

Stochasticity and Evolution in Food Webs

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Stochasticity and Evolution in Food Webs

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<http://gvdr.github.io>

Joint work with

Daniel B. Stouffer (University of Canterbury)

Many thanks to

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species ARE related

+——+——+ | Test | Test 2 |

+=====+=====+ | Test 4 | Test 5 |

+——+——+

| ONE tree of life | ONE network of interactions | phylogeny | Food

Web | |———|———| |image | image |

|———|———|

Evolution in/of Ecology

Evolution shaped the stochastic backbones of Food Webs

image

Food Webs embedded

Random Dot Product Graphs

image

Phylogenetic vs. Observed traits

$$\text{vcv}(X_e | \text{evolutionary model}) \sim \text{vcv}(X)$$

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- ▶ Fine wirings may be deceiving
- ▶ Evolutionary model is inadequate

(Not a) Conclusion

Spoiler 1: Evolutionary distinctiveness vs. Web Centrality

Spoiler 2: An ecological informed model of species evolution maybe it's (almost) there.

Thanks!

P.S. I am looking for a research team where to develop further this picture. Contact me if interested: gvd16@uclive.ac.nz