

Ins. Soc. 39:425–438 (1992)

1015–1621/92/040425-14 \$ 1.50 + 0.20/0
© 1992 Birkhäuser Verlag, Basel

Best regards,
P. Jaisson

Social organization in some primitive Australian ants.

I. *Nothomyrmecia macrops* Clark

P. Jaisson^{1, 2}, D. Fresneau¹, R. W. Taylor² and A. Lenoir¹

¹ Laboratoire d'Ethologie et Sociobiologie (URA CNRS n°667), Université Paris-Nord, 93430 Villetaneuse, France.

² CSIRO, Division of Entomology, GPO Box 1700, Canberra 2601, ACT, Australia.

Key words: Formicidae, *Nothomyrmecia*, evolution, sociogram, ethogram, recognition.

Summary

Results of laboratory-based ethological studies on two *Nothomyrmecia macrops* colonies with individually marked workers are reported. Interactive behavioural acts constituted less than 1% of all those recorded, revealing a strong tendency by the ants not to engage in social contact. Very few workers performed queen-directed acts. They stayed near the queen, though seldom in direct contact. Division of labour was otherwise barely apparent, except that some individuals showed a propensity to guard the nest entrance. No exchange of food was observed between workers, workers and queen, or adults and larvae (apart from worker placement of prey items with larvae). A queen fed from a *Drosophila* carcass retrieved from the nest floor, without assistance from workers. Systematic scanned observations confirmed levels of inactivity higher than previously observed in ants (comprising almost 2/3 of recorded behavioural acts). The time budget for activities directed toward the immature stages was the same in both colonies, and fluctuated during the circadian period. Non-nestmate larvae added to worker groups were more frequently licked than nestmate larvae, but this might not involve the particular recognition of nestmate *versus* non-nestmate brood. These observations support the hypothesis that *Nothomyrmecia* is primitively eusocial, and of special significance in myrmecology.

Introduction

Nothomyrmecia macrops Clark, 1934, was originally described from southeastern Western Australia, but has never again been collected there. It was rediscovered by Taylor and colleagues in 1977 in South Australia, where it is now known only from a limited area near Poochera (32°43'S, 134°50'W). It is considered to be one of the most primitive extant species of family Formicidae (Taylor, 1978; Hölldobler and Wilson, 1990). The evolutionary importance and rarity of *N. macrops* has motivated several field and laboratory studies on aspects of its biology (e.g. Taylor, 1978; Hölldobler and Taylor, 1983).