

Mites form friendly societies

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For plant-inhabiting predatory mites, living among familiar neighbors reduces stress. This allows individuals to focus on other tasks and be more productive, in particular while they are foraging. The new study by Markus Strodl and Peter Schausberger, from the University of Natural Resources and Life Sciences in Vienna, Austria, supports the theory that so-called 'social familiarity' reduces the cognitive, physiological and behavioral costs of group-living, leading to increased efficiency in other tasks. Their work is published online in Springer's journal, *Naturwissenschaften - The Science of Nature*.

Species living in groups, such as the spider mites' predator, *Phytoseiulus persimilis*, face a number of stressors including social interactions with other individuals of the same species during the juvenile [development phase](#). This is particularly so when they live in small patches with limited [food availability](#). Within such patches, these individuals compete for food, space and future mates or may even be mutual predators. In order to reduce these conflicts, many group-living species are able to discriminate familiar and unfamiliar individuals based on prior contact, and familiar individuals tend to stick together.

Strodl and Schausberger studied whether a familiar social environment during the juvenile phase had any positive effects on the predatory mite's development. Among this species, group-living is brought about by the predators foraging, reproducing and developing spider mite webs, as well as mutual attraction.

In a series of three experiments, the authors showed that familiarity had

significant effects on individual grouping and foraging traits of juvenile *P. persimilis*. In mixed-age groups of familiar and unfamiliar individuals, familiar individuals preferred to stick together.

Life-stage influenced this grouping behavior: larvae were much closer together than older individuals. In groups of individuals of the same age, the distances between individuals were smaller within groups of familiar mites than within groups of unfamiliar mites.

At similar developmental speed and body size at maturity, juvenile mites held in familiar groups foraged more efficiently than juvenile mites held in unfamiliar groups. The authors also identified a sensitive familiarization period during the larval stage, with memory persisting into the adult stage.

More information: Strodl MA & Schausberger P (2012). Social familiarity modulates group-living and foraging behavior of juvenile predatory mites. *Naturwissenschaften – The Science of Nature*; [DOI 10.1007/s00114-012-0903-7](https://doi.org/10.1007/s00114-012-0903-7)

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