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Palaearctic Ants of the Genus *Cardiocondyla* Emery (Hymenoptera, Formicidae)*

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Abstract. Palearctic species of *Cardiocondyla* are reviewed and 5 species groups are established: *elegans* (2 species), *stambuloffi* (2), *batesii* (4), *nuda* (1), and *emeryi* (1). *C. torretassoi* Finzi is raised to the rank of species; 8 species and infraspecies names are considered as new synonyms. A key to 10 species is given.

Keywords: Formicidae; Hymenoptera; *Cardiocondyla*; species group; synonymy.

Species of the genus *Cardiocondyla* are small (no larger than 3 mm) ants. Nests are built in the soil; their families are fairly small and usually consist of one female and several hundreds of workers.

There are about 40 species of *Cardiocondyla* in the world fauna (Bolton, 1982), distributed primarily in the Old World. Three species—*C. nuda* Mayr, *C. emeryi* Forel, and *C. wroughtoni* (Forel)—have become widely distributed in the tropics, settling mainly with the help of man; the first two of these are also encountered in the southern Palearctic Region.

At the contemporary level, reviews of the genus *Cardiocondyla* have only been done for Oceania (Wilson and Taylor, 1967) and tropical Africa (Bolton, 1982). The first reviews of the *Cardiocondyla* of various regions of the Palaearctic Region were published as early as the beginning of the century (Ruzskiy, 1905; Emery, 1909; Kutznetsov-Ugamskiy, 1927; Finzi, 1936). Bernard's study (Bernard, 1956) is the most complete for its time and thus far the only review of the Palearctic species. In it the author divided the representatives of this genus into 4 groups and presented a key which includes 9 species. However, the data contained in this paper are in part obsolete, and need to be re-examined and supplemented. Several studies have been published in recent years in which the *Cardiocondyla* species of Western Europe and Central Asia were considered (Agosti and Collingwood, 1987; Dlusskiy et al., 1990; Atanasov and Dlusskiy, 1992).

By now more than 20 species and infraspecies forms of *Cardiocondyla* in the Palearctic have been described (not counting *C. nuda* and *C. emeryi*). I consider the majority of them as synonyms and list 10 species for the Palearctic, assigned to 5 groups.

The following measurements and indices were used in the study: *TL*, thorax length from the side along the diagonal from metasternal lobes to place of articulation with head (workers) or to anterosuperior angle of promesonotum (females); *TH*, thorax height from apex of mesonotum perpendicularly downward to lower margin of mesopleura; *ScL+SctL*, length of scutum and scutellum, taken together, in dorsal view; *ScW*, maximal width of scutum dorsally; *PL*, length of nodule of petiole dorsally; *PW*, its width dorsally; *PH*, its height laterally; *PPL*, length of postpetiole dorsally; *PPW*, its width dorsally; *TI=TL/TH*, *ScI=(ScL+SctL)/ScW*, *PI* - 1=*PH/PL*, *PI* - 2=*PW/PL*; *PPI=PPW/PPL*.

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The abbreviations of the names of the institutions where collections and type material are stored: ZIN, Zoological Institute of the Russian Academy of Sciences, St. Petersburg; ZM, Zoological Museum of Moscow State University; IZ ANU, Institute of Zoology of the Ukrainian Academy of Sciences, Kiev; KK, the V. A. Karavayev Collection, housed at IZ ANU; IZ PAN, Institute of Zoology of the Polish Academy of Sciences, Warsaw.

The *elegans* Group

Diagnosis. Thorax of ♀s long, flattened (*TI* = 2.0-2.4; *ScI* == 1.11-1.29); petiole of ♀s and ♀s tall (*PI* - 1 of the ♀s = 1.33-2.0; of ♀s, 1.20-1.68); postpetiole of ♀s broad (*PPI* = 1.95-2.44); nodule of petiole of ♀s round or transverse (*PI* = 0.95-1.47); in ♀s transverse (*PI* - 2 = 1.38-1.95); anterior margin of postpetiole with notch; sculpturation of head in form of pits, intervals between which smooth or punctate.

The species of this group are distributed in southern Europe, in the Transcaucasus, Kazakhstan, Central Asia, Afghanistan, Asia Minor, in the Near East, and in Egypt.

1. *C. elegans* Emery, 1869.
2. *C. bogdanovi* Ruzsky, 1905.

The *stambuloffi* Group

Diagnosis. Thorax of ♀s relatively short, convex (*TI* = 1.7-1.83); proportions of segments of pedicel of ♀s and ♀s, as in species of *elegans* group; postpetiole with straight anterior margin; head with delicate, short, striated rugulae and dense stippling; pits undeveloped. The species of this group are distributed in Bulgaria, Romania, Asia Minor, in the south of Eastern Europe, Crimea, in the Caucasus and Transcaucasus, Central Asia, Afghanistan, Kazakhstan, and in Tuva.

1. *C. stambuloffi* Forel, 1892.
2. *C. koshewnikovi* Ruzsky, 1902.

The *batesii* Group

Diagnosis. Thorax of ♀s long, flattened (*TI* = 2.13-2.44; *ScI* = 1.15-1.43); petiole of ♀s and ♀s low (*PI* - 1 of ♀s = 1.0-1.19; of ♀s, 0.92-1.18); its nodule in workers elongate (*PI* - 2 = 0.8-0.95); in ♀s transverse (*PI* - 2 = 0.97-1.08); postpetiole of ♀s broad (as in species of preceding groups); its anterior margin straight or with shallow notch; head dull, with stippling, striated rugulae, and pits.

The species of this group are distributed in southern Spain, North Africa, the Balkans, Asia Minor, Afghanistan, and Central Asia.

1. *C. batesii* Forel, 1894.
2. *C. torretassoi* Finzi, 1936, stat. n.
3. *C. jacquemini* Bernard, 1953.
4. *C. kushanica* Pisarski, 1967.

The *nuda* Group

Diagnosis. Postpetiole of ♀s and ♀s slightly expanded (*PPI* = 1.09-1.32); petiole low (*PI* - 1 = 0.9-1.08; *PI* - 2 = 0.67-0.86. Thorax of ♀s with slight mesopropodeal impression.

1. *C. nuda* (Mayr, 1866).

A species of tropical origin, transported by man into various regions of the Earth, including the southern Palearctic—North Africa, Cyprus, and Afghanistan.

The *emeryi* Group

Diagnosis. The form and proportions of segments of pedicel of ☿s and ♀s as in *C. nuda*. Thorax of ♀s with deep mesopropodeal impression.

1. *C. emeryi* Forel, 1881.

A species of tropical origin, transported by man into various regions of the Earth; in the Palaearctic it is known from North Africa and the Near East.

A review of the species with an analysis of the synonymy is presented below.

Cardiocondyla elegans Emery, 1869.

Emery, 1869: ♀ ☿ (*Cardiocondyla*) (Italy: Naples); Ruzskiy, 1905: 624; Emery, 1909: 21; 1921: 125; Bondroit, 1918: 147; Menozzi, 1919: 83; ♂; Karavayev, 1926: 261; Donistorpe, 1950: 1060; Bernard, 1956: 304; 1968: 157; Arnol'di and Dlusskiy, 1978: 538; Agosti and Collingwood, 1987: 56, 256; Dlusskiy et al., 1990: 194; Atanasov and Dlusskiy, 1992: 172.

= *uljanini* Emery, 1889: 22 ☿s (*elegans* var.) (Astrakhan') Mayr, 1877: 18; Emery, 1889: 2; Ruzskiy, 1903: 313; 1905: 627; Emery, 1909: 22 (*elegans* subsp.); Karawajew, 1909: 56, ☿ ♀; Emery, 1921: 125; Kuznetsov-Ugamskiy, 1927: 38; Pisarski, 1967: 388; Tarbinskiy, 1976: 74; Dlusskiy, 1981 (ecology); Dlusskiy and Zabelin, 1985: 213; Marikovskiy and Yakushkin, 1974 (*Cardiocondyla*) (ecology); Agosti and Collingwood, 1987: 56, 276, syn.; Dlusskiy et al., 1990.

= *bulgarica* Forel, 1889: 231, ♀ ☿ (*elegans* var.) (Bulgaria, syntypes in ZIN, examined); Emery, 1909: 22 (*elegans uljanini* var.); 192: 125 (*elegans* var.); Agosti and Collingwood, 1987: 56, 276 (*Cardiocondyla*); Atanasov and Dlusskiy, 1992: 174, **syn. n.**

= *santschii* Forel, 1905: 174, ☿ (*elegans* st.) (Marseilles); Emery, 1909: 22 (*elegans* var.), **syn.**; Emery, 1921.

= *eleonorae* Forel, 1911: 337, ☿ (*elegans* var). (Turkey, Smyrna [on Russian-language maps - Izmir]); Emery, 1921: 125, **syn. n.**

= *dalmatica* Soudeck, 1925:14, ☿ (*elegans* var.) (Dalmatia, syntypes from IZ PAN, examined) **syn. n.**

= *schkaffi* Arnol'di, 1928:724, ☿ (*elegans* subsp.) (Ukraine: Khar'kov Terr., syntypes in ZM, examined); Karavayev, 1934: 114, ☿ ♀, 1937: 172; Arnol'di and Dlusskiy, 1978: 158, **syn. n.**

= *provincialis* Bernard, 1956: 203, ♀ (*Cardiocondyla*) (France: Var): 1968: 158, **syn. n.**

= *gallica* Bernard, 1968: 159, ☿ (*Xenometra*), syn.; Baroni and Urbani, 1973.

Synonymy. In describing *C. elegans*, Emery (1869) pointed out that the head in the workers is dull, the space between the pits are sculptured, and the entire body is black. Many authors, understanding *C. elegans* s. l. precisely in that key, have subsequently described a number of infraspecies forms, distinguished mainly by the sculpturation of the head and thorax, as well as body color, sizes, etc.

Among these, the forms with smoothed sculpturation are var. *uljanini* Emery, 1889 (Central Asia); var. *bulgarica* Forel, 1892 (Bulgaria); subsp. *schkaffi* Arnol'di, 1928 (southeast Ukraine) (Alpatov and Arnol'di, 1928); and var. *dalmatica* Soudeck, 1925 (Yugoslavia). The first three have subsequently been regarded as subspecies or independent species (Karavayev, 1934, 1937; Tarbinskiy, 1976; Arnol'di and Dlusskiy, 1978; Dlusskiy and Zabelin, 1985; Agosti and Collingwood, 1987; Atanasov and Dlusskiy, 1992). Var. *eleonorae* Forel, 1911 is distinguished from *C. elegans* s. l. by a more narrow postpetiole and thed reddish color of the thorax; var. *santschii* Forel, 1905, by the postpetiole of the workers, which is slightly incurved in front; and *C. provincialis* Bernard, 1956, by the delicate stippling of the head, the reddish color of the thorax, and the length of the second flagellar segment.

I have studied the extensive material on *C. elegans* from the entire range, including the var. *bulgarica*, var. *dalmatica*, and subsp. *schkaffi* types, and found significant variability in sculpturation, coloring, form of the segments of the pedicel, body sizes, etc. At the same time, individuals with the most diverse combinations of these characters are found in various parts of the range. Thus, there are specimens from southern Europe both with effaced, shiny, and with an almost dull head; individuals with effaced sculpturation predominate in southern Ukraine, but almost dull individuals are also encountered; an coarser sculpturation predominates in the representatives of the Transcaucasian populations, whereas a effaced sculpturation predominates in the Central Asian populations. The form of the segments of the pedicel and the coloration vary just as substantially and chaotically. The characters which have been taken as the basis for the delimination of *C. elegans, C. uljanini,* and *C. bulgarica* (Agosti and Collingwood, 1987) fit entirely within the limits of the variability of *C. elegans*. The established synonymy was indicated above.

Distribution. Southern Europe, the south of Eastern Europe, Crimea, Asia Minor, the Caucasus and Transcaucasus, Central Asia, Kazakhstan, and Afghanistan. One of the most typical Palaearctic representatives of the genus.

Cardiocondyla bogdanov Ruzsky, 1905.

Ruzskiy, 1905: 630, ♀ ♀ (*Cardiocondyla*) [Erivanskaya Guberniya; Aralykh (today, turkey); types lost; neotype in IZ ANU]; Emory, 1909: 20, 25; Bernard, 1956: 305; Agosti and Collingwood, 1987: 56, 276.

= *sahlbergi* Forel, 1913: 429, ♀ (*elegans* var.) (Jordan, the Caucasus); Emery, 1921: 125; Finzi, 1936: 166, ♀ ♀ **syn. n.** (provisional).

Synonymy. Ruzskiy (1905) connects this species with *C. stambuloffi* on the basis of the character of the sculpturation of the head, but I assign it to the *elegans* group on the basis of the form of the thorax of the females.

I have not seen the types of var. *sahlbergi*, but, based on the description and the pictures of the females and workers (Forel, 1913: Finzi, 1936) and the character of the ranges, I assume, with a high degree of certainty, that var. *sahlbergi* For. is a junior synonym of *C. bogdanovi* Rusz.

Since the types of *C. bogdanovi* are lost, I designate a neotype; worker, Armenia, Khosrovskiy Reserve, Vediyskiy Lot, Nol 225-86, 14 June 1986 (A. Radchenko).

Distribution. Southern Transcaucasus, Asia Minor, the Near East, Egypt. Indicated for the European part of Turkey (Agosti and Collingwood, 1987).

Cardiocondyla stambuloffi Forel, 1892.

Forel, 1892: 310, ☿ ♀ ♂ (*Cardiocondyla*) (Bulgaria; Burgas, syntypes in ZM, examined); Emery, 1909: 20; 1921: 126; Arnol'di, 1926: 254; Bernard, 1956: 204; Pisarski, 1962: 331; Arnol'di and Dlusskiy, 1978: 538; Agosti and Collingwood, 1987: 56, 276; Dlusskiy et al., 1990: 194; Atanasov and Dlusskiy, 1992: 174 (part.).

= *montandoni* Santschi, 1912: 657, ☿ (*Cardiocondyla*) (Romania: Lacu Sărat); Emery, 1921: 126; Bernard, 1956: 204; Pisarski, 1962.

= *taurica* Karawajew, 1926: 288, ☿ (*stambuloffi* var.) Crimea: Koktebel', syntypes in KK and ZIN, examined); Arnol'di, 1926: 154; Karavayev, 1934: 115, 1935: 107, syn.; Arnol'di and Dlusskiy, 1978.

Comments. A relatively slightly variable species; the length of the spines of the propodeum and the proportions of the segments of the pedicel can vary somewhat. The synonymy of *C. stambuloffi* and *C. montandoni* has been established and substantiated in detail by Pisarski (Pisarski, 1962); I have studied the types of var. *taurica* Karaw., and I am in complete agreement with K. V. Arnol'di on including this name among the synonyms.

Distribution. The Balkan peninsula, the south of Eastern Europe, Crimea, the Caucasus and Transcaucasus.

Cardiocondyla koshewnikovi Ruzsky, 1902.

Ruzskiy, 1902: 17, ☿ ♀ (*Cardiocondyla*) (environs of the Aral Sea: the mouth of the Sry-Dar'ya, Raim; types lost; neotype in ZM]; Forel, 1902: 440 (*stambuloffi* var.); Ruzskiy, 1905: 629; Emery, 1909: 20, 24 (*stambuloffi* subsp.); 1921: 126; Kuznetsov-Ugamskiy, 1927: 37; Pisarski, 1967: 388; Tarbinskiy, 1976: 72; Dlusskiy and Zabelin, 1985: 213; Dlusskiy et al., 1990: 195 (*Cardiocondyla*).

= *gibbosa* Kuznetsov-Ugamskiy, 1927: 37, ☿ (*elegans* subsp.) (Kzyl-Orda, Suzak; types lost); Tarbinskiy, 1976:73, syn.; Dlusskiy et al., 1990.

Comments. The synonymy cited above has been established and substantiated in detail by G. M. Dlusskiy; I am in complete agreement

Since the types of *C koshewnikovi* have been lost, I designate the neotype; worker, Uzbekistan: Bukharskaya Prov., Karak-Ata; No. 61-255, 19 April 1961 (G. Dlusskiy).

Distribution. Central Asia, Afghanistan, Kazakhstan, and Tuva.

Cardiocondyla batesii Forel, 1894.

Forel, 1894: 17, ☿ ♀ (*Cardiocondyla*) (Algeria: Oran); Emery, 1909: 20; 1921: 125; Bernard, 1956: 304; Agosti and Collingwood, 1987: 56, 276.

= *nigra* Forel, 1905: 174, ☿ ♀ (*batesii* var.) (Tunis); Santschi, 190 [sic]: 318, ♂; Emery, 1909: 23; 1921: 125; Agosti and Collingwood, 1987:56, 276 (*Cardiocondyla*), **syn. n.**

Synonymy. The only difference between var. *nigra* and *C. batesii* is the black color of this variety (Forel, 1905: Agosti and Collingwood, 1987). I have studied series of workers and females from the terra typica, defined by A. Forel as *C. batesii* var. *nigra*; among these there are specimens

with coloration intermediate between *C. batesii* and var. *nigra*. The fact that differences in coloration often cannot serve as a criterion of species specificity in many species of *Cardiocondyla* was indicated above. A similar situation has also arisen in the case of *C. kushanica* (see below). Therefore, I propose that var. *nigra* Forel be considered a junior synonym of *C. batesii* Forel.

Distribution. Southern Spain, North Africa, Greece, and Bulgaria.

Cardiocondyla torretassoi Finzi, 1936, stat. n.

Finzi, 1936:167, ♀ (*elegans* var.) (Sinai Peninsula: Tor).

Comments. I have not seen types of the form, but, based on the description and figure, I assign it to the *batesii* group. The distinctive pubescence of the abdomen has made it possible to regard *C. torretassoi* as an independent species.

Distribution. Sinai Peninsula: Cairo.

Cardiocondyla kushanica Pisarski, 1967.

Pisarski, 1967: 386, ♀ ♀ (*Cardiocondyla*) (Afghanistan: Jalalabad, paratypes in IZ PAN and ZIN, examined); Dlusskiy and Zabelin, 1985: 213; Dlusskiy et al., 1990: 196.

Comments. The contrasting coloration of the workers and females was distinguished as one of the typical characters of this species in the description of *C. kushanica* (Pisarski, 1967) and in the papers of other authors (Dlusskiy and Zabelin, 1985; Dlusskiy et al., 1990): the thorax is red and the abdomen black. Both the types and many specimens of *C. kushanica* from Turkmenia have this coloration, but there are monotonous dark brown or reddish brown workers and females from Kopet-dag and Krasnoyarsk. Careful comparison of them with the bicolored *C. kushanica* did not reveal any other differences. Therefore, it is not possible to regard the dual coloration to be a typical character of *C. kushanica*.

Distribution. Afghanistan, Turkmenistan.

Cardiocondyla jacquemini Bernard, 1953.

Bernard, 1953: 210, ♀ (*Cardiocondyla*) [Central Sahara: Djanet (on Russian-language maps - Efiri)]; 1956: 305.

Comments. Described on the basis of a single specimen; no other finds. The assignment of this species to the *batesii* group is somewhat provisional; it cannot be excluded that *C. jacquemini* is closer to the species of tropical Africa.

Cardiocondyla nuda Mayr, 1866.

Mayr, 1866: 508, ♀ (*Leptothorax*) (Fiji); Forel, 1881: 6 (*Cardiocondyla*).

= *britteni* Crawley, 1920: 180, ♀ (*Cardiocondyla*) (West Didsbury), **syn. n.**

Synonymy. See Emery, 1921; Wilson and Taylor, 1967.

Described from Great Britain, *C. britteni* (Crawley, 1920) is undoubtedly a junior synonym of *C. kushanica*.

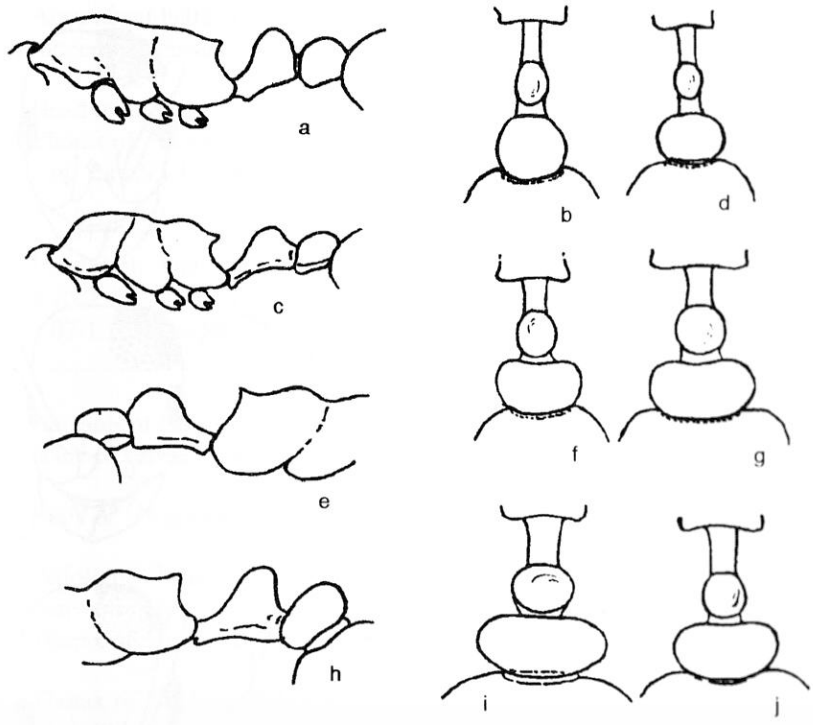

Fig. 1. *Cardiocondyla* Emery: a, b) *C. nuda* Mayr; c, d) *C. emeryi* Forel; e, f) *C. kushanica* Pisar.; g) *C. elegans* Emery; h, i) *C. stambuloffi* Forel (syntype); j) *C. koshewnikovi* Ruzsky (neotype) (workers); a-c, e, h) thorax and pedicel in profile; b, d, f, g, i, j) pedicel in dorsal view.

Distribution. A tropical species. Brought by man into the Palaearctic; encountered in North Africa, Cyprus, and Afghanistan.

Cardiocondyla emeryi Forel, 1881.

Forel, 1881: 5, ♀ (*Cardiocondyla*) (Virgin Islands; Sao Tomé).

Synonymy. See Emery, 1921: Wilson and Taylor, 1967.

Distribution. A tropical species. Brought by man into the Palaearctic; encountered in North Africa and the Near East.

KEY TO THE PALAEARCTIC SPECIES OF THE GENUS *CARDIOCONDYLA*

1 (4). Postpetiole of ♀s slightly expanded (*PPI* less than 1.35), round or angular in dorsal view (Fig. 1b, d).

2 (3). Mesopropodeal impression absent on ♀s or very slight (Fig. 1a). Head and thorax brown, abdomen black. ..... *C. nuda* (Mayr).

3 (2). Mesopropodeal impression deep (Fig. 1c). Head and thorax orange-red, abdomen brown. ..... ***C. emeryi*** Forel.

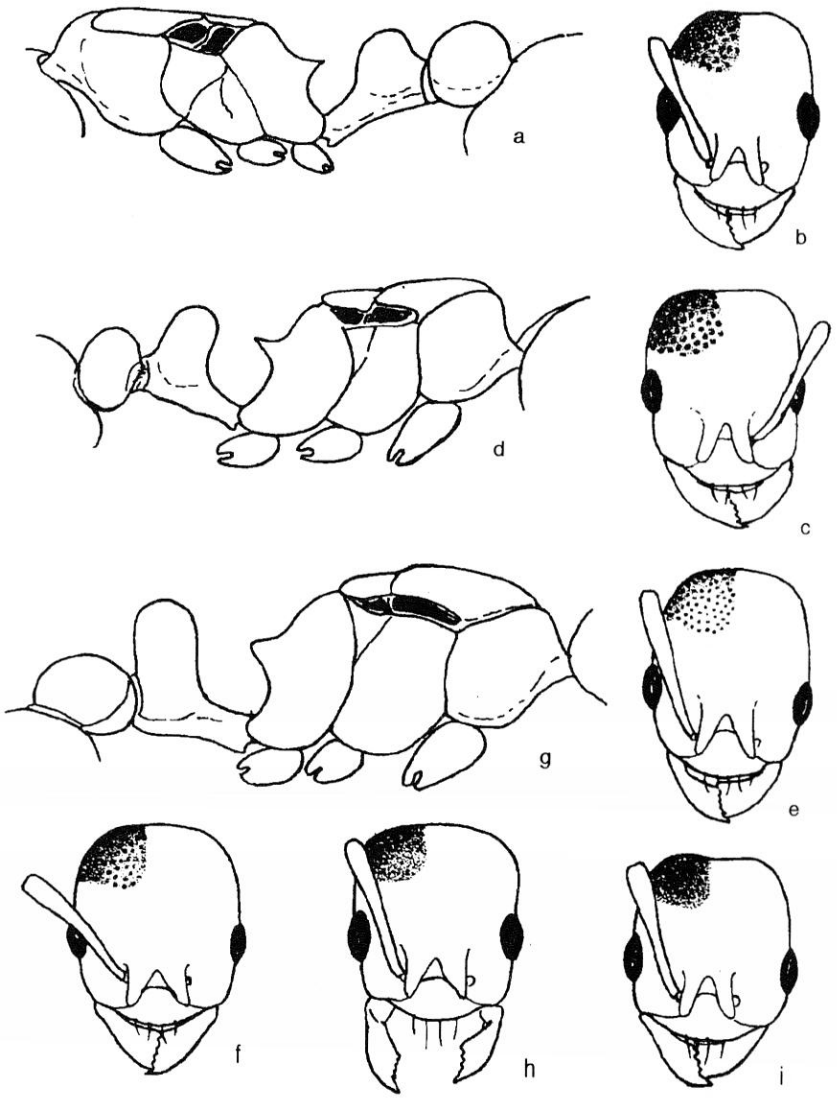

Fig. 2. *Cardiocondyla* Emery. a, b) *C. kushanica* Pisar. (a - paratype); c) *C. batesii* Forel; d, e) *C. elegans* Emery; f) *C. bogdanovi* Ruzsky (neotype); g, h) *C. stambuloffi* Forel (h - syntype); i) *C. koshewnikovi* Ruzsky (neotype); a, d, g) thorax and pedicel of ♀s in profile; b, c, e, f, h, i) head of ♀s with part of sculpturation from the front.

4 (1). Postpetiole of ♀s frankly expanded, markedly transverse (*PPI* greater than 1.8; only in *C. kushanica*, 1.43-1.85) (Fig. 1f, g, i, j).

5 (12). Petiole of ♀s and ♀s low (*PI*- 1 of ♀s 0.92-1.18; of ♀s, 1.0-1.19) nodule elongate (*PI* - 2 = 0.8-0.95) in dorsal view in ♀s (Fig. 1e, f), in ♀s round (*PI* - 2 = 0.97-1.08). Thorax of ♀s long, flattened (*TI* = 2.13-2.44; *ScI* = 1.15-1.29) (Fig. 2a).

6 (11). Body of ♀s red-brown, brown, or black. 1st flagellar segment cylindrical.

7 (10). Accumbent hairs on 1st abdominal tergite comparatively rare, equal in length or slightly longer than distance between them.

8 (9). Head quite glossy; intervals between pits smoothed, with delicate sculpturation (Fig. 2c). Thorax of ♀s shorter (*TI* = 2.13-2.20; *ScI* = 1.15-1.23); petiole of ☿s and ♀s lower (*PI* - 1 of ☿s 0.92-1.0; of ♀s, 1.0-1.07); postpetiole of ☿s broader (*PPI* = 1.95-2.05). ..... ***C. batesii*** Forel.

8 (9). Head dull; intervals between pits with dense punctation (Fig. 2b). Thorax longer (*TI* = 2.20-2.44; *ScI* = 1.25-1.43); petiole of ☿s and ♀s taller (*PI* - 1 of ☿s 1.09-1.18; of ♀s, 1.07-1.19); postpetiole of ☿s narrower (*PPI* - 1.43-1.85) (Figs. 1e, f; 2a). ..... ***C. kushanica*** Pisarski.

10 (1). Accumbent hairs on 1st abdominal tergite very short and dense; length much greater than distance between them. ..... ***C. torretassoi*** Finzi, 1936, stat. n.

11 (6). Body of ♀s golden-yellow. 1st flagellar segment globose. ..... ***C. jacquemini*** Bernard.

12 (5). Petiole of ☿s and ♀s tall (*PI* - 1 of ☿s 1.20-1.68; of ♀s, 1.33-2.0); nodule round or transverse (*PI* - 2 0.95-1.47) in dorsal view in ☿s, in ♀s transverse (*PI* - 2 = 1.12-1.95). Thorax of ♀s varied in form (Figs. 1g-j; 2d, g).

13 (16). Thorax of ♀s long, flattened (*TI* = 2.0-2.4; *ScI* = 1.11-1.29) (Fig. 2d). Head of ☿s and ♀s with pits, intervals between which smooth or sculptured in various degrees (Fig. 2e, f).

14 (15). Head with fine, sometimes indistinct pits, intervals between which exhibit dense punctation and short, striate rugulae (Fig. 2f). Anterior margin of postpetiole straight or very slightly incurved. Thorax of ♀s longer (*TI* = 2.13-2.44; *ScI* = 1.20-1.29). ..... ***C. bogdanovi*** Ruzsky.

15 (14). Head with distinct pits, intervals between which smooth or with delicate superficial sculpturation (Fig. 2e). Anterior margin of postpetiole frankly incurved, such that postpetiole often cordate (Fig. 2h). Thorax of ♀s shorter (*TI* = 2.0-2.11; *ScI* = 1.11-1.2). . ..... ***C. elegans*** Emery.

16 (13). Thorax of ♀s short, convex (*TI* = 1.77-1.85; *ScI* = 1.03-1.10) (Fig. 2g). Head of ☿s and ♀s with short rugulae and dense punctation, without pits (Fig. 2h, i).

18 (17). Body of ♀s monochromatic, brown, or reddish brown. Nodule of petiole of ☿s broader in dorsal view (*PI* - 2 = 1.10-1.37) (Fig. 2i). ..... ***C. stambuloffi*** Forel.

17 (18). Body of ♀s red, head and abdomen brown. Nodule of petiole of ☿s narrower in dorsal view (*PI* - 2 = 1.0-1.10) (Fig. 2j). ..... ***C. koshewnikovi*** Ruzsky.

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