



Research article

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**Taxonomy of the Myrmicine ant genus *Temnothorax* Mayr, 1861
(Formicidae: Myrmicinae) in the Arabian Peninsula**

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Abstract. The Arabian *Temnothorax* Mayr, 1861 fauna is revised for the first time. Three species are recognized from the region: *Temnothorax arabicus* Sharaf & Akbar sp. nov., *T. liviae* (Agosti & Collingwood, 2011) comb. nov. and *T. megalops* (Hamann & Klemm, 1967). *Leptothorax saudiae* Collingwood & Agosti, 1996 was placed in *Temnothorax* by Bolton (2003), but actually belongs to *Tetramorium* Mayr, 1855 and is herewithin recombined to *Tetramorium saudiae* (Collingwood & Agosti, 1996) comb. nov. Automontage images and comparative diagnoses of workers as well as notes on habitats and distribution of treated species are provided. A revised key to the Arabian species based on the worker caste is also presented.

Keywords. Ants, *Temnothorax*, revision, Kingdom of Saudi Arabia, Afrotropical region.

Sharaf M.R., Akbar S.A., Al Dhafer H.M., El-Gharbawy A., Aldawood A.S. 2017. Taxonomy of the Myrmicine Ant Genus *Temnothorax* Mayr, 1861 (Formicidae: Myrmicinae) in the Arabian Peninsula. *European Journal of Taxonomy* 280: 1–17. <http://dx.doi.org/10.5852/ejt.2017.280>

Introduction

The ant genus *Temnothorax* Mayr, 1861 is widespread and currently represented by 431 valid species and subspecies (Bolton 2017). The majority of species are Holarctic in distribution with more than half

of the described species from Europe and the Mediterranean basin (Prebus 2015; Csősz *et al.* 2015). A few species are reported from sub-Saharan Africa and a notable radiation is also prevalent in the Caribbean region (Baroni 1978). The genus *Temnothorax* has been in a state of confusion ever since its original description. Bolton (2003) removed the genus from synonymy under *Leptothorax* Mayr, 1855 and provided a new verve to study of the genus. Ward *et al.* (2015) subsumed Formicoxenini under Crematogastrini and emphasized unresolved relationships among members within the clade. The socially parasitic genera *Chalepoxenus* Menozzi, 1923 and *Myrmoxenus* Ruzsky, 1902 were also synonymized under *Temnothorax* (Ward *et al.* 2015). Seifert *et al.* (2016) expressed doubts about such phylogenetic classification by considering it as “not an actual reflection of the information content of evolution”. The genus *Temnothorax* awaits a global taxonomic revision; however, some of the noteworthy contributions to the genus include those of Radchenko (2004, 2005, eastern Palaearctic species key), Seifert (2007, North and Central Europe), Schulz *et al.* (2007, Italy), Terayama (2009, Taiwan), Zhou *et al.* (2010, China), Plateaux & Cagniant (2012, synonymy list of the genus), Czechowski *et al.* (2012, Poland), Bharti *et al.* (2012, India), Reyes-López & Carpintero-Ortega (2013, Iberian peninsula), Snelling *et al.* (2014, California), Prebus (2015, Afrotropical regions), Salata & Borowiec (2015, eastern Mediterranean), Seifert & Csősz (2015, Eurocaucasian region) and Csősz *et al.* (2015, Ponto-Mediterranean region). Moreover, recent papers by Galkowski & Lebas (2016), Hita *et al.* (2017), Bharti *et al.* (2016) and Sharaf *et al.* (2017) are also pertinent to this study.

The majority of species of *Temnothorax* are known to maintain small colony sizes often including less than 200–300 individuals. Several species of the genus have been reared under controlled laboratory conditions for studies on population growth (Buschinger 1968, 1974), colony structure, pronounced kin conflict (Heinze 2004), social parasites, guest ants, slave-makers, workerless inquiline behavior (Buschinger 1981, 1986, 2009; Hölldobler & Wilson 1990), and behavioral ecology (Aleksiev *et al.* 2007; Pratt *et al.* 2005; Dornhaus & Franks 2006; Franks & Richardson 2006; Basari *et al.* 2014). These ants have a wide habitat range and variety of feeding habits (Mackay 2000; Fokuhl *et al.* 2012). The use of light traps and the handpicking method during evening hours enhance opportunities for collection as these ants are mostly nocturnal and dusk foragers. Social parasitism is exhibited by several species of the genus. Diagnoses of the morphologically similar and sympatric genera *Temnothorax*, *Nesomyrmex* Wheeler, 1910, *Leptothorax* and *Tetramorium* Mayr, 1855 are presented in detail by Bolton (1982), Radchenko (2004) and Prebus (2015).

In the Arabian Peninsula, *Temnothorax* has received relatively little attention. Only a few isolated descriptions have been published from the region. Collingwood & Agosti (1996) listed six taxa of *Temnothorax* occurring in the Arabian Peninsula and formerly assigned to the genus *Leptothorax*: *L. humerosus* (Emery, 1846), *L. angulatus* (Mayr, 1862) and *L. saudiae* (Collingwood & Agosti, 1996), plus three undescribed species (*Leptothorax* A, B, C). Bolton (2003) transferred *L. humerosus* and *L. angulatus* to the genus *Nesomyrmex*. Collingwood *et al.* (2011) described a new species, *L. liviae*, and reported *L. megalops* for the first time from the UAE. The three undescribed species (Collingwood & Agosti 1996) were never established as valid species and cannot be found in the World Museum Liverpool Collection, Liverpool, United Kingdom (WMLC), where Collingwood’s collection is deposited.

Material and methods

The material examined in this study was collected by pitfall traps, Malaise traps, and hand searching methods during surveys carried out in different regions of the Kingdom of Saudi Arabia (KSA) from 2010 to 2015. Type material of the treated species conserved in different museums (WMLC, KSMA, NHMB, NHMW, and CASC) was also studied and compared. Morphological examinations were conducted using a Nikon SMZ 1500 stereo zoom microscope. Digital color images of lateral and dorsal views of the entire body and full-face views of the head of each species were created using a Leica DFC450 digital camera with a Leica Z16 APO microscope and Leica Application Suite LAS (v3.8)

software. These images are also available online on AntWeb (www.AntWeb.org) and are accessible using the unique identifying specimen code.

Abbreviations for morphological terms

Throughout the text, ‘w’ stands for ‘worker’ or ‘workers’ and ‘q’ for ‘queen’.

All measurements are given in millimeters following Seifert (2006), Snelling *et al.* (2014) and Prebus (2015):

EL	=	Eye length; the maximum length of the compound eye in profile, including non-pigmented facets
FRS	=	The distance of the frontal carinae immediately caudal of the posterior intersection points between frontal carinae and the lamellae dorsal of the torulus
HFL	=	Hind femoral length; the maximum length of hind femur in dorsal view, excluding trochanter
HFw	=	Hind femoral width; the maximum width of hind femur in dorsal view
HL	=	Head length; in frontal view, the maximum length of head from the mid-point of the anterior clypeal margin to posterior margin of the head
HW	=	Head width; the maximum width of head in frontal view, excluding eyes
IOD	=	Interocular distance; the minimum distance between compound eyes in frontal view
IOcD	=	Inter-ocellar distance; the minimum distance between the posterior-most pair of ocelli, applies to queens
OMD	=	Oculomandibular distance or malar distance (MD = malar distance in Seifert 2006). The shortest length of malar area, measured in profile the shortest distance between the anterior margin of the eye and the base of the mandible
PPTH	=	Postpetiole height; the maximum height of the postpetiole measured in lateral view from the highest (median) point of the node to the ventral outline
PPTL	=	Postpetiole length; the maximum length of postpetiole measured in dorsal view, excluding helcium
PPTW	=	Postpetiole width; the maximum width of postpetiole measured in dorsal view
PTH	=	Petiole height: the maximum height of the petiole, measured from the apex of the node to the ventral edge of petiole, parallel to the anterior margin of the petiole
PTL	=	Petiole length; the maximum length of the petiole is measured in dorsal view from the anterior notch close to the propodeum to the articulation with the postpetiole
PTW	=	Petiole width; the maximum width of petiole measured in dorsal view
PW	=	Pronotal width; the maximum width of pronotum in dorsal view
SPST	=	The distance between the center of the propodeal stigma (spiracle) and spine tip. The stigma center refers to the midpoint defined by the outer cuticular ring but not to the center of the stigma opening, which may be positioned eccentrically (Seifert 2006)
SL	=	Scape length; the maximum straight-line length of scape shaft excluding condyle
WL	=	Weber’s length; the diagonal length of mesosoma in profile, from the posteroventral margin of propodeal lobe to the anterior-most point of pronotal slope, excluding the neck

Indices

CI	=	Cephalic index ($HW/HL \times 100$)
FI	=	Femoral length index ($HFL/HW \times 100$)
OI	=	Ocular index ($EL/HW \times 100$)
PI	=	Petiole node index ($PTW/PW \times 100$)
PSLI	=	Propodeal spine index ($SPST/HL \times 100$)
SI	=	Scape index ($SL/HL \times 100$)

Institutional abbreviations

- CASC = California Academy of Sciences Collection, San Francisco, U.S.A.
KSMA = King Saud University Museum of Arthropods, Plant Protection Department; College of Food and Agriculture Sciences, King Saud University, Riyadh, Kingdom of Saudi Arabia
NHMB = Naturhistorisches Museum, Basel, Switzerland
NHMW = Naturhistorisches Museum Wien, Vienna, Austria
WMLC = World Museum Liverpool Collection, Liverpool, U.K.

Results

Family Formicidae Latreille, 1809
Subfamily Myrmicinae Lepeletier, 1835
Tribe Crematogastrini Forel, 1893
Genus *Temnothorax* Mayr, 1861

Temnothorax arabicus Sharaf & Akbar sp. nov.

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Figs 1–3

Etymology

The new species *Temnothorax arabicus* sp. nov. is named after the Arabian Peninsula.

Type material

Holotype worker

SAUDI ARABIA: Asir, Abha, Raydah, 18°12.315' N, 42°24.607' E, alt. 2761 m, 26 Jul. 2014, M.R. Sharaf leg. CASENT0746640 (KSMA).

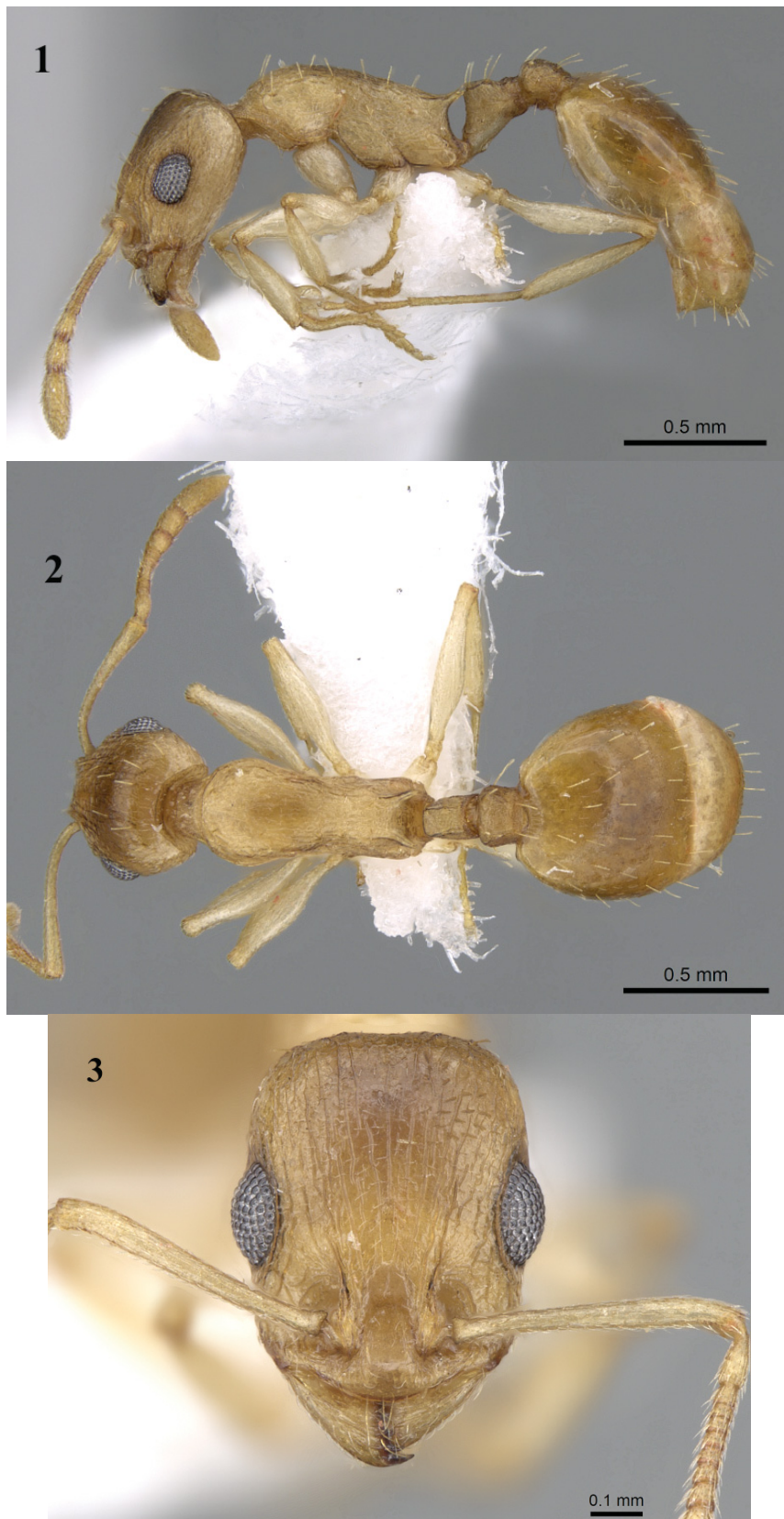
Paratypes

SAUDI ARABIA: 1 w, same data as the holotype, 5 Mar. 2015, Al Dhafer *et al.* leg. (PT) (KSMA); 3 w, Al Bahah, Sahda Al Ala, 19°50.411' N, 41°18.686' E, alt. 1611 m, 29 Jul. 2015, Al Dhafer *et al.* leg. (PT) (KSMA, 1 in CASC); 1 w, Al Bahah, Shohba Forest, 20°2.723' N, 41°28.565' E, 14 May 2010, M.R. Sharaf leg. (KSMA); 1 w, Al Bahah, Sahda Al Ala, 19°50.329' N, 41°18.604' E, alt. 1563 m, 29 Jul. 2015, Al Dhafer *et al.* leg. (PT) (KSMA); 1 w, Al Bahah, Sahda Al Ala, 19°50.710' N, 41°18.267' E, alt. 1474 m, 29 Jul. 2015, Al Dhafer *et al.* leg. (PT) (KSMA); 2 w, Al Bahah, Sahda Al Ala, 19°50.411' N, 41°18.686' E, alt. 1611 m, 2 Mar. 2015, Al Dhafer *et al.* leg. (PT) (KSMA); 1 w, Wadi Shahdan, Jizan, 17°45.222' N, 42°71.516' E, alt. 200 m, 13 Nov. 2012, M.R. Sharaf leg. (CASENT0906493) (KSMA).

Description

MEASUREMENTS. (Holotype in brackets) EL 0.17-(0.20); FRS 0.20-0.21; HFL 0.61-(0.62); HFW 0.11-(0.12); HL 0.63-(0.67); HW 0.50-(0.53); IOD 0.39-(0.42); OMD 0.14-(0.15); PPTL (0.14)-0.15; PPTH (0.15)-0.16; PPTW 0.21-(0.23); PTL (0.14)-0.15; PTH (0.20)-0.21; PTW 0.12-(0.13); SPST 0.21-(0.24); PW 0.35-(0.36); SL 0.49-(0.50); WL 0.74-(0.75); CI (79)-79; OI 34-(38); FI 122-(117); PI 34-(36); PSLI 33-(35); SI (75)-78 (n= 6).

HEAD. Longer than broad in frontal view (CI 79), lateral margins converge anteriorly and posteriorly; posterior margin weakly concave in middle; antenna 12-segmented; scapes large, clavate, when laid back from their insertions fail to reach posterior margin of head (SI 75–78); eyes prominent, situated about at midline on head sides (EL 0.17–0.20, IOD 0.39–0.42); median lobe of clypeus protruding forwards, with a weak submedian carinae; mandibles triangular, with masticatory margin armed with 4–5



Figs 1–3. *Temnothorax arabicus* Sharaf & Akbar sp. nov., holotype, worker (CASENT0746640)
1. Body in profile. 2. Body in dorsal view. 3. Head in frontal view.

prominent teeth. Mesosoma slender (WL 0.74–0.75); in profile, mesosoma forming almost a continuous arch; metanotal groove weakly impressed; humeri in dorsal view rounded; propodeal spines long and sharp with acute tips (PSLI 33–35), slightly longer than distance between their bases; metafemur much longer than wide in dorsal view (HFL 0.61–0.62, HFW 0.11–0.12). Petiole node highest anteriorly, with a slightly concave anterior face and flat dorsum, sloping downwards to the posterior face; subpetiolar process reduced. Postpetiole node rounded in profile and trapezoidal in dorsal view. Gaster ovate, smooth and shiny; basal half of first tergite slightly roughened, becoming increasingly shiny and weakly sculptured.

HEAD AND BODY. Uniformly pale brownish yellow to light brown, head and gaster slightly darker. Head, median lobe of clypeus and supraclypeal area, smooth and shiny; longitudinal rugae distinct over cephalic surface in full-face view; mesosoma weakly reticulate-rugulose. Petiole and postpetiole nodes dull and finely reticulate, without much rugae. Vertex, frons and frontal lobes with few erect hairs; clypeus with a single erect hair on each side of median lobe in addition to usual long curled hairs along anterior margin. Erect hairs also present throughout mesosoma; petiole and postpetiole with several erect hairs which are longer than mesosomal pilosity; all gastral tergites with scattered short, erect or suberect hairs.

Ecology

The holotype and a single paratype specimen were collected in a pitfall trap set in the Asir Mountains. Other paratype specimens were collected by sifting soil from litter samples taken under a palm tree *Hyphaene thebaica* (L.) Mart. (Arecaceae) in the provinces of Jizan and Al Bahah in Saudi Arabia.

Remarks

The new species is a member of the *T. laurae* (Prebus, 2015) species group of the Afrotropical Region. Among the poorly known species from the region, *T. arabicus* sp. nov. seems to have affinities with *T. mpala* Prebus, 2015 from Kenya. The two species can be easily differentiated through a combination of characteristics. *T. arabicus* sp. nov. = head longer than broad (CI 79), lateral margins strongly converge anteriorly and posteriorly, smaller propodeal Spine Index (PSLI 33–35), clypeus smooth and shiny without any prominent median or longitudinal rugae, cephalic dorsum with feeble longitudinal rugae and pilosity prominent; whereas *T. mpala* = head subrectangular, longer than broad (CI 72–76), lateral sides parallel, slightly converging towards the mandibular insertions, higher propodeal Spine Index (PSLI 25–27), clypeus with strongly developed median ruga and much more prominent longitudinal rugae, cephalic dorsum reticulate, and pilosity sparse.

The two species differ considerably in morphometrics as well (in *T. arabicus* sp. nov., PTL 0.14–0.15; PTH 0.20–0.21; PTW 0.12–0.13 compared with PTL 0.20–0.23; PTH 0.19–0.22; PTW 0.16–0.17 in *T. mpala*) and postpetiole (in *T. arabicus* sp. nov., PPTH 0.15–0.16; PPTL 0.14–0.15; PPTW 0.21–0.23 compared with PPTH 0.17–0.18; PPTL 0.12–0.15; PPTW 0.22–0.24 in *T. mpala*).

Temnothorax liviae (Agosti & Collingwood, 2011) comb. nov.

Figs 4–9

Leptothorax liviae Agosti & Collingwood in Collingwood *et al.* 2011: 430, pl. 44–46, figs 36–37 (combined in *Temnothorax* by Bolton (2017), not formally published, see <http://antcat.org>).

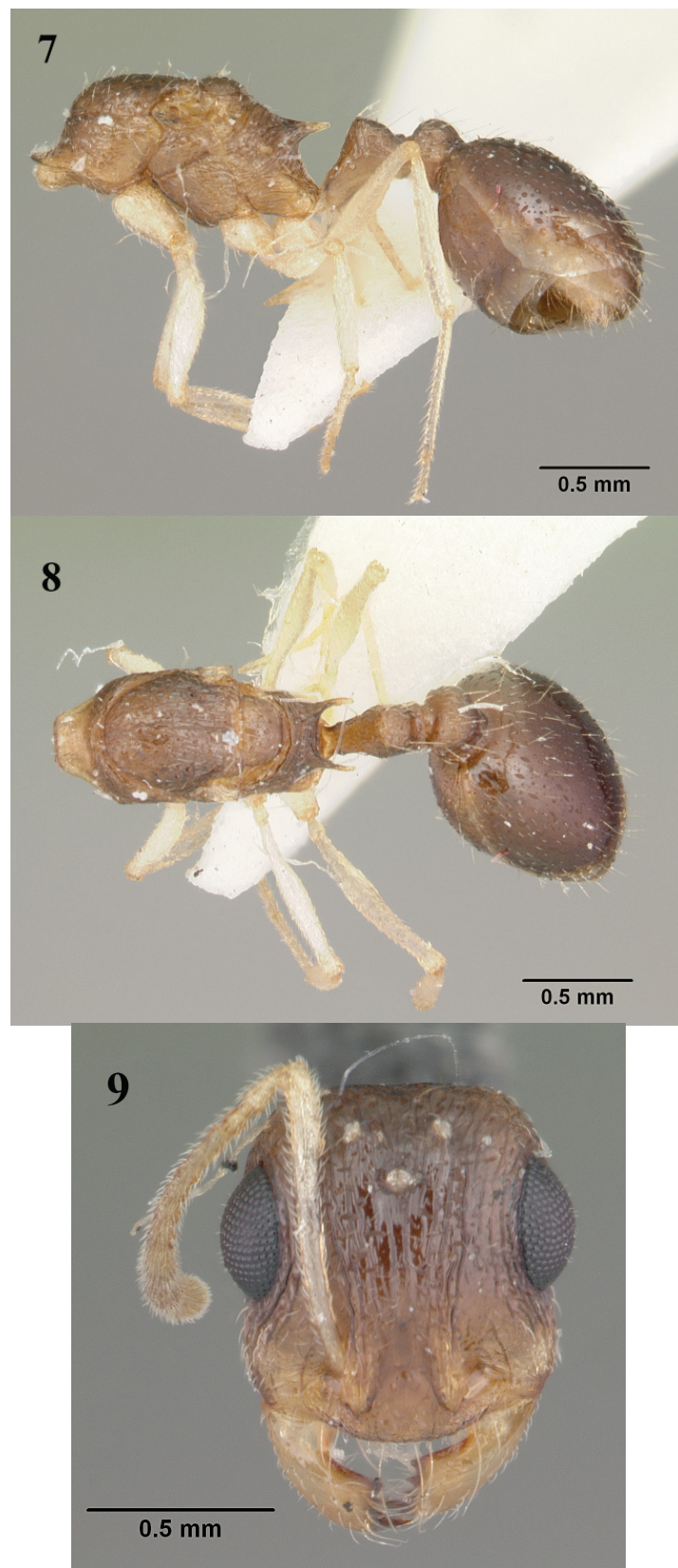
Material examined

Holotype

UNITED ARAB EMIRATES: Baynunah sand desert, 23°40'N, 53°00'E, 2 Mar. 1995, CASE T0102700.



Figs 4–6. *Temnothorax liviae* (Agosti & Collingwood, 2011) comb. nov., holotype, worker (CASENT0102700). **4.** Body in profile. **5.** Body in dorsal view. **6.** Head in frontal view.



Figs 7–9. *Temnothorax liviae* (Agosti & Collingwood, 2011) comb. nov., queen (CASENT0102699).
7. Body in profile. 8. Body in dorsal view. 9. Head in frontal view.

Paratype

UNITED ARAB EMIRATES: 1 dealate q, Baynunah sand desert, 23.8333° N, 52.8333° E, 3 Dec. 1994, B. Tigar & C.A. Collingwood leg. (CASENT0102699) (NHMB).

Description

Holotype worker

MEASUREMENTS. EL 0.33; FRS 0.26; HFL 0.83; HFW 0.13; HL 0.94; HW 0.72; IOD 0.65; OMD 0.18; PPTL 0.26; PPTH 0.25; PPTW 0.42; PTL 0.46; PTH 0.37; PTW 0.26; SPST 0.32; PW 0.53; SL 0.86; WL 1.16; CI 77; OI 46; FI 115; PI 49; PSLI 34; SI 119 (n=1).

HEAD. Distinctly longer than broad (CI 77), with straight posterior and lateral margins; eyes massive (EL 0.45 × HW), with 20 ommatidia in longest row; frontal carinae short extending back only as far as the anterior level of eyes; scapes relatively long (SI 119), when laid back from their insertions clearly surpassing posterior margin of head. Mesosoma slender (WL 1.16); metanotal groove shallow but distinct; propodeal dorsum nearly straight or feebly convex; propodeal spines long, sharp and acute (PSLI 34); anterior pronotal corners distinctly rounded in dorsal view. In profile, petiole distinctly longer than broad (PI 49), with convex dorsum. Postpetiole distinctly broader than long.

BODY. Pale brown, gaster dark brown, antennae, mandibles and legs yellow. Cephalic dorsum strongly, longitudinally and irregularly striate; mandibles feebly longitudinally striate; mesosoma irregularly longitudinally striate; petiole and postpetiole feebly and superficially sculptured; gaster smooth and shining. Cephalic dorsum with many sparse short hairs; underside of head with a few short curved hairs; mesosomal pilosity restricted to three pairs on pronotal angles, two on mesonotum and two short pairs on propodeal dorsum; petiole with two pairs of long back directed hairs; postpetiole with three pairs of long hairs; gaster with many scattered shorter hairs.

Queen

MEASUREMENTS. EL 0.35; FRS 0.27; HFL 0.85; HFW 0.14; HL 1.01; HW 0.75; IOD 0.67; OMD 0.21; IOcD 0.19; PPTL 0.29; PPTH 0.27; PPTW 0.45; PTL 0.50; PTH 0.40; PTW 0.28; SPST 0.32; PW 0.57; SL 0.87; WL 1.24; CI 74; OI 46; FI 113; PI 49; PSLI 31; SI 80 (n=1).

HEAD AND BODY. Similar to the workers from the same colony but larger, with thicker body, especially mesosoma and gaster. Ocelli present, prominent. Pilosity is much more prominent compared to the workers.

Ecology

Specimens were collected in a pitfall trap from Baynunah, a sandy desert in United Arab Emirates (UAE). The species is known only from its type locality.

Remarks

Despite the absence of formally published data, *Leptothorax liviae* has long been treated as a member of the genus *Temnothorax* (Bolton 2017). This generic placement of the species is obvious from the presence of a median clypeal carina, the absence of a transverse crest on the stipes, and the 12-segmented antennae, typical of *Temnothorax*. Based on Bolton's unpublished opinion and examination of the material during the present study, *Leptothorax liviae* is hereby validated as *Temnothorax liviae* (Agosti & Collingwood, 2011) comb.nov.

Temnothorax megalops (Hamann & Klemm, 1967)
Figs 10–15

Leptothorax (Icothorax) megalops Hamann & Klemm 1967: 417, fig. 1 (w.q.).
Temnothorax megalops – Bolton 2003: 271; 1982: 331.

Material examined

Holotype

SUDAN: Wadi Halfa, wet ditch, 28 Jan. 1962, H. Hamann & W. Klemm leg. (CASENT0712601).

Paratype

SUDAN: 1 dealate q, same data as holotype (CASENT0712600) (NHMW).

Other material examined

YEMEN: 1 q, Al Kawd, 13.08861° N, 45.36472° E, 7 Sep. 2001, Van Harten leg., code 6770 (CASENT0906380) (WMLC); 1 q, Jun. 1999, Van Harten leg., code 8877 (CASENT0922183) (WMLC); 1 q, Al Kawd, 13.08861° N, 45.36472° E, Sep. 1999, Van Harten leg., 4170 (CASENT0922180) (WMLC).

Remarks

The species was recently treated by Prebus (2015), who provided a complete diagnosis.

Ecology

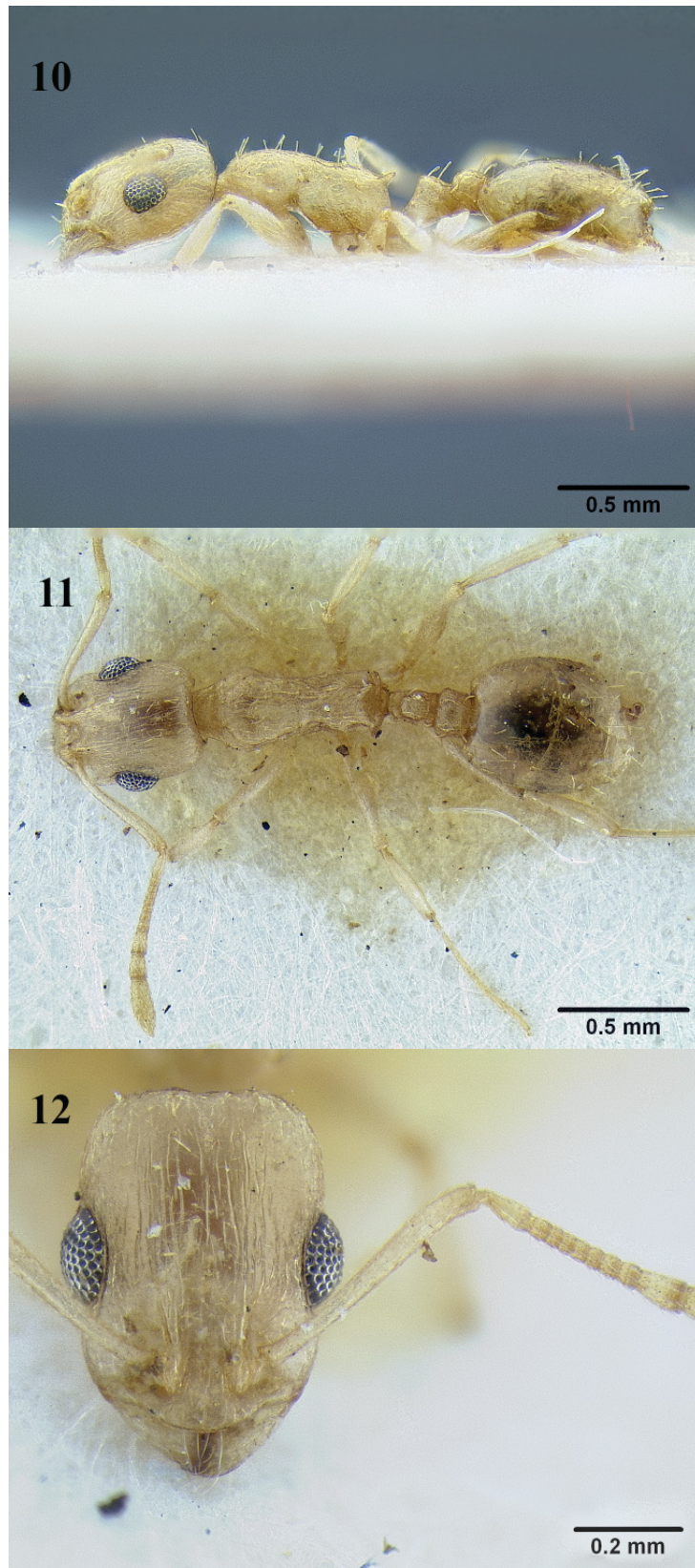
This species was described from Sudan and was recently recorded from the UAE (Sharjah Desert Park, 25°22.021' N, 055°40.264' E, Wadi Wurayah, 25°24' N, 56°15' E) (Collingwood *et al.* 2011).

Note

The specimen with code CASENT0906379 [labelled on AntWeb](#) as a worker specimen of *T. megalops* (collected from Yemen, Abyan, Al Kawd, 7 Sep. 2001, 13.08861° N, 45.36472° E, Van Harten leg., WMLC), actually represents a species of *Nesomyrmex* that has been misidentified and placed in *Temnothorax*.

Key to species of *Temnothorax* of the Arabian Peninsula

- 1 Uniformly yellow; HW<0.55; PI<40; IOD<0.452
– Uniformly brown or blackish brown species; HW>0.60; PI>45; IOD>0.55 (United Arab Emirates)*T. liviae* (Agosti & Collingwood, 2011) comb. nov.
- 2 Cephalic dorsum nearly smooth and shiny with feeble longitudinal striae in full-face view; frontal carinae feeble, running back to anterior level of eyes; propodeal spines short and blunt; petiole with a single pair of distinctly erect hairs; mesosomal dorsum feebly, longitudinally, rugose on pronotum and mesonotum, reticulate on propodeum. (Sudan and United Arab Emirates)*T. megalops* (Hamann & Klemm, 1967)
Cephalic dorsum strongly, longitudinally, irregularly striate in full-face view; frontal carinae more developed, running back to midlevel of eyes; propodeal spines long and sharp; petiole with two pairs of normal hairs; mesosoma weakly reticulate-rugose. (KSA)*T. arabicus* Sharaf & Akbar sp. nov.



Figs 10–12. *Temnothorax megalops* (Hamann & Klemm, 1967), holotype, worker (CASENT0712601).
10. Body in profile. **11.** Body in dorsal view. **12.** Head in frontal view.



Figs 13–15. *Temnothorax megalops* (Hamann & Klemm, 1967), queen (CASENT0712600). **13.** Body in profile. **14.** Body in dorsal view. **15.** Head in frontal view.

Species excluded from synonymy of *Temnothorax*

Tetramorium saudiae (Collingwood & Agosti, 1996) comb. nov.
Figs 16–18

Leptothorax saudiae Collingwood & Agosti, 1996: 325, fig. 9 (w).

Temnothorax saudiae – Bolton 2003: 271.

Material examined

Holotype worker

SAUDI ARABIA: Al Muraywah, 28°46' N, 45°00' E, 27–28 Oct. 1986, alt. 420 m, W. Buttiker leg. (CASENT0922184) (WMLC).

Remarks

Collingwood & Agosti (1996) described *Leptothorax saudiae* based upon a single specimen deposited in WMLC. The specimen in WMLC with a red label [Saudi Arabien, Al Muraywah, 28 46N, 45 00E, 27–28 Oct. 86, 420 m, W. Buttiker] is not specified as the holotype, yet the label information matches the original description exactly. This specimen, therefore, definitely represents the *Leptothorax saudiae* holotype. However, contrary to Bolton's transferral of the species to *Temnothorax* (Bolton 2003), this specimen clearly belongs to the genus *Tetramorium* based on the following observations: it possesses lateral portions of clypeus that are raised into sharp ridges or shield walls in front of the antennal insertions and the propodeal spiracles are low on the sides and distinctly behind the midlength of the sclerite. This taxon is herein formally transferred to the genus *Tetramorium*.

Discussion

The genus *Temnothorax* is represented by only three valid species from the Arabian Peninsula. These are *T. arabicus* sp. nov., *T. liviae* comb. nov., and *T. megalops*. These three species have been infrequently encountered in collections. *Temnothorax liviae* comb. nov. may be considered rarest among the known regional species, having been reported so far from its type locality only. The *Temnothorax* fauna of the Arabian Peninsula has its closest affinity with the *T. laurae* species group from Iberia, North and East Africa. The group is characterized by an elongate head capsule, large eyes with distinct micropilosity between the facets (there is, however, no sign of such micropilosity on any of the AntWeb photographs of the species), trapezoidal petiole, coarsely striate sculpture and impressed metanotal groove (Cagniant & Espadaler 1997; Tinaut 1995; Prebus 2015).

Acknowledgements

The authors would like to extend their sincere appreciation to the Deanship of Scientific Research at the King Saud University for funding this Research group NO (RGP -1436-029). The authors are grateful to Boris Kondratieff, Sándor Csósz, Matthew Prebus and an anonymous reviewer for suggestions and comments regarding the manuscript. Special thanks are also due to Brian Fisher and the AntWeb team (www.antweb.org) for their much appreciated assistance in photographing the species. Mostafa Sharaf is grateful to Tony Hunter (Entomology Curator, WML) and Stephen Judd (Director, WML) for appreciated support during a visit to the U.K., and to Tony van Harten for providing material from Arabia.



Figs 16–18. *Tetramorium saudiae* (Collingwood & Agosti, 1996), holotype, worker (CASENT0922184).
16. Body in profile. **17.** Body in dorsal view. **18.** Head in frontal view.

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Manuscript received: 5 April 2016

Manuscript accepted: 13 July 2016

Published on: 16 February 2017

Topic editor: Gavin Broad

Desk editor: Chloe Chester

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