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The long reach of a parasite in Temnothorax *ants.*

Sara Beros, Evelien Jongepier, Felizitas Hagemeier, Susanne Foitzik

The consequences of parasite infections are well-studied on the individual level, but the potentially complex outcomes on social groups are less clear. Insect societies could buffer individual-level effects, but parasites could also try to extend their influence to non-infected members by chemical or behavioral manipulation. Parasite-induced alterations of host phenotypes can be either explained by the parasite's interest to survive, develop and to increase its transmission or by the host trying to limit infection costs, or they can be non-adaptive by-products of infection. The tapeworm *Anomotaenia brevis* causes distinct changes in its intermediate host, the ant *Temnothorax nylanderi*. Infected individuals display a lighter coloration, changed chemical profile and behavior, and as we can show in this study an increased longevity. As infected ants are well-cared for but inactive, it is reasonable to assume that the presence of infected animals might negatively influence colony traits and reveal fitness consequences of parasitism. However, in field colonies this was not the case for a direct fitness measure like per-capita productivity. Only when we controlled for external conditions in the lab, we could detect a slight reduction in colony productivity due to parasitation. We wondered why infected individuals were accepted in their colony albeit they show a divergent chemical profile. We experimentally manipulated the parasitation status of field colonies by adding and removing infected workers, and determined colony aggression towards infected and healthy non-nestmates. Our results show that current parasitation status clearly influences the colonies´ responses to intruders. Parasitized colonies behaved less aggressive towards non-nestmates and this change in colony-level behavior is based on lower aggression in uninfected workers. Our findings are consistent with colony-level changes in aggression with parasite presence and extended to non-infected nestmates, possibly to facilitate acceptance of infected workers in the nest.