

morphological variation. This is in contrast with the other species-rich genus within the Formicini, *Cataglyphis* with some 90 species, which have a great variation in morphological characters, especially male genitalia, but hardly any in social behaviour (Agosti, 1990).

The ant genus *Cataglyphis* currently includes over 100 valid specific and subspecific names, but the identity of hardly any of the names is known. Recently, Tinaut (e.g. 1990, 1991) and Agosti (1990) started to re-analyse this genus, in which some species have become models in fundamental research in orientation behaviour using polarized skylight (Wehner, 1981), path integration (Muller and Wehner, 1988), homing (Wehner, 1992), and thermoregulation (Wehner *et al.*, 1992).

During fieldwork collecting nest series of North African ants of the *Cataglyphis bicolor* species group for a revision of this genus, some 200 nests were at least partially dug out. In 2 nests, small alate females and males were present, but no alate sexuals of the expected size for *bicolor*. The mating flight of *bicolor* must have taken place at an earlier time, as they were present in nests further north, where nuptial flights occur later. After examination of these smaller specimens, especially of the male genitalia, it became obvious that they belong to a new undescribed species. Thus, the occurrence of an inquiline in a genus which has sufficient morphological characters to be used in a cladistic analysis is the ideal case to test hypotheses for the evolution of inquilinism in ants.

In this study, I describe this species (*C. hanna*) and analyse its sister group relationships. This is then used to test the hypotheses of inquiline origin from a common ancestor versus the origin of the inquiline independently with a subsequent invasion of its host.

Material and method

The specimens were collected alive in 2 separate nests in El Guettar (Tunisia) in an oasis, with the nests being at the edge of irrigated fields. The sexuals of *hanna* were kept alive for three weeks in plastic boxes with a plaster layer together with their host, *C. bicolor*. On several occasions *hanna* males and females were observed being fed by *bicolor* workers, and in no case was any sign of aggression between the 2 species detected. The identity of the host has been confirmed by worker morphology as well as allozyme pattern (Agosti *et al.*, in preparation).

Abbreviations, acronyms of depositories and measurements follow Agosti (1990), and all measurements (mm) are given (e.g. HL 1.40). TAI (Hind tibia-alitrunk index) = Length of hind tibia \times 100/AL. LI (Leg index) = Length of hind tibia \times 100/length of hind femur.

Cataglyphis hanna n. sp.

Material examined

HOLOTYPE: ♂, HL 1.40, HW 1.20, EL 0.50, SL 2.18, AL 2.63, CI 86, SI 181, EI 41.7, FI 35.4, LI 100.8, TAI 114.3.

Diagnosis of male

Ant of the *Cataglyphis bicolor* species group (Agosti, 1990), with the following diagnostic features:

- (1) Black head and alitrunk.
- (2) Alitrunk length 2.63 mm.