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Review of the *Camponotus samius* complex (Hymenoptera: Formicidae) in the Turano-Balkan region, with the description of a new species from Iran

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Abstract

Here we define the *Camponotus samius* complex, a distinct subunit within the *compressus-sylvaticus* group, and revise the species known from the Turano-Balkan region (the Balkans, Middle East, Anatolia, Caucasus, Iran and W Turkestan). We confirm the presence of six species of the complex from the Turano-Balkan region, and we provide diagnoses and a key. Additionally, based on new material from the Chaharmahal va Bakhtiari Province of Iran, we describe *Camponotus bakhtiariensis* **sp. nov.**—a new member of the *samius* complex.

Key words: key to species**,** *Tanaemyrmex*, taxonomy, eastern Mediterranean, western Turanian

Introduction

The genus *Camponotus* Mayr, 1861 is recognized as the most speciose within the family Formicidae. Based on present-day data this globally distributed genus consists of 1041 species and 453 subspecies, and reaches the highest diversity in the Neotropics (Bolton 2019; Salata *et al.* 2019). There are 172 *Camponotus* species and subspecies known from Palearctic and the majority of them were described from the Mediterranean and Turanian Regions (Bolton 2019). Species of this genus are usually common and are recorded in various habitats, from open and arid steppes to moist woodlands. Salata *et al.* (2019) considered two regions as centers of diversity of this genus in the Western part of Palearctic. The first one covers the Iberian Peninsula and the Atlas Mountains, and the second one covers the Aegean Region.

The subgenus *Tanaemyrmex* Ashmead, 1905 was reviewed and divided into 12 species-groups by Emery (1925). Radchenko (1997) revised members of this subgenus known from Palearctic Asia but the taxonomy of *Tanaemyrmex* in the Western Palearctic has been poorly studied and recent publications are descriptions of single species (Ionescu-Hirsch 2010; Tohmé & Tohmé 2000; Karaman 2012; Karaman *et al.* 2017). Our studies of the Turano-Balkan region (the Balkans, Middle East, Anatolia, Caucasus, Iran and W Turkestan; a subdivision of the Turano-Mediterranean chorotype defined by Vigna Taglianti *et al*. [1999]) reveal a complex of six similar species that share the following characters: the overall body size is large relative to other *Tanaemyrmex* in the region, and the dorsal surfaces of the scapes, the femora, and the lateral and posterior surfaces of the tibiae are covered with suberect pubescence. We define these as the *Camponotus samius* complex. The main characters of the *samius* complex overlap with these listed by Emery (1925) in the diagnosis of the *compressus-sylvaticus* group. Emery's *compressus-sylvaticus* group is distributed across the Mediterranean region, Africa and Asia, and contains 12 species, 15 subspecies and 32 varieties. Due to the unclear taxonomic status of the majority of the names and limited access to new material from Africa and Asia, a comprehensive revision of the whole group is currently impossible. However, new material collected in the Turano-Balkan region allows us to define and revise the *samius* complex regionally. The complex is not endemic to the region and its distribution overlaps with the *compressus-sylvaticus* group in general. However, the complicated

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taxonomic history and the unclear status of the majority of species of the *compressus-sylvaticus* group prevent more global understanding of the *samius* complex.

Previous to our study there were five species of this complex known from the region: *C. festai* Emery, *C. ionius* Emery, *C. samius* Forel, *C. laconicus* Emery and *C. riedeli* Pisarski. Our recent study of material collected in south-western Iran revealed the presence of a new species in the complex, *Camponotus bakhtiariensis* **sp. nov.** It is most similar to *C. laconicus* Emery, 1920, a species endemic to southern Greece. Here we define the *Camponotus samius* complex for the Turano-Balkan region, diagnose the species in the region, and describe *Camponotus bakhtiariensis* **sp. nov.**—a new member of the complex.

Material and methods

Specimens were collected from sites in different parts of the Turano-Balkan region and deposited in the Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland. The dominant method was direct sampling (hand collecting). Individual specimens were collected on the ground and tree trunks and from low vegetation. Nests were found by lifting moderate size rocks, searching under tree bark, and splitting dry and empty branches. All specimens were preserved in 75% EtOH. Photos were taken using a Nikon SMZ 1500 stereomicroscope, Nikon D5200 photo camera, and Helicon Focus software. All given label data are in the original spelling, presented in square brackets; a vertical bar (|) separates data on different rows and double vertical bars (||) separate labels. Photographs of type specimens are available online on AntWeb (www.AntWeb.org) and are accessible using the unique CASENT identifying specimen code.

Examined specimens are housed in the following collections:

CAS	California Academy of Sciences, San Francisco, USA;
MNHW-DBET	Museum of Natural History, University of Wrocław, Poland, in temporary deposit at Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland (coll. L. Borowiec);
MHNG	Muséum d'Historie Naturelle, Genève, Switzerland;
MSNG	Museo Civico di Storia Naturale, Genova, Italy;
MZPW	Instytut Zoologii, Polska Akademia Nauk. Warszawa, Poland.

Measurements

HL	head length; measured in a straight line from mid-point of anterior clypeal margin to mid-point of posterior margin of head in full-face view;
HW	head width; measured in full-face view directly above the eyes;
SL	scape length; maximum straight-line length of scape excluding the basal condylar bulb;
PW	pronotum width; maximum width of pronotum in dorsal view;
PRL	propodeum length; measured in lateral view, from metanotal suture to posterior-most point of propodeum;
PRW	propodeal width; maximum width of propodeum in dorsal view;
PTH	petiole height; the chord of ventral petiolar profile at node level is the reference line perpendicular to which the maximum height of petiole is measured in lateral view;
PTW	petiole width; maximum width of the petiolar node in lateral view;
WL	Weber's length; measured as diagonal length from the anterior end of the neck shield to the posterior margin of the propodeal lobe.

Ratios

CI	cephalic ratio, HL/HW;
SI	scape ratio, SL/HL;
PI	petiole ratio, PTH/PTW.

Pilosity inclination follows terminology in Wilson (1955). Appressed (0–5°) hairs run parallel or nearly parallel to the body surface. Decumbent hairs stand 10–40°, subdecumbent hairs stand ~45° from the surface, suberect hairs bend about 10°–20° from vertical, and erect hairs stand vertical or nearly vertical.

Synopsis of species of the *Camponotus samius* complex from the Turano-Balkan region

Camponotus bakhtiariensis **sp. nov.**
Camponotus festai Emery, 1894
    =*Camponotus maculatus caeciliae* Forel, 1906
Camponotus ionius Emery, 1920
Camponotus laconicus Emery, 1920
Camponotus riedeli Pisarski, 1971
Camponotus samius Forel, 1889
    =*Camponotus samius spagnolinii* Emery, 1920
    =*Camponotus rubripes cognatus cognatopilicornis* Forel, 1889 [unavailable name]
    =*Camponotus maculatus samius bosphoricus* Forel, 1906 [unavailable name]

Taxonomy

Camponotus samius complex

Diagnosis. Members of the subgenus *Tanaemyrmex*. Polymorphic species; body size medium to large (majors: HL: 2.0–4.0, HW: 1.5–3.5, WL: 3.0–5.0); head in major workers wider posteriorly than anteriorly with variable posterior margin, from slightly convex to moderately concave, in minor workers elongated with parallel sides and rounded posterior margin; mesosoma in lateral view gradually arched with dorsum never flattened; metanotal groove absent; clypeus with extended anterior margin, forming a small subrectangular lobe beyond the genal margins; body generally shiny, in major workers head often more or less dull, surface with sparse to moderately dense background sculpture; tibiae with at least a row of bristles on the ventral surface; dorsal surface of antennal scape and hind tibia with suberect pubescence and sometimes with long erect setae; gaster with relatively dense pubescence and long, erect setae. Members of the complex form two species subunits. The first subunit contains species with scape and hind tibia with suberect pubescence only, without erect setae. It consists of *C. bahtiariensis*, *C. ionius*, *C. laconicus* and *C. samius*. The second subunit is characterized by antennal scape and hind tibia with both suberect pubescence and sparse, long, erect setae. This subunit contains *C. festae* and *C. riedeli*.

Key to species of the *Camponotus samius* complex from Turano-Balkan region

1. Scape and hind tibia with suberect, short setae and additional long, erect setae . . . . . .2.
-. Scape and hind tibia with only suberect, short setae; long, erect setae absen . . . . . .3.
2. Mesosoma reddish to reddish brown, head and gaster always darker coloured than mesosoma, partly to completely brown to almost black, legs reddish brown to pale brown (Fig. 17, 18). Turkey, Lebanon, Israel and Syria . . . . . .*C. festai* Emery
-. Head, mesosoma and gaster uniformly coloured, brown to almost black, legs dark brown (Fig. 19). Iraq. . . .*C. riedeli* Pisarski
3. Gena without erect setae (Figs 20, 21). Greece, Bulgaria, North Macedonia, Serbia and western Turkey . . . . . *C. ionius* Emery
-. Gena with numerous erect setae (Figs 7, 8, 22–25) . . . . . .4.
4. Base of gaster distinctly paler coloured than the rest of gastral tergites, mesosoma partly yellowish-red to red, occasionally uniformly brown (Figs 15, 16). Greece, Turkey, Romania, Bulgaria. . . . . *C. samius* Forel
-. Gaster uniformly black, sometimes minor workers with the base of gaster indistinctly brighter, mesosoma in both minor and major workers uniformly brown to black (Figs 1, 2, 5, 6, 13, 14) . . . . . .5.
5. Mesosoma in both major and minor workers slimmer, with rounded propodeal angle (Figs 13, 14). Petiolar node in major worker stout with distinctly convex anterior surface (Fig. 10), in minor worker triangular in profile (Fig. 14). Legs in minor workers usually partly reddish-brown. Central and southern Greece . . . . . *C. laconicus* Emery
-. Mesosoma in both major and minor workers stouter, in major worker with angulate propodeal angle (Fig. 2). Petiolar node in both major and minor workers slim with only slightly convex anterior surface (Figs 6, 9). Legs in minor workers mostly dark brown. Chaharmahal va Bakhtiari Province of Iran. . . . . .*C. bakhtiariensis* **sp. nov.**

Review of species

***Camponotus bakhtiariensis* sp. nov.**
Figs 1–9

Type material: Holotype major worker (CASENT0872760): IRAN, Chaharmahal Va | Bakhtiari, Koohrang | Dashte laleh, 2400 m || 32.5884 / 50.2002 | 25 V 2017 | A. Khalili-Moghadam || Collection L. Borowiec | Formicidae | LBC-IR00068 (DBET-MNHW); four major, two medium, and three minor worker paratypes (CASENT0872761–CASENT0872769): the same data as holotype (MHNG, MSNG, MNHW-DBET).

Diagnosis. Hind tibia and scape with decumbent to suberect pilosity but without additional erect setae; gena with numerous erect setae; mesosoma, head, and gaster in major and minor workers uniformly black to dark brown; gaster in major and minor workers without brighter colouration on its basal part; pilosity on gaster sparse and short, distance between microsetae is equal to full or two lengths of microsetae; erect setae sparse; petiolar squama in both major and minor workers slim with only slightly convex anterior surface.

Description. Measurements. Major worker (n = 6): HL: 3.07 (2.63–3.28), HW: 2.91 (2.35–3.12), SL: 2.58 (2.40–2.70), WL: 3.88 (3.60–4.05), PW: 1.92 (1.73–2.00), PRL: 1.85 (1.67–2.03), PRW: 0.95 (0.82–1.06), PTH: 1.33 (1.20–1.40), PTW: 0.39 (0.37–0.41), CI: 1.06 (1.03–1.12), SI: 0.89 (0.86–1.02), PI: 3.40 (3.24–3.58). Medium worker (n = 2): HL: 2.41 (2.35–2.47), HW: 2.07 (1.97–2.17), SL: 2.39 (2.37–2.42), WL: 3.49 (3.30–3.67), PW: 1.64 (1.60–1.67), PRL: 1.44 (1.40–1.48), PRW: 0.98 (0.92–1.03), PTH: 1.17 (1.09–1.24), PTW: 0.34 (0.32–0.35), CI: 1.17 (1.14–1.19), SI: 1.16 (1.12–1.20), PI: 3.50 (3.11–3.88). Minor worker (n = 3): HL: 2.16 (1.96–2.30), HW: 1.67 (1.46–1.83), SL: 2.22 (2.13–2.33), WL: 3.19 (2.97–3.33), PW: 1.47 (1.34–1.59), PRL: 1.48 (1.38–1.68), PRW: 0.62 (0.58–0.64), PTH: 1.05 (0.96–1.20), PTW: 0.34 (0.30–0.36), CI: 1.30 (1.26–1.34), SI: 1.34 (1.27–1.46), PI: 3.13 (2.74–3.33).

Body colouration. Head, mesosoma, petiolar scale and gaster black. Legs in major worker mostly dark brown to black only tarsi slightly paler coloured with first segment brown and distal segments reddish-brown, trochanters as dark coloured as femora (Figs 1, 2, 5, 6), in minor workers legs brown with slightly paler coloured tarsi; mandibles reddish-brown in major workers and yellowish-red to red in minor workers; antennal scape in both major and minor workers black, only basal knob yellowish and extreme base of scape reddish-brown (Figs 3, 4). Basal 2-3 segments of funiculus brown to dark brown basally and reddish brown apically, segments 4-11 gradually paler from reddish to yellowish-red (Figs 3, 4). ***Head.*** In major workers large, trapezoidal in outline, the widest close to upper margins of eyes, distinctly narrowed anteriad and rounded posteriad (Fig. 3), posterior margin almost straight. Anterior margin of clypeus in the middle without or with very shallow emargination. Eyes small, placed distinctly before mid-length of head, 0.43 times as long as length of tempora and approximately 0.67 times as long as length of genae. Scape short, 0.86 times as long as width of head, at apex 1.8 times wider than at base, without basal extension and without preapical constriction (Fig. 3). Funiculus moderately elongate and thin, 1.4 times as long as scape, first segment elongate, three times as long as wide on apex, 1.2 times as long as second segment, segment 3 almost equal in length and segments 4-6 slightly shorter than segment 3, segments 7-10 gradually shorter than second segment, segment 11 elongate, 2.7 times as long as wide. Surface of scape with fine microsculpture, very short and sparse adherent setae and on dorsal surface with row of suberect setae, without erect seate. Whole surface of head with numerous long, erect setae, also on clypeus, gena, in temporal parts and ventral surface. In minor workers head elongate, parallel sided, softly rounded posteriad (Fig. 8). Anterior margin of clypeus without or with very shallow emargination. Eyes proportionally larger than in major worker, placed distinctly before mid-length of head, small, approximately 0.48 times as long as length of tempora and approximately as long as length of genae. Scape elongate, slimmer than in major worker, 1.4-1.5 times longer than width of head, at base 0.7 times as wide as in apex, straight, without and without preapical constriction. Funiculus in shape and ratio of segments similar as in major worker. Surface of scape with fine microsculpture, covered with very short and sparse adherent setae, and on dorsal surface with row of suberect setae but without erect setae. Whole surface of head with numerous long, erect setae, also on clypeus, gena, in temporal parts and ventral surface (Figs 2, 6).

FIGURES 1–2. *Camponotus bakhtiariensis* **sp. nov.**, major worker, holotype (CASENT0872760): 1—dorsal, 2—lateral (scale bar = 2 mm).

FIGURES 3–4. *Camponotus bakhtiariensis* **sp. nov.**, head and antennae: 3—major worker (CASENT0872760), 4—minor worker (CASENT0872761) (scale bar = 1 mm).

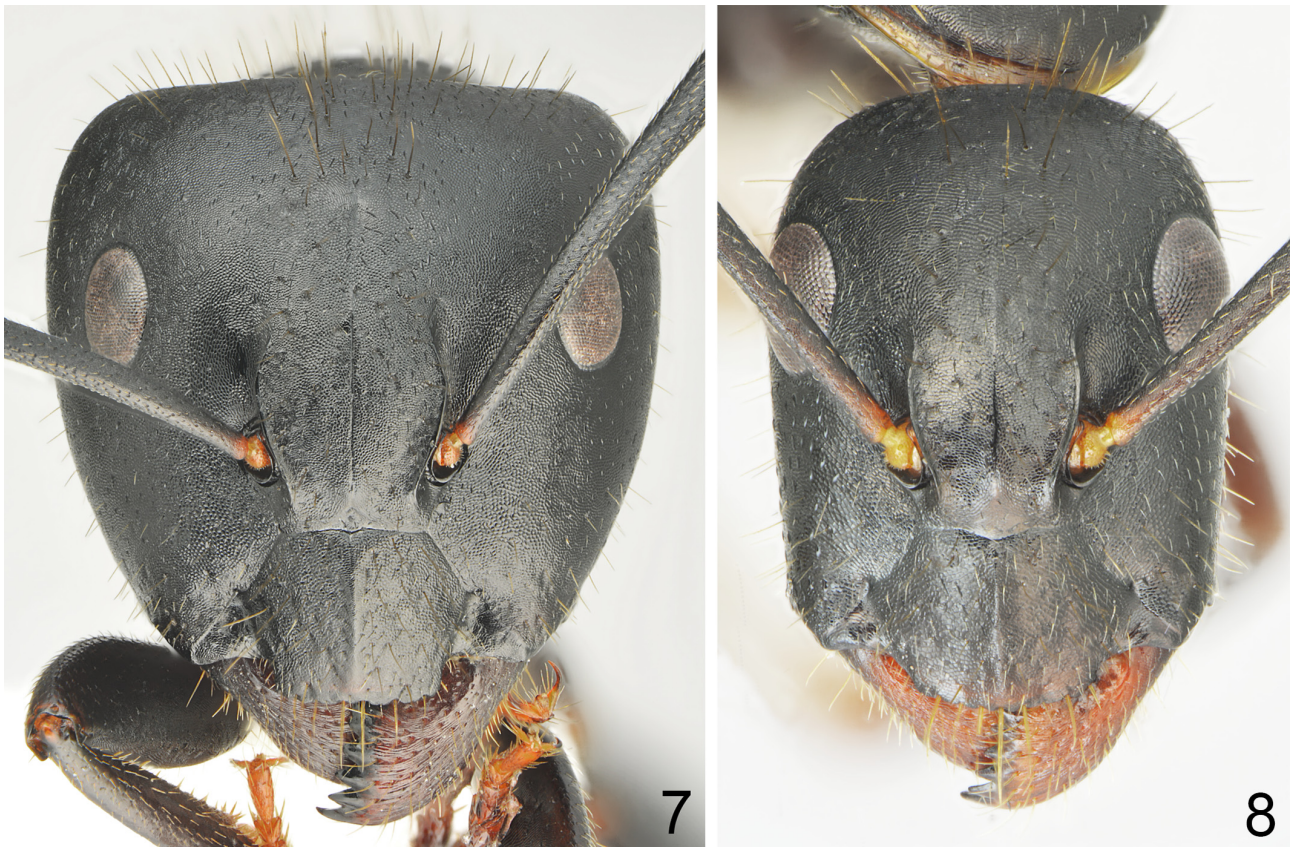
FIGURES 5–6. *Camponotus bakhtiariensis* **sp. nov.**, minor worker, paratype (CASENT0872761): 5—dorsal, 6—lateral (scale bar = 2 mm).

Medium workers have head with characters intermediate between major and minor workers. All workers have mandibles short, dorsal surface at base with distinct microreticulation and on whole dorsal surface with longitudinal ridges and setose punctures, dull, inner margin with one large and 3-4 moderately large teeth. Clypeus on whole surface microreticulate and with sparse, moderately coarse, setose punctures, in minor workers appearing slightly shiny in major workers dull. Median carina distinct on whole clypeal length, anterior margin crenulate (Figs 7, 8). Frontal carinae short, extending at most to half-length of eye. Whole surface of head distinctly microreticulate and with small, sparse, setose punctures, appears distinctly dull, in major workers slightly duller than in minor workers. ***Mesosoma.*** In both major and minor regularly convex in profile with distinct suture between pronotum and mesono-

tum, and between mesonotum and propodeum, in major worker propodeal angle in profile almost straight in minor worker softly rounded (Figs 2, 6). In lateral view propodeum across middle only slightly longer than mesonotum and in major workers as long as wide, in minor worker 1.43 times as long as wide. Whole surface of pronotum, dorsal part of mesonotum and propodeum covered with dense, very long erect setae (Figs 2, 6). Petiolar squama thin in profile, with moderately convex anterior surface, in both minor and major workers approximately twice as high as wide in lateral view, at top with several long, yellow setae (Fig. 9). Mesosoma on whole surface with distinct microreticulation and small, sparse punctation, on dorsal part as dull as on head, on sides slightly less dull than on head, especially in minor workers background of microreticulation slightly shiny. ***Petiolar scale.*** Microreticulate but appears more or less shiny. ***Gaster.*** On dorsum with numerous, long erect setae and sparse, short adherent setae, with distinct regular microsculpture, in major workers microsculpture only partly forms transverse cells or striation, in minor workers microsculpture forms distinct transverse striation. In major workers gaster appears dull in minor workers more or less shiny. ***Legs.*** Long, hind femora approximately 0.83 times as long as mesosoma, hind tibia as long as hind femora, first segment of hind tarsi approximately 0.73 times as long as hind femora. Lateral surface of hind tibia in major workers flat with more or less marked lateral channel, in minor workers flattened but without channel. Lateral and dorsal surface of femur and tibia with short, sparse, suberect pubescence but without erect setae, surface of femur and tibia microreticulate, appears dull in major workers and more or less shiny in minor workers. Hind tibia with one very long and 4-5 short apical spines and on inner surface with a row of 9-12 short spines.

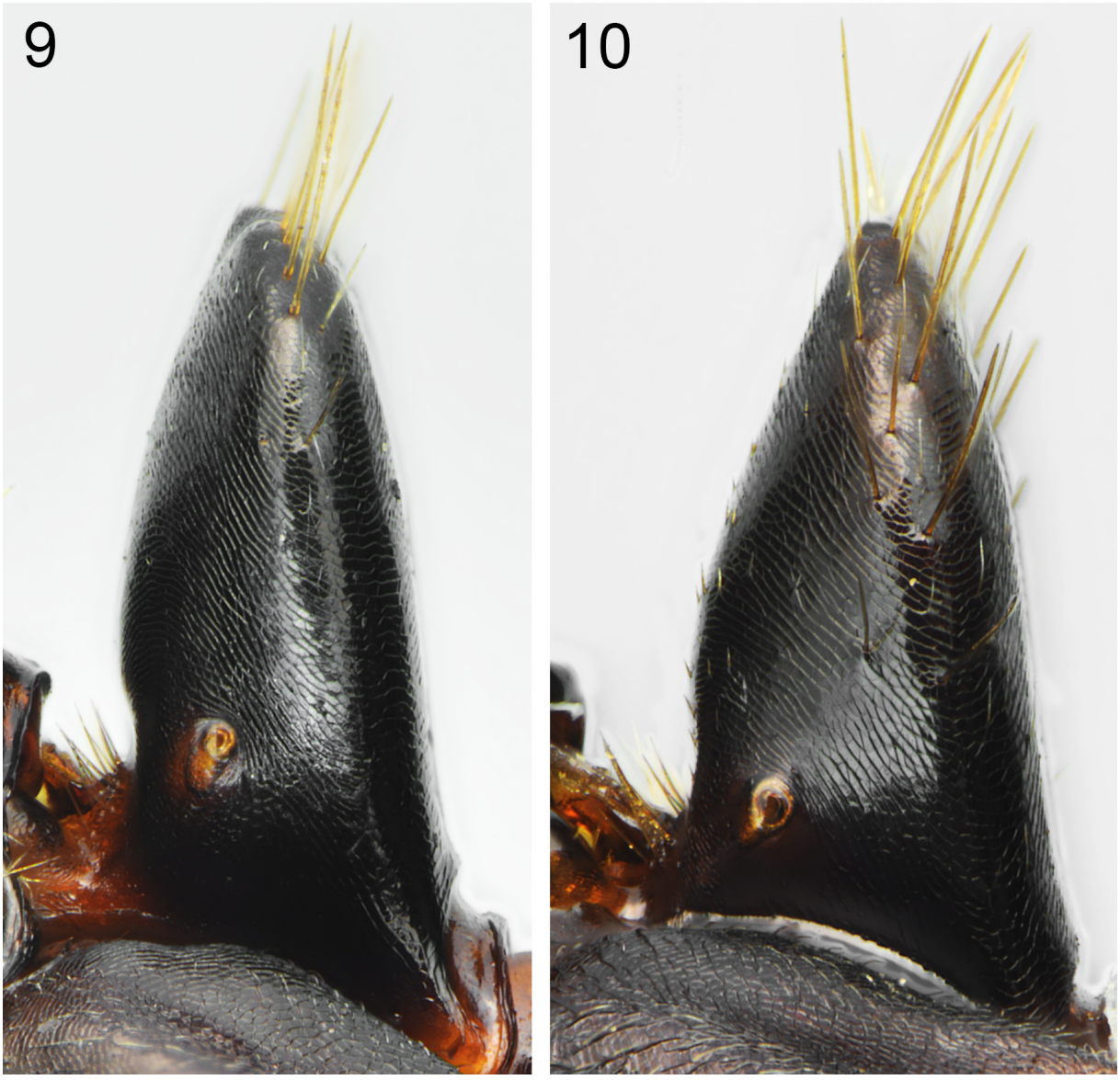
Distribution. Southwestern Iran: Chaharmahal va Bakhtiari Province.

Biological notes and habitat description. Koohrang County is located in the northern part of the Chaharmahal Va Bakhtiari province. The county is surrounded by the Zagros Mountains, one of the two largest mountain ranges of Iran. It has an alpine climate. Dashte laleh, the type locality, is located on a small plateau, 3600 hectares and 2000-2600 m above sea level, and in May is predominantly overgrown by Snake's head (*Fritillaria imperialis*). Other common plants recorded from this area are Milkvetch (*Astragalus* spp.), Persian shallot (*Allium stipitatum*), and kheshk (*Daphne mucronata*). The biology of the species is unknown. The only available material was collected from a nest which was found under a rock in a grazing area.



FIGURES 7–8. *Camponotus bakhtiariensis* **sp. nov.**, head sculpture: 7—major worker (CASENT0872760), 2—minor worker (CASENT0872761).

Comments. *Camponotus bakhtiariensis* **sp. nov.** belongs to the complex of Turano-Balkan members of the *Camponotus samius* complex and is distinctly polymorphic, the largest major workers are 1.4 times longer than the smallest minor workers. It differs from *C. festai* by the lack of additional erect setae on the scape and hind tibia; from *C. ionius* by the uniformly black mesosoma and presence of erect setae on the genae; from *C. samius* in the uniformly black mesosoma and lack of brighter colouration of the basal part of gaster. *Camponotus laconicus*, an allopatric species from Greece, is the most similar. *Camponotus bakhtiariensis* **sp. nov.** has distinctly sparser and shorter setae and microsetae on the gaster, the petiolar node, in both major and minor workers, is slim with a slightly convex anterior surface, and the legs of minor workers are entirely dark brown. In the Turano-Balkan region there are other large *Camponotus* species of the subgenus *Tanaemyrmex* that are entirely or almost entirely black. These are not in the *C. samius* complex and differ in the absence of erect pubescence on scape and tibia.



FIGURES 9–10. Petiolar scale: 9—*Camponotus bakhtiariensis* **sp. nov.**, 10—*Camponotus laconicus* Emery.

Camponotus ionius **Emery, 1920**

Figs 11–12, 20–21

Camponotus (*Myrmoturba*) *samius* var. *ionia* Emery, 1920: 6. [First available use of *Camponotus maculatus* subsp. *samius* var. *ionia* Emery, 1901: 59 (w.), unavailable name.]

Three syntype workers, Kefalonia, Greece. coll. Sangiorgi (MSNG) [Syntype major worker images examined, AntWeb, CASENT0905287, photos by Will Ericson, available on AntWeb.org].

Diagnosis. Hind tibia and scape with decumbent to suberect pilosity but without additional erect setae; gena without numerous erect setae; mesosoma in major workers sometimes ventrolaterally paler (brown to bright brown) than black to dark brown head and gaster, in minor workers mesosoma usually slightly paler than head and gaster, with dark dorsum and brown to bright brown lateral sides; legs in minor and major workers reddish brown; gaster in major and minor workers uniformly coloured, sometimes minor with indistinctly brighter colouration on its basal part; pilosity on gaster sparse.

Distribution. Greece (Salata & Borowiec 2018), Turkey (Kiran & Karaman 2012), Bulgaria (Lapeva-Gjonova *et al.* 2010), Macedonia (Bračko *et al.* 2014), Serbia (Petrov 2004).

Biological notes. *Camponotus ionius* is a common species, known from various types of arid habitats, most commonly noted from pine forests, but also observed in olive plantations, deciduous forests, and gardens in urban areas. Workers are also occasionally observed in open habitats, especially pastures with xerothermous shrubs and limestone rocks or large stones. Nests can be found under large stones. Workers are active usually at dawn and dusk. Major workers forage up to 10 meters away from the nest and are often collected on roads or tree trunks. *Camponotus ionius* is also one of the pioneer species in burned forests.

Camponotus laconicus Emery, 1920

Figs 13–14, 22–23

Camponotus (*Myrmoturba*) *samius* var. *laconicus* Emery, 1920: 6. [First available use of *Camponotus maculatus* subsp. *samius* var. *laconica* Emery, 1908: 192 (s.w.), unavailable name.]

Syntype major and minor workers, Taygetos, Kambos, Greece, v.1901, coll. Holz (MHNG) [Syntype major and minor workers images examined, AntWeb, CASENT0905288 and CASENT0905289, photos by Will Ericson, available on AntWeb.org].

Diagnosis. Hind tibia and scape with decumbent to suberect pilosity but without additional erect setae; gena with numerous erect setae; mesosoma, head, and gaster in major and minor workers uniformly black; sometimes legs in minor workers partly reddish brown; gaster in major and minor workers without brighter colouration on its basal part; pilosity on gaster sparse and thin, distance between microsetae is equal to full lengths of microsetae, erect setae very dense; petiolar squama in major workers stout with distinctly convex anterior surface, in minor workers triangular in profile.

Distribution. Greece (Salata & Borowiec 2018).

Biology. *Camponotus laconicus* is a rare species, mostly recorded from warm, dry pine forests. It is also occasionally collected from Mediterranean shrubs along roadsides, stream valleys or gorges with plane trees. Nests are always under large stones, often on the sunny and arid edges of forests. Workers are active mainly at dawn.

Camponotus samius Forel, 1889

Figs 15–16, 24–25

Camponotus rubripes r. *samius* Forel, 1889: 262 (s.w.). Raised to species: Dalla Torre, 1893: 251. Subspecies of *Camponotus maculatus*: Emery, 1896: 370; Emery, 1905: 35; Forel, 1906: 187. Revived status as species: Emery, 1920: 6; Emery, 1925: 100; Finzi, 1930: 318.

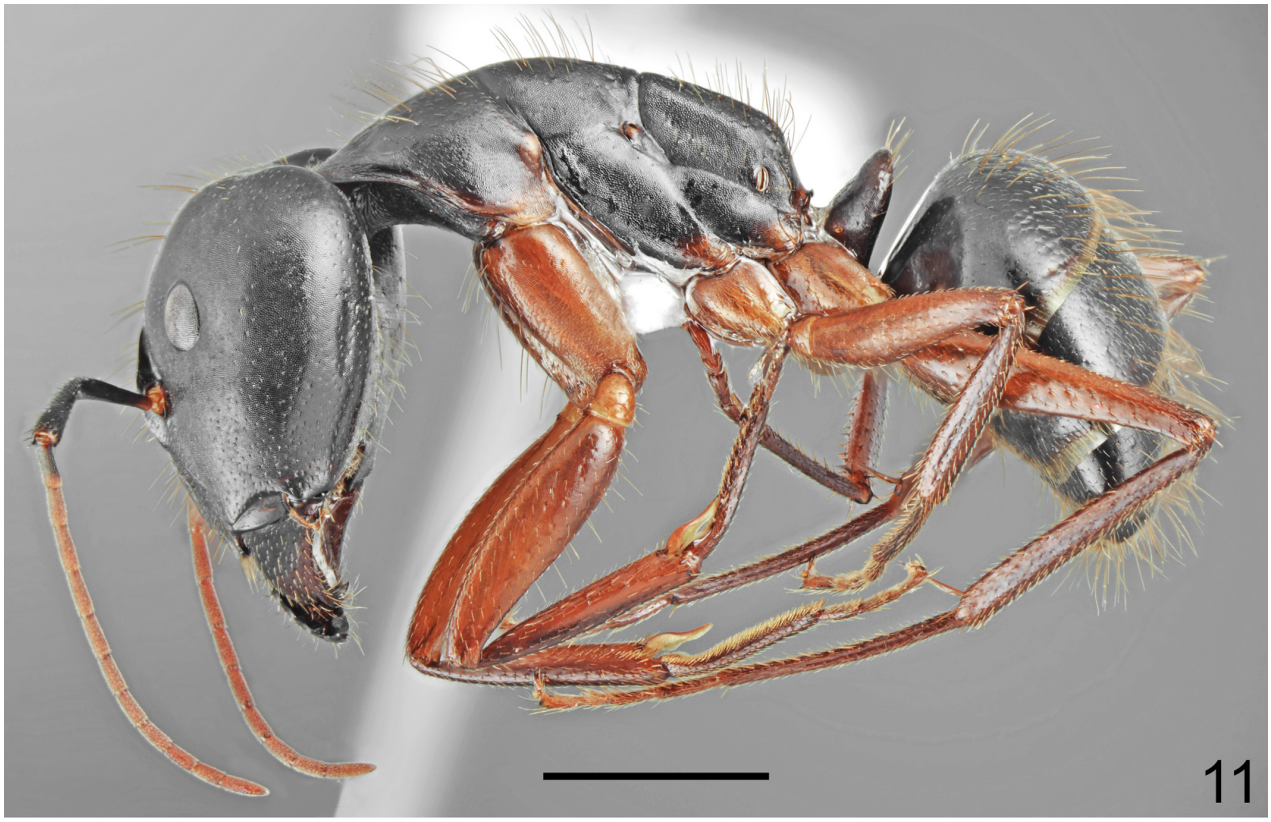
Syntype major and minor workers, Marathokampos, Samos, Greece (MSNG) [Syntype major and minor workers images examined, AntWeb, CASENT0910260 and CASENT0910259, photos by Zach Lieberman, available on AntWeb.org].

=*Camponotus samius* var. *spagnolinii* Emery, 1920: 6 (w.); Agosti & Collingwood, 1987: 59, as a junior synonym of *C. samius*.

Syntype major and minor workers, Büyükada, Turkey (MHNG) [Syntype major and minor workers images examined, AntWeb, CASENT0905291 and CASENT0905290, photos by Will Ericson, available on AntWeb.org].

=*Camponotus maculatus* r. *samius* var. *bosphoricus* Forel, 1906: 187 (w.) Turkey; unavailable (infrasubspecific) name. Material referred to *spagnolinii* by Emery, 1925: 100. Material referred to *samius* by Atanassov & Dlussky, 1992: 219; Bolton, 1995: 89; Kiran & Karaman, 2012: 8.

=*Camponotus rubripes* r. *cognatus* var. *cognatopilicornis* Forel, 1889: 255, 262 (w.) Greece; unavailable (infrasubspecific) name. Material referred to *ionius* by Emery, 1925: 100. Material referred to *samius* by Radchenko, 1997: 809.



FIGURES 11–12. *Camponotus ionius* Emery: 11—major worker lateral, 12—minor worker lateral (scale bar = 2mm).

FIGURES 13–14. *Camponotus laconicus* Emery: 13—major worker lateral, 14—minor worker lateral (scale bar = 2mm).

Diagnosis. Hindtibia and scape with decumbent to suberect pilosity but without additional erect setae; gena with numerous erect setae; minor and major workers with head uniformly black to dark brown, mesosoma and legs with variable colouration from yellow to reddish-brown, gaster in major and minor workers always with distinctly brighter basal part; pilosity on gaster sparse and thin.

Distribution. Greece (Salata & Borowiec 2018), Turkey (Kiran & Karaman 2012), Romania (Tausan & Lapeva-Gjonova 2017), Bulgaria (Lapeva-Gjonova *et al.* 2010). We consider the record from Afghanistan (Collingwood 1961) as doubtful due to the remote locality of this place from the known distribution of the species.

FIGURES 15–16. *Camponotus samius* Forel: 15—major worker lateral, 16—minor worker lateral (scale bar = 2mm).

Biology. *Camponotus samius* is a thermophile species most often recorded from pine forests. It also occurs in stream valleys with deciduous trees, suburban areas with maquis, pastures with shrubs or from dry hills in the coastal area. Nests are located under large stones. Workers are active usually at dawn and dusk.

Camponotus festai **Emery, 1894**
Figs 17–18

FIGURES 17–18. *Camponotus festai* Emery: 17—major worker lateral (AntWeb CASENT0905286, photographer Will Ericson), 18—minor worker lateral (scale bar for 17 = 2 mm, for 18 = 1 mm).

Camponotus maculatus subsp. *festai* Emery, 1894: 1 (s.w.).
Syntype major worker, Bekfeya, Lebanon (MSNG) [Syntype worker images examined, AntWeb, CASENT0905286, photos by Will Ericson, available on AntWeb.org].
=*Camponotus maculatus* r. *caeciliae* Forel, 1906: 188 (s.w.); Emery, 1908: 187, as a junior synonym of *C. festai.*
Syntype workers, Taurus, Turkey (Vogt) [not examined].

FIGURES 19–21. 19—*Camponotus riedeli* Pisarski, major worker lateral (AntWeb CASENT0917222 photographed by Kate Martynova, scale bar = 2 mm). *Camponotus ionius* Emery, head in full-face view: 20—major worker, 21—minor worker (not to scale).

FIGURES 22–25. Head in full-face view: 22, 23 *Camponotus laconicus* Emery: 22—major worker, 23—minor worker; 24, 25 *Camponotus samius* Forel: 24—major worker, 25—minor worker (not to scale).

Diagnosis. Hind tibia and scape with decumbent to suberect pilosity and additional long, erect setae; gena with numerous erect setae; mesosoma and legs in major and minor workers uniformly reddish-brown, always brighter than black to dark brown head and gaster; gaster uniformly coloured without brighter colouration on its basal part, scape brownish black to black, funiculus yellowish-brown to brown; pilosity on gaster dense.

Distribution. Israel, Lebanon, Syria (Ionescu-Hirsch 2010), Turkey (Ionescu-Hirsch 2010; Kiran & Karaman 2012).

Biology. *Camponotus festai* is poorly known. It is a thermophile species, observed in open and arid environments, most often on hills with pastures and shrubs.

Camponotus riedeli Pisarski, 1971

Fig. 19

Camponotus festai subsp. *riedeli* Pisarski, 1971: 728 (s.w.).

Holotype major worker, Salahuddin ad Erbil, Iraq (MZPW) [Holotype worker images examined, AntWeb, CASENT0917222, photos by Kate Martynova, available on AntWeb.org].

Diagnosis. Hind tibia and scape with decumbent to suberect pilosity and additional erect setae; gena with numerous erect setae; head, mesosoma and gaster brownish-black to black, legs in major and minor workers mostly brownish-black only coxa yellowish to yellowish brown, scape and first segment of funiculus black, remaining segments of funiculus yellowish; pilosity on gaster dense.

Distribution. Iraq (Pisarski 1971, Radchenko 1996).

Biology. *Camponotus riedeli* is poorly known**.** Workers were collected on slopes of limestone hills (Pisarski 1971).

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