Is *Liparis loeselii* a 'typical species'?

And why we should care….

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Essentials for any monitoring project

We must be

- Confident that we will obtain a consistent result - regardless of who the recorder is;

And

- Confident that this result is the correct result

This is especially true if we are likely to make a management response as a consequence of the monitoring result

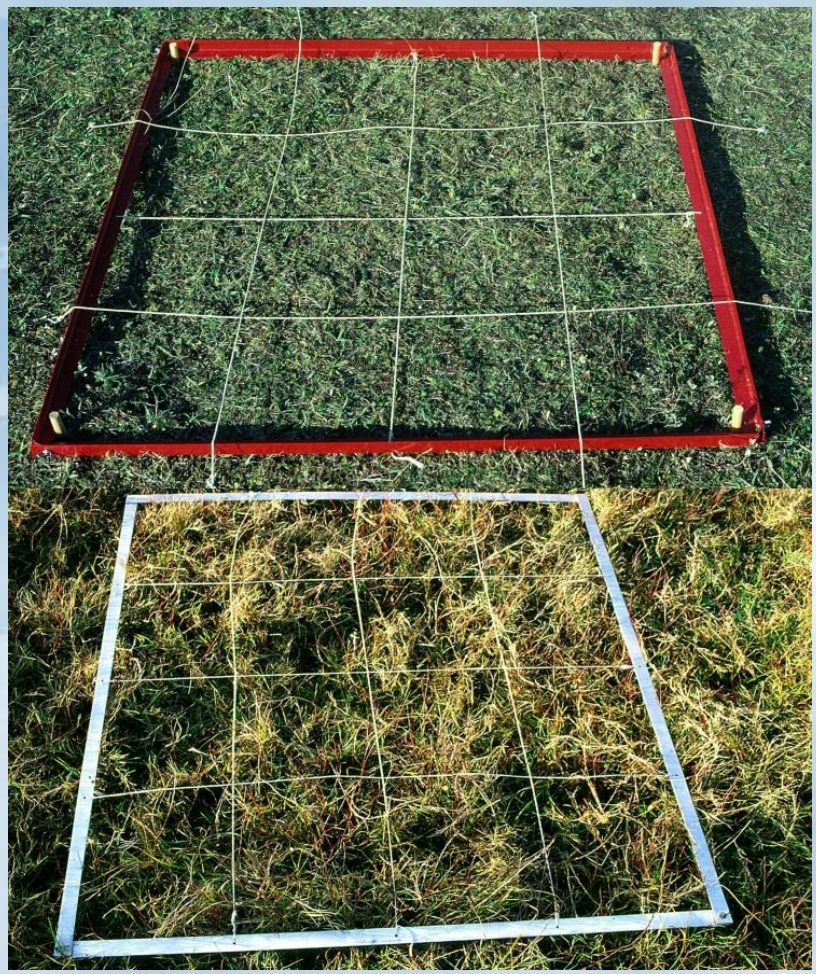
UK guidance for monitoring habitats has tended to focus on:

Estimates of vegetation cover

- Typically the cover of individual species, but also groups of species such as grasses and herbs

The diversity of plant species

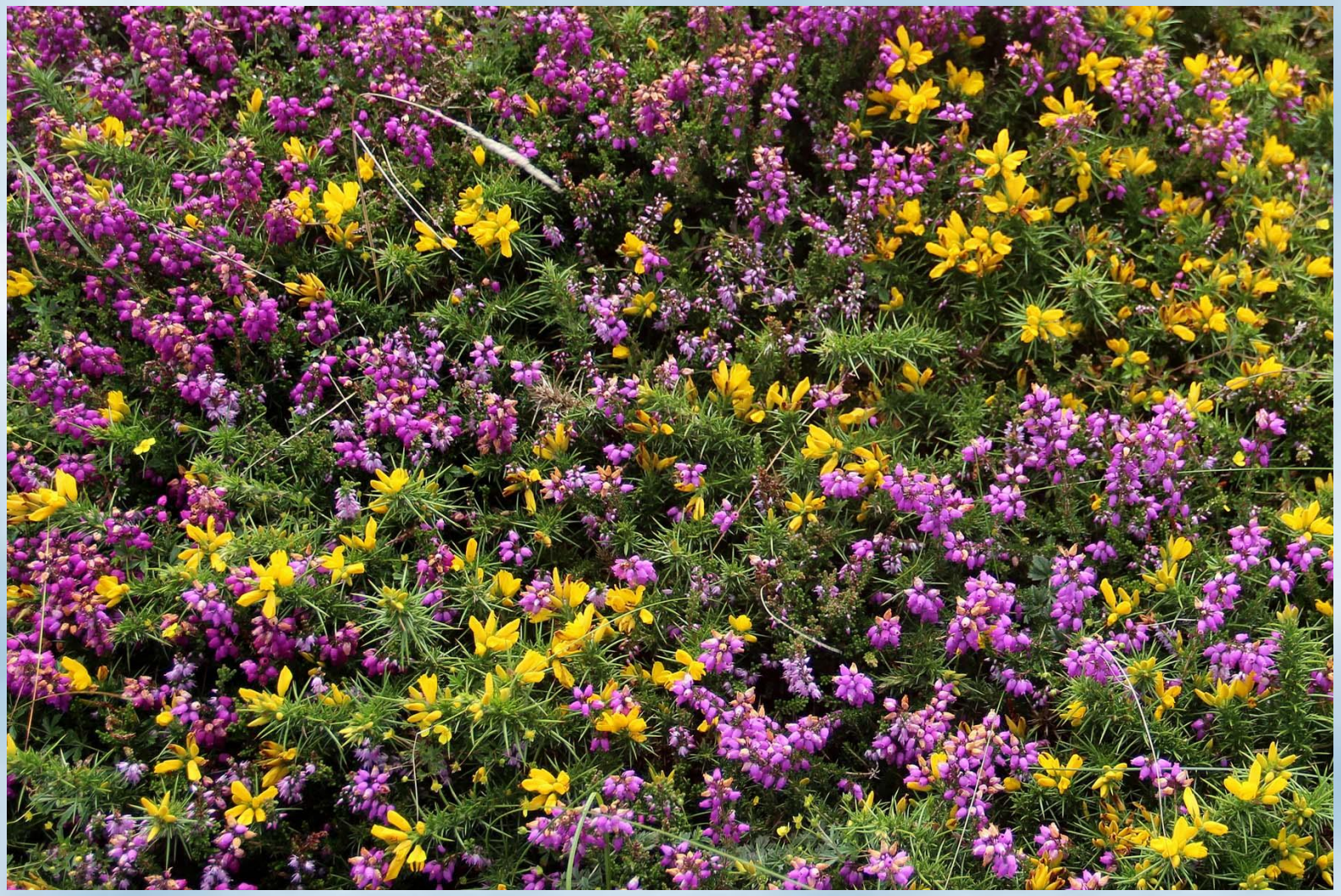
- Often based on a subset of the plant species generally recorded in the habitat type



However, before adopting these attributes….

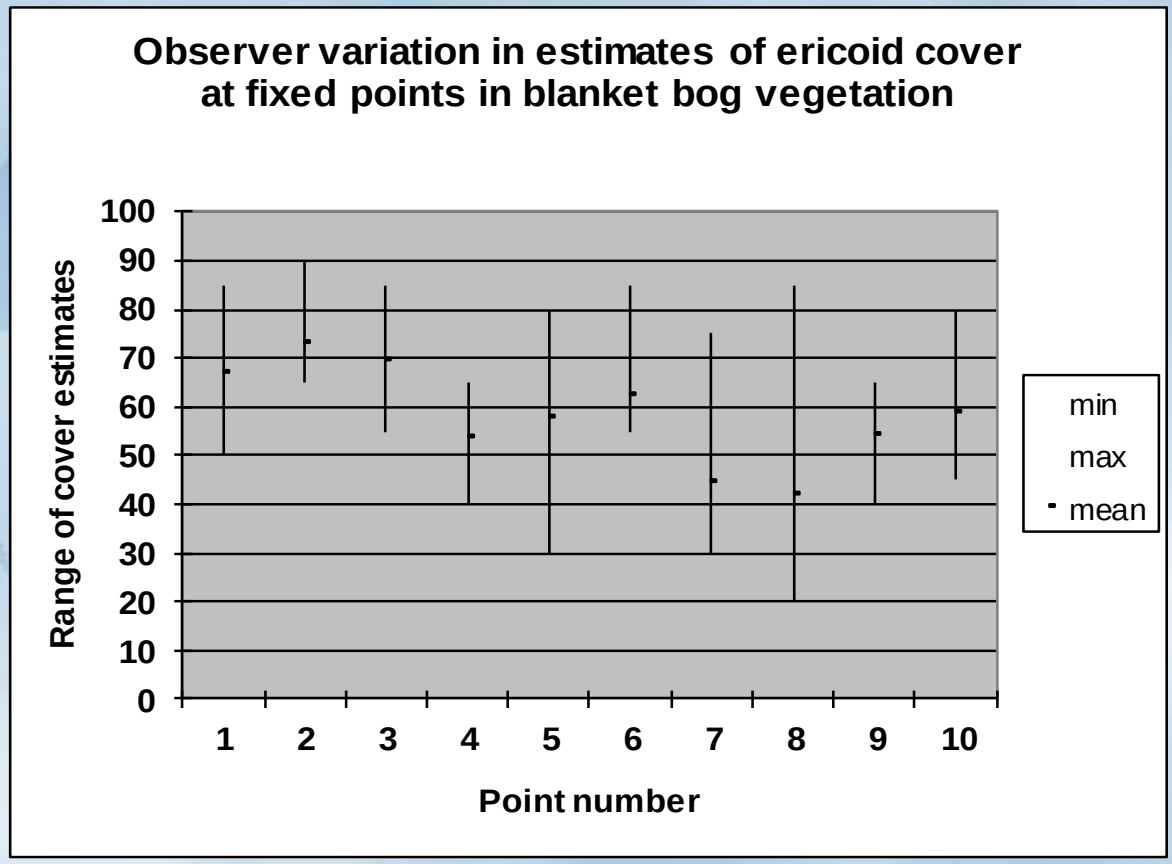
we should assess whether they can deliver acceptable levels of accuracy and precision

Vegetation cover



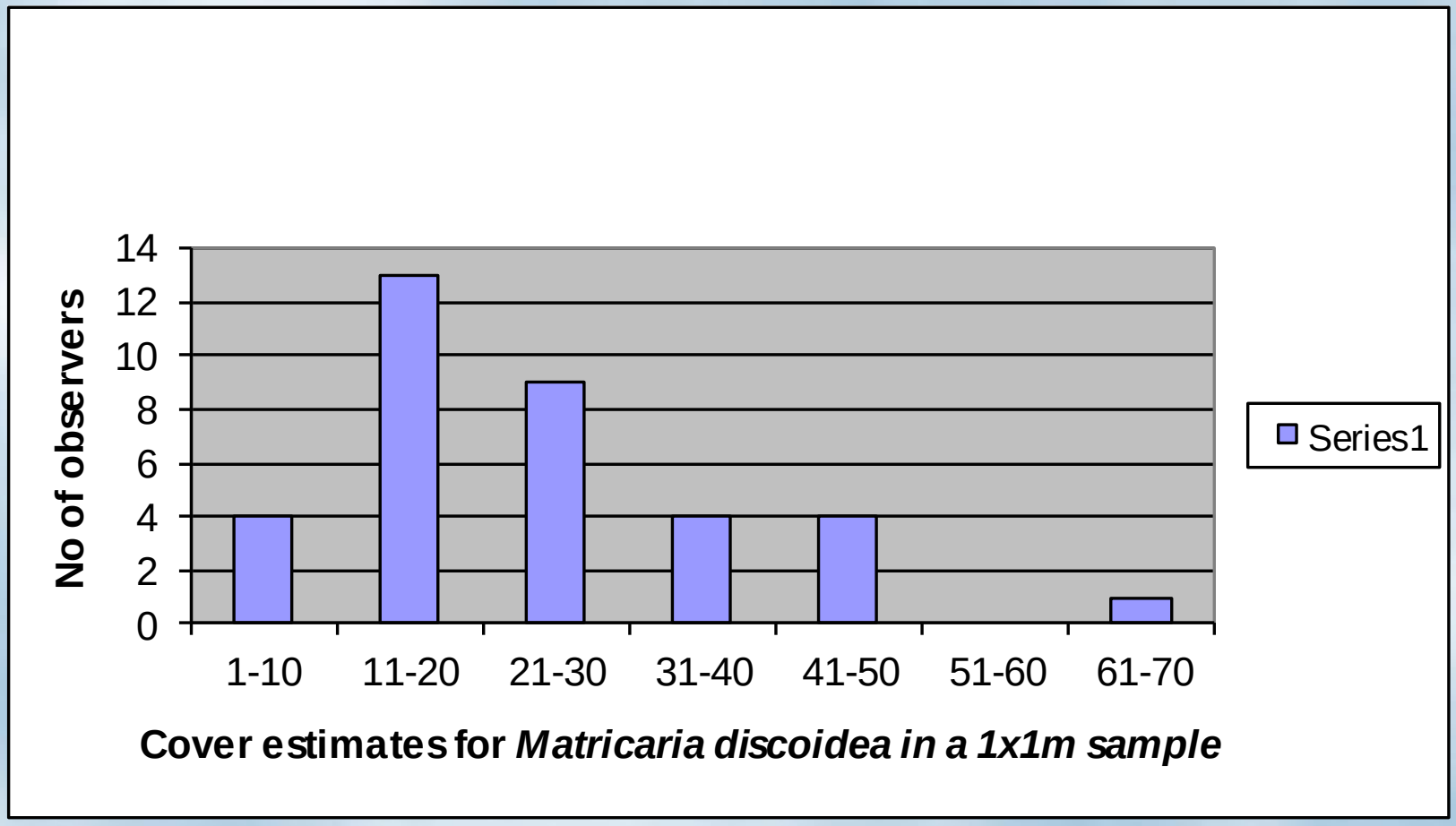
Variation in estimates of vegetation cover by CCW specialists and surveyors (n=8)

- The mean range of variation in this exercise was 35% - after removing the outlier dataset



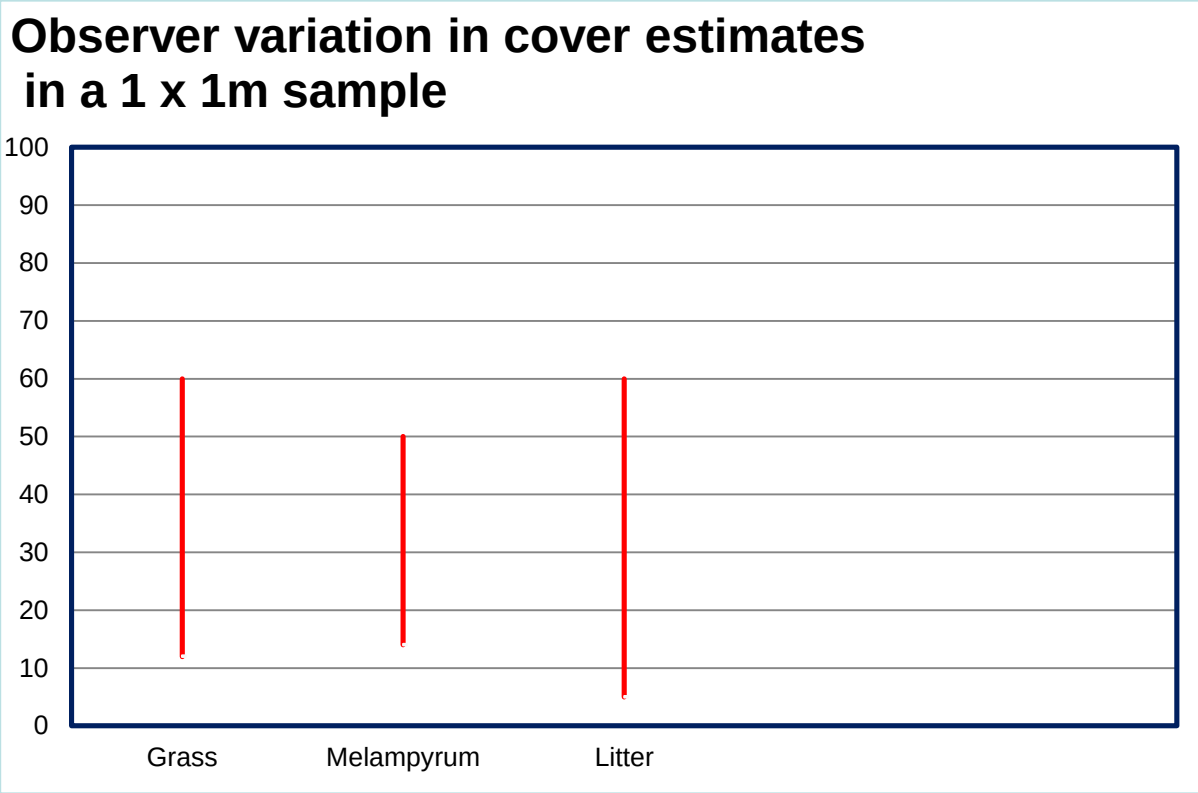
This suggests that, as we do not know which surveyor we are, we should allow 35% either side of our cover estimate in order to be certain that any change has occurred

Observer variation in estimates of vegetation cover by BSBI members (n=35)



No matter which cover band was selected, >70% of observers disagreed

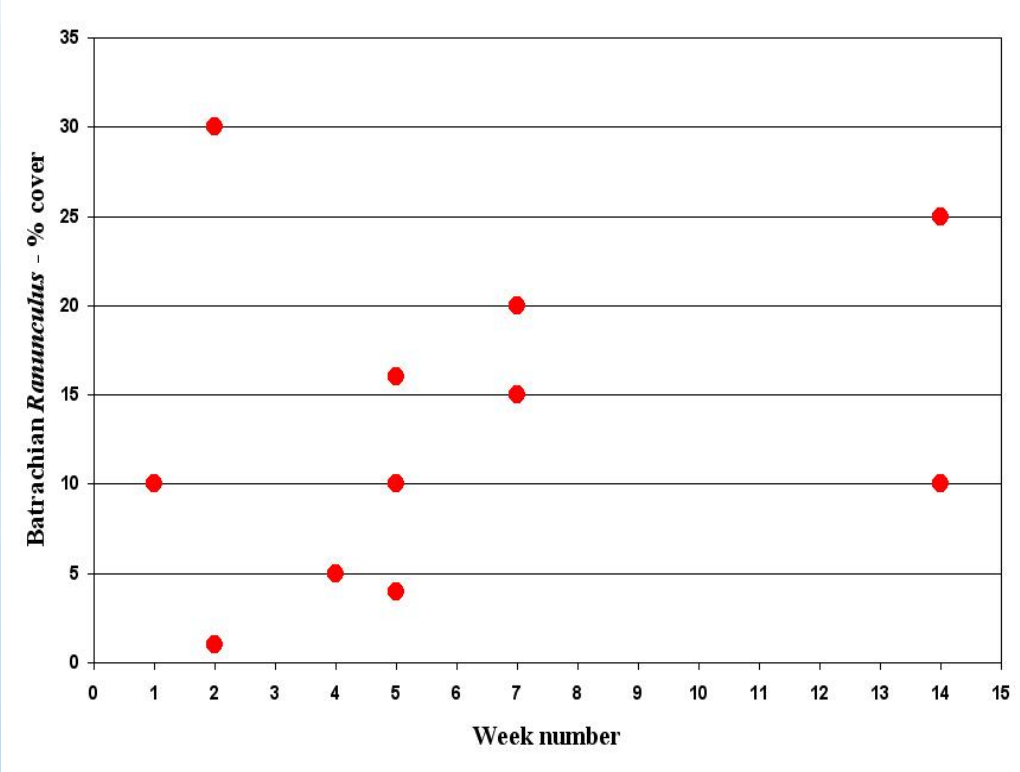
And botanical recorders in the Czech Republic? (n=7)



The mean range of observer variation associated with recording cover estimates for these three attributes was 46%

And experienced freshwater recorders:

The cover estimates recorded for Batrachian *Ranunculus* spp. in a 100 m section of river (n = 11)



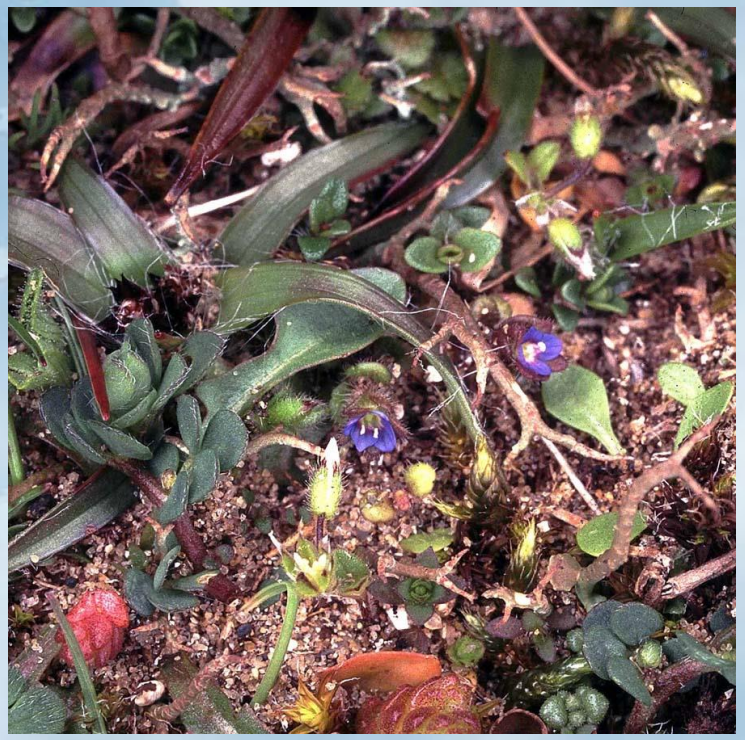
The range of cover estimates recorded by accredited surveyors on the same day (wk 2) encompassed all of the cover values recorded subsequently by the other surveyors

And what about species diversity?

Observer variation in estimates of species-richness

In grassland sampling trials, Leach and Doarks found that:

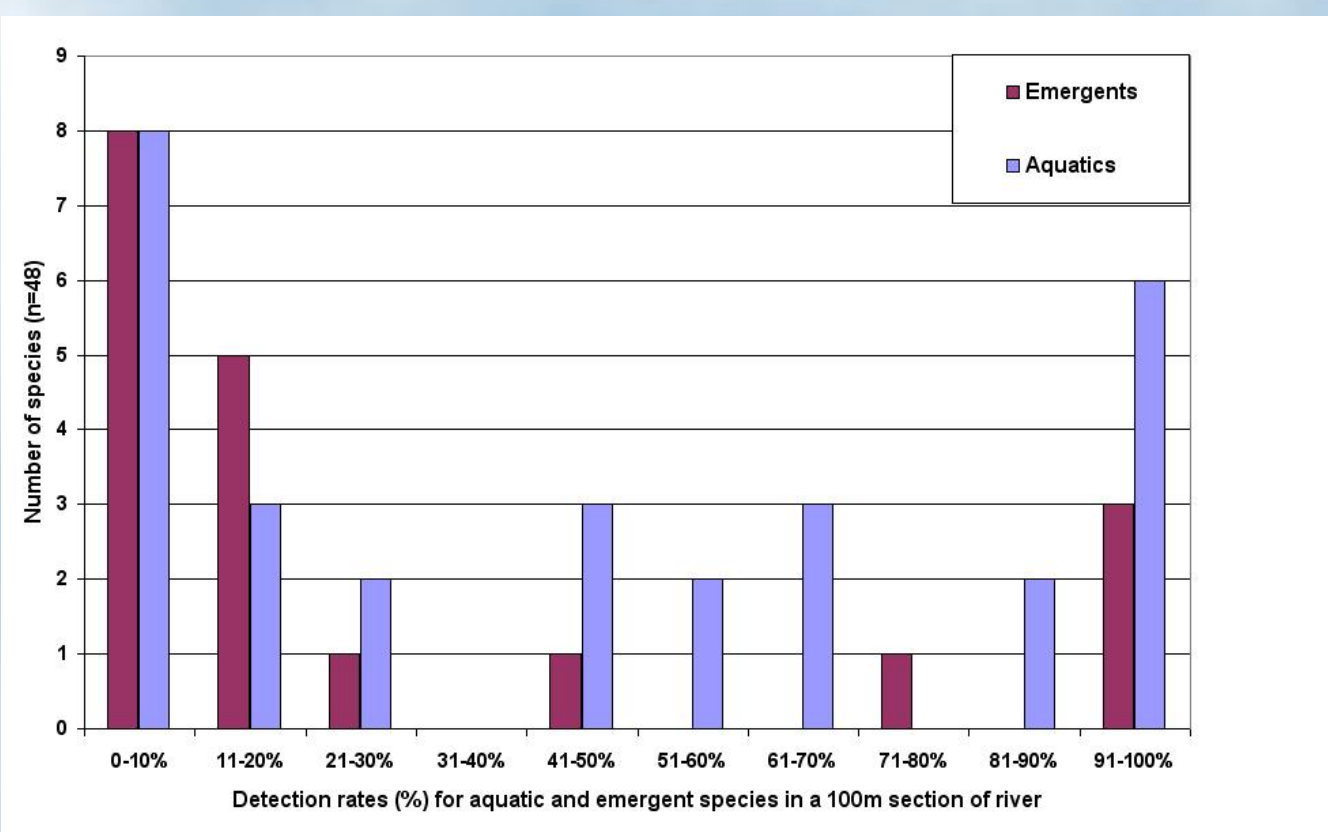
- On average, experienced botanists recorded only 63% of the species in a 1x1m quadrat
- The most successful observer recorded 73% of the species in the 1x1m quadrat



As you would expect - the percentage of species recorded declined with increased areas of search

Which brings us to freshwater recorders – who sample 100m and 500m stretches of river

These are the detection rates for plant species in a 100m stretch of river (n=11)



Half of the species in the 100m stretch of river had a detection rate of less than 20% - and no surveyor recorded more than 54% of the species present

So what are our best options for monitoring habitat condition?

- We can focus our recording effort on those species with high detection rates, typically species that are most obvious or abundant in the habitat? or
- We can focus on the frequency of those species most likely to decline if there is a problem with the habitat

Or

- We can consider using the more vulnerable species of animal and plant that we would expect to be associated with the habitat if it was a stand of high conservation value

The 'typical species' perhaps..

What does the Habitats Directive say?

"Sites of Community Interest with Annex II species….

- Must be protected under the Natura 2000 Network and the sites managed in accordance with the ecological requirements of the species"

It also says…

"For a habitat type to be considered to have a Favourable Conservation Status the directive requires its structure and functions to be favourable and its 'typical species' to be at Favourable Conservation Status"

However, although the Directive uses the term 'typical species' it does not give a definition, either for use in reporting or for use in impact assessments

‘Typical species’

For practical conservation purposes, perhaps the most appropriate definition is:

‘Species that we would expect to be associated with a habitat if it was in a ‘favourable state’.

In the UK, many habitat stands look as though they could be in a ‘favourable state’ but are no longer capable of supporting the species that should be associated with them, primarily because of historic management.

I suspect that the same is true of some habitats in every other Member State

An example of typical species for the ‘Ranunculion’ habitat (3260) might be……

And for the ‘Humid dune slack’ (2190) habitat?

In the 1970s and 1980s

- *Liparis loeselii var. ovata* could be found in the dune slacks of nine dune systems in the south of Wales and at one more system in south-west England
- The two largest populations, at Kenfig and Whiteford, produced c.10.000 and c.800 flowering plants annually

Now, the dune variant of *Liparis* survives only at Kenfig, and the number of flowering plants has been <100 in the last two years

This raises the following questions:

- Should we consider any Annex I habitat to be in a favourable state if it can no longer support a dependent Annex II species?
- Should *Liparis loeselii* be considered to be a typical species of the humid dune slacks in South Wales, along with similarly declining species associated with the younger phases of dune slack development and
- Can we consider the humid dune slack habitat in South Wales to be in a favourable state if the typical species are not present on the SCIs above a minimum threshold level?

The typical species for humid dune slacks in South Wales could include:

In summary – we should always take into account that…

- Estimates of vegetation cover are prone to unacceptable levels of observer variation
- We rarely record more than 60% of the plant species present in a species-rich 1x1m relevé, and we record considerably less in larger areas of search
- For practical conservation purposes, definitions of habitat condition should include a component for the distribution and abundance of the 'typical' animal and plant species that we would expect to be associated with a habitat if it was in a favourable state

These 'typical species' are critical to determining what form of management response we need to make

Finally…. an example of citizen science from Wales

Thank you for your attention…