

New records and checklist of Chilacorini (Coleoptera: Coccinellidae) from China

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Abstract

Background

China is one of the countries with the greatest species diversity of Chilacorini (Coleoptera: Coccinellidae), including nearly forty-five percent of the known genera and fourteen percent of all described species in this tribe. Recently, we discovered three species previously not recorded in China.

New information

In this study, three species *Priscibrumus uropygialis* (Mulsant, 1853), *Priscibrumus disjunctus* Canepari, 1997 and *Brumus octosignatus* (Gebler, 1830) are documented for the first time in China. *Brumus octosignatus* is the first member of the genus *Brumus* Mulsant, 1850 recorded in China. Detailed descriptions, illustrations and distributions of these three species are provided. A checklist of Chinese Chilacorini is also given.

Keywords

Coleoptera, Coccinellidae, Chilacorini, new record, checklist, China

Introduction

The members of family Coccinellidae, commonly known as colourful and shiny beetles, predators of plant pests, contain 6000 species distributed worldwide (Vandenberg 2002). The tribe Chilacorini is well-known as a primary predator of coccids. Many species of this

tribe are widely used as biological control agents. In recent years, phylogenetic and evolutionary studies of Chilocorini indicated that this tribe is a monophyletic group, closely related to the tribe Coccinellini (Magro et al. 2010, Seago et al. 2011, Escalona et al. 2017, Che et al. 2017) or Plotinini (Li et al. 2020). At present, Chilocorini contains 22 genera and more than 280 species distributed worldwide (Łączyński and Tomaszewska 2012, Li et al. 2020).

China is one of the countries with the greatest species of Chilocorini (Coleoptera: Coccinellidae), including 10 genera and 39 species (Li et al. 2017a). However, in Li et al. (2017a), the genus *Brumus* Mulsant was incorrectly recorded in the Chinese checklist of Chilocorini (no literature existed to indicate that the members of this genus were distributed in China). After a phylogenetic study of the Chilocorini, the genus *Phaenochilus* Weise was synonymised with *Chilocorus* Leach (Li et al. 2020).

In this study, we report for the first time in China the genus *Brumus* with the species *Brumus octosignatus* (Gebler, 1830), as well as the species *Priscibrumus uropygialis* (Mulsant, 1853) and *Priscibrumus disjunctus* Canepari, 1997. A revised checklist of Chinese Chilocorini is also provided, containing all nine genera and 42 species.

Materials and methods

Specimens, examined in this study, were collected in China (Tibet and Xinjiang) and deposited at the Department of Entomology, South China Agriculture University (SCAU), Guangzhou.

The newly-collected specimens of *Priscibrumus disjunctus* were identified based on the original species description (Canepari 1997). The specimens of the other two new Chinese records i.e. *Priscibrumus uropygialis* and *Brumus octosignatus*, were identified from the secondary descriptions and illustrations by Miyatake (1985) and Kovář (1997), respectively.

External morphology was observed with a dissecting stereomicroscope (SteREO Discovery V20, Zeiss). Male and female genitalia were dissected, cleared in 10% solution of sodium hydroxide (NaOH) by boiling for several minutes and examined with an Olympus BX51 microscope. Photographs of the genitalia and other morphological characters were taken with digital cameras (AxioCam HRc and Coolsnap-Procf & CRI Micro*Color), attached to microscopes using AxioVision Rel. ver. 4.8 and Image-Pro Plus ver. 6.0. Images were cleaned up and laid out in plates with Adobe Photoshop CS ver. 8.0. Terminology follows Ślipiński (2007).

Abbreviations

TL = total length: length from apical margin of clypeus to apex of elytra

TW = total width: width across both elytra at widest part

TH = body height measured across the highest point of the elytra

HW = head width in a frontal view

PL = pronotal length: from middle of anterior margin to base of pronotum

PW = pronotal width at widest part

EL = elytral length: from apex to base including scutellum

EW = elytral width, equal to TW

Taxon treatments

Priscibrumus Kovář, 1997

Nomenclature

Priscibrumus Kovář, 1997 in Kovář 1997: 114

Type species

Exochomus puniceipennis Semenov, 1900

Diagnosis

Priscibrumus can be distinguished from other genera of the tribe Chilacorini by the following combination of characters: body densely covered with short, greyish pubescence; antenna composed of 10 antennomeres, with terminal antennomere very small and embedded in the penultimate antennomere; pronotal basal margin entirely bordered with submarginal line; base of pronotum and elytra contiguous all along their length; elytral epipleura narrow, more or less horizontal and without foveae; abdominal postcoxal lines almost complete; mid and hind tibiae with two apical spurs.

Priscibrumus disjunctus Canepari, 1997

Nomenclature

Priscibrumus disjunctus Canepari, 1997 in Canepari 1997: 45.

Material

Holotype:

- a. scientificName: *Priscibrumus disjunctus*; country: China; stateProvince: Tibet; locality: Jilong County; verbatimElevation: 2900 m; verbatimCoordinates: 28°18.05'N; 85°23.12'E; georeferenceProtocol: label; samplingProtocol: sweeping; eventDate: 28/08/1984; individualCount: 2; sex: 1 male, 1 female; lifeStage: adult; recordedBy: Wenjing Li;

Description

TL: 3.75–4.10 mm, TW: 2.80–2.91 mm, TH: 1.83–2.12 mm, TL/TW: 1.31–1.34, PL/PW: 0.45–0.47, EL/EW: 1.07–1.10.

Body oval, moderately convex. Head black, densely covered with short, greyish pubescence. Mouthparts and antenna black. Pronotum black, densely covered with short, greyish pubescence. Scutellum black. Elytra reddish-brown, with two pairs of broadly black stripes: outer stripes approximately 2/5 width of elytra, 3/4 length of elytra; inner stripes situated on suture, almost as long as elytra, distinctly broadening at base and weakly broadening at apex, densely covered with extremely short, greyish pubescence (Fig. 1a–c). Underside black except elytral epipleura brownish-yellow, densely covered with short, greyish pubescence. Abdominal postcoxal lines incomplete, arcuate. Posterior margin of male abdominal ventrite 5 slightly emarginate at middle and of ventrite 6 distinctly emarginate (Fig. 1d).

Male genitalia: penis slender, penis capsule with short outer and inner arm, apex of penis truncate with membranous appendage (Fig. 1e–f). Tegmen stout, penis guide narrow at base, parallel along basal 1/3, after that, gradually broadening to basal 2/3, then narrowing to apex in ventral view; penis guide in lateral view, widest near base, gradually narrowing to apex; parameres distinctly longer than penis guide with dense short setae on the inner sides and distal end with a group of short setae in lateral view (Fig. 1g–h).

Female genitalia: coxites distinctly elongated. Spermatheca approximately C-shaped, cornu without appendage.

Diagnosis

This species can be distinguished from other species of *Priscibrumus* by the following combination of characters: elytra reddish-brown, with two pair of broadly black stripes, inner stripes situated on suture, almost as long as elytra; parameres distinctly longer than penis guide.

Distribution

Nepal (Canepari 1997) and Tibet, China (present study) (Fig. 4).

Priscibrumus uropygialis (Mulsant, 1853)

Nomenclature

Exochomus uropygialis Mulsant, 1853 in Mulsant 1853: 196.

Brumus uropygialis (Mulsant, 1853): Crotch, 1874 (see Crotch 1874: 196, Gordon 1985 : 25).

Exochomus (Exochomus) uropygialis (Mulsant, 1853) Barovskij, 1922 (see Barovskij 1922: 297-8; Mader 1955: 789, 797-8; Bielawski 1979: 114; Miyatake 1985: 11).

Priscibrumus uropygialis (Mulsant, 1853): Kovář, 1997 (see Kovář 1997: 117; Canepari 1997: 45; Poorani 2002: 314).

Materials

- a. scientificName: *Priscibrumus uropygialis*; country: China; stateProvince: Tibet; locality: Mama village, Cuona County; verbatimElevation: 2800 m; verbatimCoordinates: 27°53.03'N; 91°47.34'E; georeferenceProtocol: label; samplingProtocol: sweeping; eventDate: 25/05/2011; individualCount: 2; sex: 1 male, 1 female; lifeStage: adult; recordedBy: Wenjing Li; identifiedBy: Wenjing Li; dateIdentified: 2017; basisOfRecord: PreservedSpecimen; occurrenceID: B17A9691-DDE9-522D-8685-45B503C33A16
- b. scientificName: *Priscibrumus uropygialis*; country: China; stateProvince: Tibet; locality: Jilong County; verbatimElevation: 2800 m; verbatimCoordinates: 28°18.05'N; 85°23.12'E; georeferenceProtocol: label; samplingProtocol: sweeping; eventDate: 29/05/2011; individualCount: 1; sex: 1 male; lifeStage: adult; recordedBy: Wenjing Li; identifiedBy: Wenjing Li; dateIdentified: 2017; basisOfRecord: PreservedSpecimen; occurrenceID: 115368A8-75C2-5A9B-8EF8-48FA3C371DB8

Description

TL: 3.65–4.24 mm, TW: 2.72–3.31 mm, TH: 1.46–1.82 mm, TL/TW: 1.28–1.34, PL/PW: 0.46–0.51, EL/EW: 1.07–1.16.

Body oval, moderately convex. Head black, densely covered with short, greyish pubescence. Mouthparts and antenna black. Pronotum black, densely covered with short, greyish pubescence. Scutellum black. Elytra reddish-brown, with a pair of black spots at elytral apex, densely covered with short, greyish pubescence (Fig. 2a–c). Underside black, except elytral epipleura brownish-yellow, densely covered with short, greyish pubescence. Abdominal postcoxal lines incomplete, arcuate. Posterior margin of male abdominal ventrite 5 slightly emarginate at middle and of ventrite 6 distinctly emarginate (Fig. 2d).

Male genitalia: penis slender, penis capsule with short outer arm and long inner arm, apex of penis truncate with membranous appendage (Fig. 2e–f). Tegmen stout, penis guide parallel along 2/3 length, then gradually narrowing to apex in ventral view; penis guide in lateral view, widest at base, parallel along 2/5 length, then gradually narrowing to apex; parameres as long as penis guide with dense long setae on the inner sides and distal end with a group of long setae in lateral view (Fig. 2g–h).

Female genitalia: coxites distinctly elongate (Fig. 2i). Spermatheca approximately C-shaped, cornu without appendage.

Diagnosis

This species can be easily distinguished from other species of *Priscibrumus* by the following combination of characters: elytra reddish-brown, with a pair of black spots at elytral apex; parameres as long as penis guide.

Distribution

Kashmir, Nepal, India, Bhutan, Pakistan (Mulsant 1850, Crotch 1874, Gordon 1987, Barovskij 1922, Bielawski 1979, Miyatake 1985, Kovář 1997, Canepari 1997, Poorani 2002, Mader 1955) and Tibet, China (present study) (Fig. 4).

***Brumus* Mulsant, 1850**

Nomenclature

Brumus Mulsant, 1850 in Mulsant 1850: 492.

Type species

Coccinella octosignata Gebler, 1830

Diagnosis

Brumus can be distinguished from other genera of the tribe Chillocorini by the following combination of characters: antenna 10-segmented, terminal antennomere very small and embedded in penultimate segment; pronotal basal margin entirely bordered with submarginal line; elytral epipleura narrow, more or less horizontal and without foveae; abdominal postcoxal lines complete; mid and hind tibiae with two apical spurs; tarsal claws without basal tooth, only slightly swollen at base.

***Brumus octosignatus* (Gebler, 1830)**

Nomenclature

Coccinella octosignata Gebler, 1830 in Gebler 1830: 225.

Coccinella deserta Motschulsky, 1840 in Motschulsky 1840: 175.

Brumus desertorum Mulsant, 1850 in Mulsant 1850: 493.

Brumus 8-signata (Gebler, 1830) Crotch, 1874 see Crotch 1874: 38.

Brumus octosignatus (Gebler, 1830) Crotch, 1874, see Crotch 1874: 195, Barovskij 1927: 196, 199; Korschefsky 1932: 199; Mader 1955: 803, 805; Bielawski 1975: 255; Bielawski 1984: 315; Kovář 1997: 36.

Materials

- a. scientificName: *Brumus octosignatus* (Gebler, 1830); country: China; stateProvince: Xinjiang; locality: Kezier village, Baicheng County; verbatimElevation: 850 m; verbatimCoordinates: 43°27.23'N; 82°27.40'E; georeferenceProtocol: label; samplingProtocol: sweeping; eventDate: 31/07/1995; individualCount: 2; sex: 1 male, 1 female; lifeStage: adult; recordedBy: Wenjing Li; identifiedBy: Wenjing Li; dateIdentified: 2017; basisOfRecord: PreservedSpecimen; occurrenceID: F9C6A4BE-CE3B-550D-96D4-95D43C68ABA8
- b. scientificName: *Brumus octosignatus* (Gebler, 1830); country: unknown; stateProvince: unknown; locality: unknown; verbatimElevation: unknown; verbatimCoordinates: unknown; individualCount: 4; sex: 2 male, 2 female; lifeStage: adult; recordedBy: Wenjing Li; identifiedBy: Wenjing Li; dateIdentified: 2017; basisOfRecord: PreservedSpecimen; occurrenceID: EA40B61A-BCB6-53CF-BC2C-5EA80DE4B05D

Description

TL: 3.80–4.00 mm, TW: 2.80–3.20 mm, TH: 1.87–2.07 mm, TL/TW: 1.32–1.35, PL/PW: 0.47–0.50, EL/EW: 1.05–1.10.

Body oval, moderately convex. Head, mouthparts and antenna brownish-yellow. Pronotum orange-yellow, with a black spot at centre of basal margin. Scutellum black. Elytra orange-yellow, with four pairs of black spots, the first one situated at the humeral angle; the second one situated at basal 2/5, near suture; the third one situated at basal 3/5, near outer margin; the fourth one situated basal 4/5, near suture (Fig. 3a–c). Underside orange-yellow, densely covered with short, greyish pubescence. Abdominal postcoxal lines complete and semicircular. Posterior margin of male abdominal ventrite 5 and of ventrite 6 distinctly emarginate (Fig. 3d).

Male genitalia: penis slender, penis capsule with short outer and long inner arm, apex of penis acute with membranous appendage (Fig. 3e–f). Tegmen stout, penis guide narrow at base, widest at basal 1/2, then gradually converging to blunt tip, symmetrical in ventral view; penis guide in lateral view, widest at base, parallel along basal 1/3, after that gradually converging to apex; parameres nearly as long as the penis guide with dense short setae on the inner sides and distal end with a group of short setae in lateral view (Fig. 3g–h).

Female genitalia: coxites distinctly elongate (Fig. 3i). Spermatheca approximately C-shaped, cornu without appendage.

Diagnosis

This species can be easily distinguished from other species of *Brumus* by the following combination of characters: pronotum with a black spot at central of basal margin; elytra orange-yellow, with four pairs of black spots; parameres nearly as long as the penis guide.

Distribution

Azerbaijan, Armenia, France, Italy, Russia: south European Territory, Afghanistan, Iran, Iraq, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Turkey, Uzbekistan (Gebler 1830, Motschulsky 1840, Mulsant 1850, Crotch 1874, Barovskij 1927, Mader 1955, Bielawski 1975, Bielawski 1984, Kovář 1997) and Xinjiang, China (present study) (Fig. 4).

Checklist of Chinese Chilacorini sensu Li et al. 2020

Genus *Brumoides* Chapin, 1965

Brumoides hainanensis Miyatake, 1970

Distribution: China (Miyatake 1970).

Brumoides lineatus (Weise, 1885)

Distribution: China, Myanmar, Thailand, Bangladesh, India, Sri Lanka, Nepal, Pakistan and Ceylon (Weise 1885, Miyatake 1970, Poorani 2002).

Brumoides maai Miyatake, 1970

Distribution: China (Miyatake 1970).

Brumoides ohtai Miyatake, 1970

Distribution: China (Miyatake 1970).

Genus *Brumus* Mulsant, 1850

Brumus octosignatus (Gebler, 1830)

Distribution: China, Azerbaijan, Armenia, France, Italy, Russia: south European Territory, Afghanistan, Iran, Iraq, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Turkey and Uzbekistan (Gebler 1830, Motschulsky 1840, Mulsant 1850, Crotch 1874, Barovskij 1927, Mader 1955, Bielawski 1975, Bielawski 1984, Kovář 1997).

Genus *Chilocorus* Leach, 1815

Chilocorus albusolomus (Li & Wang, 2017)

Distribution: China (Li et al. 2017b).

***Chilocorus alishanus* Sasaji, 1968**

Distribution: China (Sasaji 1968).

***Chilocorus bijugus* Mulsant, 1853**

Distribution: China, Japan, India, Nepal, Pakistan and Palearctic (Mulsant 1853, Kovář 2007).

***Chilocorus bipustulatus* (Linnaeus, 1758)**

Distribution: China, Europe, Middle East, Central Asia and North Africa (Linnaeus 1758, Li et al. 2018).

***Chilocorus chalybeatus* Gorham, 1892**

Distribution: China (Gorham 1892, Kovář 2007, Li et al. 2018).

***Chilocorus chinensis* Miyatake, 1970**

Distribution: China (Miyatake 1970, Li et al. 2018).

***Chilocorus circumdatus* (Gyllenhal, 1808)**

Distribution: China, Indonesia, India, Sri Lanka and introduced to Australia and America (Gyllenhal 1808, Ślipiński 2007, Kovář 2007, Li et al. 2018).

***Chilocorus esakii* Kamiya, 1959**

Distribution: China, Japan (Kamiya 1959, Li et al. 2018).

***Chilocorus geminus* Zaslavskij, 1962**

Distribution: China, Mongolia, Turkey and Central Asia (Zaslavskij 1962, Bielawski 1975, Kovář 2007, Li et al. 2018).

***Chilocorus hauseri* Weise, 1895**

Distribution: China, India and Myanmar (Weise 1895, Korschefsky 1932, Kovář 2007, Li et al. 2018).

***Chilocorus hupehanus* Miyatake, 1970**

Distribution: China (Miyatake 1970).

***Chilocorus kuwanae* Silvestri, 1909**

Distribution: China, Japan, North Korea and Italy and introduced to America (Silvestri 1909, Gordon 1985, Kovář 2007, Li et al. 2018).

***Chilocorus melas* Weise, 1898**

Distribution: China, Myanmar, Thailand, Laos, India, Nepal, Bhutan and Indonesia (Weise 1898, Miyatake 1970, Poorani 2002, Li et al. 2018).

***Chilocorus metasternalis* (Miyatake, 1970)**

Distribution: China, Laos, Vietnam, Singapore and Indonesia (Miyatake 1970).

***Chilocorus nigricaeruleus* Li & Wang, 2018**

Distribution: China (Li et al. 2018).

***Chilocorus nigrita* (Fabricius, 1798)**

Distribution: China, Myanmar, Indonesia, India, Pakistan, Sri Lanka, Bangladesh, Australian, USA, Brazil and South Africa (Fabricius 1798, Crotch 1874, Poorani 2002, Kovář 2007, Li et al. 2018).

***Chilocorus rubidus* Hope, 1831**

Distribution: China, Mongolia, Korea, Japan, India, Nepal, Indonesia and Siberia (Hope 1831, Kovář 2007, Li et al. 2018).

***Chilocorus rufitarsis* Motschulsky, 1853**

Distribution: China and Vietnam (Motschulsky 1853, Korschefsky 1932, Kovář 2007, Li et al. 2018).

***Chilocorus shirozui* Sasaji, 1968**

Distribution: China (Sasaji 1968, Li et al. 2018).

***Chilocorus strenotubus* Li & Wang, 2018**

Distribution: China (Li et al. 2018).

***Chilocorus yunlongensis* Cao & Xiao, 1984**

Distribution: China (Cao and Xiao 1984, Li et al. 2018).

***Chilocorus politus* Mulsant, 1850**

Distribution: China, Thailand, Laos, India, Nepal, Bhutan and Indonesia (Mulsant 1850, Poorani 2002, Kovář 2007, Li et al. 2018).

Genus *Chujochilus* Sasaji, 2005

***Chujochilus parisensis* Wang & Ren, 2010**

Distribution: China (Wang and Ren 2010).

***Chujochilus sagittatus* Wang & Ren, 2010**

Distribution: China (Wang and Ren 2010).

Genus *Exochomus* Redtenbacher, 1843

***Exochomus mongol* Barovsky, 1922**

Distribution: China, Mongolia, Korea and Far East (Barovskij 1922, Kovář 1997, Kovář 2007, Li et al. 2015b).

***Exochomus quadripustulatus* (Linnaeus, 1758)**

Distribution: China, Europe, Russia, Middle East and Mongolia. Introduced to USA and Australia (Linnaeus 1758, Kovář 1997, Kovář 2007, Li et al. 2015b).

***Exochomus rubistictus* Li & Ren 2015**

Distribution: China (Li et al. 2015b).

Genus *Parexochomus* Barovsky, 1922

***Parexochomus nigromaculatus* (Goeze, 1777)**

Distribution: China, Mongolia, Iran, Siberia, Arabia, Europe and Africa (Chapin 1965, Goeze 1777, Ślipiński 2007, Li et al. 2015b).

***Parexochomus oligotrichus* Li & Ren 2015**

Distribution: China (Li et al. 2015b).

***Parexochomus semenowi* Weise, 1887**

Distribution: China and Mongolia (Weise 1887, Barovskij 1922, Kovář 2007).

Genus *Priscibrumus* Kovář, 1997

***Priscibrumus disjunctus* Canepari, 1997**

Distribution: China and Nepal (Canepari 1997, Poorani 2002).

***Priscibrumus himalayensis* (Kapur, 1958)**

Distribution: China and Nepal (Kapur 1958, Poorani 2002, Hu et al. 2013).

***Priscibrumus uropygialis* (Mulsant, 1853)**

Distribution: China; Kashmir, Nepal, India, Bhutan and Pakistan (Mulsant 1850, Crotch 1874, Gordon 1987, Barovskij 1922, Bielawski 1979, Miyatake 1985, Kovář 1997, Canepari 1997, Poorani 2002, Mader 1955).

Genus *Renius* Li et Wang, 2017

***Renius cornutus* Li & Wang, 2017**

Distribution: China and India (Li et al. 2017a, Poorani and Rojeet 2019).

Genus *Xanthocorus* Miyatake, 1970

***Xanthocorus mucronatus* Li & Ren, 2015**

Distribution: China (Li et al. 2015a).

***Xanthocorus nigromarginatus* Miyatake, 1970**

Distribution: China (Miyatake 1970, Li et al. 2015a).

***Xanthocorus nigrosuturarius* Li & Ren, 2015**

Distribution: China (Li et al. 2015a).

Discussion

The genus *Priscibrumus* was erected by Kovář (1997), when he revised *Exochomus* and *Brumus* Mulsant, 1850 from the Palearctic Region. This revision was a huge contribution to our understanding of the relationships between *Exochomus* and its closely-related genera. Until now, *Priscibrumus* only contained seven species which mainly occur in the Pamir Mountains, especially in the western part of the Himalaya Mountains (Kovář 1997, Poorani 2002). *Priscibrumus himalayensis* (Kapur) was the first member of this genus recorded in China (Tibet) by Hu et al. (2013).

Brumus was considered a junior synonym of *Exochomus* by Ślipiński and Giorgi (2006). Subsequently, Kovář (2007) accepted this point of view and transferred all species of *Brumus* from the Palearctic Region to *Exochomus*. The recent phylogenetic studies of Chilocorini indicated that the relationship between *Exochomus* and *Brumus* is not so close. *Exochomus* is the sister group of a large clade containing various genera, for example, *Xanthocorus*, *Priscibrumus*, *Parexochomus*, *Brumus* and *Brumoides*, while *Brumus* is closely related to *Brumoides* (Li et al. 2020). Actually, *Brumus* can be easily distinguished from *Exochomus* by the following characters: elytral epipleuron more or less horizontal; tarsal claws without basal tooth, only slightly swollen at base. In *Exochomus*, the outer part of elytral epipleuron is distinctly descending; and the tarsal claws have a large triangular tooth at the base.

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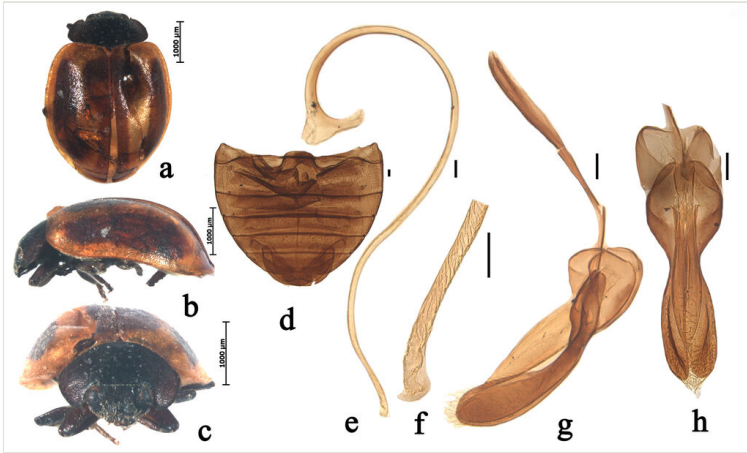


Figure 1.

Priscibrumus disjunctus Canepari, 1997. a. dorsal view; b. lateral view; c. frontal view; d. abdomen; e. penis; f. apex of penis; g. tegmen, lateral view; h. tegmen, ventral view. Scale bars: 0.1 mm.

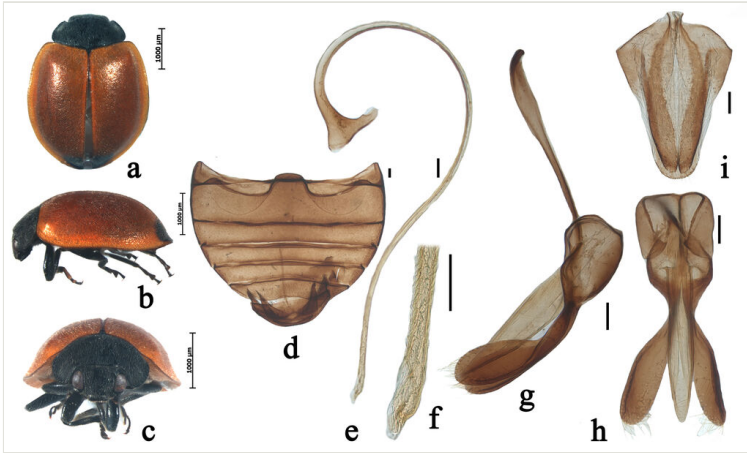


Figure 2.

Priscibrumus uropygialis (Mulsant, 1853). **a.** dorsal view; **b.** lateral view; **c.** frontal view; **d.** abdomen; **e.** penis; **f.** apex of penis; **g.** tegmen, lateral view; **h.** tegmen, ventral view; **i.** ovipositor. Scale bars: 0.1 mm.

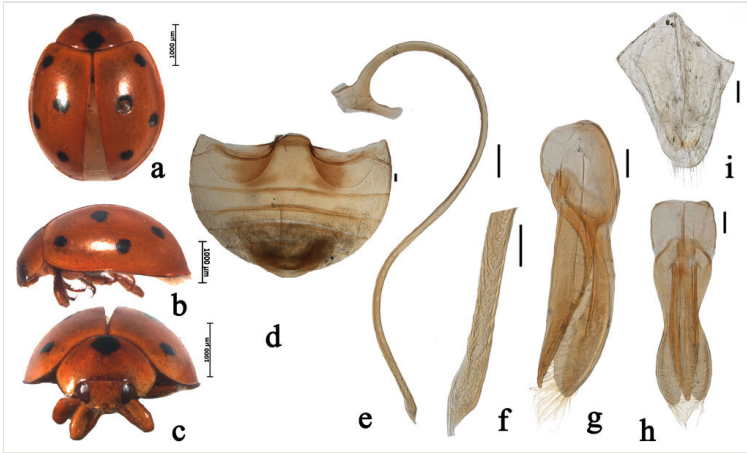


Figure 3.

Brumus octosignatus (Gebler, 1830). a. dorsal view; b. lateral view; c. frontal view; d. abdomen; e. penis; f. apex of penis; g. tegmen, lateral view; h. tegmen, ventral view; i. ovipositor. Scale bars: 0.1 mm.

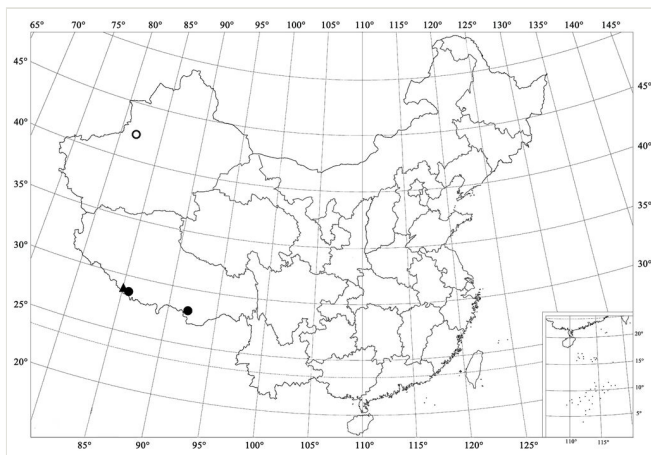


Figure 4.
 Distribution map. (▲) *Priscibrumus disjunctus* Canepari, 1997; (●) *Priscibrumus uropygialis* (Mulsant, 1853); (○) *Brumus octosignatus* (Gebler, 1830).