Finding the mjor descriptors of species networks

Tanya Strydom [1]; Andrew P. Beckerman [1]

Abstract: TODO

Keywords: food web, structure, dimensionality reduction

Blah blah blah Vermaat et al. (2009)

"It is incumbent on network ecologists to establish clearly the independence and uniqueness of the descriptive metrics used." - Lau et al. (2017)

Table 1: An informative caption about the different network properties

Label	Definition
Basal	Percentage of basal taxa (taxa without resources)
Connectance	L/S^2, where S is the number of species and L 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 L/S
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)

Label	Definition
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 (Williams & Martinez, 2004)
Top	Percentage of top taxa (taxa without consumers)
VulSD	Normalized standard deviation of vulnerability of a species standardized by L/S
Links	The number of links in the network
Diameter	Diameter of food web, the longest shortest path between two nodes

References

Lau, M. K., Borrett, S. R., Baiser, B., Gotelli, N. J., & Ellison, A. M. (2017). Ecological network metrics: Opportunities for synthesis. *Ecosphere*, *8*(8), e01900. https://doi.org/10.1002/ecs2.1900

Vermaat, J. E., Dunne, J. A., & Gilbert, A. J. (2009). Major dimensions in food-web structure properties. *Ecology*, *90*(1), 278–282. https://doi.org/10.1890/07-0978.1

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