Network and traits

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Table of contents

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Three different ways to define robustness: - functional trait space - static network - dynamic secondary extinctions

What are the relationships between these different facets of robustness. It makes sense to have a global view, in particular in plant-pollinator network, where traits govern species interactions.

- *Question 1:* What is the link between the functional/phylogenetic and network role of species in different systems? Does uniqueness and originality drive network species' roles?
- *Question 2:* Is there a link between the contribution of species to the functional space and the possible secondary extinction their lead to? Ismaël: This question makes me think of Alice's work with Jeff. She studied functional contribution as a dynamic role of the species in the community. Maybe we could try to relate dynamical functional contribution to trait uniqueness/originality?

Some steps that need to be done:

- Read the papers and redefine the questions depending on exactly what has been done
- Think about some descriptors of species role in networks (degree, centrality measures, contribution to nestedness or modularity, …XXX)
- Think about uniqueness and originality using functional traits, and when possible, phylogenetic data?
- Find good data to test that: Solieveres paper, other papers where there is the interaction network (plant-pollinator, so we extend that in foodwebs?), possibility to use Biodesert (this would include Nico Yoann and Fernando at least then)

- Perform the analyses

Notes Ismaël

- Coux et al. (2016):
  - Code and data
  - **Originality**: distance to the community average
  - **Uniqueness**: distance to the nearest neighbour
  - PCoA is used to summarise traits, could investigate the role of each trait individually in explaining species position in the network.

Coux, Camille, Romina Rader, Ignasi Bartomeus, and Jason M. Tylianakis. 2016. "Linking Species Functional Roles to Their Network Roles." *Ecology Letters* 19 (7): 762–70. https://doi.org/10.1111/ele.12612.