

OR023*Larval egg cannibalism and kin conflict in ants***Eva Schultner**, Heikki Helanterä

In ant colonies individuals cooperate in the aim of maximizing offspring production. But cooperation is only flawless from afar. In fact, because adults can differ in their relatedness to brood they often have contrasting inclusive fitness interests, which may lead to outbreaks of social conflict, i.e. individuals attempting to allocate resources according to their conflicting optima. So far, conflict studies have been restricted to adults. We provide an example of selfish conflict behavior in larvae by demonstrating that *Formica* ant larvae readily engage in egg cannibalism. Although larvae are typically assumed to be powerless and rely on food provided by workers, egg consumption allows larvae to increase survival and positively affects the expression of key growth-related genes. Levels of cannibalism across species decrease when relatedness between larvae and eggs is high, which suggests that cannibalism is a selfish trait that can underlie social control, and makes it the first example of a behavioral means of power in ant larvae. Cannibalism appears to be plastic in *F. aquilonia*, where levels increase when larvae are presented with foreign eggs compared to sibling eggs. In addition, cannibalism intensity is highly dependent on larvae sex and size across eight species, indicating that benefits from cannibalism vary with individual traits. We conclude that ant larvae are far from powerless. Instead, cannibalism may allow larvae to influence important determinants of individual fitness such as caste fate or size. By consuming eggs, larvae may furthermore affect queen - worker ratios, total reproductive output and sex ratios, and ultimately overall colony fitness. For the first time, our study identifies larvae as actors with selfish interests that have the power to act in social conflict, thus adding a new dimension to our understanding of colony dynamics in social insects.