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### PROJECT

## Sexual Conflicts in Social Insects

Social insects (bees, ants, and wasps) are an intensively studied group of organisms, and kin selection theory is widely accepted as an explanation as to why individuals give up their own reproduction, form social societies, and help kin rear their offspring. However, these social societies are not free of conflicts between castes (queens and workers), and individuals within these societies have evolved traits, for example worker policing, to maintain the functionality of their social societies.

Interestingly, studies of conflicts between individuals in social insect societies have largely neglected the fathering males, which are not physically present in a colony but survive (sometimes for several decades) as stored sperm within the queen. The ejaculates of these fathers have interests in paternity patterns that conflict with all other castes in a colony, i.e. the mother queen, her workers, and the ejaculates of competing males within the same sperm storage organ of the mother queen. My work aims to get a general overview of paternity conflicts in social societies. Furthermore, I plan to formulate possible pathways by which these conflicts might be expressed during an individual lifespan, and how they might have been solved over evolutionary time in order to maintain these social societies as evolutionarily stable entities. I will also take time to do a survey of potential social insect model organisms that would allow experimental testing of the questions and hypotheses formulated above.

### Recommended Reading

Baer, B. and P. Schmid-Hempel. "Experimental Variation in Polyandry Affects Parasite Loads and Fitness in a Bumblebee." *Nature* 397 (1999): 151-154.

Baer, B., E. D. Morgan, and P. Schmid-Hempel. "A Non-Specific Fatty Acid Prevents Females from Re-Mating in Bumblebees." *Proc. Natl. Acad. Sci.* 98, 7 (2001): 3926-3928.

Baer, B. "Bumblebees as Model Organisms to Study Male Sexual Selection in Social Insects." *Behav. Ecol. Sociobiol.* 54 (2003): 521-533.

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### PUBLICATIONS FROM THE FELLOWS' LIBRARY

Baer, Boris (Washington, DC [u.a.], 2010)

Seminal fluid mediates ejaculate competition in social insects

<https://kxp.k1oplus.de/DB=9.663/PPNSET?PPN=1042318603>