

A Subgeneric Subdivision of the Genus *Caliscelis* Lap. with Description of New Species (Homoptera, Caliscelidae)

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Abstract—The genus *Caliscelis* Laporte is subdivided into 5 subgenera *Caliscelis* s. str. (type species *C. heterodoxa* Lap.), *Bambula* **subgen. n.** (type species *C. wallengreni* Stål), *Caurca* **subgen. n.** (type species *C. gissarica* Kusn.), *Cerepa* **subgen. n.** (type species *C. carnavalis* **sp. n.**), and *Melanero* **subgen. n.** (type species *C. nero* Fennah). The following new species are described: *Caliscelis* (s. str.) *ephippiata* **sp. n.** (Iranian Kurdistan), *C. (Bambula) turbata* **sp. n.** (Uzbekistan), *C. (Cerepa) carnavalis* **sp. n.** (Vietnam, Cambodia), *C. (Cerepa) gnezdilovi* **sp. n.** (Vietnam), and *C. (Melanero) larvata* **sp. n.** (RSA). *Caliscelis triplicata* Che, Wang et Zhang is placed to synonymy with *C. wallengreni* Stål, 1863 (= *triplicata* Che, Wang et Zhang, 2011, **syn. n.**). Keys to the subgenera (based on the male characters) and to the species of *Caliscelis* Laporte from Russia and adjacent countries are given.

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The genus *Caliscelis* Laporte is widely distributed in the Old World (Ôuchi, 1940; Metcalf, 1958; Fennah, 1967; Dubovskiy, 1968; Mityaev, 1971; Logvinenko, 1975; Kwon, 1979; Gnezdilov and Bourgoïn, 2009; Che et al., 2011; etc.), mainly in the subarid and arid areas. The genus rather widely varies in morphology and undoubtedly requires subdivision into subgenera. In the present paper, new species from the Palaearctic Region, the Ethiopian Region, and, which is of special interest, from Vietnam, are described; until now, after distinguishing of *Caliscelis eximia* (from India and Sri Lanka) into a distinct genus (Emeljanov, 1996), no representatives of the genus *Caliscelis* were known in the Oriental Region.

In the recent publication of three Chinese entomologists (Che et al., 2011), dealing with the Chinese fauna of the genus *Caliscelis*, new species also included in the monograph on the Chinese Caliscelidae (Chen et al., 2014) were described, and the records new to the country were listed. Unfortunately, the paper contains several errors: some other species, probably *Caliscelis zarudnyi* Mitjaev, is given under the name *Caliscelis affinis* Fieb. *Caliscelis wallengreni* is repeatedly described as the new species *C. triplicata* Che, Wang et Zhang; the figures and description in the paper of Che and coauthors (Che et al., 2011) entirely fit the well-known species *C. wallengreni* Stål which is not mentioned in the paper of these

authors. Some other, probably new, species of the genus *Chirodisca* Em. is reported as *Caliscelis chinensis* Mel. A damaged specimen identified as *Caliscelis orientalis* Ôuchi may also belong to the genus *Chirodisca*. The position of *C. orientalis* still remains unclear, but, judging by the shape of its head shown in the description (Ôuchi, 1940), this species cannot be assigned to the genus *Chirodisca*.

The depositories of the types of the redescribed species are indicated in the lists of the material: the collection of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg (ZIN), the National Collection of Insects of the Republic of South Africa, Pretoria (NICP), and the Royal Institute of Natural Sciences in Brussels (ISNB).

A Key to the Subgenera of the Genus *Caliscelis* (Males)

- 1 (2). Metope with arcuate transverse carina in lower part. Postclypeus with transverse carina in upper part *Cerepa* subgen. n.
- 2 (1). Metope and postclypeus without transverse carinae.
- 3 (4). Metope rather deeply depressed, without median carina; intermediate carinae replaced by lines of concave bend. Border between metope and postclypeus almost always invisible; swollen post-

clypeus and lower part of metope attached to postclypeus forming even common convexity shifted upwards to level of lower margins of eyes *Caliscselis* s. str.

- 4 (3). Metope not depressed, nearly flat; intermediate carinae distinct and usually sharp; median carina partly or entirely developed. Indistinct upper border of moderately convex clypeus lying at level of antennae; convexity of postclypeus not continuing onto metope.
- 5 (8). Apex of hind tibia with 5 teeth.
- 6 (7). Highest point of dorsal side of abdomen situated on tergite V. Carinae of metope not reaching its ends; intermediate carinae not reaching clypeus; median carina obsolete *Caurca* subgen. n.
- 7 (6). Abdomen with highest point on tergite IV. Carinae of metope sharp, developed along its entire length *Melanero* subgen. n.
- 8 (5). Apex of hind tibia with 6 teeth *Bambula* subgen. n.

Subgenus *Cerepa* Emeljanov, subgen. n.

Type species *Caliscselis carnavalis* sp. n.

Species included. *Caliscselis carnavalis* sp. n., *C. gnezdilovi* sp. n.

Subgenus *Caliscselis* Laporte, 1833

Type species *Caliscselis heterodoxa* Laporte, 1833 (= *C. bonellii* Latreille, 1807, Figs. 1–4).

Species included. *Caliscselis bolivari* Horváth, 1904; *C. bonellii* Latreille, 1807; *C. dimidiata* Costa, 1863; *C. ephippiata* sp. n.; *C. maroccana* Horváth, 1904; *C. tricolor* Costa, 1834; *C. unicolor* Costa, 1834.

Subgenus *Caurca* Emeljanov, subgen. n.

Type species *Caliscselis gissarica* Kusnezov, 1930.

Species included. The subgenus includes a single species with 3 subspecies: *Caliscselis gissarica gissarica* Kusnezov, 1930, *C. gissarica ferganensis* Kusnezov, 1930, **stat. n.**, and *C. gissarica gracilis* Mitjaev, 1971, **stat. n.**

Subgenus *Melanero* Emeljanov, subgen. n.

Type species *Caliscselis nero* Fennah, 1967.

Species included. *Caliscselis nero* Fennah, 1967, *C. larvata* sp. n.

Subgenus *Bambula* Emeljanov, subgen. n.

Type species *Caliscselis wallengreni* Stål, 1863.

Species included. *Caliscselis affinis* Fieber, 1976; *C. berenice* Linnavuori, 1973; *C. chinensis* Melichar, 1906 [(?) = *C. terauchii* Matsumura, 1915]; *C. rhabdocladis* Che, Wang et Zhang, 2011; *C. swazi* Gnezdilov et Bourgoïn, 2009; *C. wallengreni* Stål, 1863 (= *C. triplicata* Che, Wang et Zhang, 2011, **syn. n.**); *C. zarudnyi* Mitjaev, 1971 (= *C. longimana* Emeljanov, 1972, **syn. n.**). The synonymy is based on comparison of the holotype of *C. longimana* with the description of *C. zarudnyi* and with the topotypical material; *C. shandongensis* Chen, Zhang et Chang, 2014.

Species with Unclear Position

Caliscselis orientalis Ôuchi, 1940.

A Key to the Species of the Genus Caliscselis Laporte of the Fauna of Russia and Adjacent Countries

- 1 (16). Males.
- 2 (5). Apex of hind tibia with 5 teeth.
- 3 (4). Claval vein (*CuP*) sharpest on fore wing, with pale stripe running over it. (Subgenus *Caliscselis* s. str.) *C. bonellii* Latr. (Figs. 1–4).
- 4 (3). Median vein (*M*) sharpest on fore wing; pale stripe running outside *M*, over *CuP*. (Subgenus *Caurca* subgen. n.) *C. gissarica* Kusn.
- 5 (2). Apex of hind tibia with 6 or 7 teeth. (Subgenus *Bambula* subgen. n.).
- 6 (11). Lateral carinae of scutellum converging posteriorly or parallel. Suture of clavus with pale stripe along its entire length.
- 7 (8). Lateral carinae of scutellum parallel *C. shandongensis* Chen, Zhang et Chang.
- 8 (7). Lateral carinae of scutellum converging posteriorly.
- 9 (10). Lateral margins of abdominal tergites IV–VII pale *C. wallengreni* Stål.
- 10 (9). Lateral margins of abdominal tergites IV–VII dark *C. affinis* Fieb.
- 11 (6). Lateral carinae of scutellum diverging posteriorly. Stripe or spot along suture of clavus developed only in posterior 2/3 of fore wing.



Figs. 1–4. *Caliscelis bonellii* Latr., genitalia ♂: (1) genitalia, left view; (2) stylus; (3) penis, left view; (4) penis, posterior view.

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|--|---|---|--|
| 12 (13). Lateral margins of abdominal tergites IV–VII dark | <i>C. turbata</i> sp. n. | 19 (18). Fore wing without stripes. (Subgenus <i>Caurca</i> subgen. n.) | <i>C. gissarica</i> Kusn. |
| 13 (12). Lateral margins of abdominal tergites IV–VII pale. | | 20 (17). Apex of hind tibia with 6 or 7 teeth. Fore wing with distinct sutural carina. (Subgenus <i>Bambula</i> subgen. n.). | |
| 14 (15). Postclypeus with median carina | <i>C. zarudnyi</i> Mit. (Fig. 32). | 21 (22). Hind leg slender; tibiae not foliately widened | <i>C. chinensis</i> Mel. (? = <i>C. terauchi</i> Mats.). |
| 15 (14). Postclypeus without median carina | <i>C. chinensis</i> Mel. (? = <i>C. terauchi</i> Mats.) | 22 (21). Hind tibia moderately foliately widened. Lateral tooth situated in middle of lateral plane, equally distant from margins of flattened tibia. | |
| 16 (1). Females. | | 23 (26). Metope with rather sparse strong setae, slightly swollen; carinae low; intervals convex. | |
| 17 (20). Apex of hind tibia with 5 teeth. Fore wing without sutural carinae. | | 24 (25). Intermediate carinae at upper margin of metope equally distant from each other and from lateral carinae. Hind tibia weakly widened | <i>C. affinis</i> Fieb. |
| 18 (19). Fore wing with pale stripe running along suture of clavus and shaded at sides by dark brown lines. (Subgenus <i>Caliscelis</i> s. str.) | <i>C. bonellii</i> Latr. | | |

- 25 (24). Distance between intermediate carinae at upper margin of metope longer than that between intermediate and lateral carinae. Hind tibia distinctly widened; its width equal to distance between marginal apical teeth
..... *C. wallengreni* Stål.
- 26 (23). Metope usually glabrous, not swollen; carinae high; intervals between them concave.
- 27 (28). Postclypeus rather sharply beveled downwards in lower part. Median carina interrupted at border between postclypeus and metope (well-visible in lateral view). Postclypeus sharply curved near metope in lateral view, straight along rest of its length. Lora entirely blackened as far as genae and metope
..... *C. turbata* sp. n.
- 28 (27). Postclypeus moderately beveled. Median carina of metope and clypeus entire, complete. Postclypeus more or less regularly convex in lateral view. Lora not blackened or blackened only ventrally.
- 29 (30). Lateral carinae of scutellum straight, strongly diverging posteriorly. Pale stripe along suture of fore wing widening anteriorly and reaching posterior ends of lateral carinae of scutellum
..... *C. zarudnyi* Mit. (Fig. 30).
- 30 (29). Lateral carinae of scutellum weakly diverging, distinctly arcuately curved (convexity directed sideways). Pale stripe along suture of fore wing not widening anteriorly toward apex, distinctly not reaching level of posterior ends of lateral carinae.....
..... *C. shandongensis* Chen, Zhang et Chang.

Caliscelis (s. str.) *ephippiata* Emeljanov, sp. n.
(Figs. 5, 6)

Description. Male. Coryphe inclined anteriorly, trapeziform; lateral margins diverging posteriorly; posterior margin slightly obtuse-angularly concave; anterior margin straight in dorsal view, about twice as long as coryphe along midline; posterolateral angles of coryphe with indistinct break, slightly deflecting downwards; surface mainly gently concave; lateral margins raised; median carina filiform, hardly visible, not reaching anterior margin of coryphe. In front view, anterior margin of coryphe convex, broken, consisting of 3 sections; middle (widest) section adjoining metope; lateral section adjoining trigones; upper border of

metope nearly straight (in *C. bonellii*, upper angles of metope (homologous to trigones) not separated from metope). Metope hexahedral because its lateral margins obtuse-angularly projecting laterally, diverging downwards between eyes, converging toward clypeus below eyes; lower part, narrowed downwards (toward clypeus), slightly longer than upper part which narrowed upwards (toward coryphe). On the whole, metope about 1.5 times as long as wide, depressed in upper part, concave laterally and convex medially in lower part; this convexity parabolically (semi-oviform) extending upwards as a continuation of convexity of postclypeus. Clypeal border of metope weakly concave, nearly straight. Metope without carinae. Postclypeus convex, subtriangular, strongly narrowed toward anteclypeus; median carina sharp, ridge-like raised in lower part. Metope nearly steep, with lower margin weakly deflecting anteriorly. Pronotum about as long as metope; its anterior margin obtuse-angularly projecting, closely adjoining margin of coryphe; near eyes, anterior margin connected with lateral margins adjoining eyes at distinctly obtuse angle; posterior margin weakly concave; median carina of disc distinct. Scutellum shorter than that in *C. bonellii*; its posterolateral margins converging to form obtuse, instead of right, angle. Fore wing shorter and wider than those in *C. bonellii*, more strongly saddle-like concave, smooth, with only subcostal (*ScR*) vein weakly keel-like pronounced. Anterior part of body and free abdomen smooth, glossy. Fore leg foliate, similar to that in *C. bonellii*, but its ventral contour obtuse-angularly-rounded, instead of smoothly arcuate, and its dorsal contour more gently curved in middle part.

Head dark brown, reddish brown on paler areas. Coryphe reddish brown, with nearly black margins and with two dark stripes extending nearly from its middle to anterior margin. Upper area of metope and lateral margins in dorsal 2/3 reddish brown; their border with darker parts gradual, diffused; margins of metope against eyes with pale punctures: 2 small on trigones and 3 larger below. Pronotum, paranotal lobes, and mesoscutum nearly black. Fore wing mainly pale ivory-yellow, except for dark brown band extending along costal margin and passing onto posterior margin where it becoming brown. Abdomen dorsally nearly black; tergite III slightly projecting from under fore wing, pale. Fore leg nearly black; tarsus reddish-brownish; middle and hind legs and also ventral part of thorax reddish brown. Median part of abdomen yellowish white ventrally; spot with diffused margins; transition



Figs. 5, 6. *Caliscelis ehippiata* sp. n., ♂, general lateral (5) and dorsal (6) view.

to black color passing through reddish brown margination; pale anterior spot occupying entire width of 3rd visible sternite, narrowed toward pygofer, leaving lateral parts of sternites dark brown to black; pygofer reddish brown; apices of styli and anal tube blackened.

Female unknown.

Body length 2.75 mm.

Material. Holotype, ♂: **Iran, Kurdistan Prov., Sarvabad Area, Nogol Vill., 11.VI.2008, K. Kolesnichenko leg. (ZIN).**

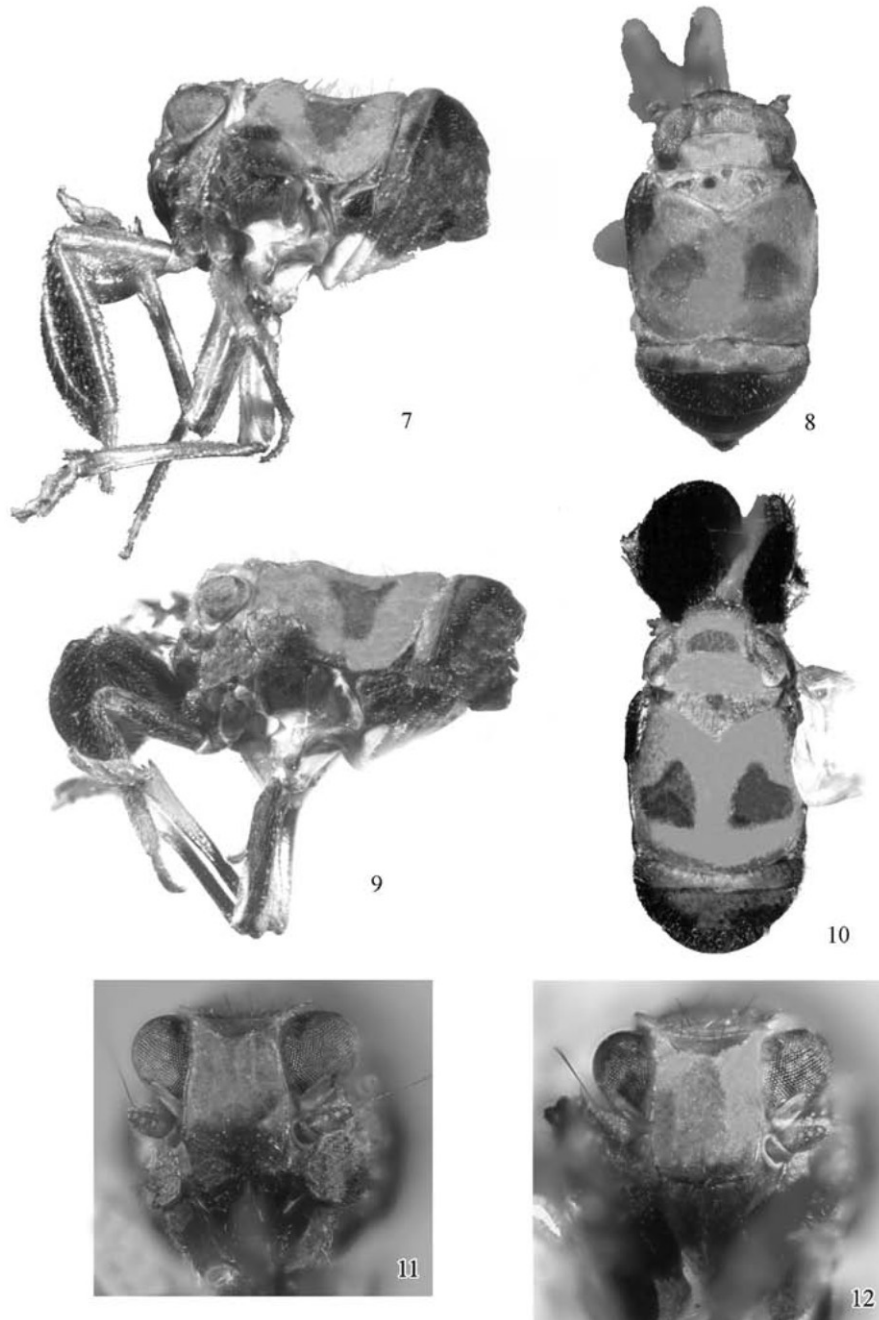
Comparative notes. *Caliscelis ehippiata* differs from *C. bonellii* in a wider fore wing, the posterior margin of which, as also that of *C. bonellii*, is situated over tergite III, in the absence of a claval (cubital) carina on the fore wing, in a distinct median carina of the postclypeus, and also in a less smooth shape of the margins of the foliate tibiae.

Caliscelis (Cerepa) carnavalis Emeljanov, sp. n.
(Figs. 7, 8, 11, 13–15, 34)

Description. Entire integument in both sexes with sparse erect setae.

Male most similar in appearance to that of *Caliscelis nero* Fenn. Coryphe trapeziform in dorsal view, about 2.5 times as wide as long, slightly depressed, with fine sharp bordering carinae, without median carina, lying in one horizontal plane with pronotum. In

anterodorsal view, anterior margin of coryphe forming broken tripartite convex line with all three parts subequal in length; intermediate carinae of metope originating from break-points of this line. In front view, upper margin of metope gently angularly concave, consisting of three straight sections; lateral margins straight, diverging downwards. Intermediate carinae parallel to lateral carinae but weakening and disappearing in lower part; distance between them in lower part nearly twice exceeding width of lateral lobes. Clypeal border concave; clypeometopal suture absent; concave metope adjoining convex postclypeus. In lateral view, margin of metope nearly straight, only slightly S-curved: its upper part convex and lower part concave. Surface of metope more strongly concave in lower half. Clypeus large, elongate, convex, without median carina; upper part (between epiclypeal lobes of metope) separated from other part by smooth transverse depression; upper part transverse, situated between and slightly below antennae. In lateral view, clypeus convex; its upper part strongly projecting anteriorly from margin of metope; constriction appearing as short concave deflection of common convex line of clypeus. Antennae up-curved and pressed to lower part of eyes; 2nd segment obliquely truncate apically, distinctly longer than wide. Pronotum trapeziform, 1.2–1.5 times as long as coryphe; median carina invisible. Scutellum rather wide and short, no more than 1.5 times as long as pronotum; its lateral carinae distinct; disc gently concave; median carina absent. Fore wing rather short; midline weakly saddle-like



Figs. 7–12. *Caliscelis carnavalis* sp. n. (7, 8, 11) and *C. gnezdilovi* sp. n. (9, 10, 12), ♂, general view [(7, 9) laterally; (8, 10) dorsally; (11, 12) anteriorly].

depressed; posterior margin of each fore wing distinctly slanting—common margin of fore wings obtuse-angularly projecting posteriorly in middle; costal margin weakly concave; surface of fore wing shagreened, without traces of claval suture and veins, except for base of presumably radial vein. Middle part of each fore wing with smooth triangular, slightly depressed transverse area with apex directed toward costal margin; this area rather deeply depressed and appearing as part of finer membrane, its inner margin

parallel to sutural margin of wing, and its posterior margin parallel to terminal one. Terminal margin coinciding with anterior margin of abdominal tergite IV; tergite IV in this species, in contrast to others, highest: all succeeding tergites forming posterior declivity of abdomen. Fore femur and tibia flattened and widened; lower pecten of femur arcuate, smoothly becoming lower before apex of femur; middle leg not widened (in *Caliscelis nero*, middle leg widened but less strongly than fore leg).

Coryphe grayish or whitish-grayish. Metope orange in lateral parts and at upper margin; its lateral margins entirely orange in upper part; below, where intermediate carinae disappearing, lateral margins cuneiform narrowed without separation from lateral margin of metope; rest of metope occupied with dark gray triangular spot. Clypeus black, glossy. Genae and antennae reddish brown. Upper part of pronotum orange; paranotal parts black, brownish only dorsally behind eyes. Scutellum white or dirty-white. Fore wing mainly orange, with dark gray triangular depressed spot described above; anterobasal area dark brown to black from costa up to level of lower margin of eye; border with orange part diffused. Mesopleura black, with pale, nearly white lower margin. Lateral parts of tergite III, lying below margin of fore wing, brown; tergite IV white in anterior half, reddish brown in posterior part. Abdomen mostly black; basal part (from thorax) with white, approximately diamond-shaped area occupying sternites III–VII; spot narrowed toward apex of abdomen. Body ventrally and legs brown to dark brown; fore tibia and femur entirely dark brown to black.

Genitalia. Pygofer with wide lateral projection widely truncate apically. Theca with inconspicuous lateral lobes and with gently concave dorsal margin. Hooks of penis arcuately recurved. Styli relatively robust, with high basal part.

Female. Coryphe transverse, about 3 times as wide as long; its anterior margin trapeziform projecting; posterior margin gently concave; lateral margins slightly diverging posteriorly; surface moderately depressed, with sharp marginal carinae. Metope with anteriorly slanting lower (clypeal) margin, flat, with inconspicuous longitudinal carinae of main plan of fulgoroid structure, with weakly trapeziform concave upper margin, nearly parallel-sided, but slightly narrowed from level of bases of antennae in lower part; transverse arcuate carina situated in lower part of metope, convexity of carina turned toward clypeus (downwards) and its central point lying near border with clypeus, lateral ends of carina situated at level of bases of antennae. Intermediate carinae of metope visible in its upper half; median carina, in its lower part. Trigones not separated from metope. Postclypeus convex, subtriangular because of being strongly narrowed toward anteclypeus; its lateral parts (corresponding to lora) glossy, very smooth; median carina absent; low smoothed transverse carina crossing upper part of clypeus at level slightly below epiclypeal

lobes of metope. Pronotum trapeziform, about 1.5 times as long as metope; its posterior margin straight; median carina absent. Scutellum transverse, with distinct lateral carinae of disc, without median carina.

Body generally gray; nearly entire integument with black spots and sparse erect setae. Area of lora entirely black, glossy. Paranotal lobes of pronotum nearly without spots. Abdominal tergites with narrowly blackened median carina. Dark (black) stripe, formed by partly merged black spots, running along median part of each side of tergite. Lateral parts of sternites also darkened owing to closely arranged and partly merged dark spots. Legs with dark spots; fore leg darker, with merging spots, with entirely black tibiae; femora each with black complete subapical band. Abdominal sternites, except for lateral parts described above, also blackened in median part; intermediate areas regularly pale, without spots.

Body length 2.7–3.0 mm in male, 3.4–3.6 mm in female.

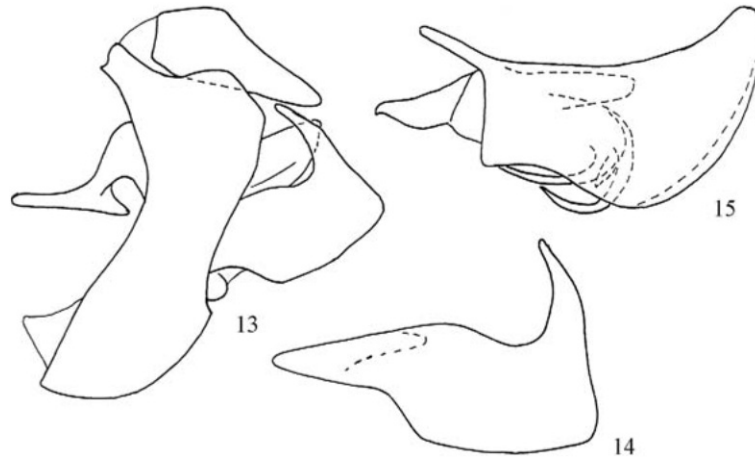
Material. Vietnam: *Dac Lac Prov.*: Yok Don Nat. Park near Buon Dôn, 23–28.XI.1993, 2 ♂, A. Gorochov; Yok Don Nat. Park, 20 km NE Buon Don Village, 16–20.VI.2014, 12°56′–57′N, 107°47′E, 10 ♂, 3 ♀, 21; 19–20.VI.2014, 12°56′N, 107°43′E, in light Dipterocarpaceae forests on *Arundinaria pusilla*, 1 ♂—holotype, 11 ♂, 4 ♀ (paratypes) V.M. Gnezdilov (ZIN). **Cambodia:** 8 km N of Sre Noi (road to Anlong Vaeng), light trap, 29.V.2003, 3 ♂, leg. J. Constant, K. Smets (ISNB, ZIN).

Comparative notes. *Caliscelis carnavalis* is similar to *C. gnezdilovi* sp. n.; for differences between these species, see the description of *C. gnezdilovi* sp. n.

***Caliscelis (Cerepa) gnezdilovi* Emeljanov, sp. n.**
(Figs. 7–12)

Description. Female. Metope more strongly deflecting anteriorly and more elongate than that in *C. carnavalis*. Arcuate carina of metope sharp; subbasal carina of postclypeus sharp; sharp median carina of scutellum present; median carina of metope absent or inconspicuous in lower half; intermediate carinae absent.

Body of female much darker than that in *C. carnavalis*; spots merging into nearly complete darkening. Paired stripe on abdomen hardly visible in dorsal view: not distinguished against dark background. Abdominal sternites, except for sternite III (1st visible),



Figs. 13–15. *Caliscelis carnavalis* sp. n., male genitalia: (13) genitalia, left view; (14) stylus; (15) penis, left view.

darkened; only pair of rather narrow pale stripes crossing median parts of sides; sternite III pale, except for lateral areas and median spot near anterior margin. Paranotal lobes dark gray, spotted.

Body length 3.0 mm in male, 3.9–4.0 mm in female.

Material. Vietnam: *Dak Lak Prov.*, Yok Don Nat. Park, 20 km NE of Buon Don Village, 13°02'N, 107°47'E, 330 m, under canopy of Dipterocarpaceae forests in grass layer, probably on *Alpinia* sp. (Zingiberaceae), 17–18.VI.2014, 1 ♂—holotype, 4 ♀, 1 nymph (paratypes), V.M. Gnezdilov (ZIN).

Comparative notes. *Caliscelis gnezdilovi* is similar to *C. carnavalis* sp. n.; the males of these species are similarly colored. The new species has the following differences in the structure: the subbasal carina of the clypeus is sharp (inconspicuous in *C. carnavalis*); the area between the subbasal carina and the margin of the metope is not swollen; the scutellum forms a distinct median carina; the fore tibia is more strongly widened (Fig. 7).

Note. The subgenus *Cerepa* subgen. n. differs from the other subgenera of the genus *Caliscelis* in a short scutellum, in the terminal margin of the fore wing entirely coinciding with the margin of tergite IV (tergite III does not project posteriorly from under the fore wings), in abdominal tergite IV most strongly projecting dorsally, in a simple (not widened) middle tibia, and in the presence of a straight transverse carina in the upper part of the postclypeus.

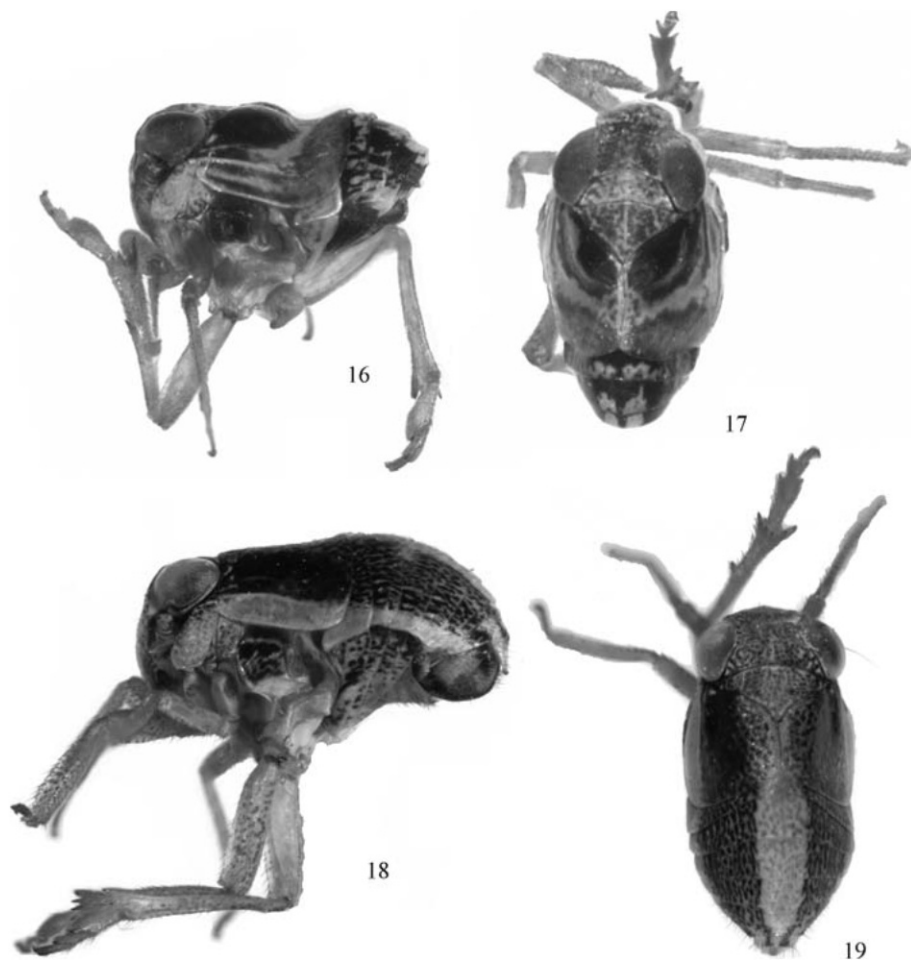
The presence of a transverse arcuate carina in the lower part of the metope is typical of the subgenera *Cerepa* (Figs. 34–37) and *Caliscelis* s. str. including *Caliscelis bonellii* Laporte. The Caliscelidae exhibit

a trend toward the convergence of the apices of the intermediate carinae to the midline before the margin of the clypeal suture. This trend is most evident in the tribe Peltonotellini in which the sensory pits (an indicator of the lateral areas of the metope) remain at the adult stage (for example, in *Peltonotellus punctifrons* Horv., *Protrocha viridis* Dozier, etc., *Mushya quadri-fasciata* Kato, *Plagiopsis* spp., etc.). In some cases it can be seen that the carinae are fused at some distance from the margin of the clypeus over the apex of the frons which is sometimes distinguished by the color and sculpture. When the lower (distal) part of the metope starts deflecting posteriorly (with regard to the apical parts of the intermediate carinae), the lateral parts form a break which turns into the secondary carina delimiting the two parts of the metope situated at an angle to each other, i.e., this break forms a complex arcuate carina. When this epiclypeal stripe of the metope lies at an angle to the upper part of the metope and forms the common plane with the postclypeus, the area of the clypeus is frequently clearly stands out owing to its dark coloration and glossy surface, in contrast to the paler and rough metopal part.

***Caliscelis (Melanero) larvata* Emeljanov, sp. n.**
(Figs. 16–21)

This species is similar to *C. nero* Fenn. in the habitus and size.

Description. Male. Coryphe about twice as wide as long, depressed, with sharp bordering carinae, rather strongly inclined anteriorly in comparison with approximately horizontal pronotum. Anterior and posterior margins arcuate; lateral margins subparallel, only slightly converging anteriorly; median carina absent.

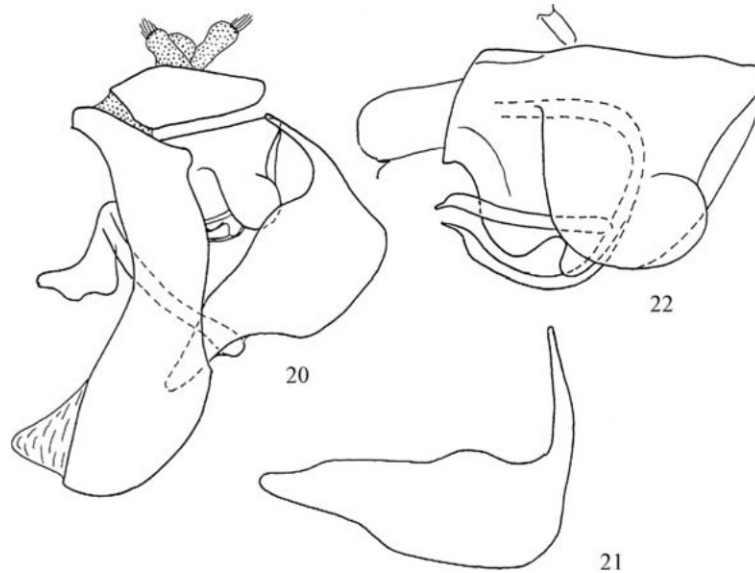


Figs. 16–19. *Caliscelis larvata* sp. n., general lateral (16, 18) and dorsal (17, 19) view [(16, 17) ♂; (18, 19) ♀].

Metope slightly depressed, as though being crumpled; border of lateral and middle areas mostly shallowly sulciform; middle lobes concave dorsally, convex (together with clypeus) ventrally; clypeal border vague. Median carina sharp. Lateral lobes densely covered with nodules at place of larval sensory pits. Post-clypeus moderately convex, with distinct median carina. Intermediate carinae absent; inner border of lateral lobes coinciding with margin of nodules. Pronotum along midline nearly as long as metope; median carina obsolete. Scutellum with 3 distinct carinae. Fore wings rather short; their sutural margin nearly as long as posterior margin, saddle-like; claval areas convex, oval, in form of plates with lustrous surface; border between clavus and corium invisible; apparently, outer margin of plate extending onto corium. Three keel-shaped veins, *ScR*, *M*, and *CuA*, lying between plate and keel-shaped costal margin, vanishing behind plates; *M* extending posteriorly farther than others and indistinctly furcating. Fore tibia weakly widened, about twice as wide in median part as at base.

Head reddish brown to dark brown; coryphe paler. Pronotum dorsally (i.e., its disc) and mesoscutum whitish brown; paranota white. Keel-shaped veins of fore wing whitish; intervals dark brown to black; claval plates black, glossy; posterior part of fore wing brown, with reddish tint. Abdomen dark brown to black, with pale whitish spots on tergites; median part of tergites with pair of transverse pale spots separated by black stria; small pale spots forming 3 longitudinal rows at each side of pale spots. Two medial rows weakening and vanishing caudally; lateral row, in contrast, becoming stronger. Sternal part of abdomen black posteriorly, pale anteriorly. Tergite III entirely pale; tergite IV pale only in median part; tergite V only with small pale spot in middle. Mesopleura whitish, as well as paranota; metapleura dark brown to black. Legs reddish brown.

Genitalia. Structure of genitalia similar to that in *C. nero* Fennah. Pygofer with small, rather sharp rounded lateral projection in upper part of margin.



Figs. 20–22. *Caliscelis larvata* sp. n., male genitalia: (20) genitalia, left view; (21) stylus; (22) penis, left view.

Theca high and short, compressed. Penis only with one hook arcuately recurved.

Female similar to female of *C. nero* in habitus (fore wings even, without plates, in contrast to those of male); differing in presence of nodules in upper part of lateral lobes, in inconspicuous intermediate carinae of metope, and, in fore tibia less strongly widened than that in *C. nero*, similarly to that in male. Body generally gray, with black spots. Paranota of pronotum, costal areas of fore wings, and lateral margins of tergites pale, whitish; abdomen with longitudinal paler median stripe diffused along its margins. Legs pale brown with reddish tint. In *C. nero*, all parts of body almost regularly gray with dark spots; only paranota paler than general coloration, but also with spots. In *C. larvata*, paranota and costal areas without spots.

Body length 2.1–2.6 mm in male, 3.1–3.4 mm in female.

Material. The Republic of South Africa. *North West Prov.*, Piet Plessis N of Vryburg, 26°09'S, 24°21'E, 1146 m, 6.III.2005 (Emeljanov), 1 ♂; Mosita vicinity, 35 km W of Setlagode, 26°12'S, 24°46'E, 1203 m, 6.III.2005 (Emeljanov), 2 ♂; 5 km W of Vaalshoek, 8.III.2005 (Emeljanov), 1 ♂. *Orange Free State Prov.*: Hoopstad, 5 km NE of Bothaville road, 27°47'S, 25°58'E, 1279 m, 9.III.2005 (Emeljanov), 1 ♂, 1 ♀ (all—ZIN); Sandveld Nat. Res., 27°40'S, 25°45'E, 24–25.II.1993 (M. Stiller), 2 ♂, 1 ♀ (NICP). *Northern Cape Prov.*, 10 km E of Warrenton, 28°08'S, 24°56'E, 1225 m, 8.III.2005 (M. Stiller), 3 ♂, includ-

ing holotype, 4 ♀ (NICP). Former *Transvaal Prov.*, Langjan Nat. Res., 22°52'S, 29°13'E, 24–25.II.1993 (M. Stiller), 2 ♂ (NICP).

Comparative notes. The new species differs from all the congeners in the presence of convex plates on the fore wings in the male and tubercles on the lateral lobes of the metope in the female.

Caliscelis (Bambula) shandongensis

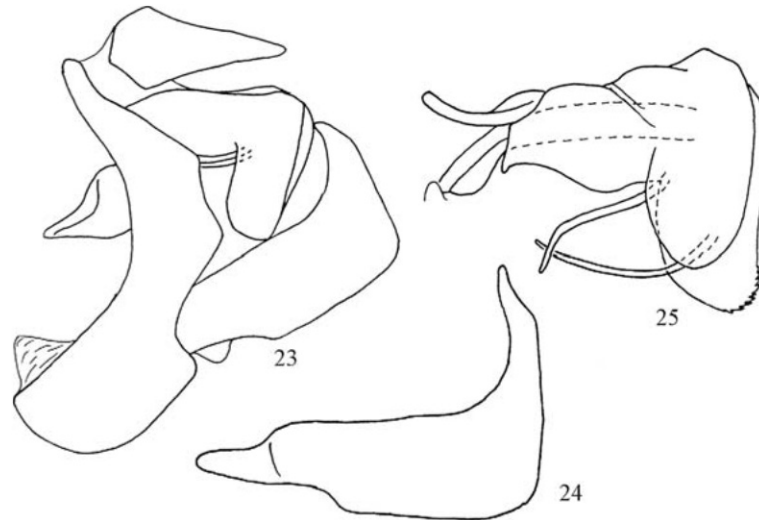
Chen, Zhang et Chang, 2014 (Figs. 23–25)

Material. China, Beijing, 25–27.V.1935 (Zhenzhurist), 3 ♂, 2 ♀ (ZIN).

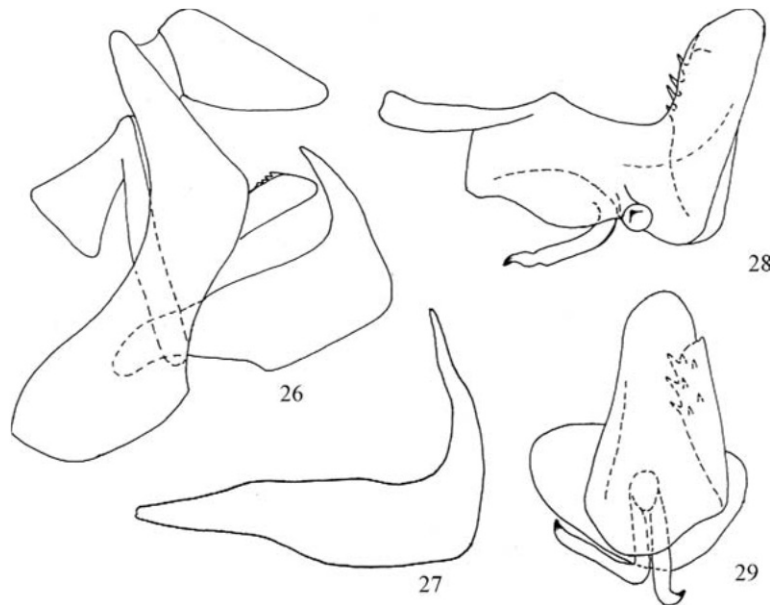
***Caliscelis (Bambula) turbata* Emeljanov, sp. n.**

(Figs. 26–29, 31, 33)

Description. Male. Coryphe about twice as wide as long; its posterior margin smoothly concave; anterior margin convex in form of broken line formed by three sections. Lateral margins of coryphe slightly converging anteriorly; coryphe longitudinally groove-like concave, with metopal margin rather steeply concave in front view. Metope along midline slightly longer than wide, crossed by unsharp sulciform depression with convexity arcuately curved upwards; below depression, metope forming common convexity with postclypeus. Intermediate carinae of metope sharp, but present only above bow-shaped depression; median carina absent. Postclypeus moderately convex, without median carina. Pronotum about as long as coryphe, with distinct median carina. Scutellum with lateral



Figs. 23–25. *Caliscelis shandongensis* Chen, Zhang et Chang, ♂: (23) genitalia, left view; (24) stylus; (25) penis, left view.

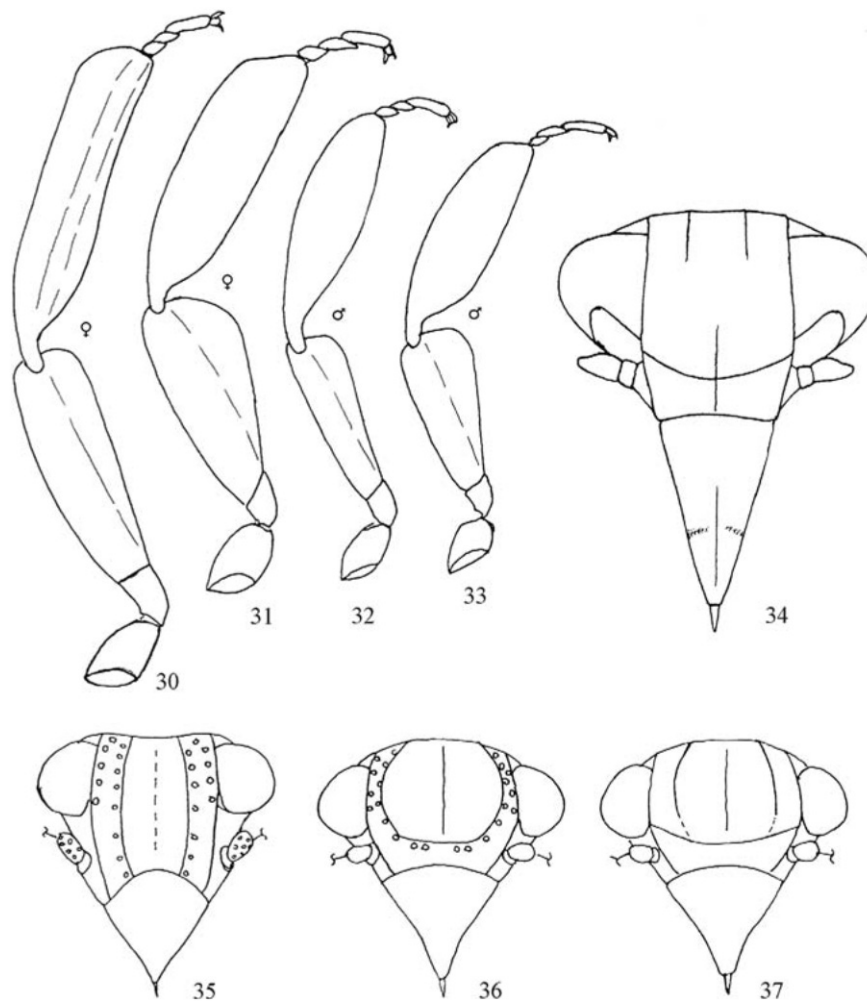


Figs. 26–29. *Caliscelis turbata* sp. n., male genitalia: (26) genitalia, left view; (27) stylus; (28) penis, left view; (29) penis, posterior view.

carinae diverging posteriorly and with distinct median carina. Fore wing with sharp vein *M*, including its base common with *R*; separate part of *R* smoothed; claval vein (*CuP*) absent. Fore leg slightly narrower and longer than that in *C. wallengreni*.

Structure of genitalia similar to that in *C. zarudnyi*. Pygofer with simple rounded lateral margin. Penis with apex of dorsal wall of theca deflexed dorsally; lateral margins of deflexed apex, in turn, also deflexed dorsally; right margin more strongly projecting and covered with teeth. Right hook of penis arcuately recurved; left hook angularly curved near middle, with apex turned to left.

Integument reddish brown with yellow spots and with white or whitish pattern on fore wing and abdomen. Fore wing whitish, with brown basal-costal quarter; pale stripe extending from this dark spot in middle of fore wing along suture of clavus, stripe shaded at sides by dark brown lines. Abdominal tergite III white, with yellow stripe along lateral margin and with dark line along posterior margin. Rest of abdomen dark brown; ventral surface darker but with pale spot occupying median parts of basal sternites; dorsal surface with 2 pale stripes running along midline and separated by dark stripe. Legs reddish brown or brown; fore tibia dark brown, nearly black.



Figs. 30–37. *Caliscelis* spp.: (30–33) fore leg [(30, 32) *C. zarudnyi* Mit.: (30) ♀, (32) ♂; (31, 33) *C. turbata* sp. n.: (31) ♀, (33) ♂]; (34) *C. carnavalis* sp. n., head, front view, with arcuate transverse carina visible; (35–37) morphological row showing a hypothesized origin of arcuate carina in Caliscelidae [(35) *Nenema bivittata* Bull, initial position of carinae of metope; (36) *Protocha viridis* Dozier, merging of distal ends of intermediate carinae at distance from clypeal suture; (37) formation of arcuate carina owing to development of transverse carinae on lateral areas of metope]; (35, 36) after Doering, 1941.

Female. Coryphe nearly 3 times as wide as long; its posterior margin obtuse-angularly concave; anterior margin in form of broken line consisting of three subequal sections. Postclypeus rather strongly projecting anteriorly. Metope with sharp carinae and sulciform intervals; median carina highest, interrupted on clypeal suture, but median carina of clypeus also sharp; postclypeus in lateral view steeply convex in upper part, then nearly straight along most length, slanting posteriorly. Pronotum nearly as long as coryphe, with distinct median carina. Scutellum with straight lateral carinae diverging posteriorly and with obsolete median carina developed only in anterior half. Fore wing with distinct sutural carinae. Fore leg relatively short and

wide; middle leg not widened; hind tibia considerably widened: its width subequal to distance between apical teeth of tibia.

Body gray, with dark brown spots denser on sides of scutellum and on fore wings outward from sutural carinae. Lower part and sides of postclypeus blackened entirely, shining. Uniform pale stripe (without dark midline) running along dorsum of abdomen; sides of dorsum of abdomen darker; 3 unsharp longitudinal darker (owing to dense spots) stripes present in posterior part. Spots on legs, especially on fore leg, denser than those on body.

Body length 2.9–3.4 mm in male, 4.9–5.3 mm in female.

Comparative notes. The new species is closely related to *C. zarudnyi* Mit. (Figs. 30, 32) but clearly differs in the shape and proportions of the fore leg (Figs. 31, 33) and in the metope more strongly inclined (almost vertical in *C. zarudnyi*). The male differs from those of the closely related species in the dark lateral margins of the abdominal tergites, and the female, in the median carina interrupted at the border between the metope and clypeus and also in paler lora.

Material. Uzbekistan, Samarkand Prov. Holotype: ♂ with label “Bukhara, Kumak, 25.VI.1929, L. Zimin” (ZIN). Paratypes: “Bukhara,” Kumak, 3, 24, 25.VI, 15.VIII.1929 (L. Zimin), 9 ♂, 3 ♀; “Bukhara,” Katta-Ming kishlak, 15.VI.1929 (L. Zimin), 1 ♂; “Buchara mer.-occ.,” Yargak kishlak near Khatyrchi, 15.VI and 18.VII.1928 (L. Zimin), 2 ♂, 2 ♀ (ZIN). All the collection sites are situated in the Zeravshan River valley in the area of Katta-Kurgan (Kumak—39.57°N, 66.03°E; Khatyrchi—40.02°N, 65.58°E).

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