Finding the mjor descriptors of species networks

Tanya Strydom

Andrew P. Beckerman

2025-04-17

Abstract

TODO

Blah blah blah [1]

*“It is incumbent on network ecologists to establish clearly the independence and uniqueness of the descriptive metrics used.”* - [2]

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 1: An informative caption about the different network properties   | Label | Definition | “Function” | Reference (for maths), can make footnotes probs | | --- | --- | --- | --- | | Basal | Percentage of basal taxa (taxa without resources) |  |  | | Connectance | , where is the number of species and the number of links |  |  | | Cannibal | Percentage of cannibals |  |  | | ChLen | Mean food chain length, averaged over all species |  |  | | ChSD | Standard deviation of ChLen |  |  | | ChNum | log number of food chains |  |  | | Clust | mean clustering coefficient (probability that two taxa linked to the same taxon are also linked) |  |  | | GenSD | Normalized standard deviation of generality of a species standardized by |  |  | | Herbivore | Percentage of herbivores plus detritivores (taxa that feed on basal taxa) |  |  | | Intermediate | percentage of intermediate taxa (with both consumers and resources) |  |  | | LinkSD | normalized standard deviation of links (number of consumers plus resources per taxon) |  |  | | Loop | Percentage of taxa in loops (food chains in which a taxon occurs twice) |  |  | | L/S | links per species |  |  | | MaxSim | Mean of the maximum trophic similarity of each taxon to other taxa, the number of predators and prey shared by a pair of species divided by their total number of predators and prey |  |  | | Omnivory | Percentage of omnivores (taxa that feed on 2 taxa with different trophic levels) |  |  | | Path | characteristic path length, the mean shortest food chain length between species pairs |  |  | | Richness | Number of trophic species, or taxa |  |  | | TL | prey-weighted trophic level averaged across taxa [3] |  |  | | Top | Percentage of top taxa (taxa without consumers) |  |  | | VulSD | Normalized standard deviation of vulnerability of a species standardized by |  |  | | Links | The number of links in the network |  |  | | Diameter | Diameter can also be measured as the average of the distances between each pair of nodes in the network |  | [4] | | Nestedness |  |  |  | | Modularity |  |  |  | | Centrality | Centrality is a measure of how ‘influential’ a species is, under various definitions of ‘influence’… |  |  | |

# References

1. Vermaat, J.E. *et al.* (2009) [Major dimensions in food-web structure properties](https://doi.org/10.1890/07-0978.1). *Ecology* 90, 278–282

2. Lau, M.K. *et al.* (2017) [Ecological network metrics: Opportunities for synthesis](https://doi.org/10.1002/ecs2.1900). *Ecosphere* 8, e01900

3. Williams, R.J. and Martinez, N.D. (2004) [Limits to Trophic Levels and Omnivory in Complex Food Webs: Theory and Data](https://doi.org/10.1086/381964). *The American Naturalist* 163, 458–468

4. Delmas, E. *et al.* (2019) [Analysing ecological networks of species interactions](https://doi.org/10.1111/brv.12433). *Biological Reviews* 94, 16–36