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A new genus *Pangia* belonging to the tribe Serangiini from China (Coleoptera: Coccinellidae)

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Abstract. A new genus Pangia of the tribe Serangiini is described from China, with Serangiella vietnamica Hoàng, 1978 as type species. This species constitutes a new combination within Pangia. A new species is added, P. lamelliforma, **sp. nov**. The new genus and species are described and illustrated in detail. A distribution map to the species is provided.

Key Words. Coleoptera, Coccinellidae, Serangiini, Pangia, new genus, new species, China.

INTRODUCTION

Chapin (1940) reviewed the Old World genus *Serangium* Blackburn, 1889 and the New World genus *Delphastus* Casey, 1899 and erected two Old World genera, *Catana* Chapin and *Serangiella* Chapin, based on the combination of the numbers of tarsal and antennal segments. Two more genera, *Microserangium* Miyatake and *Catanella* Miyatake were subsequently added (Miyatake 1961a, b) using the same character sets. Ślipiński and Burckhardt (2006) in their review of the Australian Serangiini pointed out that the numbers of tarsomeres and antennal segments were variable, and synonymised *Catana* and *Catanella* with *Serangium*, and *Microserangium* with *Serangiella*. A large number of specimens in the tribe Serangiini from China were examined, but this phenomenon was not observed.

While working on the Chinese species of Serangiini we found two species that form a remarkable group within the tribe, having several important significant differences. Thus, we establish a new genus to include the two species in the present paper.

MATERIAL AND METHODS

The Specimens Examined were Collected from China. All materials were preserved in 85% ethanol. External morphology was observed with a dissecting stereoscope (SteREO Discovery V20, Zeiss). The following measurements were made with an ocular micrometer: length from apical margin of clypeus to apex of elytra (TL); width across both elytra at widest part (TW); height at highest elytral part (TH); head width at widest part (HW); pronotal length at longest part (PL); pronotal width at widest part (EW). Male and female genitalia were dissected, cleared in 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-Pro*cf* & CRI Micro*Color) connected to the dissecting microscope. The software

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AxioVision Rel. 4.8 and Image–Pro Plus 5.1 were used to capture images from both cameras, and photos were cleaned up and laid out in plates with Adobe Photoshop CS 8.0.

Terminology Follows Ślipiński (2007). Type specimens designated in the present paper are deposited at the Department of Entomology, South China Agriculture University (SCAU), Guangzhou, China.

TAXONOMY

Pangia, gen. nov. (Figs. 1–4, 14–29)

Type Species. Serangiella vietnamica Hoàng, 1978.

Diagnosis. The new genus is close to *Serangiella* in morphological characters, but it can be distinguished from the latter as follows: mandible is normal, apical tooth bent (Fig. 1), tegmen is strongly asymmetrical and complicated (Figs. 21–22, 27–28), ovipositor is triangularly elongate and usually bearing short styli (Figs. 23 and 29), spermatheca is consisting of a large part and a small process (Figs. 24 and 30). In *Serangiella*, mandible is reduced, apical tooth is erect (Fig. 5), tegmen is simple, penis guide usually subtriangular, ovipositor is elongate-oval and without styli, spermatheca is consisting of two or three globular parts.

The new genus is similar to *Serangium*, but it can be distinguished from the latter by minute body, triangular antennomere 3 and moderately wide prosternal process (Figs. 9–13).

Description. Body hemispherical with head in repose withdrawn into prothorax and closely fitting ventrally against prominent prosternal lobe (Figs. 14 and 17); dorsum usually with vestiture consisting of sparse setae. Head transverse, ventrally flattened with clypeal region prominent anteriorly; clypeus slightly emarginated around exposed antennal insertions; ventral side with antennal groove accommodating scape and pedicel along inner margin of eye. Mandible normal, triangular with single apical tooth (Fig. 1); terminal maxillary palpomere always longer than wide, barrel shaped, truncate at apex (Fig. 3). Antenna 9-segmented with 1segmented club (Fig. 2); antennomere 1 segment stout, 2 globular, smaller than 1, 3 strongly triangular, distinctly longer than 2 and not so long as 4 to 8 combined, 4 short but relatively broad, 5 to 8 short and becoming successively wider until 8th, which is almost as wide as 3, 9 oval and flat, apex angular, longer than 3 to 8 combined, about 2/3 as wide as long. Pronotum short and transverse, strongly convex, more than twice as wide as long at middle, anterior angles hardly prominent, appearing to be somewhat obtusely angulate in antero-lateral view, posterior angles rectangular in lateral view, marginal line complete and fine. Scutellum relatively large, triangular. Elytra strongly convex, usually smooth without visible punctures. Winged; wings with greatly reduced venation. Prosternum strongly prominent medially forming a broad lobe concealing mouthparts from below, weakly notched laterally for reception of antennae (Fig. 15); prosternal process subtruncate apically, broad, without carinae. Mesoventrite very short but broad, comparatively widely ridged anteriorly. Metaventrite large and broad, surface shining and glabrous (Fig. 14). Epipleuron moderately narrow, incomplete, reaching to 3/5 of elytral length, with clearly delimited cavities to accommodate apices of mid- and hind femora. Abdomen with 5 ventrites; ventrite 1 and 5 much longer than 2-4; hind



Figures 1–16. Figures 1–4. *Pangia vietnamica* (Hoàng, 1978). Figure 1. Mandible. Figure 2. Antenna. Figure 3. Maxilla. Figure 4. Hind leg. Figures 5–8. *Serangiella okinawense* (Miyatake, 1961). Figure 5. Mandible. Figure 6. Antenna. Figure 7. Maxilla. Figure 8. Hind leg. Figures 9–13. *Serangium japonicum* Chapin, 1940. Figure 9. Mandible. Figure 10. Antenna. Figure 11. Maxilla. Figure 12. Hind leg. Figure 13. Prothorax. Figures 14–16. *P. vietnamica*. Figure 14. Ventral habitus. Figure 15. Prothorax. Figure 16. Front leg. Scale bars: 0.2 mm.

margin of terminal ventrite distinctly finely crenulated (Figs. 19 and 25). Postcoxal line at abdominal ventrite 1 incomplete, reaching lateral margin of the ventrite, without associated pits or pores. Femora, especially profemur, broad, flat, closely fitting into depressions on ventral surface protecting tibiae and tarsi from below; middle and hind tibiae conspicuously protuberant externally beyond middle, sometimes triangular; tarsus 4-segmented (Figs. 4 and 16).

Male genitalia: tegmen strongly asymmetrical and complicated (Figs. 21–22, 27–28); penis simple, apex pointed, penis capsule small (Figs. 20 and 26). Female genitalia: ovipositor triangularly elongate, weakly sclerotised usually bearing short styli; infundibulum absent (Figs. 23 and 29), spermatheca small and well sclerotised, consisting of a large part and a small part (Figs. 24 and 30).

Distribution. China; Vietnam.

Etymology. The genus is named after Prof. Pang Xiongfei, a well-known and respected coccinellid taxonomist from China. Gender feminine.

Pangia vietnamica (Hoàng, 1978) comb. nov. (Figs. 1–4, 14–17, 19–24, 31)

Serangiella vietnamica Hoàng, 1978: 66.

Diagnosis. This species is close to many *Serangiella* species in general appearance, but can recognized from latter by its normal mandible with bent apical tooth (Fig. 1), distinctly finely crenulate hind margin of terminal abdominal ventrite (Fig. 19), strongly asymmetrical and complicated tegmen (Figs. 21–22), triangularly elongate ovipositor with a short styli (Fig. 23), and spermatheca configuration (Fig. 24).

Description. TL: 1.42-1.55 mm, TW: 1.19-1.26 mm, TH: 0.88-0.93 mm, TL/TW: 1.20-1.22; PL/PW: 0.43-0.48; EL/EW: 1.02-1.03. Body minute, hemispherical, dorsum strongly convex, shiny and glabrous (Fig. 17). Dorsum uniformly black. Head yellowish brown. Prosternum reddish brown, meso- and metaventrites black, epipleuron black. Legs yellowish brown (Fig. 14). Head transverse and ventrally flattened, $0.47 \times$ of elytral width (HW/EW = 1: 2.13); punctures on from fine and sparse, with long sparse setae (Fig. 14); eyes moderately large and coarsely faceted, widest interocular distance 0.46× width of head (Fig. 14). Pronotum short and strongly transverse, $0.76 \times$ of elytral width (PW/EW = 1: 1.32), very sparsely covered in fine punctures associated with long sparse setae, punctures similar to those on head, separated by 2.0-5.0 times their diameter. Pronotal margins with very narrow rim, hardly visible from above. Elytra with conspicuous swelling near humeral edge; elytral margins with very narrow rim, hardly visible from above. Punctures on elytra very fine and unclear, with sparse setae along margin. Prosternum matt, shagreened and impunctate. Mesoventrite small, transverse, surface glabrous. Metaventrite broad, shiny except outer margins matt, without median discrimen; punctures very fine and sparse, separated by 2.0-6.0 times their diameter. Epipleuron with a row of evenly spaced setae. Male and female genitalia as in Figs. 20-24.

Specimens Examined. China, Guangdong: 60 males, 30 females, Shimentai Natural Reserve, Yingde, 29.x.2004, Wang XM *et al.* leg.; 1 male, 3 females, Tianjingshan, Ruyuan, 17.vii. 2005, Wang XM leg.; Guangxi: 1 male, Maoershan National Natural Reserve, Guilin, 20.x.2004, Wang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 7.xi.2004, Wang XM leg.; 3 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; Guang XM leg.; 10 males, National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; 3 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; 3 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; Guang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 29.vii.2005, Wang XM leg.; 6 males, Fulong, Shiwandashan National Natural Reserve, Shangsi, 7.xi.2004, Wang XM leg.; 6 males, Fulong, 7.ming KM leg.; 7.ming KM leg



Figures 17–30. Figure 17. *Pangia vietnamica* (Hoàng), dorsal habitus. Figure 18. *P. lamelliforma*, **sp. nov.**, dorsal habitus. Figures 19–24. *P. vietnamica*. Figure 19. Abdomen. Figure 20. Penis. Figure 21. Tegmen, lateral view. Figure 22. Tegmen, ventral view. Figure 23. Ovipositor. Figure 24. Spermatheca. Figures 25–30. *P. lamelliforma*, **sp. nov.** Figure 25. Abdomen. Figure 26. Penis. Figure 27. Tegmen, lateral view. Figure 28. Tegmen, ventral view. Figure 29. Ovipositor. Figure 30. Spermatheca. Scale bars: 0.1 mm.



Figure 31. Distribution map. P. vietnamica (Hoàng) (▲); P. lamelliforma sp. nov. (■).

10 females, Dongtang, Maolan National Natural Reserve, Libo, 730 m, 15.x.2008, Liang JB *et al.* leg.; 1 male, Xiaodanjiang, Leigongshan National Natural Reserve, Leishan, 12.x.2008, Liang JB leg.; **Hainan:** 1 male, 2 females, Tianchi, Jianfengling National Natural Reserve, Ledong, 18.vii.2006, Wang XM leg.; **Yunnan:** 3 males, 1 female, Longmen and Shangyong Village, Mengla, 1.v.2008, Wang XM leg.; 1 male, Xiaoweishan, Hekou, 23.iv.2008, Wang XM leg.

Distribution. China (Guangdong, Guangxi, Guizhou, Hainan, Yunnan); Vietnam.

Pangia lamelliforma sp. nov. (Figs. 18, 25–31)

Diagnosis. This species is close to *P. vietnamica* in morphological characters, but can be distinguished by metaventrite with inconspicuous basal half median discrimen and moderately large and dense punctures around median discrimen. The male and female genitalia are also diagnostic.

Description. TL: 1.65–1.68 mm, TW: 1.34–39 mm, TH: 0.95–0.98 mm, TL/TW: 1.20–1.23; PL/PW: 0.38–0.43; EL/EW: 0.98–1.02. Body minute, hemispherical, dorsum strongly convex, shiny and glabrous (Fig. 18). Dorsum uniformly black. Head yellowish brown. Prosternum reddish brown, meso- and metaventrites dark brown. Legs yellowish brown. Head transverse and ventrally flattened, $0.46 \times$ of elytral width (HW/EW = 1: 2.17); punctures on frons fine and sparse, separated by 3.0–4.0 times their diameter, with long sparse setae; eyes moderately large and coarsely faceted, widest interocular distance $0.42 \times$ width of head. Pronotum short and strongly transverse, $0.75 \times$ of elytral width (PW/EW = 1: 1.33), with sparse, fine punctures associated with long sparse setae, punctures similar to those on head. Pronotal margins with very narrow rim, hardly visible from above. Elytra with conspicuous swelling near humeral edge; elytral margins with very narrow rim,

hardly visible from above. Punctures on elytra very fine and unclear, with a few long setae at humeral angles and a row of evenly spaced setae along margin. Prosternum matt, shagreened and impunctate. Mesoventrite small, transverse, surface glabrous. Metaventrite broad, shiny except outer margins matt, with inconspicuous median discrimen in basal half; punctures around median discrimen moderately large and dense, with short thick setae, punctures on other parts very fine and sparse, with short sparse setae. Epipleuron with a row of evenly spaced setae. Male and female genitalia as in Figs. 26–30.

Type Materials. Holotype: 1 male, China, Tibet: Beibeng, Motuo, 600–768 m, 26.x.2007, Wang XM leg. Paratypes (8): Tibet: 1 male, same data as holotype; 1 male, Yarang, Motuo, 780 m, 24.x.2007, Wang XM leg.; 2 males, 2 females, Zamuo Road 113 km, Motuo, 835 m, 31.x.2007, Wang XM leg.; 1 male, 1 female, Zamuo Road 140 km, Motuo, 900 m, 27.x.2007, Wang XM leg.

Distribution. China (Tibet).

Etymology. The specific epithet formed from the Latin adjective *lamella* and noun *forma*, referring to the wide lamellar tegmen.

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