



Making sense of biodiversity – life history traits

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Biodiversity and ecological function

- Species richness and diversity have proven to be problematic as indicators of ecological function
- Species assemblages are changing rapidly and a better handle on understanding the implications of these changes would be welcome

Whither ecological function?

- Urban – a complex landscape
- What *do* we have? And where?
- How do we protect and design for ecological functions, now and for the future?



Two types of traits

- Urbanization, with implicit heterogeneity, act as a selective force
 - Response traits are those life history characteristics that influence how an organism respond to the local filter
- Species assemblages can be said to perform, to fill different functions in the systems (providing us with services)
 - Effect traits are the characters that shape the influence an organism has on its surroundings

What is urban?

“Urban” is a variable selective filter acting on species assemblages

- Environmental factors
- Human preferences
- Indirect effects of human actions
- Species pool

→ Fragmentation, habitat conversion, soil properties, alien species, dispersal pathways...

We need to understand the filter to select traits

- Suites of traits to match complex filters
 - Are filters general enough (within and across cities) for us to use proxies such as land uses?
 - Which taxon do we start with?
- Is species the best level to work at?
 - For example, many studies have shown changes in bird communities can be connected to vegetation characteristics at aggregate levels (structural complexity, timing and availability of resources) not necessarily best captured by adding up plant traits

Two analytical pathways

- What are the likely changes in function under a given scenario of change?
- How much response diversity is there in a specific function (as in functional groups)?

And in the combination of the two, what could we learn?

We want to start a discussion about whether traits

- ...can improve our understanding of ecological resilience
- ...can be expanded to better capture the “social-ecological”
- ...can improve our understanding of cities and their variability
- ...are useful to practice
- ...