

Extrafloral nectar as entrée and elaiosomes as main course for ant visitors to a fireprone, mediterranean-climate shrub

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Abstract

Thousands of plant species produce both extrafloral nectaries (EFNs) on their leaves and nutrient-rich appendages on their diaspores (elaiosomes). Although their individual ecology is well-known, any possible functional link between them has been ignored. Here, we recognized their co-presence in the shrub, *Adenanthos cygnorum* (Proteaceae), and studied their function and interaction. We observed that ants frequently visit both structures, seeds are attractive to vertebrate granivores but are released into a leafy cup from where they are harvested by ants and taken to their nests, from which seeds, lacking elaiosomes, germinate after fire. We showed that juvenile plants do not produce EFNs and are not visited by ants. We conclude that EFNs are not just an indirect adaptation to minimize herbivory via aggressive ants (or parasitoid wasps) but specifically enhance reproductive success by inducing ants to visit the plant throughout the year, promoting discovery of the seasonally available, elaiosome-bearing seeds on the plant and transporting them to their nests, so avoiding the risk of granivory should seeds fall to the ground.

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