

WORKER POLICING BY EGG EATING
IN THE PONERINE ANT *PACHYCONDYLA INVERSA*.

P. D'Ettore¹, **J. Heinze**¹ & **F. Ratnieks**²

¹ LS Biologie I, Universität Regensburg, Universitätsstrasse 31, D-93040 Regensburg Germany

² Department of Animal and Plant Sciences, Sheffield University, Sheffield S10 2TN, UK.

Individuals in insect societies may have selfish reproductive interests which conflict with the interests of other individuals and of the society as a whole. Conflicts may lead to policing behaviour, by which selfish behaviour is punished. For example, workers may prevent others from laying eggs by overt aggression, i.e. biting or immobilisation. In ants, policing has been described from several species lacking a morphological queen caste, where all workers are totipotent and in principle can mate and lay fertilised eggs.

We investigated worker policing in the ponerine ant *Pachycondyla inversa*, a species with morphological queen and worker castes. Colonies were divided into two groups (one with and one without queens). Some workers in orphaned groups started laying eggs three weeks after separation. Worker-laid eggs and queen-laid eggs were introduced into queenright and queenless colony fragments. All queen-laid eggs were accepted even by the orphaned groups, but most of the worker-laid eggs were highly investigated and finally eaten by workers of queenright groups. This study is the first one to show that worker-laid eggs are differentially killed in comparison to queen-laid eggs in ants.

Chemical analyses of the egg surface showed that queen-laid eggs and worker-laid eggs have different chemical signatures. The chemical profiles of queen-laid eggs are characterised by more volatile compounds that could stem from one of the glands associated with the sting apparatus.