



Global patterns of interaction specialization in bird–flower networks

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Abstract

Aim: Among the world's three major nectar-feeding bird taxa, hummingbirds are the most phenotypically specialized for nectarivory, followed by sunbirds, while the honeyeaters are the least phenotypically specialized taxa. We tested whether this phenotypic specialization gradient is also found in the interaction patterns with their floral resources.

Location: Americas, Africa, Asia and Oceania/Australia.

Methods: We compiled interaction networks between birds and floral resources for 79 hummingbird, nine sunbird and 33 honeyeater communities. Interaction specialization was quantified through connectance (C), complementary specialization (H_2'), binary (Q_B) and weighted modularity (Q), with both observed and null-model corrected values. We compared interaction specialization among the three types of bird–flower communities, both independently and while controlling for potential confounding variables, such as plant species richness, asymmetry, latitude, insularity, topography, sampling methods and intensity.

Results: Hummingbird–flower networks were more specialized than honeyeater–flower networks. Specifically, hummingbird–flower networks had a lower proportion of realized interactions (lower C), decreased niche overlap (greater H_2') and greater modularity (greater Q_B). However, we found no significant differences between hummingbird– and sunbird–flower networks, nor between sunbird– and honeyeater–flower networks.