Four new species of the genus *Miridiba* Reitter
(Coleoptera: Scarabaeidae: Melolonthinae) from China

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Abstract


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Introduction

The chafer genus *Miridiba* Reitter, 1902 (Scarabaeidae: Melolonthinae: Rhizotrogini) encompasses 44 species widely distributed in the Oriental and Palaearctic regions (Schoolmeesters 2018). With more than four species *Miridiba* forms a group of chafers frequently cited as pests damaging wheat, millet, corn, groundnut, potato, crops (Wei 1989). The genus was described as monotypic to accommodate a single species *Rhizotrogus trichophorus* Fairmaire, 1891. Altogether 27 species were listed in a revision of *Miridiba* (Coca-Abia 2008), characterized by the branches of paramere, the transversal carina at basal frons, the tiny setae on the ventral apex of pro- and mesotarsomeres 1–4 and the dense setae on ventral side of mentum. Later on, nine additional species were described (Keith 2010; Keith & Sabatinelli 2010; Li et al. 2015) and eight species were transferred from *Holotrichia* Hope, 1837 to *Miridiba* (Keith & Sabatinelli 2010; Matsumoto 2011, 2016; Bezděk 2016). The main goal of this research is to describe four new species of the genus *Miridiba* from South China and to provide a catalogue of the 18 species of the genus *Miridiba* known from China. Moreover, *Miridiba* (*M.*) *tuberculipennis obscura* Itoh, 1995 is elevated to species status. Both *M.* (*M.*) *obscura* Itoh, 1995 and *M.* (*M.*) *tuberculipennis* (Moser, 1913) are newly recorded from China.

Material and methods

This research is based on examination of 194 specimens deposited in the Natural History Museum, London (BMNH), the Institute of Zoology, Chinese Academy of Sciences, Beijing (IZCAS), Museum für Naturkunde, Leibniz Gemeinschaft, Berlin (MFNB), Muséum National d’Histoire Naturelle, Paris (MNHN), National Museum
of Nature and Science, Tokyo (NSMT), Entomological Museum, Northwest A&F University of China (NWAFU) and Shenyang Agriculture University (SYAU). The observations and measurements were made using a Leica E4 HD stereomicroscope with a Leica LAS EZ software. Photographs were taken with Nikon D7100 digital camera with a Nikon AF-S 60mm micro lens and a lambency box. Digital images of specimens and structures were captured using a multifocal Nikon SMZ25 stereomicroscope with a NIS-Elements software. Images were edited in Helicon Focus 6 and Adobe Photoshop CS6 (focus stacked, background removed). Specimens were dissected, and the genitals were removed and then tissues macerated in a hot water solution of 5-10% KOH for the extraction of genitalia. All the aedeagi were deposited in a plastic microtube with a mixture of ethanol and glycerine, attached to the specimen.

Exact label data are cited for all material examined. Separate labels are separated by a double slash “//”, lines within each label are separated by a slash “/”, additional comments are in square brackets “[ ]”.

All type specimens of newly described taxa are deposited in IZCAS, NWAFU, SYAU.

**Descriptions of new species**

*Miridiba (Miridiba) bannaensis* Gao & Fang, new species

(Figs. 1, 6)

**Type locality.** CHINA: Yunnan Province: Xishuangbanna City.


**Description of holotype (male).** Body length 20.3 mm; width across humeri 8.5 mm, strongly convex, body oval-elongate, dorsal surface glabrous.

**Colour:** Head, pronotum, scutellum and legs dark reddish brown; antennae, elytra and abdomen dark brown to dark reddish brown; shiny (Figs. 1a, b).

**Head:** Frons densely punctate; clypeus with apex distinctly bilobed and reflexed; fronto-clypeal suture wave-shaped; frontal carina distinctly raised, weakly curved backwards at middle; clypeus shorter than frons, length ratio between clypeus and frons before carina 0.58; distance between eyes four times wider than eye (Fig. 1c). Antenna with 9 antennomeres; antennal club composed of 3 antennomeres, longer than antennomeres 2–6 combined (Fig. 1d).

**Thorax:** Pronotal surface densely punctate and glabrous; pronotum widest near posterior half; anterior margin smooth and flanged; anterior margin with an arc-shaped incision at each end; lateral margin smooth and reflexed at anterior half; posterior margin smooth; anterolateral angles 90°, posterior angles obtuse and round (Fig. 1e). Prosternal process basiconic shaped, top flat. Scutellum triangular, dorsal surface glabrous and densely punctate, 1.43 times wider than long. Dorsal surface of elytra glabrous, sutural costae developed, epipleuron with cilia (Figs. 1a, b).

**Legs:** Protibia tridentate, denticle 2 sharp; dorsal carina forking to denticle 2; apical spur reaching basal 2/5 of protarsomere 1. Metatibiae moderately covered with long soft hairs near anterior and posterior margins; outer side of metatibia with 1 completed carina at distal 2/5, arc-shaped. Dorsolateral margin of metatibia has two thorns; dorsomedial margin with four thorns small to large (Fig. 1f); metatibia with two apical spurs of different sizes; metatarsomere 1 equal in length to metatarsomere 2; each metaclaw with a vertical tooth at middle (Fig. 1g).
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**Abdomen:** Lateral sides of abdominal sternites densely punctate and setiferous, setae short; posterior sternites 5 and 6 covered with long soft hairs.

**Pygidium:** Fan-shaped pygidium punctate and setiferous, 1.38 times wider than long; dorsal surface covered with tiny setae, apical pygidium with long soft hairs; apical pygidium at a right angle.

**Male genitalia. Phallobase:** Phallobase 1.07 times longer than paramere; dorsal surface with a depressed sulcus at middle; anterior 1/5 of phallobase constricted. **Parameres:** Parameres with four branches: two dorsal branches 1.35 times longer than two ventral branches. Dorsal branches extended forwards and curved inwards subapically, then divergent at apex; ventral sides of dorsal branches with several setae; basal third of paramere with two quadrangular plates on dorsum; ventral branch with a big cone-shaped hook ventrally before the apex (Figs. 1h, i). Endophallus with temones tapered in dorsum and epithelium in distal end; epithelium covered within soft sensillae densely and short spurs (Fig. 1j).

**Female.** Antenna with 9 antennomeres; club formed with 3 antennomeres, slightly shorter than antennomeres 2–6 combined. Anterior metatibia slightly wider than in male.

**Variability.** Both paratypes slightly differ in size (total body length 19.4–20.4 mm, width across humeri 8.4–9.1 mm).
**Diagnosis.** *Miridiba bannaensis* new species can be separated from other *Miridiba* species by the following combination of characters: the punctures of pronotum and scutellum deep and rugose; the anterior margin has an incision at each end, the anterolateral angles prolonged forwards and moderately reflexed; in the paramere, distal end of ventral branches with a big cone-shaped hook along ventral margin near apex.

**Distribution.** China (Yunnan: Puer, Xishuangbanna) (Fig. 6).

**Etymology.** The name of the new species is from the type locality, Xishuangbanna.

**Remarks.** All specimens mentioned above of *M. (M.) bannaensis* new species were incorrectly identified as *Holotrichia* (*Pledina*) *imitatrix* Brenske, 1899 by Chang (1964). The two species can be separated by the following combination of characters: the shape of punctures on the scutellum (big and rugose in *M. (M.) bannaensis* new species; small in *M. (M.) imitatrix*), the longitudinal carina in the middle of the clypeus (absent in *M. (M.) bannaensis* new species; present in *M. (M.) imitatrix*) and the form of the parameres (tips of dorsal and ventral branches bent downwards in *M. (M.) bannaensis* new species; dorsal branches slender and sharp, tips of ventral branches bent in *M. (M.) imitatrix*).

*Miridiba (Miridiba) kuatunensis* Gao & Fang, new species

(Figs. 2, 6)

**Type locality.** CHINA: Fujian Province: Wuyishan Mountain.


**Description of holotype (male).** Body length 17.3 mm, width across humeri 7.6 mm, body oval-elongate, strongly convex, dorsal surface densely setiferous, setae short.

**Colour:** Head, pronotum, scutellum and legs dark reddish brown; antennae, elytra and abdomen brown to dark brown (Figs. 2a, b).

**Head:** Frons densely punctate and setiferous; clypeus with anterior margin distinctly bilobed and reflexed; fronto-clypeal suture wave-shaped; frontal carina distinctly raised, weakly curved backwards; clypeus shorter than frons, length ratio between clypeus and frons before carina 0.56; distance between eyes three times wider than eye (Fig. 2c). Antenna with 9 antennomeres; club slightly longer than antennomeres 2–6 combined, length ratio 1.18 (Fig. 2c).

**Thorax:** Dorsal surface of pronotum densely punctate and setiferous (Fig. 11); pronotum widest at middle; anterior margin flanged, lateral sides serrated; lateral margin serrated and moderately reflexed; posterior margin smooth; anterolateral angles 90º, posterior angles obtuse (Fig. 2d); prosternal process tongue-shaped. Scutellum triangular (Fig. 2e), 1.4 times wider than long, dorsal surface covered with dense short setae. Dorsal surface of elytra covered with dense short setae, epipleuron with lots of cilia (Figs. 2a, b).

**Legs:** Protibia tridentate; denticle 2 and 3 sharp; dorsal carina forking to denticle 2 and 3; apical spur reaching basal one-fourth of protarsomere 1. Metatibia densely pubescent (Fig. 2f); distal 2/5 of outer side of metatibia with 1 transverse completed carina (Fig. 2g); dorsolateral margin with 1 thorn; dorso medial margin with five thorns small to large; metatibia with two apical spurs of different sizes, spurs lanceolate shaped (Fig. 2g); metatarsomere 1 equal in length with metatarsomere 2.

**Abdomen:** Abdominal sternites densely covered with short setae.

**Pygidium:** Fan-shaped pygidium densely punctate and setiferous, setae short; 1.44 times wider than long, apical pygidium at a right angle.

**Male genitalia.** Phallobase: Phallobase 1.41 times longer than paramere; dorsal surface with a depressed longitudinal sulcus at middle; anterior 1/5 of phallobase constricted. **Parameres:** Dorsal surface of parameres with two ladder-shaped plates at basal 2/5 and two pairs of branches at apex; dorsal branches 1.5 times longer than ventral branches. Dorsal branches thick, extended forwards and curved inwards subapically, then divergent at apex; ventral branches slender, tips curved outwards and downwards (Figs. 2h, i). **Endophallus:** Dorsal endophallus with tenomes tapered; medial endophallus with some small hook-shaped spurs and densely punctate sensillae (Fig. 2j).

**Female.** Antenna with 9 antennomeres, club with 3 antennomeres; club equal in length to antennomeres 2–6 combined. Anterior metatibia slightly broader than in male.

**Variability.** The known paratypes slightly differ in size (total body length: 17.3–18.5 mm, width across humeri 7.6–8.5 mm).

**Diagnosis.** Miridiba (M.) kuatunensis new species is distinguished from M. (M.) pilosella (Moser, 1908) by the ratio between the dorsal branches and ventral branches of the parameres (1.25 in M. (M.) pilosella; 1.5 in M. pilosella).
(M.) *kuatunensis* new species), and the curving of the dorsal branches of the parameres (the tips of the dorsal branches bent downwards, the angle of the bend is 55° in *M.* (*M.*) *pilosella*; the apex of dorsal branches only curved downwards (30°) and moderately expanded in *M.* (*M.*) *kuatunensis* new species).

**Distribution.** China (Fujian: Jianou, Nanping, Ningde; Guangdong: Guangzhou, Qingyuan; Guangxi: Guilin; Hainan: Wenchang; Zhejiang: Lishui) (Fig. 6).

**Etymology.** From the type locality, Guadun (= Kuatun) in Wuyishan of Fujian province.

**Chinese name.** 挂脊鳃金龟

**Remarks.** According to the information on the specimen collection labels, adults of *M.* (*M.*) *kuatunensis* new species feed on *Vernicia fordii* (Euphorbiaceae) and *Pyrus betulaefolia* (Rosaceae).

*Miridiba* (*Miridiba*) *xingkei* Gao & Fang, new species

(Figs. 3, 6)

**Type locality.** CHINA: Yunnan Province: Xishuangbanna City.

Description of holotype (male). Body length 22.8 mm; width across humeri 9.8 mm, oval-elongate, strongly convex, dorsal surface glabrous.

Colour: head, pronotum, scutellum and legs dark reddish brown; antennae, elytra and abdomen brown (Figs. 3a, b).

Head: Frons densely punctate and glabrous; clypeus arcuate shaped, apex weakly emarginate medially; anterior margin moderately reflexed; fronto-clypeal suture wave-shaped; frontal carina distinctly raised and nearly straight; clypeus shorter than frons, length ratio between clypeus and frons before carina 0.60; distance between eyes nearly four times wider than eye (Fig. 3c). Antenna with 9 antennomeres; club with 3 antennomeres, slightly longer than antennomeres 2-6 combined (Fig. 3d).

Thorax: Dorsal surface of pronotum densely punctate and glabrous, widest at basal 2/5; anterior margin smooth and flanged; lateral margin smooth and broadly reflexed; posterior margin smooth; anterolateral angles obtuse, posterior angles obtuse and round. Prosternal process basiconic shaped. Scutellum triangular, dorsal surface densely punctate and glabrous. 1.58 times wider than long. Dorsal surface of elytra glabrous, sutural costae developed; epipleuron with long, dense cilia (Figs. 3a, b).

Legs: Protibia tridentate, denticle 2 sharp; dorsal carina forking to denticle 2; apical spur of protibia sharp, apical spur reaching basal one half of protarsomere 1. Metafemora moderately covered with long soft hairs near anterior margin and rough setae near posterior margin (Fig. 3b); outside of metatibia with 1 completed carina at distal 2/5, carina arc-shaped; dorsolateral margin with 2 thorns; dorsomedial margin with 5 pubescent thorns small to large; metatibia with two apical spurs of different sizes, the big spur acinaciform, 1.72 times longer than the small spur (Fig. 3e); metatarsomere 1 equal in length to metatarsomere 2.
Abdomen: Lateral sides of abdominal sternites densely punctate and setiferous, setae short; posterior sternites 5 and 6 covered with long soft hairs.

Pygidium: Fan-shaped pygidium densely punctate and setiferous, 1.37 times wider than long, apical pygidium at a right angle; middle area weakly convex.

Male genitalia. Phallobase: Phallobase 1.2 times longer than parameres; dorsal surface with a depressed longitudinal sulcus at middle; anterior 1/5 of phallobase weakly constricted. Parameres: Parameres with two pairs of branches: two thick long dorsal branches and two short ventral branches; each dorsal branch with a thick protuberance on dorsum; tip of each dorsal branch with a notch in the ventral side; ventral branch with a big cone-shaped hook ventrally before the apex (Figs. 3g–i). Endophallus: Dorsal endophallus with temones tapered; medial endophallus with small hooks; distal end of endophallus with a round seminal vesicle (Fig. 3j).
**Female.** Body slightly longer and broader than in male. Antenna with 9 antennomeres; club with 3 antennomeres, shorter than antennomeres 2–6 combined. Metatibia and apex of metatibia broader than in male. The big spur of apical metatibia broader and blunter than male, 1.3 times longer than the smaller spur (Fig. 3f).

**Variability.** All the paratypes slightly differ in size (total body length 21.7–25.6 mm, width across humeri 9.5–11.6 mm).

**Diagnosis.** *Miridiba (M.) xingkei* new species and *Miridiba (M.) ciliatipennis* (Moser, 1913) are similar in the elytral epipleuron bearing dense, long cilia. The two species can be separated by following characters: the presence or absence of the midline on the posterior of the pronotum (absent in *M. (M.) xingkei* new species; present in *M. (M.) ciliatipennis*), the form of setae near the posterior margin of the metatibia (few large setae in *M. (M.) xingkei* new species, dense small setae in *M. (M.) ciliatipennis*), the shape of the spurs of the apical metatibia (arc-shaped in *M. (M.) xingkei* new species, straight in *M. (M.) ciliatipennis*), the form of the parameres (each dorsal branch with a developed protuberance in *M. (M.) xingkei* new species, the dorsal branches without protuberances in *M. (M.) ciliatipennis*).

**Distribution.** China (Yunnan: Puer, Xishuangbanna) (Fig. 6).

**Etymology.** This new species is dedicated to Dr Xingke Yang, a respected researcher, who has devoted himself into taxonomy and systematics study of Chinese Coleoptera for more than thirty years. He will retire from the Institute of Zoology, Chinese Academy of Sciences in 2018.

**Chinese name.** 杨脊鳃金龟

**Remarks.** Chang (1964) listed *M. (M.) ciliatipennis* from China. However, we examined all specimens in IZCAS identified as *M. (M.) ciliatipennis* by Chang himself and they all belong to the new species *M. (M.) xingkei*. Based on this, we have excluded *M. (M.) ciliatipennis* from the Chinese fauna.

*Miridiba (Miridiba) youweii Gao & Fang, new species* (Figs. 4, 6)

**Type locality.** CHINA: Yunnan Province: Jingdong Yi Autonomous County.


Description of holotype (male). Body length 24.0 mm, width across humeri 10.3 mm, body oval-elongate, dorsal surface glabrous. Colour: Head, pronotum, scutellum and legs dark reddish brown; antennae, elytra and abdomen dark brown (Figs. 4a, b).

Head: Dorsal surface densely punctate and glabrous; clypeus arcuate, with apex weakly emarginate; anterior margin strongly reflexed; fronto-clypeal suture bilobed; frontal carina distinctly raised, weakly curved backwards; clypeus shorter than frons, length ratio between clypeus and frons before carina 0.55; distance between eyes nearly four times wider than eye (Fig. 4c). Antenna with 9 antennomeres; club with 3 antennomeres, equal in length to antennomeres 2–6 combined (Fig. 4e).

Thorax: Pronotum widest at basal 1/3; dorsal surface densely punctate; anterior margin smooth and flanged; anterior margin with an incision at each end; lateral margin smooth and reflected; posterior margin smooth; anterolateral angles 90º, posterior angles obtuse and round (Fig. 4d); prosternal process basiconic shaped, top flat. Scutellum triangular, dorsal surface glabrous and densely punctate, punctures tiny; 1.49 times wider than long. Dorsal surface of elytra glabrous, sutural costae developed, epipleuron with several short cilia (Figs. 4a, b).

Legs: Protibia tridentate; dorsal carina forking to denticle 2; apical spur of protibia sharp, apical spur reaching basal 1/3 of protarsomere 1. Metafemora covered with long soft hairs near anterior and posterior margins (Fig. 4b); outer side of metatibia with 1 completed carina at distal 2/5, carina arc-shaped (Fig. 4f). Dorsolateral margin with 1 thorn; dorsomedial margin with 4 thorns small to large (Fig. 4f). Metatibia has two apical spurs of different sizes; the big spur lanceolate shaped, reaching basal 1/5 of metatarsomere 2; metatarsomere 1 shorter than metatarsomere 2.

Abdomen: Lateral sides of abdominal sternites densely punctate and setiferous, setae short (Fig. 4b); middle area of sternites 3 and 4 sparsely setiferous; sternites 5 and 6 covered with long soft hairs.

Pygidium: Fan-shaped pygidium setiferous and punctured; 1.49 times wider than long.

Male genitalia. Phallobase: Phallobase 1.39 times longer than parameres; dorsal surface with a depressed longitudinal sulcus at middle; anterior 1/4 of phallobase constricted. Parameres: Parameres with two long dorsal branches and two short ventral branches; dorsal branches tapered forwards and bent downwards at basal 1/3, angle of bend 100º, apex curved inwards; ventral branches thick, tips bent outwards, angle of bend 90º (Figs. 4g, h).

Endophallus: Temones slender and sclerotic, colour black, consist of two scleritized sclerites joined; top of temones with a cluster of short thorns; medial endophallus with thick thorns on dorsum and lots of thin thorns on ventral side; several sensillae on ventral side (Fig. 4i).
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Female. Antenna with 9 antennomeres; club with 3 antennomeres, shorter than antennomeres 2–6 combined. Apex of metatibia wider than in male; the apical spurs of metatibia in female are broader and blunter than in male.

Female genitalia (Fig. 4j). Female genitalia consists of a genital chamber, accessory glands, oviduct, median oviduct, spermatheca, spermathecal gland, bursa copulatrix. Genital chamber: Two pairs of symmetrical vestigial tergites located at both sides of rectum; terminal genital chamber with a pair of vestigial sternites ventrally, bilaterally symmetrical and setigerous. Accessory glands: horseshoe-shaped glands. Median oviduct: Median oviduct with 2 rounded sclerotised sclerites on lateral sides and 1 sclerotised sclerite on dorsum. Bursa copulatrix: pear-shaped. Spermatheca and spermathecal gland: tube-shaped.
Variability. The known paratypes slightly differ in size (total body length: 22.0–24.0 mm, width across humeri 10.0–12.2 mm).

Diagnosis. *Miridiba* (M.) *youweii* new species is distinguished from *Miridiba* (M.) *thai* Keith, 2010 by numerous features including: the colour of the elytra (brown in *M. (M.) youweii* new species; yellow-brown in *M. (M.) thai*), the form of the prosternal process (basiconic shaped in *M. (M.) youweii* new species; cone-shaped in *M. (M.) thai*); the quantity of thorns on dorsomedial margin of metatibia (four in *M. (M.) youweii* new species; three in *M. (M.) thai*); the form of dorsal branches of parameres (slender and curved downwards at basal 1/3 in *M. (M.) youweii* new species; thick and tapered in *M. (M.) thai*); and quantity and shape of the thorns on the apex of the temones in the male (a cluster of thin and short thorns in *M. (M.) youweii* new species; four thick thorns in *M. (M.) thai*).

Distribution. China (Yunnan: Dali, Honghe, Puer, Kunming, Xishuangbanna; Guizhou: Xingyi; Zhejiang: Moganshan) (Fig. 6).

Etymology. It is with great pleasure that we name the new species for Mr Youwei Zhang who studied Chinese Melolonthinae taxonomy in his working life.

Chinese name. 章脊鳃金龟

Remarks. All the above mentioned specimens of *M. (M.) youweii* new species deposited in IZCAS were incorrectly identified as *Holotrichia* (*Pledina*) *hybrida* (Moser, 1912) by Chang (1964). The two species can be separated by the form of the apex of dorsal branches of the parameres (sharp and setiferous in *M. (M.) hybrida*; clavate-shaped in *M. (M.) youweii* new species) and the shape of the ventral branches of the parameres (tapered and curved upwards in *M. (M.) hybrida*; tips vertically curved outwards in *M. youweii* new species).

Catalogue of *Miridiba* species known from China
(including Chinese Mainland and Hainan and Taiwan Islands)

Altogether 18 *Miridiba* species distributed in China are confirmed. Some specimens of *Miridiba* deposited in IZCAS were incorrectly identified as *Holotrichia* (*Pledina*) *ciliatipennis* (Moser, 1913), *H. (P.) hybrida* (Moser, 1912), *H. (P.) imitatrix* (Brenske, 1899) or *H. (P.) pilosella* (Moser, 1908) by Chang (1964). Unfortunately, we have not found any Chinese specimens of *H. ciliatipennis*, *H. hybrida* or *H. imitatrix* until now. Although *Holotrichia* (*Pledina*) Hope, 1845 was not included into *Miridiba* by Coca-Abia (2008), we herein follow Li et al. (2015) and treat *Holotrichia sinensis* Hope, 1842 as a member of *Miridiba*.

**Genus Miridiba Reitter, 1902**


*Holotrochus* Brenske, 1894: 75. Type species: *Holotrochus vestitus* Brenske, 1894. Primary junior homonym of *Holotrochus* Erichson, 1840 (Coleoptera: Staphylinidae).

*Holotrichia* (*Pledina*) Hope, 1837. Type species: *Holotrichia sinensis* Hope, 1842.


*Neodontocnema* Arrow, 1948: 50. Type species: *Ancylonycha coromandeliana* Blanchard, 1850.

*Miridiba* (*Miridiba*) *aequabilis* (Bates, 1891)

*Lachnosterna aequabilis* Bates, 1891: 75.


**Type locality.** “Sze-chuen” (= China: Sichuan).

**Distribution.** China (Sichuan).

**Remarks.** Although we were unable to study types of *M. (M.) aequabilis*, the original description suggests the types were collected in Sichuan province.
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Type locality. “China: Yunnan Province: Xishuangbanna City”.
Distribution. China (Yunnan).

Miridiba (Miridiba) castanea (Waterhouse, 1875)

Holotrichia castanea Waterhouse, 1875: 104.
Holotrichia (Pledina) castanea: Chang 1964: 149.

Type locality. “Kawachi” (= Japan: Osaka Prefecture: Kawachi).

Type material examined. Lectotype, male, labelled: “S. / JAPAN [handwritten] // Holotrichia / castanea / (Type) C. Waterhouse [handwritten] // LECTOTYPE / Miridiba castanea / (Waterhouse, 1875) / M. Coca-Abia det. 2001 [handwritten or typeset, red label]”, deposited in BMHN; paralectotype, male: “S. / JAPAN [handwritten] // PARALECTOTYPE / Miridiba castanea / (Waterhouse, 1875) / M. Coca-Abia det. 2001 [handwritten or typeset, red label]”, deposited in BMHN.

Distribution. China (North China, Sichuan), Japan, Korean Peninsula, Russia (Far East) (Chang 1964).

Miridiba (Miridiba) formosana (Moser, 1909)


Type locality. “Formosa” (= China: Taiwan).


Miridiba (Miridiba) huesiotoi Li & Yang, 2015

Miridiba huesiotoi Li & Yang in Li et al. 2015: 524.

Type locality. “Taiwan: Tai Tung Co., Green Island”.

Distribution. China (Taiwan).

Miridiba (Miridiba) kuatunensis Gao & Fang, new species

Type locality. “China: Fujian Province: Wuyishan Mountain”.

Distribution. China (Fujian, Guangdong, Guangxi, Hainan, Zhejiang).
**Miridiba (Miridiba) kuraruana Nomura, 1977**

*M. kuraruana* Nomura, 1977: 89.

**Type locality.** “Kenting” (= China: Taiwan: Kenting).


**Distribution.** China (Taiwan).

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**Miridiba (Miridiba) obscura Itoh, 1995 stat. nov.**

(Figs. 5a–c, 6)


**Type locality.** “Doi Suthep” (= Thailand: Doi Suthep).


**Distribution.** China (Yunnan) (Fig. 6), Thailand, Laos (Itoh 1995).

**Remarks.** Newly recorded for China. One female of *M. (M.) tuberculipennis obscura* Itoh, 1995 and one male of *M. (M.) tuberculipennis* Fairmaire, 1891 were collected in the same place Yangbi County of Yunnan province (see additional material examined). We therefore propose that *M. (M.) tuberculipennis obscura* should be elevated to species status as *M. (M.) obscura* Itoh, 1995. The two species can be separated by the shape of the clypeus (moderately bilobate in *M. (M.) tuberculipennis* while arcuate in *M. (M.) obscura*), and by the shape of the dorsal and ventral branches of the parameres (thin in *M. (M.) tuberculipennis* while thick and expanded in *M. (M.) obscura*) (Figs. 5a–f).
Miridiba (M.) obscura Itoh, 1995 (a, c, e) and M. (M.) tuberculipennis (Moser, 1913) (b, d, f). a, b, habitus, dorsal view; c, d, parameres, lateral view; e, f, parameres, ventral view. Scale bar: 5 mm for a, b; 1 mm for c, d, e, f.

Miridiba (Miridiba) pilosella (Moser, 1908)

**Type locality.** “Montes Mauson” (= Northern Vietnam: Montes Mauson).

**Type material examined.** Syntype, male, labelled: “Tonkin / Montes Mauson / April Mai 2-3000’ / H. Fruhstorfer [typeset] / Holotrichia / pilosella / Type ♂ Mos. [handwritten] / H. pilosella / Mos. [typeset]”, deposited in MFNB.


**Distribution.** China (Guangdong), Vietnam.

**Remarks.** Newly recorded for Guangdong province.

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**Miridiba (Pledina) sinensis** (Hope, 1845)


*Ancylyonycha sinae* Blanchard, 1851: 139, Burmeister 1855: 136 (junior synonym of *M. (P.) sinensis*).


*Rhizotrogus cribellatus* Fairmaire, 1891: 200, Keith 2006: 43 (junior synonym of *M. (P.) sinensis*).

**Type locality.** “Canton” (= China: Guangzhou).


**Distribution.** China (Fujian, Hainan, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Jiangsu, Jiangxi, Shandong, Taiwan, Yunnan, Zhejiang) (Chang 1964; Wei 1989; Zhang & Li 1997).

**Remarks.** Newly recorded for Hainan and Yunnan provinces.

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**Miridiba (Miridiba) sus** (Moser, 1912)

*Holotrichia sus* Moser, 1912: 443.

*Hippotrichia hainana* Arrow, 1948: 51; Chang 1964: 145 (junior synonym of *M. (M.) sus*).


**Type locality.** “Cochinchina (Kuang-toi)” (= Vietnam: Kuang Tai).

**Type material examined.** Syntype, male of *Hippotrichia hainana*, labelled: “Hainan I. / J. Whitehead. / 99. 315 [typeset] / Hippotrichia / hainana / Type Arrow [handwritten] / Type [typeset, red label]”, deposited in BMNH.

**Distribution.** China (Hainan, Yunnan), Laos, Thailand, Vietnam (Arrow 1948; Chang, 1964; Itoh 1995; Moser 1912).

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**Miridiba (Miridiba) taipei** Wang & Li, 2015

*Miridiba taipei* Wang & Li in Li et al. 2015: 530.

**Type locality.** “Taipei County: Lin Ko”.

**Distribution.** China (Taiwan).
Miridiba (Miridiba) taoi Li & Wang, 2015

Miridiba taoi Li & Wang in Li et al. 2015: 528.

Type locality. “Taiwan, Tai Tung Co., Lan Yu Is.”

Type material examined. Paratype, male, labelled: “TAIWAN: Tai Tung Co / Lan Yu Is. / 23-25/?/1992 / collr. C.-L. Li [typeset] // BMNH (E) / 2015 – 121 / Chun-Lin Li [typeset] // PARATYPE / Miridiba (Miridiba) / taoi Li & Yang, 2015 / n. sp. [typeset, yellow label]”, deposited in BMNH.

Distribution. China (Taiwan).

Miridiba (Miridiba) trichophora (Fairmaire, 1891)

Rhizotrogus trichophorus Fairmaire, 1891: 199.

Miridiba trichophora: Reitter 1902: 170.


Miridiba (Miridiba) tuberculipennis (Moser, 1913)
(Figs. 5b, d, f, 6)

Holotrichia tuberculipennis Moser, 1913: 55.


Type locality. “Burma” (= Myanmar).


Distribution. China (Yunnan) (Fig. 6), Laos, Myanmar, Vietnam (Frey 1970; Moser 1913).

Remarks. Miridiba (M.) tuberculipennis is newly recorded for China.
**Miridiba (Miridiba) wangi (Zhang, 1997)**


**Type locality.** “四川长寿县楠木园” (= China: Chongqing City: Changshou District).

**Type material examined.** Holotype, male, labelled: “Collect Number Gui-13 / Collection Site Changshou County, Nan Muyuan / Name Scarab beetle / Collection Date 94. 5. 6 [handwritten, Chinese] // Holotrichia (Pledina) / wangi Zhang / sp. nov. / Identified by Youwei Zhang 1995. V. [handwritten, Chinese] // IOZ(E) 218205 [typeset, blue label] // HOLOTYPE [typeset, red label]”, deposited in IZCAS.

**Distribution.** China (Chongqing).

**Miridiba (Miridiba) xingkei Gao & Fang, new species**

**Type locality.** “China: Yunnan Province: Xishuangbanna City”.

**Distribution.** China (Yunnan).

**Miridiba (Miridiba) youweii Gao & Fang, new species**

**Type locality.** “China: Yunnan Province: Jingdong Yi Autonomous County”.

**Distribution.** China (Guizhou, Yunnan, Zhejiang).

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