
Effects of exotic pollinators on network structure and ecosystem function

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Abstract

Exotic species can disrupt plant-pollinator interactions and its ecosystem function. Several studies have found contrasting results regarding the impact of honey bees *Apis mellifera* on native plant-pollinator communities and pollination function. Due to its abundance and generalist behaviour, *A. mellifera* can visit many different plant species, increasing the competition for resources with other native pollinators and modifying the structure of interaction networks. Negative and positive impacts of *A. mellifera* on native plant species include lower pollination effectiveness and replacement of lost pollinators, respectively. Here, we investigate the response of plant-pollinator communities and pollination function to artificially increased *A. mellifera* abundance in an island restoration context. We recorded plant-pollinator interaction and fruit set of native plants during eight months on four control and four treatment sites on the island of Mahé, Seychelles. First results indicate a low impact of *A. mellifera* on global network topologies, yet changes in meso- and micro-scale metrics suggest that specialist plants and pollinators suffer from a higher degree of direct and indirect competition in networks with increased *A. mellifera*. The conservation implications of these findings are two-fold: *A. mellifera* may ensure pollination of rare, more specialised plant species; and *A. mellifera* is likely to outcompete specialised native pollinators. Further research is required to quantify pollination efficacy of *A. mellifera* compared to native pollinators to assess the overall impact of this exotic pollinator on native plant-pollinator communities.

Keywords: ecological networks, pollination ecology, exotic species, ecosystem function, *Apis mellifera*

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