



## Sampling networks of ecological interactions

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*Two examples of ecological interactions.*

No species on earth lives without interacting with other species. Ecological interactions are thus a fundamental component of biodiversity: we need to document those interactions to assess the crucial ecological services and functions that they represent.

Sampling ecological interactions presents similar challenges, problems, potential biases, and constraints as sampling individuals and species in biodiversity inventories. Robust estimates of the actual number of interactions (links) among free-living species within diversified ecological networks require adequate sampling effort that needs to be explicitly gauged, yet we still lack a sampling theory explicitly focusing on ecological interactions.

Adequately assessing the completeness of a network of ecological interactions thus needs knowledge of the natural history details embedded, so that forbidden links (i.e., life-history restrictions impeding interactions) can be accounted for when addressing sampling effort.

Here I provide a review and outline a conceptual framework for interaction sampling by building an explicit analogue to individuals and species sampling, thus

extending diversity monitoring approaches to the characterization of complex networks of ecological interactions. Contrary to species inventories, a sizable fraction of non-observed pairwise interactions simply do not exist, due to biological constraints that forbid their occurrence.

Robustly sampling ecological networks is crucial to assess the rapid and devastating effects of defaunation-driven loss of key ecological interactions, and the services they provide.