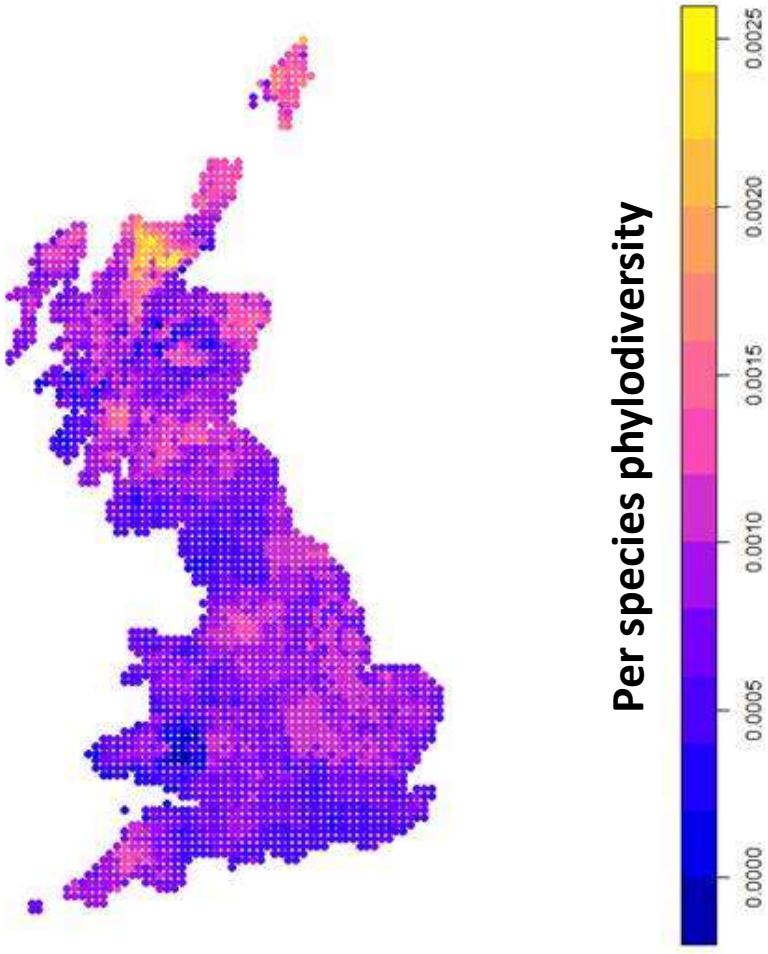
Botanical Society of Britain & Ireland

Also after accounting for recording effort…

Widespread loss of native/archaeophyte species richness: pre-1986 v. 1987-1999



Remaining species relatively more isolated on the tree of life



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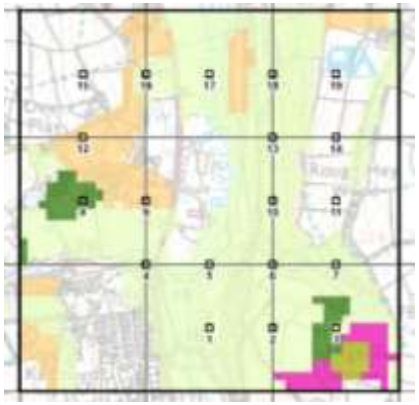
Pescott, Powney, Schmucki (unpublished)

Plot-based recording

- Desire for national overviews
- Coverage of a range of habitats
- Not <u>primarily</u> about site-level change

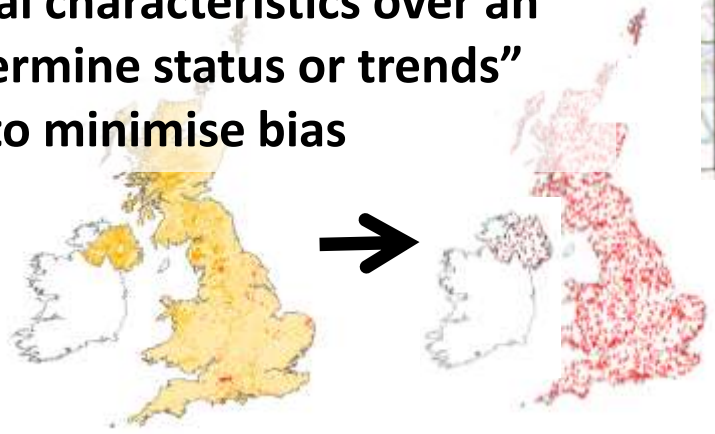
- All species, or
- Indicators

National Plant Monitoring Scheme

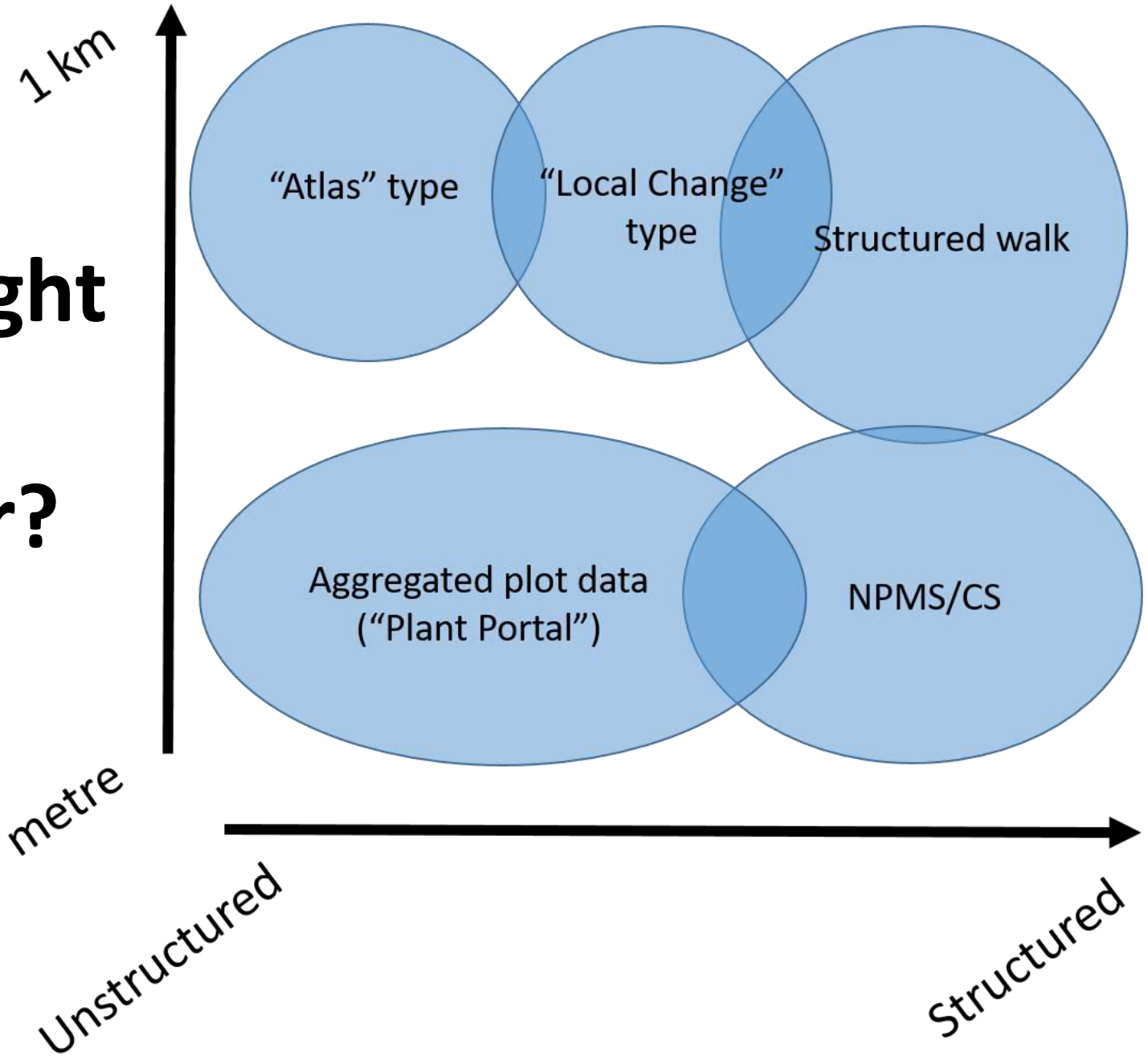


- "Measurement of environmental characteristics over an extended period of time to determine status or trends"
- Repeatable methods designed to minimise bias

  - ✓ Stable set of 1 km squares
  - ✓ Selection methods known
  - ✓ Plots in known locations



How might it all fit together?



Estimating abundance not occupancy?

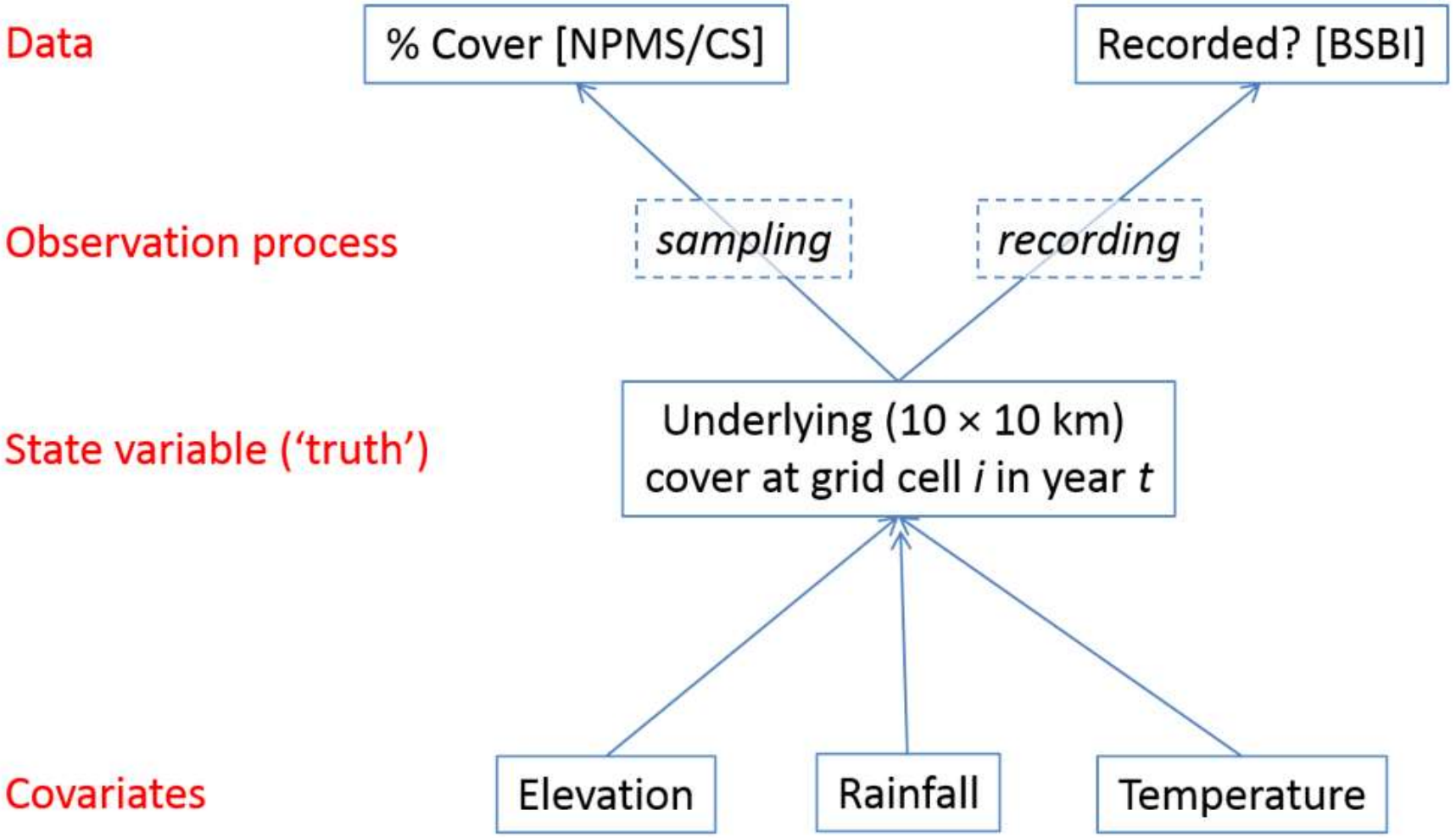


Figure 9. The conceptual underpinning of a hierarchical Bayesian model for integrating small scale abundance data, such as is collected by the NPMS, with large scale distribution data (i.e. 'atlas-style' data) for plants.

Pescott et al. (In press)

Estimating abundance not occupancy?

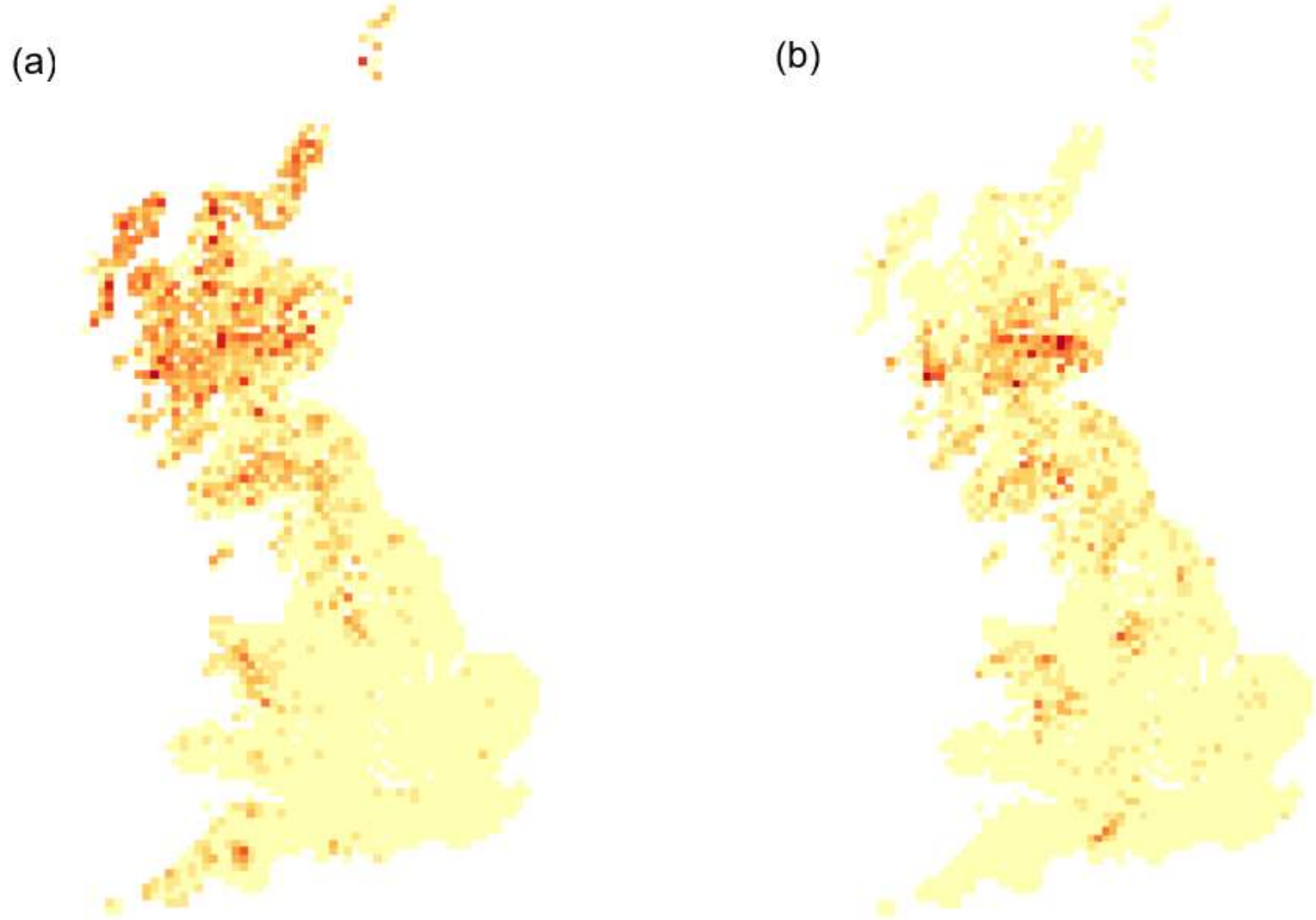
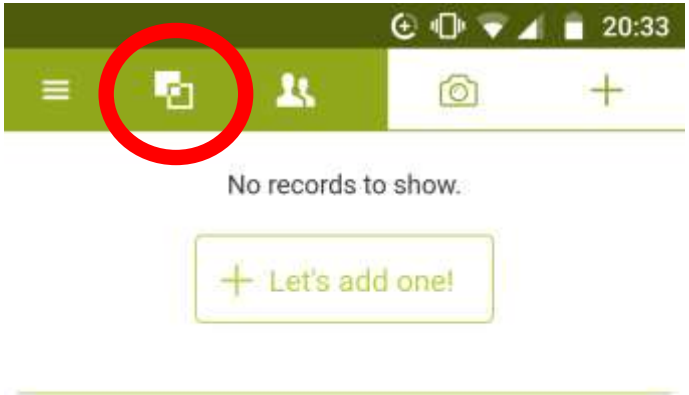
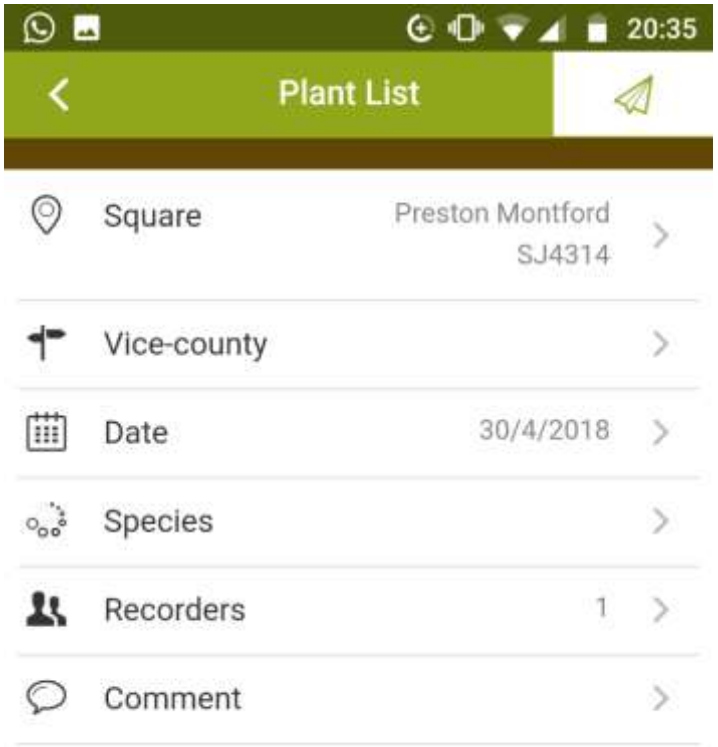


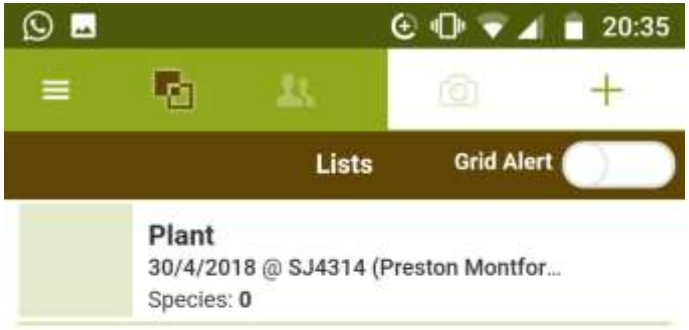
Figure 10. Maps of the abundance (percentage cover at 10 × 10 km) for (a) *Calluna vulgaris* and (b) *Campanula rotundifolia* as estimated by our most complex hierarchical Bayesian model.

Pescott et al. (In press)

Plant grid mode in the iRecord app







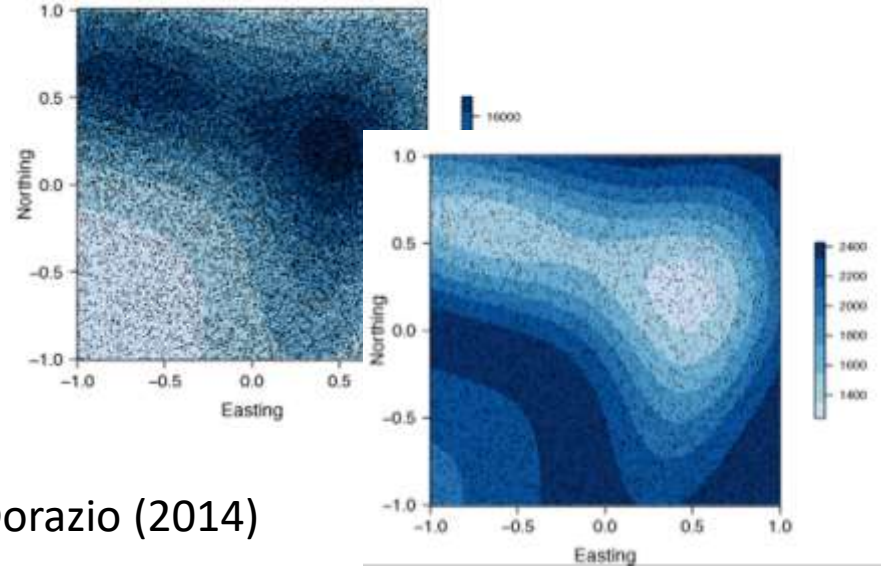
Apps: Analytical opportunities

- Effort tracking
  - Complete (within taxon group) checklist?
  - Distance walked
  - Time spent

→ Better estimates of species' (per visit) detectabilities (adjust for 'missed' records)

→ Real information on ground covered

→ Potentially better link to actual underlying abundance



Dorazio (2014)

Thanks to…

…all volunteer recorders & co-ordinating organisations

Botanical Society of Britain & Ireland

JNCC
Joint Nature Conservation Committee

BRC Biological Records Centre

CEH Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL

iRecord

Indicia