A new species of *Monomorium* (Hymenoptera: Formicidae) from Kuwait

by Mike J. Lush

Abstract. The Middle East contains a large number of species of *Monomorium* (Hymenoptera: Formicidae), with 53 species known from the Arabian peninsula alone. To this list is added a new species from Kuwait, *Monomorium subcomae* Lush, n.sp., which is described in detail. Within the current concept of the genus, *M. subcomae* is placed within the *areniphilum*-complex of the *salomonis*-group, along with seven other Arabian species. A simple diagnosis is given to allow separation from other *Monomorium* of the Arabian Peninsula.

Keywords. ant, Solenopsidini, *areniphilum*-complex, *salomonis*-group, *Monomorium subcomae* Lush n.sp., Arabian Peninsula

Introduction

The genus *Monomorium* Mayr, 1855 is large, containing 415 currently valid species and subspecies worldwide (AGOSTI & JOHNSON 2005, BOLTON 1995). The Arabian Peninsula has a rich *Monomorium* fauna, with 53 species recorded by COLLINGWOOD & AGOSTI (1996). Nine species of *Monomorium* have been previously recorded from Kuwait (COLLINGWOOD 1985, COLLINGWOOD & AGOSTI 1996). These are: *M. abeillei* André, 1881, *M. areniphilum* Santschi, 1911, *M. buettikeri* Collingwood & Agosti, 1996, *M. buxtoni* Crawley, 1920, *M. destructor* (Jerdon, 1851), *M. hemame* Collingwood & Agosti, 1996, *M. nitidiventre* Emery, 1893, *M. salomonis* (Linnaeus, 1758), and *M. venustum* Smith, 1858. To this a further species should be added.

Material and methods

Ant specimens were received from collections made by David M. KING. Amongst the specimens from Kuwait was a single collection of nine *Monomorium* workers that were distinct from all other known extant species worldwide.

The measurements and indices used to describe this species are:

Head-Mesosoma-petiole-postpetiole Length (HML). Following HETERICK (2006), this was calculated as sum of the head length (HL), mesosoma length (ML), and petiole and postpetiole length. Petiole and postpetiole length was measured from the apex of the metapleural lobe to the posterior margin of the postpetiole. Measurements were performed with the ant in profile.

Head Length (HL). The length of the head, excluding the mandibles, measured in a straight line from the mid-point of the anterior clypeal margin to the mid-point of the posterior margin of the head, in full face view.

Head Width (HW). The maximum width of the head in full-face view, excluding the compound eyes.

Cephalic Index (CI). Determined by the formula: CI = (HW x 100) / HL.

Scape Length (SL). The maximum straight-line length of the scape, excluding the condylar bulb

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and basal constriction.
Scape Index (SI). Determined by the formula: SI = (SL x 100) / HW.
Pronotal Width (PW). The maximum width of the pronotum in dorsal view.
Mesosoma Length (ML). The straight-line length from the anterior base of the promesonotal hump to the apex of the metapleural lobe.

All measurements are given in mm. Measurements were made using a Meiji Techno stereomicroscope with an ocular micrometer at a magnification of 40x, with an estimated accuracy of ± 5 μm. The format of the description below follows that laid out in HETERICK (2006).

Monomorium subcomae n. sp.

Holotype. Worker, Camp Doha, near Kuwait City, Kuwait, [approximately 29°21'N, 47°48'E] 18.i.2003, collected by David M. KING.

Paratypes. Camp Doha (all specimens with the same collection data as holotype): 1 worker mounted; 7 workers in 94% ethanol.

The holotype specimen and the paratype material preserved in ethanol have been deposited at the Natural History Museum, London, accession number: BMNH{E} 2008-61. The mounted paratype worker has been retained by the author.

Etymology. Latin '*sub*" ('under') + '*coma*' ('hair of the head').

Worker description. Head (Figs 1-2): Head shortly rectangular with rounded sides; vertex planar; frons punctulate-striate, with striae radiating from frontal triangle and converging again at vertex; 1 pair of erect setae present on dorsum straddling midline, otherwise only sparse adpressed setulae present. Ventral surface of the head with (5)11-15 pairs of non-psammophorous long erect setae. Eye large (maximum length 0.26-0.30 times head width); in full face view set at the midpoint of the head capsule; in profile set slightly dorsal to the midpoint of the head capsule; eye elliptical with a straight ventral edge; 10-12 ommatidia in longest row. Antennal segments 12; scape long, reaching posterior margin of the head; club 3-segmented, not very strongly pronounced. Clypeal carinae weak, parallel; anteromedian clypeal margin weakly concave, lateral margins weakly convex; paraclypeal setae long, reaching the external margin of closed mandibles; posteromedian clypeal margin extending just posterior to the antennal insertions. Anterior tentorial pits situated mid way between the antennal and mandibular insertions. Frontal lobes slightly pronounced; frontal carinae straight, parallel. Palp formula 2:2. Mandibular teeth 4; mandibles weakly convex, distinctly longitudinally rugose; apical margin of mandibles when closed oblique.

Mesosoma (Fig. 3): Promesonotum reticulate-punctate, strongly so on lower mesopleuron (katepisternum); pronotum broadly and evenly convex; mesonotum flat or weakly concave, posteriorly rounded into metanotal groove; promesonotum on a conspicuously higher plane than propodeum; erect promesonotal setae absent, only sparse adpressed setulae present, densest on anterior half of pronotum. Metanotal groove narrowly but conspicuously impressed, with short but distinct costulae. Propodeum reticulate-punctate, coarsely so ventrolaterally, but finer dorsally giving a granular appearance; propodeal dorsum shortly and shallowly convex, rounding smoothly into straight declivitous face; erect setae absent; few adpressed setulae, mainly anteriorly; propodeal spiracle equidistant from metanotal groove, declivitous face and dorsal surface of propodeum; vestibule of propodeal spiracle distinct; propodeal lobes vestigial.

Petiole and postpetiole (Figs. 4-5): Petiolar spiracle situated anterolaterally at base of node; node in profile high, broadly and evenly rounded; node sculpture reticulate; anteroventral petiolar process large and distinct; ventral petiolar lobe slight, anteriad the base of the node; occasionally 1 pair of backwards pointing setae present. Postpetiole node evenly rounded with a sloping posterior face; node sculpture unevenly reticulate-punctate; midpoint of postpetiole sternite depressed; 1 pair of backwards pointing setae present. Ratio of greatest petiole node breadth (viewed from front) to greatest node width (viewed in profile) = 1.07-1.21. Height ratio of petiole to postpetiole = 1.16-1.53. Height-length ratio of postpetiole = 0.94-1.17.

Gaster (Fig. 6): Gaster glossy, superficially reticulate; row of transverse erect setae at apex of first sclerite, erect setae otherwise absent; adpressed or suberect setulae thinly and evenly distributed.

Colour: Head, mesosoma and appendages evenly warm orange-yellow; gaster contrasting dark red-brown.

Measurements. Holotype: HML 2.20, HL 0.78, HW 0.66, CI 85, SL 0.66, SI 100, PW 0.42, ML 0.95. – Paratypes: HML 2.06-2.22, HL 0.75-0.79, HW 0.64-0.69, CI 83-90, SL 0.62-0.66, SI (90)97-102, PW 0.38-0.42, ML 0.91-0.95 (n=8).

Affinities with other species in the genus *Monomorium*. *M. subcomae* is a member of the *salomonis*-group as defined by BOLTON (1987), as suggested by the number of mandibular teeth, palp formula, sculpture and reduced pilosity on the head and mesosoma. Since the *salomonis*-group is one of the largest species-groups within the genus *Monomorium*, BOLTON (1987) divided the Afrotropical species into eight species-complexes, some of which are relevant to the Middle East.

Despite the overall red and black colouration of *M. subcomae*, it is unlikely to form part of the *bicolor*-complex as defined by BOLTON (1987), due to the striate cephalic sculpturation and absence of erect setae on the first gastral tergite anterior to the apical transverse row.

The *australe*-complex has similar cephalic sculpture and also includes the similarly bicoloured species *M. dakarense* Santschi. However, the cephalic sculpture of the *australe*-complex is less distinct and the currently recognised members have erect setae on the first gastral tergite anterior to the apical transverse row, as in the *bicolor*-complex.

M. subcomae clearly forms part of the *areniphilum*-complex. Members of this complex share the same striate cephalic sculpture, large eyes and distinctive shape of the mesosoma in profile. Bolton (1987) comments on the confusion of species within this complex in North Africa and the Middle East, though the latter has been largely clarified by subsequent works (Collingwood 1985, Collingwood & Agosti 1996). Unfortunately, Collingwood & Agosti (1996) made no attempt to identify species groups, so the precise number of Middle Eastern species in the *areniphilum*-complex is not known. However, it is evident from the discussion in COLLINGWOOD & AGOSTI (1996), and original descriptions (SANTSCHI 1936, SMITH 1858), that the complex also includes: *M. areniphilum*; *M. acutinode* Collingwood & Agosti, 1996; *M. dirie* Collingwood & Agosti, 1996; *M. fezzanense* Collingwood & Agosti, 1996; *M. hemame*; *M. marmule* Collingwood & Agosti, 1996; and *M. venustum*.

M. hemame is an unusual member of the *areniphilum*-complex due to the presence of erect setae on the first gastral tergite anterior to the apical transverse row. Although it is the only known member of the complex to possess this characteristic, it has the distinctive mesosoma profile absent in all other described species-complexes within the *salomonis*-group and so is tentatively placed here.

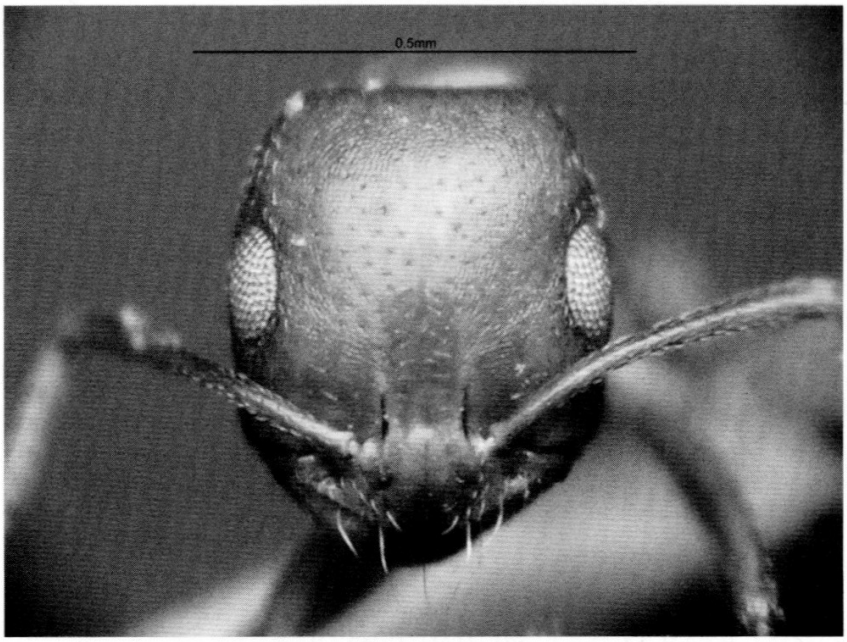

Fig. 1.

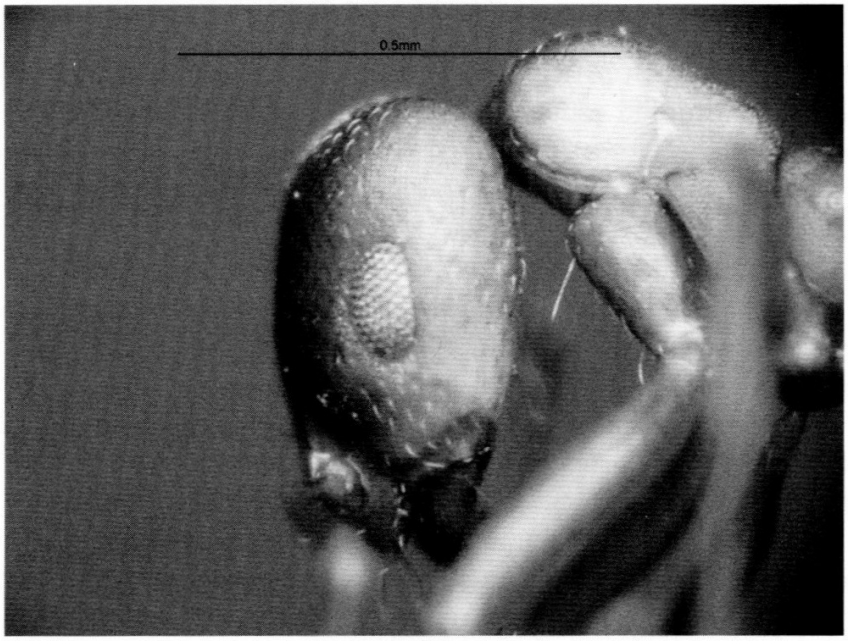

Fig. 2.

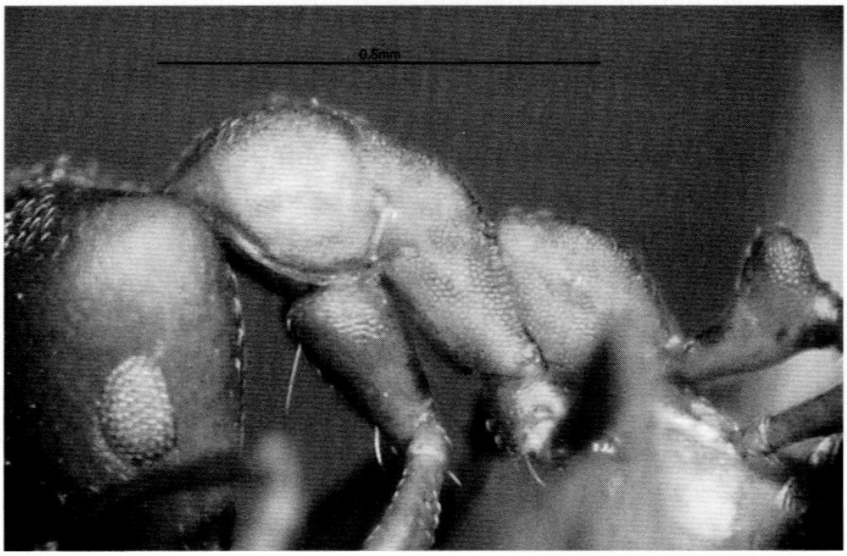

Fig. 3.

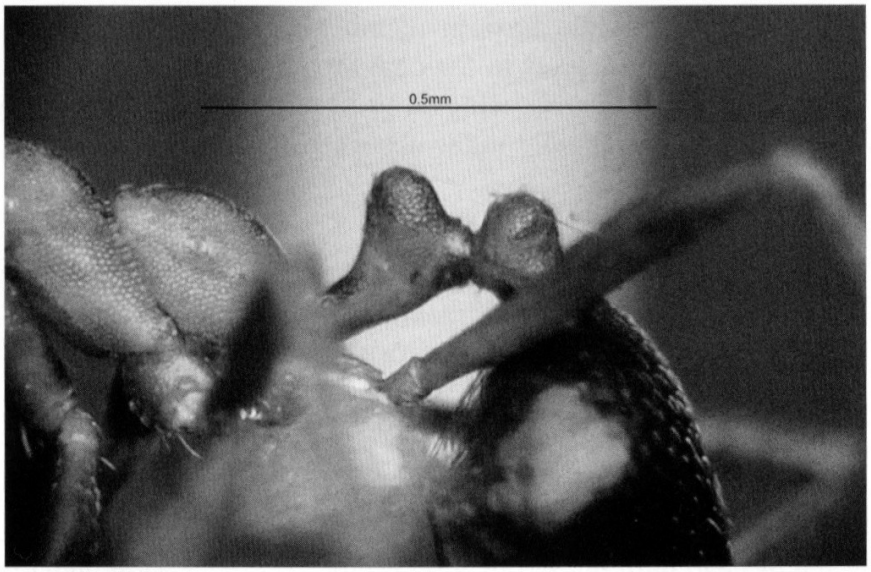

Fig. 4.

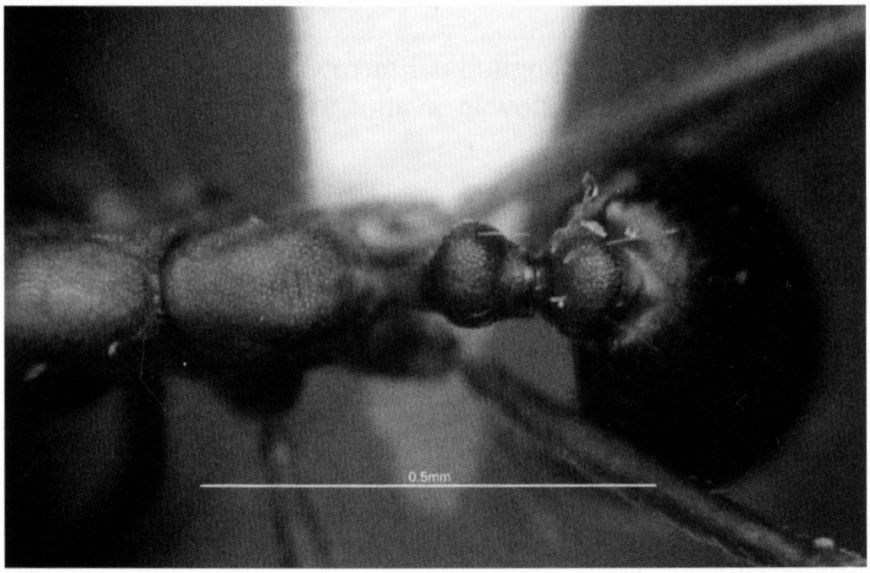

Fig. 5.

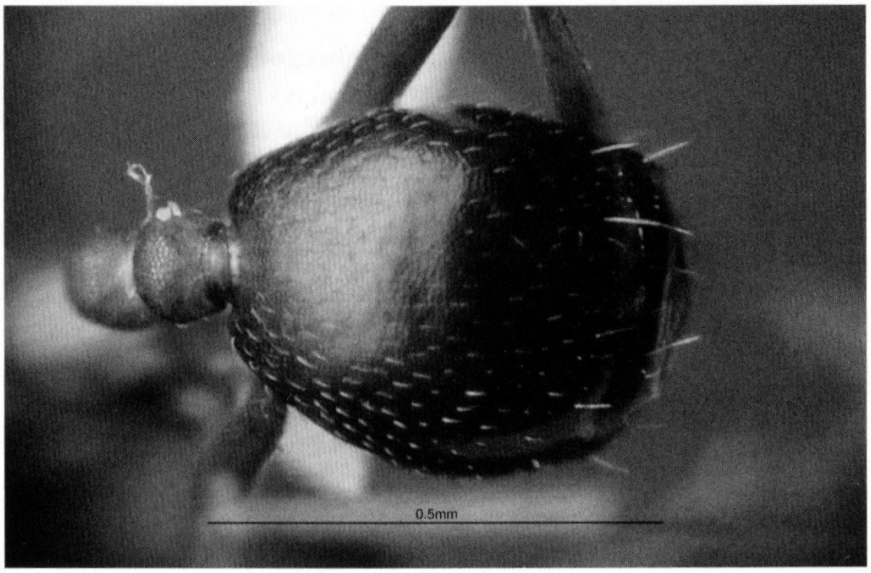

Fig. 6.

Figs. 1-6. *Monomorium subcomae* n.sp. holotype worker from Camp Doha, near Kuwait City, Kuwait, 18.i.2003. Scale bar shown on all photographs 0.5 mm. – 1: head in full face view; 2: head in profile; 3: mesosoma in profile; 4: petiole and postpetiole in profile; 5: propodeum, petiole and postpetiole in dorsal view; 6: gaster in dorsal view. © Mike Lush.

M. subcomae is the smallest Middle Eastern member of the *areniphilum*-complex. Although it has the longest SI of any species in the complex, *M. venustum* is perhaps the most closely related species to *M. subcomae*, being only slightly larger and having the same colouration, and otherwise differing mainly in the absence of subcephalic setae.

Diagnosis

M. subcomae can be distinguished from other Middle Eastern *Monomorium* due to the distinctive shape of the mesosoma, sculpturation, maximum eye width, distribution of setae and colouration. The key to *Monomorium* in COLLINGWOOD & AGOSTI (1996) can be modified to include *M. subcomae* as follows:

Couplets 1-16 remain unchanged.

17	Eyes large, greater than 0.25 times HW	17a
	Eyes small, 0.25 times HW or less	18
17a	Ventral surface of head with numerous long setae	*Monomorium subcomae*
	Ventral surface of head glabrous	*Monomorium venustum*
18	Propodeal dorsum with distinct longitudinal furrow	19
	Propodeal dorsum with slight shallow incavation at most	*Monomorium bicolor*

Couplets 19-51 remain unchanged.

Using BOLTON (1987) *M. subcomae* keys out with *M. areniphilum*, but is distinguished by the eyes being smaller and having on average fewer ommatidia in the longest row, its generally smaller size and the fact that it is distinctly bicoloured.

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