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The genus *Paraplotina* Miyatake 1969 (Coleoptera: Coccinellidae) from China

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Abstract. The genus *Paraplotina* Miyatake 1969 is newly recorded from China. Two species are described and illustrated, including a new species: *P. chinensis* sp. nov. The male genitalia of *P. tamdaoensis* Hoang are described for the first time. A diagnosis of the genus and a key to the known species are provided.

Key Words. Coleoptera, Coccinellidae, *Paraplotina*, New species, China.

INTRODUCTION

The genus *Paraplotina* (Coccinellidae: Sticholotidinae) was erected by Miyatake (1969), with *P. flavomaculata* from India as the type species. A second species, *P. tamdaoensis* Hoang 1982 was described from Vietnam by Hoang (1982). *Paraplotina* and related genera (*Plotina* Lewis 1896, *Sphaeroplotina* Miyatake 1969, *Haemoplotina* Miyatake 1969, *Ballida* Mulsant 1850 (= *Palaeoneis* Crotch 1874) and *Buprestodera* Sicard 1911) were studied by Miyatake (1969). Later Miyatake (1994) removed these genera from their original placement in the tribe Sticholotidini and put them in a new tribe Plotinini. The tribe Plotinini is now classified in the subfamily Coccinellinae (Ślipiński 2007, Seago et al. 2011).

In the present paper, *Paraplotina* is newly recorded from China, a third species, *P. chinensis* sp. nov. is added to this genus and the male genitalia of *P. tamdaoensis* are described for the first time.

MATERIAL AND METHODS

The specimens examined were collected from China and preserved in 85% ethanol. External morphology was observed with a dissecting stereo microscope (SteREO Discovery V20, Zeiss). The following measurements were made with an ocular micrometer: total length, from apical margin of clypeus to apex of elytra (TL); Total width, across both elytra at widest part (TW = EW); height, through the highest point of elytra to metaventrite (TH); head width, including eyes (HW); pronotal length, from the middle of anterior margin to the base of pronotum (PL); pronotal width at widest part (PW); elytral length, along the suture, from the apex to the base including the scutellum (EL). Male and female genitalia were dissected, cleared in a 10% solution of NaOH by boiling for several minutes, and examined with an Olympus BX51 compound microscope.

Images were photographed with digital cameras (AxioCam HRc and Coolsnap-Procf & CRI Micro*Color) connected to a dissecting microscope. The software AxioVision Rel. 4.8 and Image-Pro Plus 5.1 were used to capture images from both

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cameras, and photos were cleaned up and laid out in plates with Adobe Photoshop CS 8.0.

Terminology follows Ślipiński (2007) and Ślipiński & Tomaszewska (2010). Type specimens designated in the present paper are deposited in the Insect Collections of the Department of Entomology, South China Agriculture University (SCAU), Guangzhou, China.

Taxonomy

Paraplotina Miyatake 1969.

Paraplotina Miyatake 1969: 209. Type species: *Paraplotina flavomaculata* Miyatake 1969, by original designation.

Paraplotina: Hoàng 1982: 107; Miyatake 1994: 283.

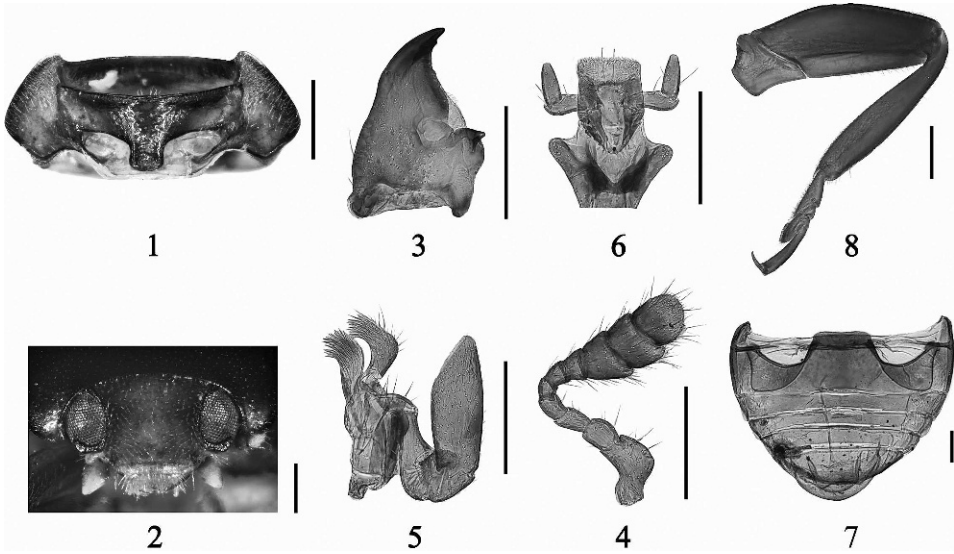
Description. Body oval, moderately convex, dorsal surface glabrous. Head comparatively small, frons wide, flattened or slightly emarginated. Eyes small, coarsely faceted (Fig. 2). Mandible robust, with a subapical tooth just behind apical tooth (Fig. 3). Antennae relatively long, stout, composed of 10 antennomeres; 1st antennomere large and bent, 2nd shorter and narrower than 1st, 3rd somewhat triangular, distinctly longer than wide, 4–6 as wide or wider than long, 6th forming a short support for club, 7–10 gradually dilated, forming an elongate oval club (Fig. 4), 10th rounded apically. Maxillary palp large; terminal palpomere elongate, slightly dilated, apically obliquely truncate (Fig. 5). Terminal labial palpomere conical, slightly thicker at base (Fig. 6).

Pronotum nearly pentagonal, about 2× wider than long, strongly convex; anterior margin broadly and rather deeply emarginate; anterolateral angles strongly prominent; basal marginal line in front of scutellum incomplete, disappearing before posterolateral angles. Pronotal margins with very narrow rim, hardly visible from above. Scutellum small and triangular. Elytra convex, entire surface uniformly punctured. Elytral margins with narrow rim, visible from above.

Prosternum T-shaped with intercoxal process carinate, lateral wings broad, prothoracic hypomeral foveae poorly developed (Fig. 1). Mesoventrite strongly transverse between coxal cavities, about 2.5× as wide as long; anterior margin distinctly emarginate medially. Metaventrite convex, with distinct median discripen. Epipleuron moderately narrow and flat, reaching elytral apex, feebly depressed at base and middle to receive tips of meso- and metafemora. Abdomen with 5 ventrites in both sexes (Fig. 7). Abdominal postcoxal lines complete, strongly and unevenly curved, reaching near posterior margin; outer part of line running subparallel to lateral margin. Legs with femora moderately stout; protibia somewhat broad and constricted at base, meso- and metatibiae rather slender, shallowly excavated for reception of tarsi; tarsi pseudotrimerous; meso- and metatibiae each with single spur (Fig. 8).

Distribution. China (**new distribution**), India, Vietnam.

Remarks. *Paraplotina* is similar to *Plotina* in morphological characters and male genitalia (Wang et al. 2011), but it can be distinguished from the latter as follows: terminal maxillary palpomeres are slightly dilated apically; prosternum with more strongly produced anterior margin; basal marginal line of pronotum in front of scutellum is incomplete and disappears before posterolateral angles. In *Plotina*, the terminal maxillary palpomeres are strongly dilated apically and basal marginal line of pronotum is complete but very thin and hardly visible near posterolateral angles.



Figures 1–8. *P. tamdaoensis* Hoàng. (1) prothorax, ventral; (2) head; (3) mandible; (4) antenna; (5) maxilla; (6) labium; (7) abdomen; (8) hind leg. Scale bars = 0.3 mm.

This genus is also similar to *Buprestodera* (Miyatake 1969), but it can be distinguished from the latter by its more coarsely faceted eyes, terminal maxillary palpomeres slightly dilated apically, carinate prosternal process, indistinct propleural fovea and uniform elytral punctation. In *Buprestodera*, eyes are less coarsely faceted, terminal maxillary palpomeres are strongly dilated apically, propleural fovea is distinct, prosternal intercoxal process is incarinate, and elytra are distinctly covered in large and fine punctures.

Paraplotina tamdaoensis Hoàng 1982

(Figs. 1–11, 15–19, 24)

Paraplotina tamdaoensis Hoàng 1982: 107.

Description. TL: 3.25–4.26 mm, TW: 2.75–3.60 mm, TH: 1.50–1.97 mm, TL/TW: 1.16–1.20; PL/PW: 0.46–0.50; EL/EW: 0.94–0.96.

Head dark reddish brown. Pronotum black, with anterolateral angles yellow. Scutellum black. Elytra black, each with two large yellow spots, placed on humeral callus and at 3/4 elytral length (Figs. 9–11). Underside reddish brown except mesoventrite and metaventrite dark brown. Legs reddish brown.

Body moderately large, broadly oval, moderately convex, shining and glabrous. Head comparatively small, $0.41\times$ elytral width; frons wide and flattened, with moderately large punctures, separated by $0.3\text{--}0.8\times$ their diameter, with short setae in each punctures; eyes small, broadly oval, interocular distance $0.57\times$ head width (Fig. 2). Pronotum $0.55\times$ elytral width, pronotal punctation moderately coarse and dense, similar to punctures on head, similar to those on head, separated by $0.5\text{--}1.5\times$ their diameter. Pronotal margins with very narrow rim, hardly visible from above. Elytra with humeral calli well developed; elytral margins with narrow rim, visible from above. Punctures on elytra moderately large, slightly larger than those on pronotum, separated by $0.3\text{--}2.0\times$ their diameter. Prosternum and mesoventrite mat; punctures large and sparsely distributed, each with a short seta. Metaventrite



Figures 9–14. (9–11) *P. tamdaoensis* Hoàng. (9) dorsal habitus; (10) lateral habitus; (11) frontal habitus. (12–14) *P. chinensis* sp. nov. (12) dorsal habitus; (13) lateral habitus; (14) frontal habitus. Scale bars = 1.0 mm.

glabrous; punctures fine and inconspicuous, slightly larger medially, each with a short seta.

Male genitalia: Penis very long and slender, penis capsule with a distinct outer process and a long inner one; apex simple, pointed (Figs. 15–16); penis guide in lateral view short and stout, widest at base, gradually tapering to apex (Fig. 17); parameres slightly arcuate, sparsely setae at apex, slightly longer than penis guide; penis guide in ventral view stout, widest at basal 2/5, distinctly narrowed at base, with widest part about 1.44× basal width, apically rounded (Fig. 18).

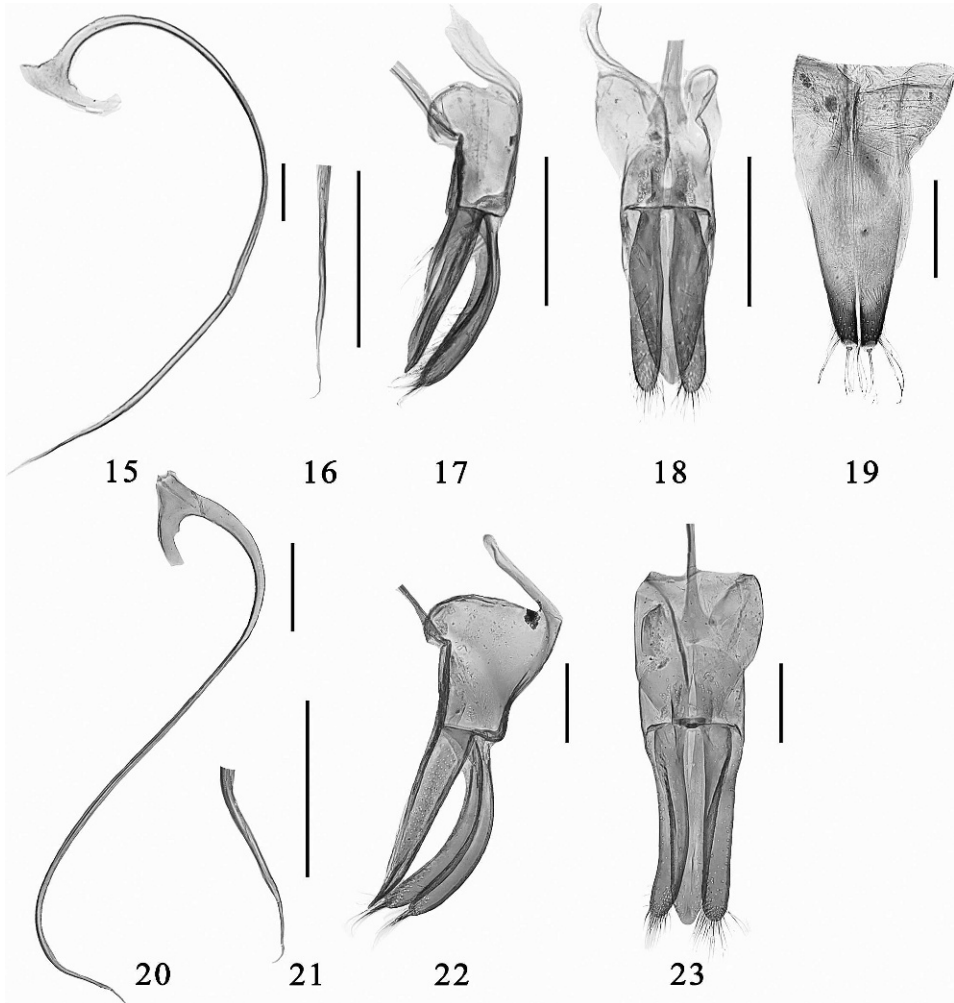
Female genitalia: Coxites elongate, about 5.0× as long as wide, tapering to blunt darkened apices, each with several long terminal setae (Fig. 19); spermatheca broken.

Specimens Examined. 1♂1♀, Yunnan: Dadugang, Xishuangbanna National Natural Reserve, Puer, [22°22.28' N, 100°54.55' E], 950 m, 26.iv.2008, Wang XM Leg.

Distribution. China (Yunnan) (**new distribution**); Vietnam (Tamdao).

Remarks. This species can be distinguished from the other species of *Paraplotina* by the black elytra with four large yellow spots (Figs. 9–11). The male genitalia are also diagnostic (Figs. 15–18).

This species is similar to *Ballida brahamae* Mulsant, 1850 (now in *Palaeoneis*) which has same dorsal color pattern, but it is distinguished from the latter by its coarsely faceted eyes and slightly dilated terminal maxillary palpomere.



Figures 15–23. (15–19) *P. tamdaoensis* Hoang. (15–18) male genitalia: (15) penis; (16) apex of penis; (17) tegmen, lateral view; (18) tegmen, ventral view; (19) female genitalia: ovipositor. (20–23) *P. chinensis* sp. nov. male genitalia: (20) penis; (21) apex of penis; (22) tegmen, lateral view; (23) tegmen, ventral view. Scale bars = 0.3 mm.

Paraplotina chinensis sp. nov.

(Figs. 12–14, 20–24)

Description. TL: 3.50 mm, TW: 2.92 mm, TH: 1.50 mm, TL/TW: 1.20; PL/PW: 0.45; EL/EW: 1.08.

Head yellow brown with eyes silver gray. Pronotum and scutellum red brown. Elytra red, each elytron with two large white-yellow spots and two small black spots as figured (Figs. 12–14). Underside yellow.

Body medium, broadly oval, moderately convex, shining and glabrous. Head comparatively small, $0.40\times$ elytral width; frons wide and slightly emarginate, with fine sparse punctures separated by $1.0\text{--}3.0\times$ their diameter, with short seta in each puncture; eyes small, broadly oval; interocular distance $0.57\times$ head width (Fig. 14).

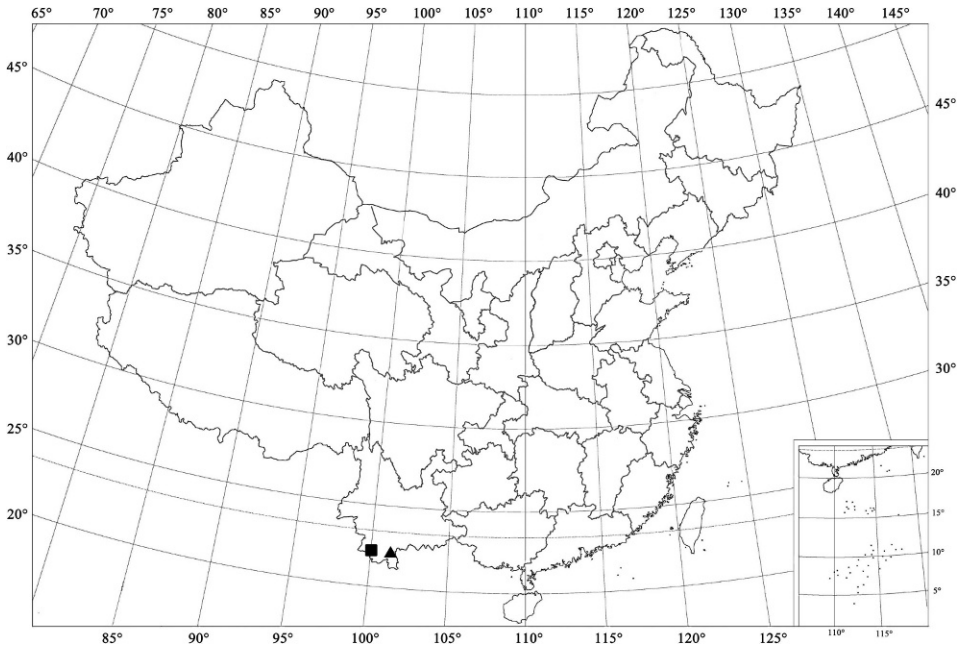


Figure 24. Distribution map. *P. tamdaensis* Hoàng (▲); *P. chinensis* sp. nov. (■).

Pronotum 0.67× elytral width, punctures very fine and inconspicuous, smaller than those on head, separated by about 1.5–4.0× their diameter. Pronotal margins with very narrow rim, hardly visible from above. Elytra with humeral calli inconspicuous; elytral margins with narrow rim, visible from above. Punctures on elytra fine and irregular, larger than those on pronotum, separated by 1.0–3.0× their diameter. Prosternum and mesoventrite shiny, apparently glabrous, impunctate, with sparse setation. Metaventricle shining and apparently glabrous, with fine, inconspicuous punctures, separated by 1.0–3.0× their diameter, each with a short seta.

Male genitalia: Penis long, slender, penis capsule with a short outer process and a long inner one; apex simple, pointed (Figs. 20 and 21); penis guide in lateral view slender and almost straight, widest at base, tapering to apex, apex pointed (Fig. 22); parameres slender with sparsely distributed short setae, slightly shorter than penis guide; penis guide in ventral view stout, widest at base, gradually tapering to apex, apex rounded (Fig. 23).

Female genitalia unknown.

Distribution. China (Yunnan).

Type Material. Holotype: 1 ♂, China, Yunnan: Mengdui, Zhenkang, [23°53.55' N, 98°53.29' E], 1400 m, 18.v.2008, Wang XM Leg.

Etymology. The specific epithet is a noun in apposition and refers to the type locality of this ladybird.

Remarks. This species is easily distinguished from the other *Paraplotina* by the special dorsal color pattern (Figs. 12–14) and the male genitalia (Figs. 20–23).

KEY TO SPECIES OF *PARAPLOTINA* MIYATAKE

- 1. Elytra black, with four yellow spots 2
- Elytra red, with four white-yellow spots and four black spots. Distributed in China *P. chinensis* sp. nov.

2. Yellow spots on elytra bipartite with narrow constriction at middle. Distributed in India *P. flavomaculata* Miyatake
 - Yellow spots on elytra very large and rounded. Distributed in China and Vietnam. *P. tamdaoensis* Hoàng

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