

RESOLVING REPRODUCTIVE CONFLICTS IN ANTS

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Morphological caste differentiation, in particular the diverging specialization of queens and workers for reproduction, influences the levels of within-colony conflict over reproduction. In species with monomorphic females, extensive conflicts exist over the production of both female and male offspring. Once workers lose the ability to mate and store sperm, they are restricted to laying males only. The queen is now the only source of female sexuals and workers, a valuable asset in conflict situations. The study of the regulation of reproduction in wasps and ponerine ants with various degrees of queen-worker divergence has given insight in such conflict resolution. Dominance fights and pheromonal signals, in varying degrees, play a role in resolving reproductive conflicts. However, when workers and queens diverge ever more in reproductive capacity (e.g. difference in ovariole numbers), this will further change the worker's options. Workers might now forego even male production to gain productivity benefits through the greater reproductive output of a related, highly specialized queen. Such productivity effects are difficult to measure, as queens also produce female offspring. However, as queens produce offspring of both sexes, and workers are limited to male offspring, productivity effects could never be conclusively demonstrated. *Acanthomyrmex ferox* provides an ideal system to study productivity effects as both worker castes, majors and minors, produce male offspring. Majors have thrice the ovarioles of minors and are thus better suited for reproduction. Majors dominate male production when orphaned whereas minors never compete for reproduction. Minors assess the quality of major workers, and will only attempt to reproduce when we experimentally reduced the majors' fertility. *Acanthomyrmex ferox* gives the first insight in the role that productivity effects might play during reproductive conflicts.