



National Plant Monitoring Scheme



Oli Pescott (olipes@ceh.ac.uk), Kevin Walker (BSBI), Julie Day (JNCC), Felicity Harris (Plantlife) *et al.*

Q: So, what is the NPMS then?

Me: It's a structured scheme focusing on recording the abundances of species within small habitat plots

Q: Why do you want to do that?

Me: Avoid bias ... small scale ... plant communities ... environmental change...

Q: ???*

*Other responses are available



**National Plant
Monitoring Scheme**

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

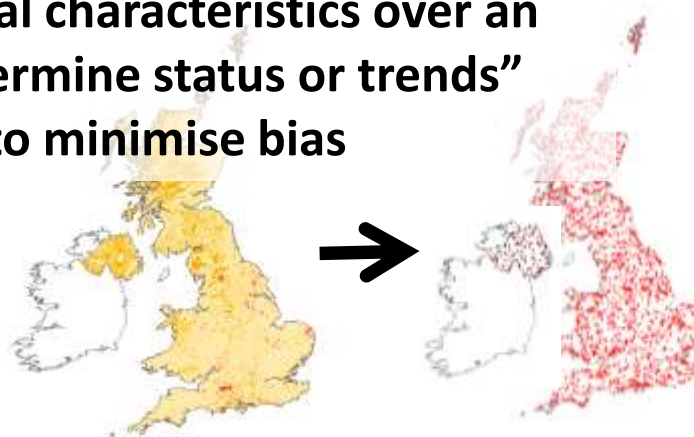
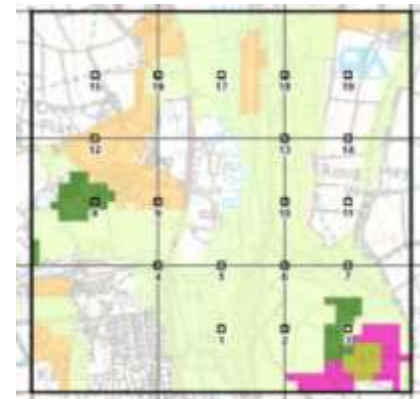


- All species, or
- Indicators



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



Trying to avoid bias – why bother?

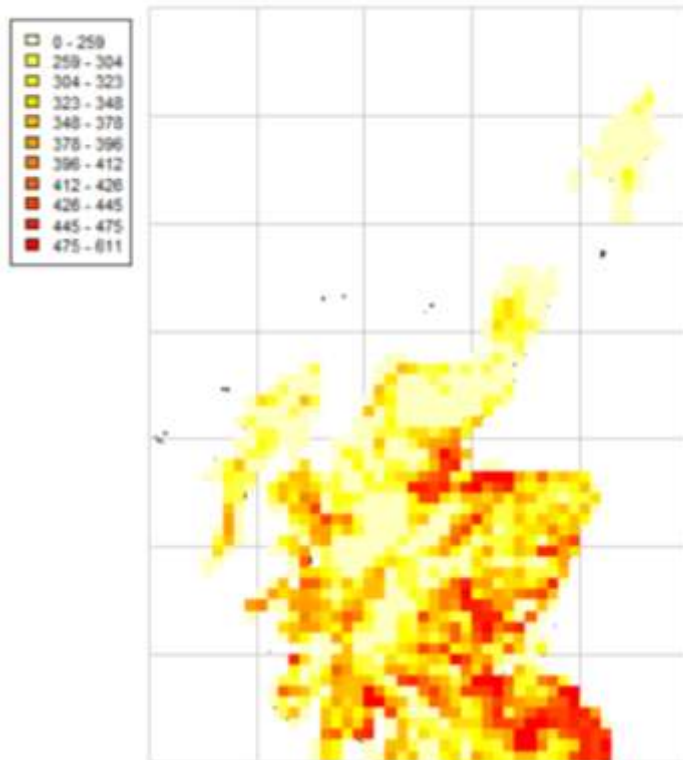
“Atlas” (biased)
data at large scales



Complex model with
some assumptions

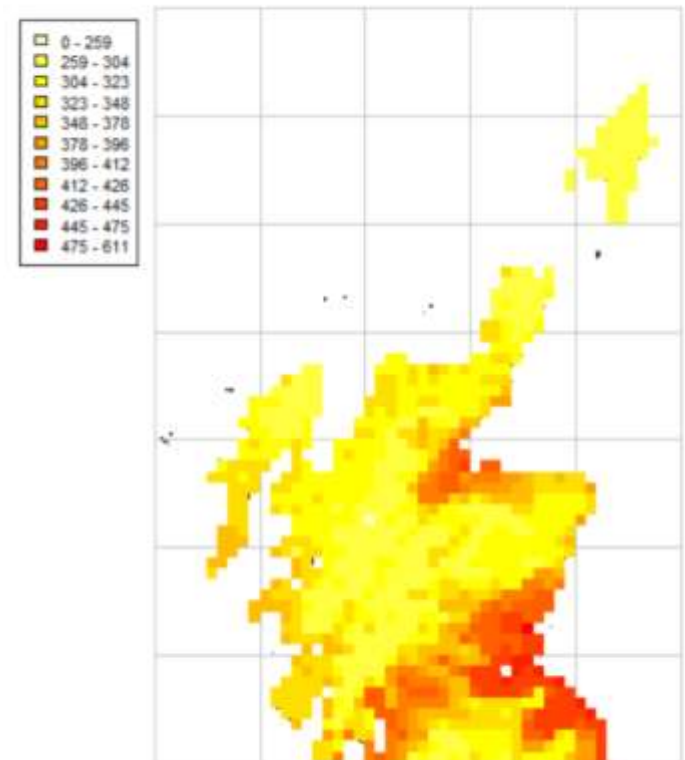
Conclusions/
inferences

Recorded (native/archaeo) richness 2000-2017



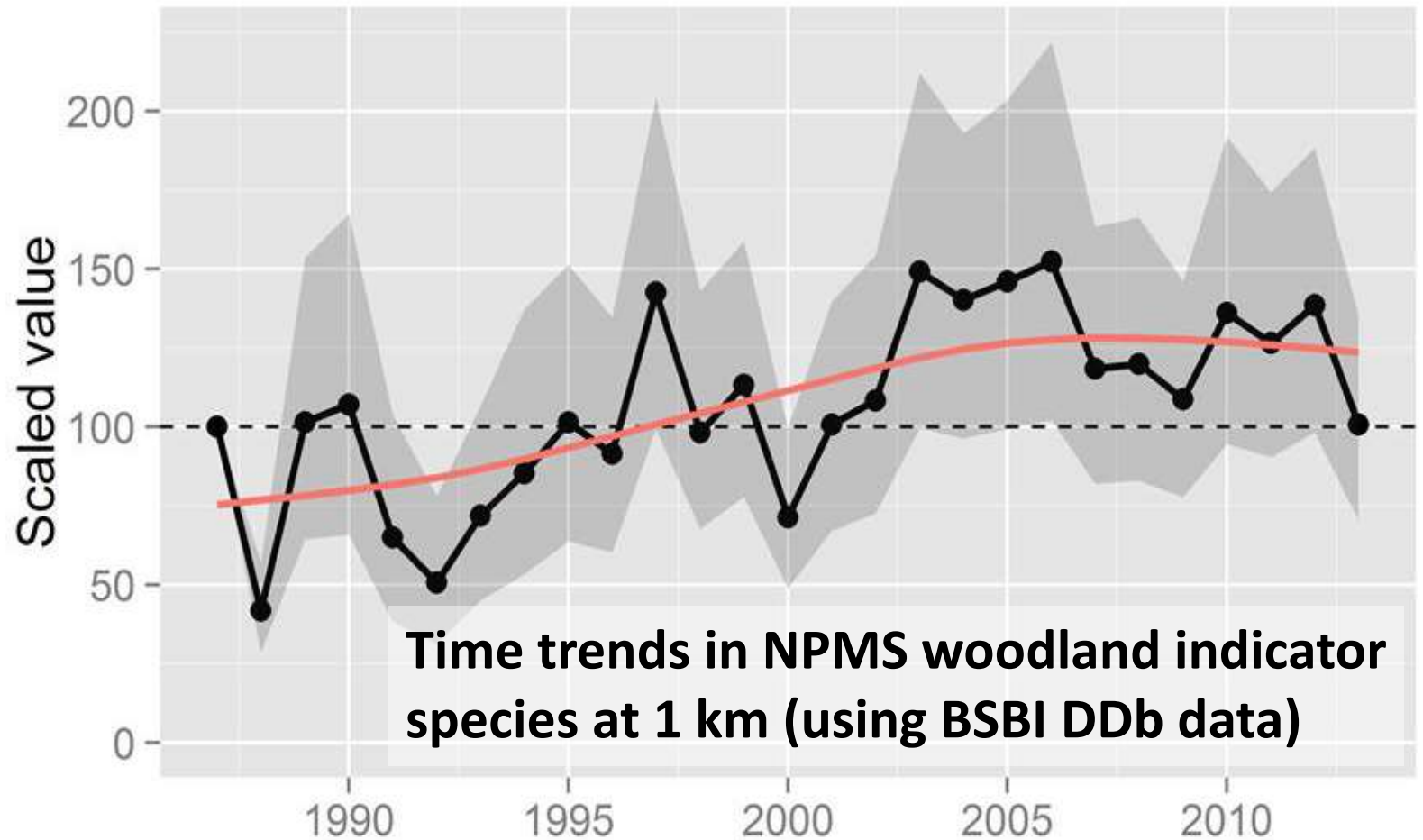
Local frequency
scaling model
("FreScaLo";
M.O. Hill, 2012)

Estimated (native/archaeo) richness 2000-2017



Habitat quality

- Distribution data: indirect & at the wrong scale
- Not an ideal approach



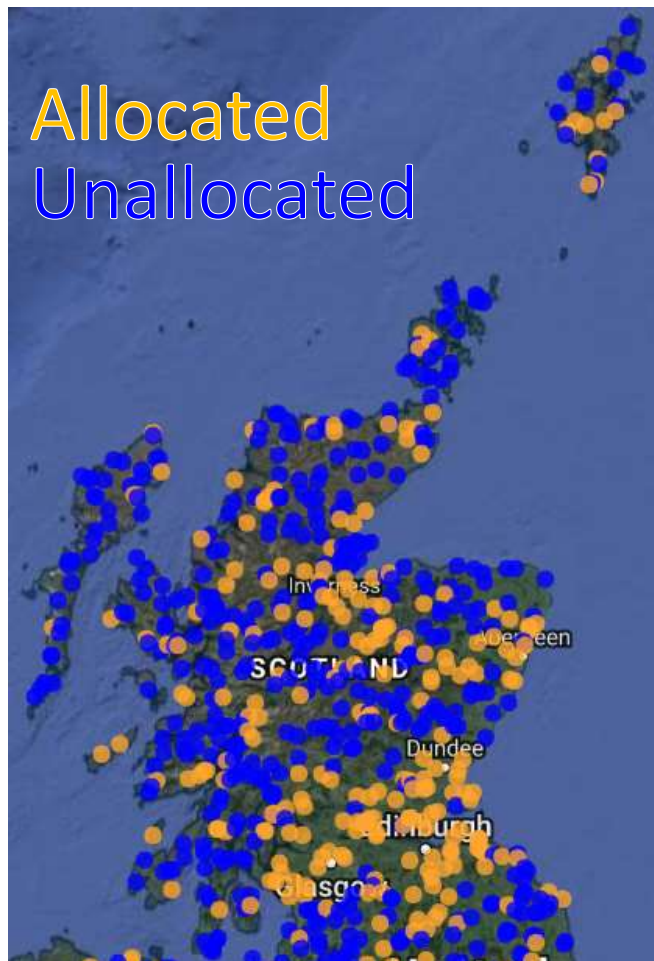
Representing habitat quality

- Needs representative sample of plots
 - i.e. covering all existing conditions, not just “nice” places
- This is the reality of understanding environmental change across large areas



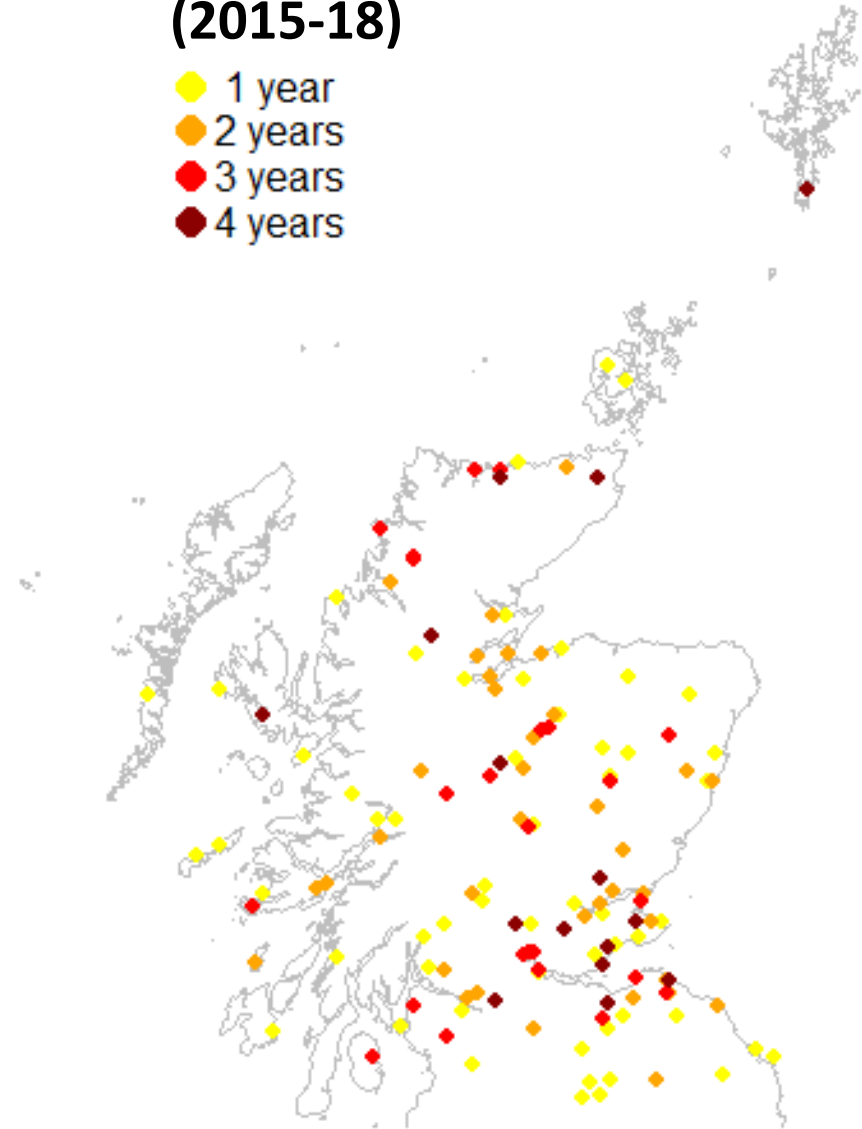
Where do we currently have samples in Scotland?

Currently allocated monads
(Not necessarily surveyed)



Number of years of data
(2015-18)

- 1 year
- 2 years
- 3 years
- 4 years





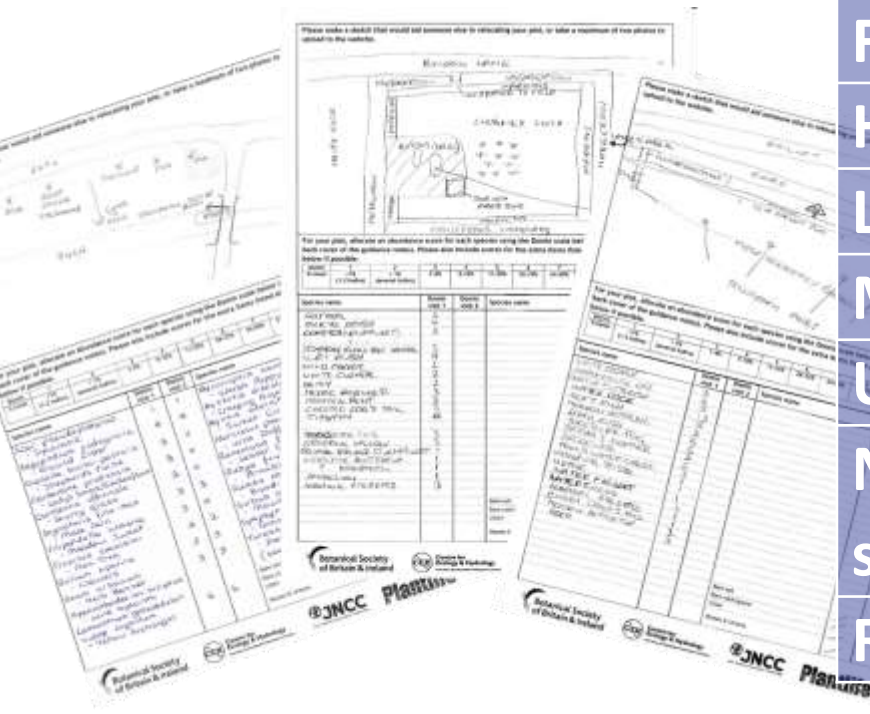
What types of samples?

Scottish plot visits: 2015-17

| | |
|------------|-----|
| Wildflower | 354 |
| Indicator | 521 |
| Inventory | 651 |

Scottish habitat samples: 2015-17

| | |
|---------------------------------|-----|
| Arable margins | 53 |
| Bog & wet heath | 167 |
| Broadleaved woodland etc. | 242 |
| Coast | 287 |
| Freshwater | 88 |
| Heathland | 111 |
| Lowland grassland | 337 |
| Marsh & fen | 89 |
| Upland grassland | 29 |
| Native pinewood & juniper scrub | 78 |
| Rock outcrops, cliffs & scree | 30 |



Future data uses



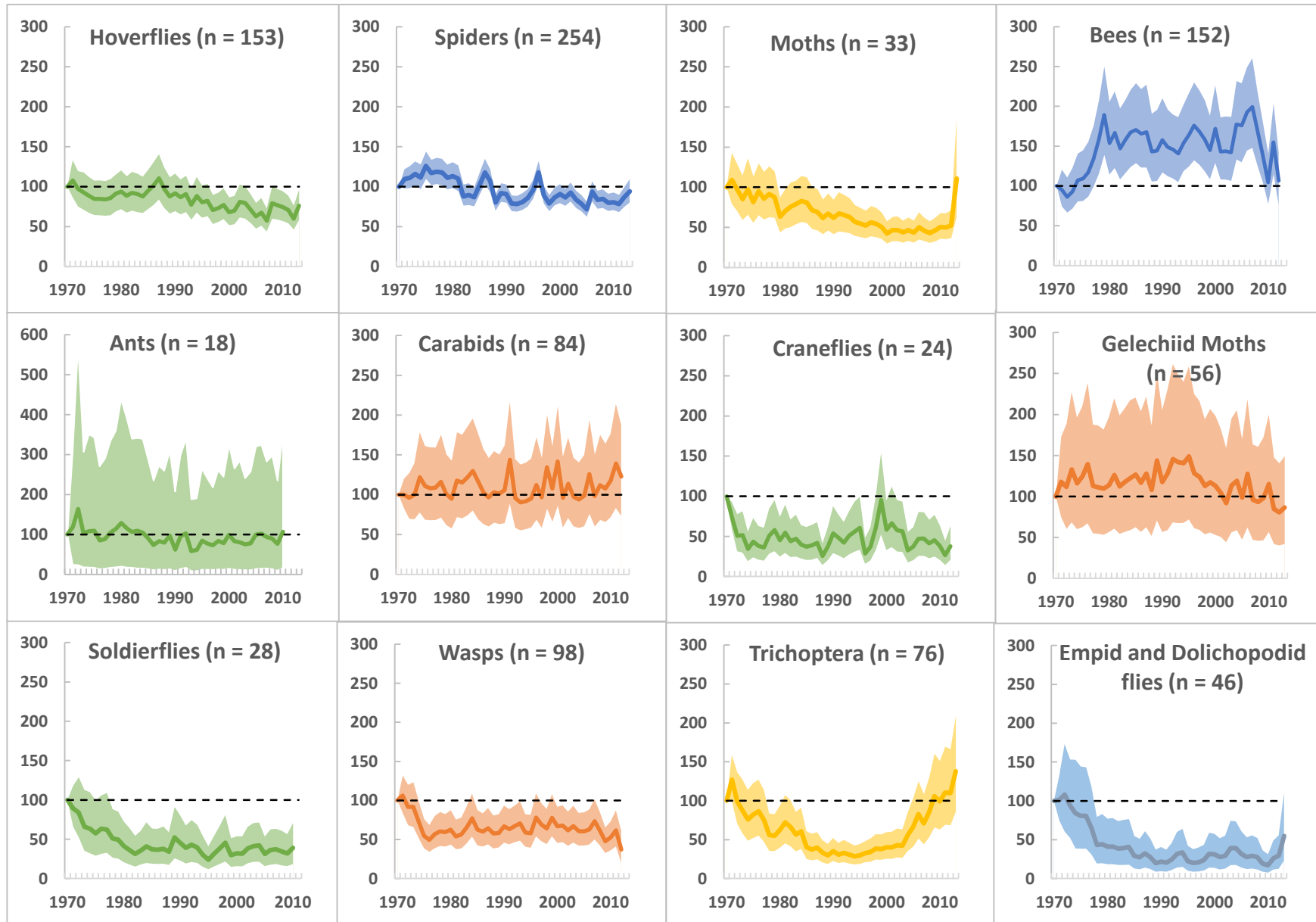
National Plant
Monitoring Scheme

- Trends in individual species and communities
- Species richness/diversity at small scales
- Management data
- Habitat structure data
- Maps
- Plot photo library
- Links to other species groups? Soils? Collections for DNA sequencing?

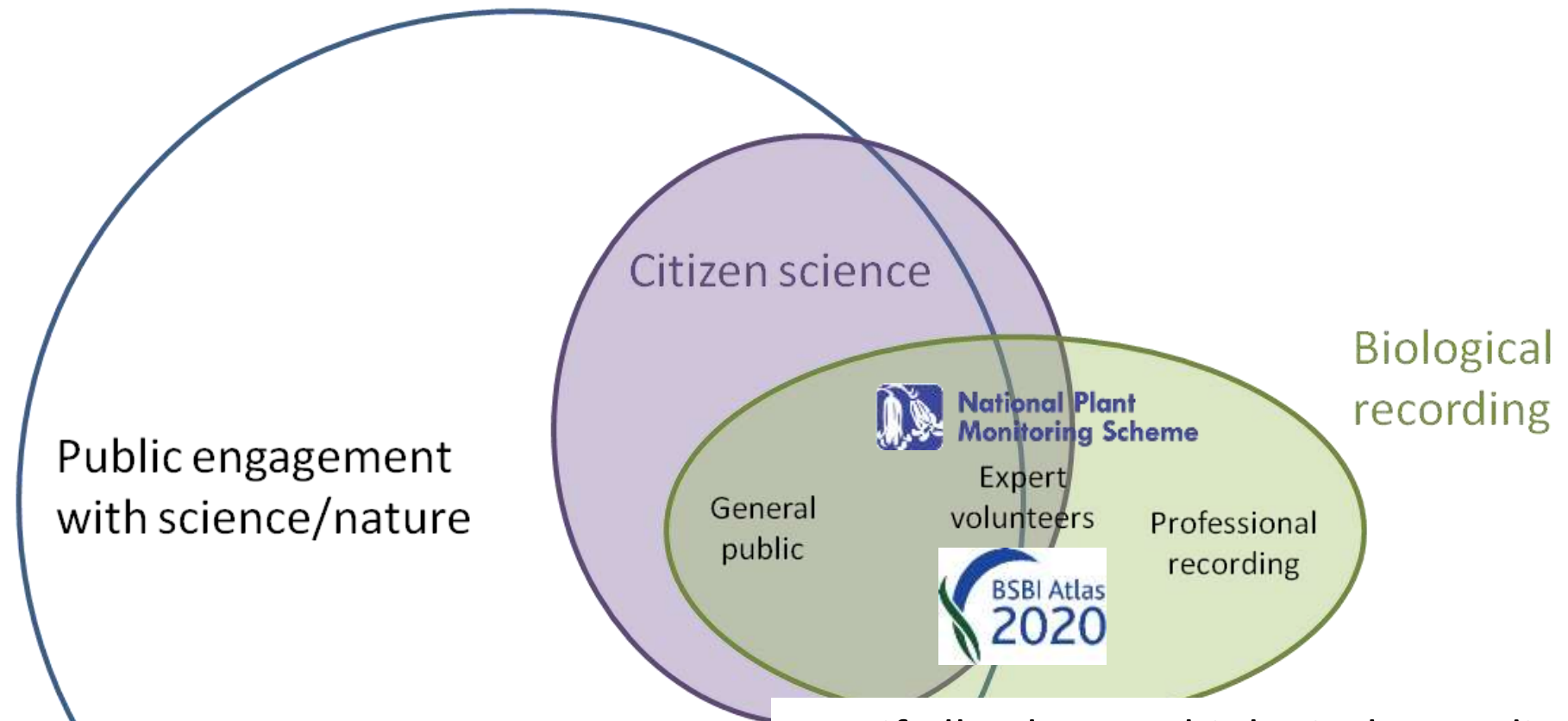


'State of nature' reports

Index Value (1970 = 100)



But is it citizen science?



Yes, if all voluntary biological recording is citizen science

OR

Partly, if citizen science is defined as slightly broader engagement (but only as much as a beginner/improver engaged in Atlas/distribution recording!)

Acknowledgements

All volunteer recorders &
co-ordinating organisations



For additional presentation material:
Michael Pocock, Charlie Outhwaite