

# Les Insectes



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## Worker interactions and orphaning in *Cataglyphis cursor* (Hymenoptera, Formicidae)

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The interaction movement pattern among nestmate individuals and interindividual distances were analyzed in queenright and queenless *Cataglyphis cursor* societies. Experiments were carried out in a cylindrical box, divided in eight equal parts, devoid of familiar cues. Data were recorded for 15 minutes using a computerized moving image analysis. The number of isolated or contiguous empty sections, the worker arrangements, alone workers, workers in twos, threes, fours, etc..., measured interindividual distances. Frequency and duration of arrangements gave an account of the behavioural changes. Two situations, with 8 colonies, were considered : 1° Groups of ten workers, queenright workers with the queen (12 tests), queenright workers without the queen (12 tests), queenless workers without the queen (12 tests), were observed. 2° The second situation was the replication of the first one with addition of a marked intrusive worker taken from an alien society. The results confirm the present queen influence and attraction upon workers (first situation). The rate of change in worker number at any point in time is weaker than in the missing queen groups. In general, queenless groups do not behave in a different way from queenright missing queen groups. As a consequence of unfamiliar worker intrusion (second situation), worker interaction varies according to the environmental factor (presence of the queen in the society). Both types of queenright groups change through increasing activity, more alone workers, more arrangements in twos, threes, fours, fives, than in queenless groups. Queenless groups usually fail to adopt an economic and efficient strategy. Experimental evidence of the effects of orphaning influencing group efficiency and cohesion is reported. The results may have a significant meaning for consequence of interindividual communication and partly explain absence of natural queenless societies in spite of effective thelytokous parthenogenesis in *Cataglyphis cursor*.