Environmental stress affects species’ trophic niche breadth in plant-pollinator communities

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Evidence is rapidly accumulating that the environment influences interactions between species. However, how this happens is currently unclear, as different types of environmental gradient appear to have contrasting or non-linear effects on species' trophic niche breadths. Instead of explicit environmental gradients, here we explore the relationship between the stresses imposed by the environment and niche breadth using a global dataset of plant-pollinator interactions. We found that environmental stress plays a significant role in determining the number of partners with which a species interacts, but this role is highly variable across species. In particular, species that have a large number of interactions are more likely to focus on a smaller number of, presumably higher-quality, interactions when faced with environmental stress. In contrast, the specialists that can cope with increased stress are more likely to broaden their niche and engage in opportunistic interactions, effectively behaving as facultative generalists.