

abyssinicus, which is the same as in *hannae* and unique in species of the *bicolor* species group, indicate an inquiline life style for this species too. A more detailed discussion will be provided by Agosti (in preparation).

As all the results are based on morphological characters, it would be interesting to test them using other characters such as DNA sequences, electrophoretic data or the chemical composition of glandular compounds, all of which have already showed their specificity at the species level (Keegans *et al.*, 1992; Agosti *et al.*, in preparation).

Conclusions

Although the discussion on the origin of inquilinism in ants has lasted at least since Wasmann (1908), it is only recently that Carpenter *et al.* (1993) used cladistic analyses to test the proposed evolutionary hypotheses. They demonstrated by analysing allozyme data, that the social deception hypothesis is the more likely for the evolution of the inquiline wasps *Polistes atrimandibularis* and *P. semenowi*. In none of their trees were these species the sister group of their respective host. The same pattern appeared in a biochemical analysis of leptothoracine social parasitic ants (Heinze, 1991).

In neither of the 2 most parsimonious cladograms is the inquiline *hannae* the sister group of its host *bicolor*. This refutes the common ancestor hypothesis, in which sympatric speciation is involved, and indicates an independent origin of the inquiline with a subsequent invasion of its host. Assuming *abyssinicus* to be an inquiline too, its sister group relationship with *hannae* indicates a common ancestry of the two inquilines, which invaded two independent hosts: *hannae* into *bicolor*, and *abyssinicus* possibly into *savignyi* (the only *bicolor* group species to co-occur in Ethiopia).

This result is also supported by the fact, that in *Cataglyphis* polygynous colonies, requested as a step within the evolutionary scenario proposed by Buschinger (1990) and Bourke and Franks (1991), were extremely rare (D. Agosti, unpublished data).

Finally, the question might be raised, whether the evolution of inquilines can be explained by one general theory or whether inquilines are just one phenomenon. How can inquilines in *Myrmica* species (Bourke and Franks, 1991) possibly explain inquilines in the myrmicine genus *Rhoptromyrmex*, which can be found in different subfamilies such as in the dolichoderine genus *Tapinoma* (Bolton, 1986)?

Acknowledgements

I thank Jim Carpenter, Barry Bolton and Rüdiger Wehner for contributions to the arguments. Jim Carpenter kindly gave me a copy of their manuscript and made substantial comments on this manuscript. Tom Huddleston made it readable for an English audience. The support of the project by the Swiss Science Foundation is gratefully acknowledged.

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