Group-living results in higher foraging success for a kleptoparasitic spider

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Nearly all of the > 200 species in the spider subfamily Argyrodinae (Araneae: Theridiidae) live in association with other spiders: as predators, solitary kleptoparasites, or group-living kleptoparasites. About 20 out of 238 argyrodine species are group-living in the webs of their hosts. In these species, multiple individuals forage in one host web and show strong conspecific tolerance, especially when they share prey items directly with hosts. We aimed to test whether the group-living behavior of Argyrodes miniaceus increases their per capita foraging benefit. Argyrodes miniaceus and their host, Nephila pilipes, were housed in 60 x 60 x 60 cm cages in the lab. Trials were conducted on groups of 1 to 7 unrelated adult female kleptoparasites. For each experimental trial, a ~0.3 g domestic cricket (Acheta sp) was provided to the host spider. We used time to reach the prey item, mean time spent feeding per individual, and proportion of time spent feeding per individual as indicators of foraging benefits. Mean time spent feeding (in seconds) and proportion of time spent feeding (seconds feeding/total length of interaction with host) was highest when groups consisted of two or three individuals. Correspondence analysis showed that individuals in a group of two or three were more likely to reach the prey and feed. A time series analysis showed that when a group size was larger than four kleptoparasites, A. miniaceus individuals took turns feeding and kept two to three kleptoparasites searching around the host for the duration of each experimental feeding trial. We concluded that group-living behavior in A. miniaceus is not due simply to aggregation at a rich resource; instead, it has the function of social foraging.