



Review of the genus *Bolbonaso* Emeljanov with checklist and key to Indian Caliscelidae (Hemiptera: Fulgoroidea)

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ABSTRACT

A list of species of the family Caliscelidae Amyot et Serville known from India with data on distribution and sources for identification and a key to genera are given. The genus *Bolbonaso* Emeljanov, 2007 is revised. A new species, *Bolbonaso chandri* sp. nov., is described from Eastern India (Assam and Meghalaya States). *Bolbonaso tapirifacies* (Parshad, 1981) is redescribed and recorded for the first time from Southern India (Karnataka State). The lectotype is designated for *Chirodisca eximia* (Stål, 1859) which is recorded for the first time from Pakistan. New faunistic data in Nepal are listed for *Delhina eurybrachydoides* Distant, 1912.

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Caliscelinae; Ommatidiotinae; *Afronaso*; *Bolbonaso*; *Chirodisca eximia*; *Delhina eurybrachydoides*; new species; new records; India; Nepal; Pakistan

Introduction

The family Caliscelidae Amyot et Serville is small worldwide distributed group with about 200 species in more than 70 genera (Gnezdilov 2013; Bourgoïn 2015). Investigation and description of caliscelid fauna of India and adjacent countries were started by Guérin-Méneville (1834) and followed by Distant (1912, 1916), Fennah (1949, 1963, 1987), Menon and Parshad (1961), Parshad (1981), and Gnezdilov and Viraktamath (2011). Additional records were published by Gnezdilov (2008a) and Gnezdilov and Bourgoïn (2009). According to the mentioned publications, the Indian fauna of the family Caliscelidae currently comprises 11 species from 10 genera belonging to Caliscelinae Amyot et Serville, Caliscelini Amyot et Serville, and to Ommatidiotinae Fieber, Augilini Baker and Adenissini Dlabola, the later divided into Coinquendina Gnezdilov et Wilson and Pteriliina Gnezdilov et Wilson (see the checklist below).

During my studies in German museums and thanks to the kind help of Dr Chandrashekhara swamy A. Viraktamath from the University of Agricultural Sciences in Bangalore (India) a new species of the genus *Bolbonaso* from Eastern India was discovered and new records of *Bolbonaso tapirifacies* (Parshad, 1981) from Southern India, *Delhina eurybrachydoides* Distant, 1912 from Nepal, and *Chirodisca eximia* (Stål, 1859) from Pakistan were recognized. Examination of syntypes of *C. eximia* deposited in the Museum für Naturkunde (Berlin, Germany) allowed designation of the lectotype.

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Below, the checklist of caliscelid species known from India, with a key to all Indian genera, description of *Bolbonaso chandri* sp. nov. and redescription of *B. tapirifacies* are provided.

Material and methods

The terminology of the head and body follows Anufriev and Emeljanov (1988), pronotum terminology follows Emeljanov (2001), and terminology of the metatarsomere spines follows Gnezdilov et al. (2014). The borders of the Oriental realm are after Holt et al. (2013).

Photographs of the specimens were taken using a Leica Z16 APOA with Leica video camera DFC490 and a Leica M205C with Leica video camera DFC425. Images are produced using the software Leica Application Suite ver. 3.7, Auto-Montage Essentials and Adobe Photoshop.

The material studied is deposited in the following collections: ZSM, Zoologische Staatssammlung, München, Germany; MNB, Museum für Naturkunde (formerly Zoologisches Museum Humboldt Universität), Berlin, Germany; NME, Naturkundemuseum Erfurt, Germany; SMNS, Staatliches Museum für Naturkunde, Stuttgart, Germany; UASB, University of Agricultural Sciences, GKVK, Bangalore, India; ZIN, Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia.

Results

Taxonomy and faunistics *Bolbonaso* Emeljanov, 2007

Emeljanov, 2007: 236

Type species

Afronaso tapirifacies Parshad, 1981.

Supplementary description

Female. Metope wide, convex, glossy (Figure 2C), with no intermediate carinae (Figures 1A,B, 3A). Lateral margins (keels) of metope distinct over whole length (Figures 1B, 2B), reaching metopoclypeal suture. Postclypeus large, with rather short bean-shaped projection (bulb) bearing thick median carina (Figure 2C). Rostrum with very short and wide (not narrowing apically), third segment (second visible). Scapus short, cylindrical, with weakly convex externally apical margin. Pedicel cylindrical, with short rounded latero-apical process (Figure 3D). Coryphe and metope joined at angle 160°–170° (in lateral view) (Figures 1B,C, 2B, E). The border between metope and coryphe indistinct (Figures 1A, C, 2D, E, 3A). Coryphe transverse, with very weak or even without median carina (Figures 1A,C, 2A,D). Anterior margin of coryphe smooth, weakly visible, posterior margin straight. Rostrum reaching apices of hind trochanters. Pronotum short and wide, transverse, with weak median carina;

anterior and posterior margins straight. Paradiscal fields of pronotum very narrow – line-shaped behind the eyes. Paranotal lobes of pronotum wide, nearly triangular. Mesonotum twice as long as pronotum, without carinae. Forewings short, reaching only abdominal tergites II or III (Figures 1B,D, 2B), venation obscure, with weakly visible radius and median on common stem. Abdominal sternites III–VI with hind margins obtusely angulately concave. Abdominal sternite VII large, with hind margin convex bearing median concavity (Figure 3B). Middle and hind femora slightly flattened laterally. Hind tibia with a single lateral spine medially and five apical spines. First and second metatarsomeres are nearly equal in length, with only two latero-apical spines each. Ventral surface of first metatarsomere covered by short and thick setae. Arolium of pretarsus almost reaching claw apices (in dorsal view), with convex margin.

Female genitalia. Anal tube wide (Figure 3C). Gonoplags short and flat. Anal column (epiproct) short.

Key to species of the genus *Bolbonaso*

1. Clypeal bulb vertically oval in lateral view (Figure 1B,D). Female anal tube widely rounded apically in dorsal view (Figure 6K). Females – 2.3–2.6 mm.....
..... *B. tapirifacies* (Parshad, 1981)
- Clypeal bulb almost rounded in lateral view (Figure 2B,E). Female anal tube narrowing apically in dorsal view (Figure 3C). Females – 3.0–3.5 mm.....
..... *B. chandri* sp. nov.

Bolbonaso tapirifacies (Parshad, 1981)

(Figure 1A–D)

Afronaso tapirifacies Parshad, 1981: 9.

Bolbonaso tapirifacies Emeljanov, 2007: 236.

Material examined

India: 1♀, [IN-02] Punjab, Patiala City, University campus, 30°21'N, 76°27'E, 3–8.V.1999, Yu. M. Marusik leg. (ZIN); Karnataka: 1♀, Dharwad, 700 m, 18.XII.2008, sweepnet, T. Nagaraj leg. (UASB); 1♀, Gulbarga, 17°21.613'N, 76°48.907'E, 474 m, 6.I.2011, H.M. Yeshwanth leg. (UASB); 2♀, Chikkaballapura, Skandagiri hills, 13°25.273'N, 77°4.218'E, 1288 m, 27.VIII.2011, A.N. Reddy and H.M. Yeshwanth leg. (UASB); 1♀, Doddaballapura, Hosahalli, 13°23.80'N, 77°28.62'E, 854 m, 7.VI.2011, P. Nirmala leg. (UASB); 2♀, Belgaum, Arabhavi, 16°13.605'N, 74°50.016'E, 595 m, H.M. Yeshwanth leg. (UASB).

Description

Metope wide, slightly narrowing from its upper margin to the clypeus, with convex lateral margins. Coryphe 1.5 times as wide as long at median line, with weak median carina; anterior margin widely convex. Clypeal bulb vertically oval, distinctly

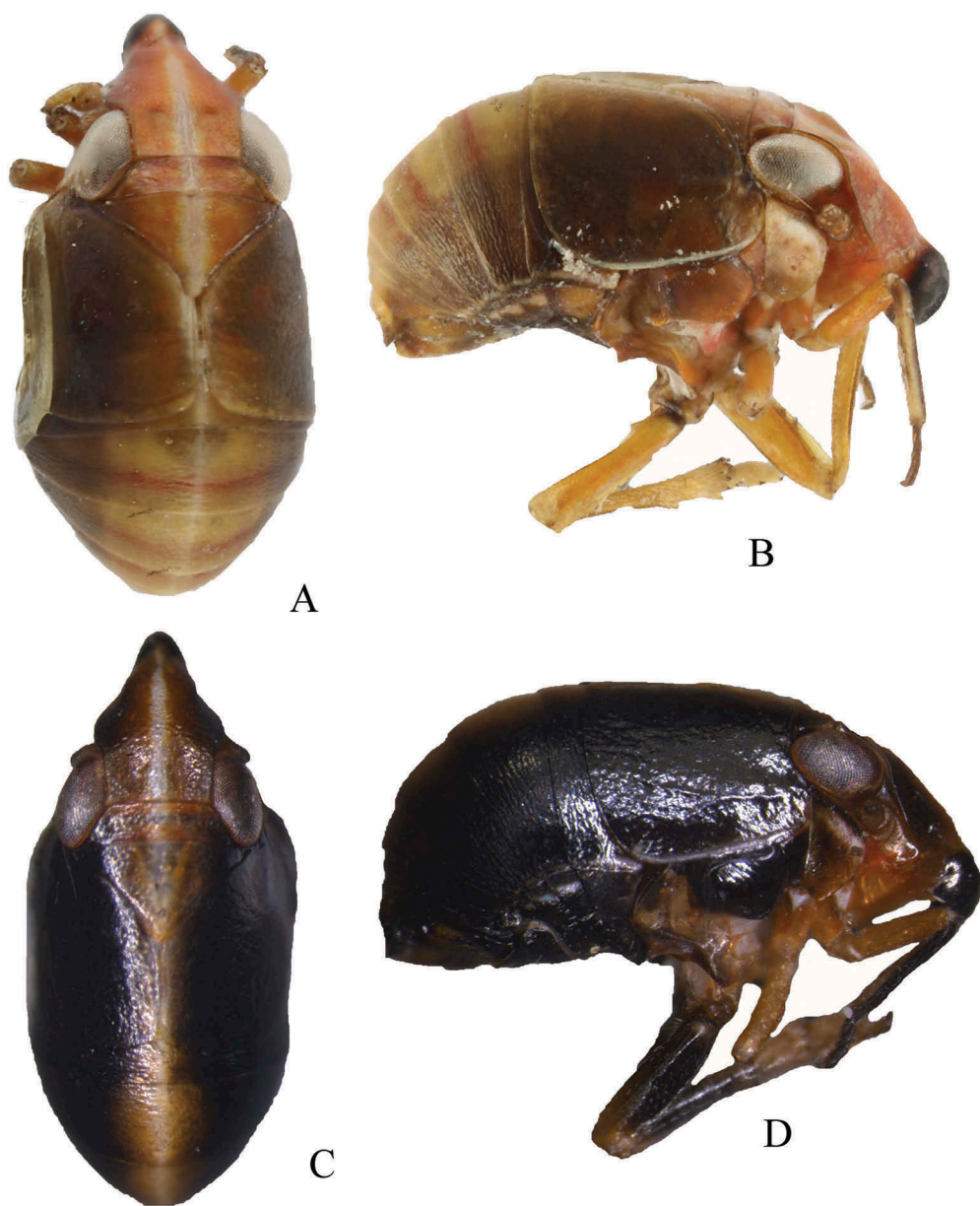


Figure 1. *Bolbonaso tapirifacies* (Parshad), female: (A,B) Punjab; (C,D) Karnataka, Dharwad. (A,C) dorsal view; (B,D) lateral view.

separated from the rest of clypeus in lateral view (Figure 1B,D). Anal tube widely rounded apically in dorsal view (Figure 6K).

Coloration

General coloration light brown yellowish (in light specimens) or brown to dark brown and black (in dark specimens). Coryphe and metope orange or brown orange, with white

median line or metope with dark brown to black lateral parts. Clypeal bulb black. Postclypeus light yellow or light brown. Pronotum and mesonotum orange yellowish, with white median line (wide on mesonotum) or with dark brown to black lateral parts. Each paranotal lobe of pronotum with transverse wide white stripe under the scapus and pedicel. Forewings dark brown to black, with whitish costal and claval margins. Abdominal tergites brown or dark brown to black with yellowish median part bearing white median stripe. Abdominal sternites III–VI dark brown to black, with light yellow spots laterally. Abdominal sternite VII dark brown to black excluding hind margin medially in light specimens. Fore and middle tibiae light yellowish or brown to dark brown and black with longitudinal dark brown stripes in light specimens. Hind femora and tibiae light yellowish or dark brown to black. Fore tarsi dark brown to black. Spines of legs with black apices.

Total length

Females 2.3–2.8 mm.

***Bolbonaso chandri* sp. nov.**

(Figures 2A–E, 3A–D)

Type material

Holotype, ♀, India, Assam, 'Kaziranga, nördl. Mikir-Hills Brahmaputra, V.1961, G. Scherer leg.' (ZSM). Paratypes: 1♀, same data as holotype (ZIN); 1♀, Meghalaya, Jaintia hills, 16 km west of Jowai, 25°27'N, 92°11'E, 11.VI.2013, T. Vinayak leg. (UASB).

Description

Externally very similar to *B. tapirifacies* excluding clypeal bulb almost rounded, not clearly separated from the rest of clypeus in lateral view and anal tube narrowing apically in dorsal view.

Coloration

Metope, coryphe, pronotum, and mesonotum brown or dark brown reddish. Clypeal bulb black. Coryphe, pronotum, and mesonotum with narrow median light stripe. Genae and upper part of postclypeus below the clypeal bulb orange light yellow. Lower part of postclypeus, anteclypeus, and rostrum light yellow. Scapus and pedicel brown yellowish. Paranotal lobes of pronotum dark brown reddish. Forewings with light costal and claval margins. Middle epimerae and episternae dark brown reddish or black. Fore and middle coxae, trochanters and femora light yellow. Fore and middle tibiae light yellow with dark brown longitudinal stripes. Hind legs yellow brownish. Tarsi dark brown with light yellow surfaces. Apices of spines black. Abdominal tergites dark brown, with three light yellow lines medially and two black wide stripes laterally. Lateral margins of tergites light yellow. Abdominal sternites dark brown reddish to black, with whitish spots on the margins of sternites III–V. Sternite VII almost black in basal half and dark brown yellowish in distal half. Gonoplags brown, with yellow spots. Anal tube dark brown, with yellow greenish lateral margins.

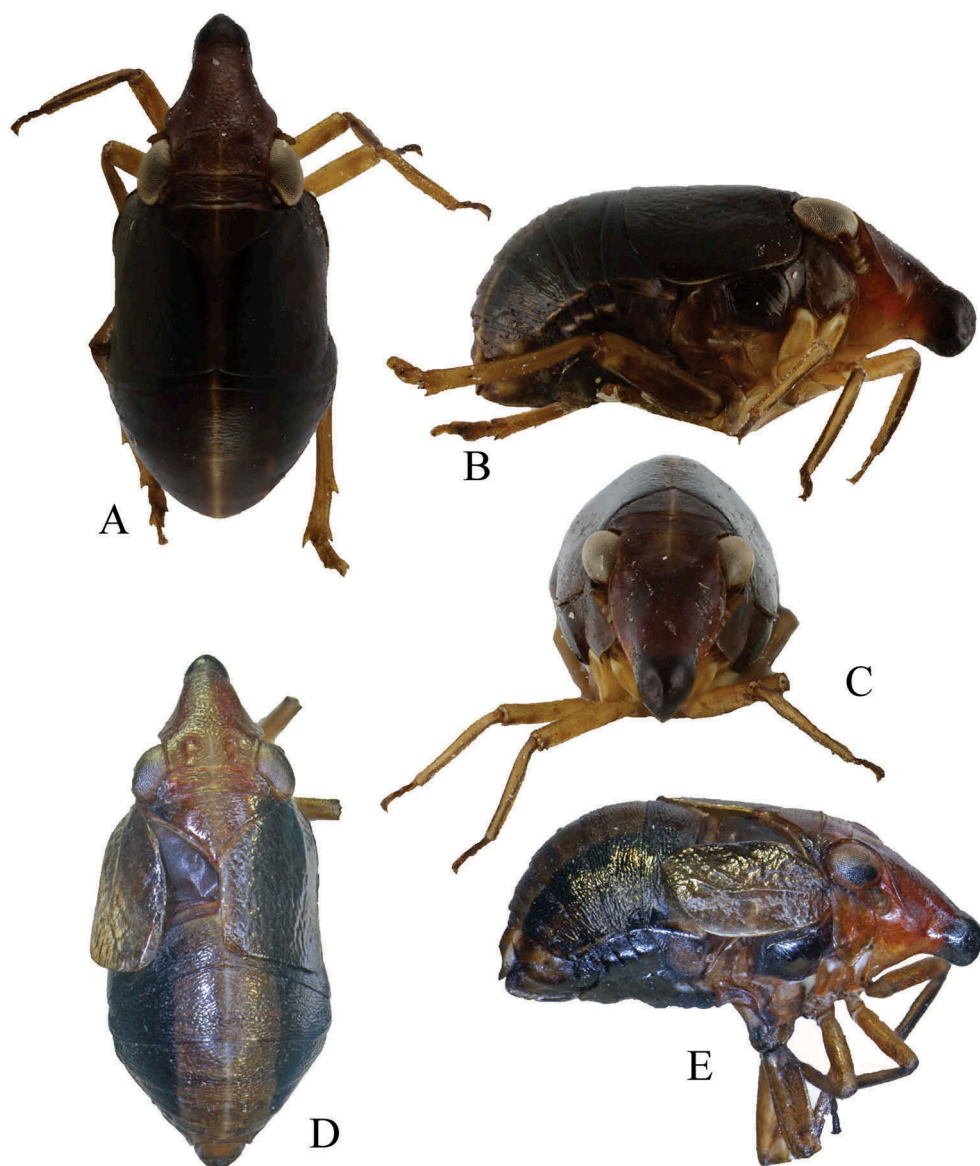


Figure 2. *Bolbonaso chandri* sp. nov.: (A) holotype, dorsal view; (B) same, lateral view; (C) same, frontal view; (D) paratype (Meghalaya), dorsal view; (E) same, lateral view.

Total length

Females 3.0–3.5 mm.

Etymology

The species is named after the well known Indian entomologist Dr Chandrashekaraswamy A. Viraktamath (Bangalore, India).

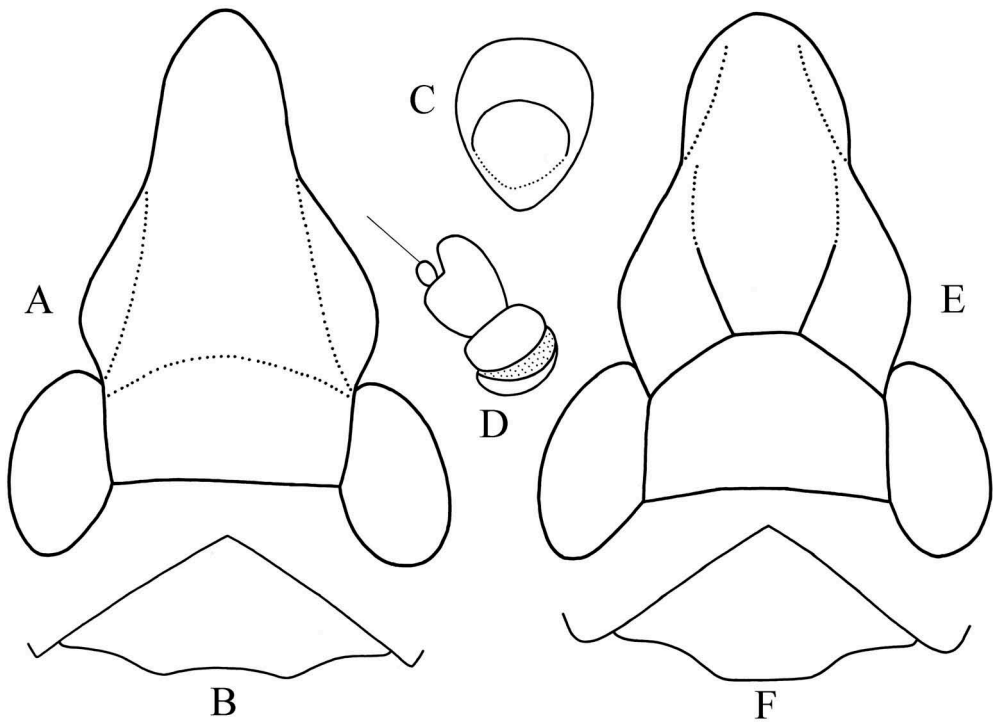


Figure 3. *Bolbonaso chandri* sp. nov. (A–D) and *Afronaso rhinarius* Jacobi (E,F), females: (A,E) head, dorsal view; (B,F) hind margin of VII sternum; (C) anal tube, dorsal view; (D) antenna.

Chirodisca eximia (Stål, 1859)

(Figure 4B)

Type material examined (MNB)

[Sri Lanka]: 1 ♂ (lectotype, here designated), '4956' (printed), 'Type' (red, printed), 'Ceylon. Nietn.' (handwritten in ink), '*Caliscelis eximia*. Stål.' (handwritten in ink), 'Mus. Berol.' (printed); 1 ♂ (paralectotype), 'Type' (red, printed), 'Cat. No. 4956' (handwritten in ink), 'Ceylon Nietner' (handwritten in ink), '*Caliscelis eximia* Stål' (handwritten in ink), 'Mus. Berol.' (printed); 1 ♀ (paralectotype), 'Type' (red, printed), 'Cat. No. 4956' (handwritten in ink), 'Ceylon Nietner' (handwritten in ink), '*Caliscelis eximia* Stål' (handwritten in ink), 'Mus. Berol.' (printed).

Other material studied

Pakistan: 1 ♀, Punjab, Taxila, Badal Pur Stupa, 530 m, 33°78.74'N, 72°86.39'E, 28.V.2007, K. Schönitzer leg. (ZSM).

Note. The species was described after the specimens (male and female) deposited in the Museum für Naturkunde (Berlin) (Stål 1859). One male from these syntypes is designated here as lectotype.

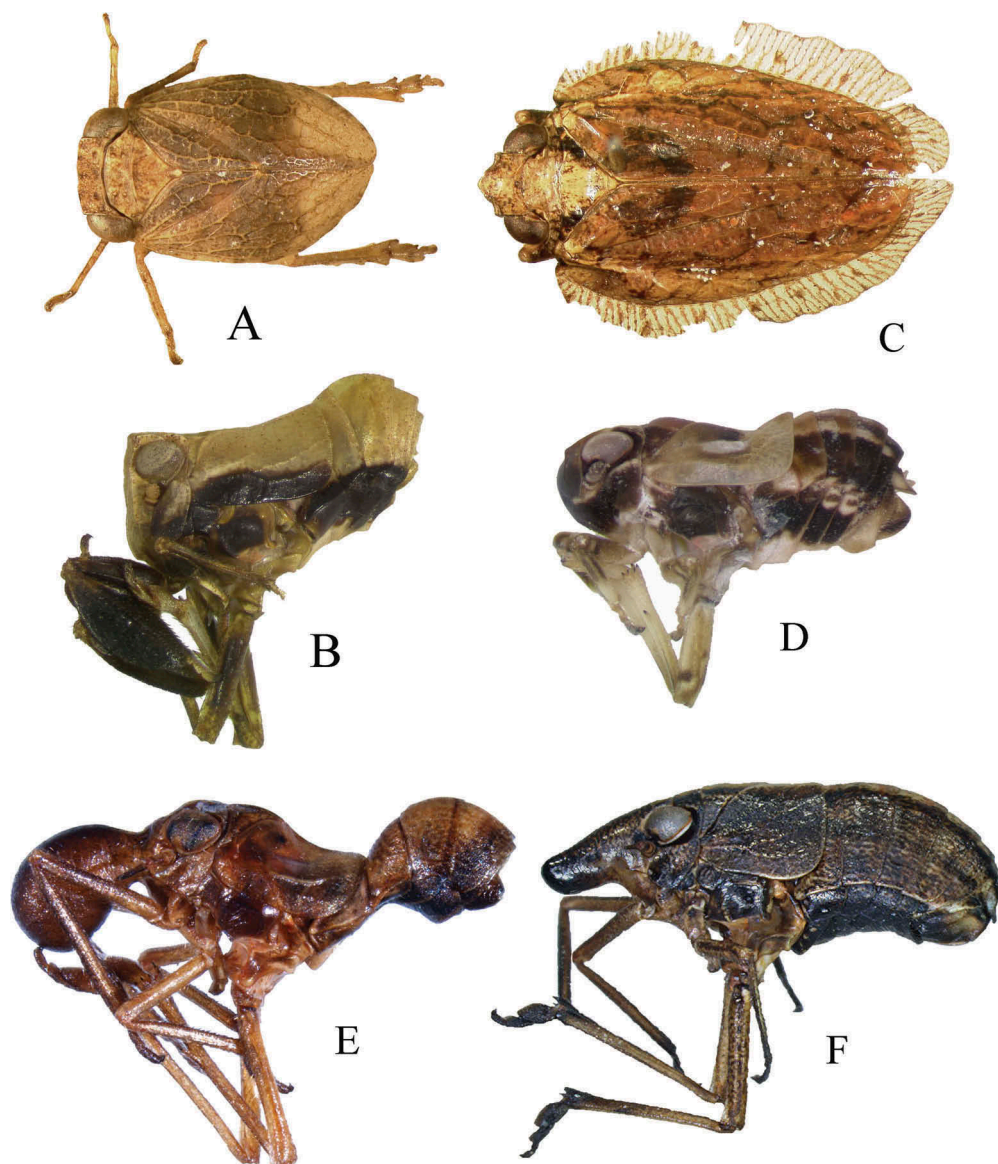


Figure 4. Caliscelidae, general view. (A) *Coinquenda nigroclavata* Distant, dorsal view (after Gnezdilov and Wilson 2006); (B) *Chirodisca eximia* (Stål), male, lateral view (after Gnezdilov and Bourgoin 2009); (C) *Distantina fimlivata* (Walker), female holotype, dorsal view (after Gnezdilov and Wilson 2006); (D) *Asarcopus palmarum* Horváth, male, lateral view (after Gnezdilov and Bourgoin 2009); (E) *Formiscurra indicus* Gnezdilov et Viraktamath, male paratype, lateral view (after Gnezdilov and Viraktamath 2011); (F) *Formiscurra indicus* Gnezdilov et Viraktamath, female paratype, lateral view (after Gnezdilov and Viraktamath 2011).

***Delhina eurybrachydoides* Distant, 1912**
(Figure 5A,B)

Material studied

Nepal: 1♀, Bagmati Province, 15 km south of Kathmandu, Phulchoki northern slope, 16–1800 m, 27°35'09"N, 85°22'50"E, 18.VII.2001, deciduous forest KL/HF (NME); 1♂,

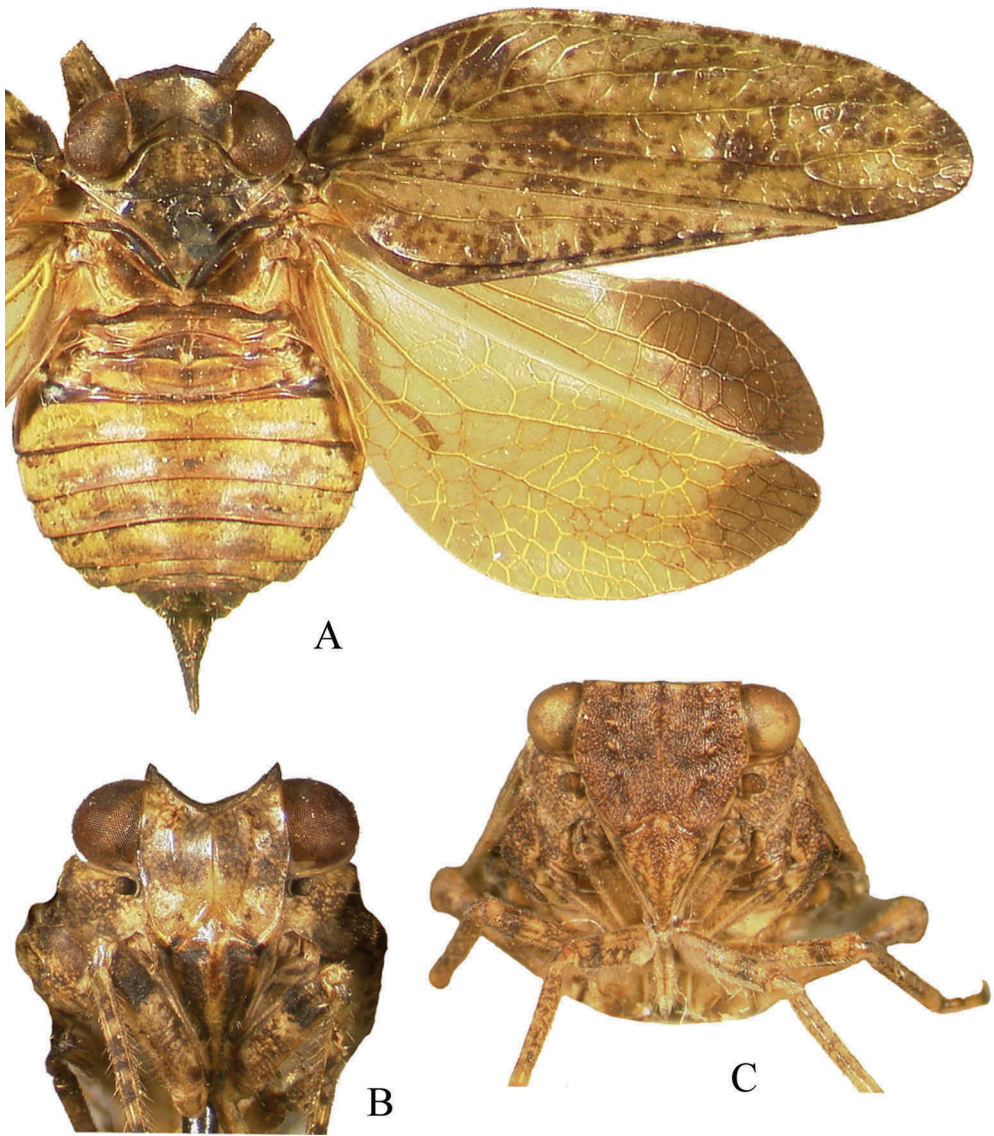


Figure 5. Ommatidiotinae, general view. (A) *Delhina eurybrachydoides* Distant, female, dorsal view; (B) same, frontal view (both after Gnezdilov 2008a, modified); (C) *Coinquenda nigroclavata* Distant, frontal view (after Gnezdilov and Wilson 2006).

Gorkha/Dhading District, Gorlabesi – Dobhan, 1000–1100 m, Schlucht-Mischwald, 30. VII.1983, Martens and Schawaller leg. (SMNS).

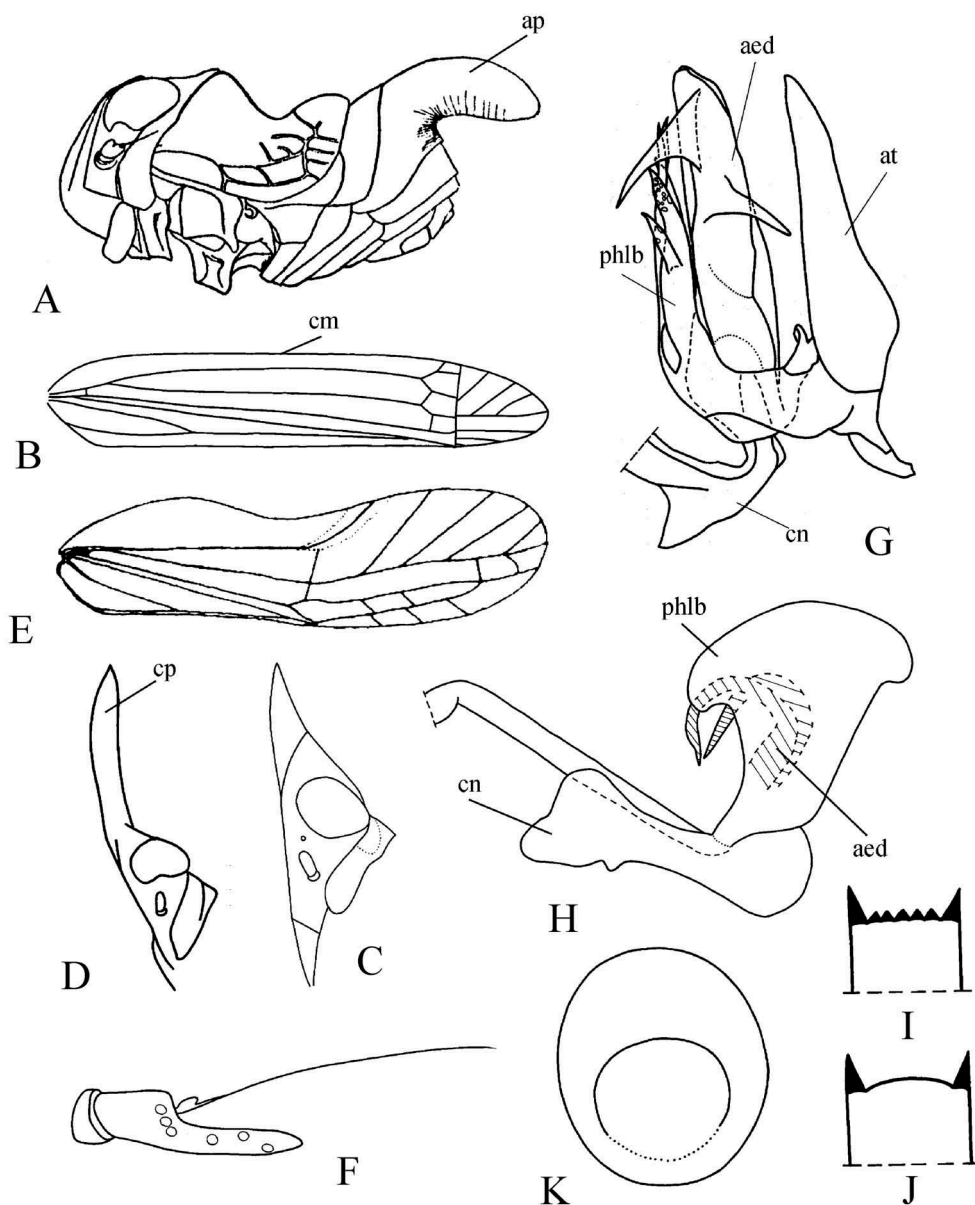


Figure 6. Caliscelidae. (A) *Rhinogaster albivenosa* Fennah, male, in lateral view (after Fennah 1949); (B) *Symplana viridinervis* Kirby, forewing; (C) same, head in lateral view (both after Fennah, 1963, modified); (D) *Symplanodes conjunctor* Fennah, head in lateral view (after Fennah 1987, modified); (E) same, forewing (after Fennah 1987); (F) *Formiscurra indicus* Gnezdilov et Viraktamath, antenna; (G) *Coinquenda nigroclavata* Distant, male genitalia, lateral view (after Gnezdilov and Wilson 2006, modified); (H) *Formiscurra indicus* Gnezdilov et Viraktamath, male genitalia, lateral view (after Gnezdilov and Viraktamath 2011, modified); (I) first metatarsomere with latero-apical and intermediate spines, scheme; (J) first metatarsomere with only latero-apical spines, scheme; (K) *Bolbonaso tapirifacies* Parshad, female anal tube, in dorsal view. Abbreviations: aed, aedeagus; ap, abdominal process; at, anal tube; cm, costal margin; cn, connective; cp, cephalic process; phlb, phallobase.

Key to Indian genera of Caliscelidae

1. Forewings cover the abdomen completely (Figure 4A,C). Aedeagus well developed (Figure 6G, aed). (Ommatidiotinae Fieber)..... 6
 - Forewings usually cover only basal half of abdomen (Figure 4B,D–F). Aedeagus reduced (Figure 6H, aed). (Caliscelinae Amyot et Serville). 2
2. Abdominal tergite V with finger-shaped process (known only after males) (Figure 6A, ap)..... *Rhinogaster* Fennah
 - Abdominal tergite V without process. 3
3. Metope + postclypeus distinctly convex or with a bulb (Figures 1B,D, 2B,E, 4D–F)..... 4
 - Metope + postclypeus flat (Figure 4B)..... *Chirodisca* Emeljanov
4. Metope + postclypeus convex (Figure 4D)..... *Asarcopus* Horváth
 - Metope + postclypeus with a bulb (Figures 1B,D, 2B,E, 4E,F) 5
5. Pedicel with short latero-apical process (known only after females) (Figure 3D)..
 - *Bolbonaso* Emeljanov
 - Pedicel with long acuminate latero-apical process (Figure 6F).....
 - *Formiscurra* Gnezdilov et Viraktamath
6. First metatarsomere with long hair-shaped setae on the sole and with two lateral + row of intermediate spines apically (Figure 6I). Abdominal sternites III–VI with straight posterior margins (Adenissini Dlabola) 7
 - First metatarsomere with a pad of microsetae on the sole and without intermediate spines apically (sometimes only two lateral spines may be present) (Figure 6J). Abdominal sternites III–VI with deeply angularly concave posterior margins (Augilini Baker). 9
7. Forewings beetle-shaped, with praecostal area reduced (Coinquendina Gnezdilov et Wilson) (Figure 4A)..... 8
 - Forewings with precostal area well developed having undulate margin with numerous false transverse veins (Pteriliina Gnezdilov et Wilson) (Figure 4C).....
 - *Distantina* Gnezdilov et Wilson
8. Upper margin of metope straight (Figure 5C). Hindwings rudimentary. First metatarsomere with four (3 + 1) intermediate spines.....
 - *Coinquenda* Distant
 - Upper margin of metope angularly concave (Figure 5B). Hindwings well developed, bilobed (Figure 5A). First metatarsomere with eight intermediate spines..... *Delhina* Distant
9. Metope with only two sublateral carinae, upper part of metope with long laterally flattened process directed upwards (Figure 6D, cp). Forewings with sinuate costal margin (Figure 6E). First and

second metatarsomeres with two latero-apical spines each.....

- *Symplanodes* Fennah
- Metope with median and two sublateral carinae, no such long and flattened process in its upper part (Figure 6C). Forewings with rather straight costal margin (Figure 6B, cm). First and second metatarsomeres without spines..... *Symplana* Kirby

Checklist of Caliscelidae known from India

Family **CALISCELIDAE** Amyot et Serville, 1843

Subfamily **CALISCELINAE** Amyot et Serville, 1843

Tribe **CALISCELINI** Amyot et Serville, 1843

Asarcopus palmarum Horváth, 1921

Asarcopus palmarum Horváth, 1921: 179.

Distribution

India (Karnataka, Maharashtra), USA (California) (O'Brien 1988), Egypt (Horváth 1921), Ethiopia, Israel, Mali (Gnezdilov and Bourgoin 2009), Sudan (Linnavuori 1973).

***Bolbonaso chandri* sp. nov.**

Distribution

India (Assam, Meghalaya).

***Bolbonaso tapirifacies* (Parshad, 1981)**

Afronaso tapirifacies Parshad, 1981: 9.

Bolbonaso tapirifacies Emeljanov, 2007: 236.

Distribution

India (Delhi, Punjab, Karnataka) (Parshad 1981; Emeljanov 2007).

***Chirodisca eximia* (Stål, 1859)**

Caliscelis eximia Stål, 1859: 323.

Caliscelis eximia Singh-Pruthi, 1925: 217, pl. 27, fig. 229.

Chirodisca eximia Gnezdilov and Bourgoin, 2009: 12.

= *Caliscelis dreyfus* Fernando, 1957: 15, syn. fide Gnezdilov and Bourgoin, 2009: 12.

Distribution

India (Karnataka) (Fernando 1957; Gnezdilov and Bourgoin 2009), Sri Lanka (Stål 1859; Gnezdilov and Bourgoin 2009), Sudan (Linnavuori 1973), Pakistan, Nepal, Eritrea, Tanzania (Gnezdilov and Bourgoin 2009).

Formiscurra indicus Gnezdilov et Viraktamath, 2011

Formiscurra indicus Gnezdilov et Viraktamath, 2011: 237.

Distribution

India (Karnatka, Tamil Nadu, Andhra Pradesh) (Gnezdilov and Viraktamath 2011).

Rhinogaster albivenosa Fennah, 1949

Rhinogaster albivenosa Fennah, 1949: 596.

Distribution

India (Tamil Nadu) (Fennah 1949).

Rhinogaster sinuata Menon et Parshad, 1961

Rhinogaster sinuata Menon et Parshad, 1961: 20.

Distribution

India (Dehli) (Menon and Parshad 1961).

Subfamily **OMMATIDIOTINAE** Fieber, 1875

Tribe **ADENISSINI** Dlabola, 1980

Subtribe **COINQUENDINA** Gnezdilov et Wilson, 2006

Coinquenda nigroclavata Distant, 1916

Coinquenda nigroclavata Distant, 1916: 94.

Distribution

India (Karnataka) (Distant 1916; Gnezdilov and Wilson 2006).

Delhina eurybrachydoides Distant, 1912

Delhina eurybrachydoides Distant, 1912: 650.

Distribution

India (West Bengal) (Distant 1912; Gnezdilov 2008a), Nepal (Gnezdilov 2008a), China (Che et al. 2006).

Subtribe **PTERILIINA** Gnezdilov et Wilson, 2006

Distantina pectinipennis (Guérin-Méneville, 1834)

Issus pectinipennis Guérin-Méneville, 1834: 475.

Distantina pectinipennis Gnezdilov and Wilson, 2006: 25.

Distribution

Bengal (Guérin-Méneville 1834).

Note. Type locality of the species described from the region of Bengal (Guérin-Méneville 1834), which is currently divided between India (West Bengal) and Bangladesh, is unknown.

Tribe **AUGILINI** Baker, 1915
Symplana major Fennah, 1963

Symplana major Fennah, 1963: 726.

Distribution

India (Tamil Nadu, Karnataka) (Fennah 1963).

Note. The record of *Symplana viridinervis* Kirby, 1894 from India (Chatterjee and Bose 1934) has to be confirmed as this species was originally described from Sri Lanka (Kirby 1894).

Symplanodes conjunctor Fennah, 1987

Symplanodes conjunctor Fennah, 1987: 246.

Distribution

India (Karnataka) (Fennah 1987).

Discussion

The Caliscelid fauna of India (or Southern Asia) is one of the richest in the Oriental realm. For comparison, just one genus, *Gelastissus* Kirkaldy, with two species is known from the whole of Indonesia (Gnezdilov 2008b). Most of the Indian species (seven) are recorded from southern India (Tamil Nadu, Karnataka and Andhra Pradesh States), four species from northern and northeastern India (Delhi, Punjab and West Bengal States), and two species from eastern India (Assam, Maharashtra and Meghalaya States).

According to current knowledge the Indian caliscelid fauna is highly endemic: three monotypic genera (*Coinquenda* Distant, 1916, *Formiscurra* Gnezdilov et Viraktamath, 2011, *Symplanodes* Fennah, 1987) and nine species are Indian endemics. The genus *Delhina* Distant, 1912 is endemic to Himalaya – *D. eurybrachydoides* is known from Darjeeling in West Bengal, Nepal and Tibet (Xizang Autonomous Region) in China (Distant 1912; Che et al. 2006; Gnezdilov 2008a). Only *Chirodisca eximia* (Stål, 1859) and *Asarcopus palmarum* Horváth, 1921 are widely distributed outside India – the first species is known from Sri Lanka, Pakistan, Nepal and Eastern Africa and the second one from northeastern and northwestern Africa and was even introduced into the USA (California) (O'Brien 1988; Gnezdilov and Bourgoin 2009).

This is a first record of the genus *Bolbonaso* Emeljanov and accordingly the first record of the subfamily Caliscelinae from eastern India and particularly Assam and Meghalaya States, which considerably enhances our knowledge on the distribution of the genus. Except for *B. chandri* sp. nov., only two other species – *Delhina eurybrachydoides* Distant, 1912 and *Distantina pectinipennis* (Guérin-Ménéville, 1834), both belonging to the subfamily Ommatidiotinae Fieber – are known from northeastern India. *Bolbonaso tapirifacies* was described by Parshad (1981) in the genus *Afronaso* Jacobi, after four females collected in Delhi. Later Emeljanov (2007) recorded this species from Punjab and showed that *Afronaso tapirifacies* Parshad, 1981 differs from the species of African genus *Afronaso*, which prompted him to erect a new genus, *Bolbonaso* Emeljanov, 2007, to accommodate this species. In fact the genus *Afronaso* Jacobi differs from the *Bolbonaso* Emeljanov as follows: border between metope and coryphe distinct in *Afronaso* (Figure 3E) and it is very weak in *Bolbonaso* (Figure 3A); metope with weak sublateral carinae in *Afronaso* and it is without sublateral carinae in *Bolbonaso*; hind margin of female sternum VII straight medially in *Afronaso* (Figure 3F) and it is widely concave medially in *Bolbonaso* (Figure 3B).

As was mentioned above, the clypeal bulb of *Bolbonaso* species is formed by the lower part of the metope and the upper part of the postclypeus. This may be treated as convergence with some members of the issid tribe Parahiraciini Cheng et Yang, which resembles Curculionidae (Coleoptera). In this sense *Bolbonaso* species are similar to the curculionids of the subfamily Entiminae Schönherr.

Both species of the genus *Bolbonaso* are so far known only from females, just as some other Caliscelini, in particular, African *Afronaso rhinarius* Jacobi. In many genera of the tribe Caliscelini there is a sexual dimorphism between males and females of the same species. If collected at different times in different places, they may be treated as members of different genera as happened with the species of the genus *Gelastissus* Kirkaldy (Gnezdilov 2008b).

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