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Paradoxivena, a new leafhopper genus (Hemiptera: Cicadellidae: Stegelytrinae) from Tibet, China

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Abstract

A new Oriental leafhopper genus, ***Paradoxivena* gen. nov.** based on one species, *P. zhamuensis* sp. nov., from Tibet, China, is described and illustrated, and placed in Stegelytrinae. The relationship between the new genus and other taxa is discussed.

Key words: taxonomy, morphology, behavior, mud-puddling, host-plants

Introduction

Stegelytrinae Baker is a small leafhopper subfamily restricted to the Palaearctic and Oriental regions. Compared to many other leafhopper subfamilies, the included genera of this subfamily are remarkably diverse and the Oriental genera were either only recently placed in the subfamily (having been unassigned by Oman *et al.*, 1990), or described or revised more recently (see Webb 1999; Wei & Zhang 2003; Wei *et al.*, in press; Zhang & Wei 2002 and Zhang *et al.* 2002, 2004, 2006a, 2006b).

In the present paper a new Oriental stegelytrine leafhopper genus, *Paradoxivena* **gen. n.**, is described for its type species, *Paradoxivena zhamuensis* **sp. n.** from Tibet, China. The new genus forms a group with the following other Oriental stegelytrine genera: *Cyrta* Melichar 1902, *Doda* Distant 1908, *Kunasia* Distant 1908, *Placidus* Distant 1908, *Placidellus* Evans 1971, *Paraplacidellus* Zhang, Wei & Shen 2002, *Platyvalvata* Zhang, Wei & Webb 2006, *Stenolora* Zhang, Wei & Webb 2006, *Temburocera* Webb 1999 and *Wyuchiva* Zhang, Wei & Webb 2006. based on the following similarities: head distinctly narrower than pronotum; eyes laterally overlapping pronotum and relatively more dorsad

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in relation to lateral pronotal carina in lateral view (Fig. 3); lateral frontal suture extending well beyond corresponding ocellus (Fig. 5); antennae very long, nearly as long as body; forewing venation without crossvein m-cu_2, inner subapical cell open, claval veins united by crossvein and a crossvein present between inner claval vein and claval suture (Fig. 2); hind femur with extra subapical setae, elevated and mounted on strong bases (Fig. 14); hind tibia with supernumeral setae present between anterodorsal and anteroventral rows (Fig. 13). Exceptions to the above are found in *Temburocera* where the head is as wide as the pronotum and without a lateral pronotal carina.

Previous host plants of Stegelytrinae includes the Palaearctic *Stegelytra* Mulsant & Rey 1855 and *Wadkufia* Linnavuori 1965 on oaks (*Quercus*, Fagaceae), a Taiwanese species of *Placidus* on *Fagus* (Fagaceae), and the Taiwanese *Pachymetopius decoratus* Matsumura on *Litsea acuminata* (Lauraceae) and bamboo shoots (Poaceae) (Wei *et al., in press*). The host plants of other genera are unknown although mineral uptake during feeding ('mud-puddling') from exposed river banks is a feature of the group (Wei *et al., in press*).

The terminology of the setal rows on the legs follows Rakitov (1997). The type specimen is deposited in The China Agriculture University, Beijing, China (CAU).

Paradoxivena gen. n.

Type species. *Paradoxivena zhamuensis* **sp. n.**

Etymology. The generic name is after the bicoloured veins of the forewing. Gender is feminine.

Diagnosis. This new genus forms a group with other Oriental stegelytrine genera (see Intruduction) but can be distinguished from them by: 1) the forewing with veins bicoloured, brown intervened by yellowish white regularly; 2) male pygofer elongate and tapering apically with apex pointed, and pygofer phragma with a strongly developed lateral shelf-like sclerotised area (dorsal connective) from pygofer side to apex of dorsal apodeme of aedeagus; 3) valve broad, almost as long as wide, semicircle-shaped; 4) style with apical process strong, tapered to moderately acute apex, with a few ventral setae subapically; 5) aedeagal shaft with pair of short acute processes subapically on ventral surface and a triangular-like process on each side slightly distad of midlength.

Description. Veins brown intervened by yellow-white (Fig. 2). Head small, distinctly narrower than pronotum, equal in width to scutellum (Fig. 1); fore margin slightly angularly rounded; eyes overlapping pronotum laterally; vertex nearly as long as width between eyes, sloping to front; coronal suture short (Fig. 1); face similar in length to width (Fig. 5); ocelli on anterior margin of vertex, situated approximately 1.5x their own diameter from corresponding eye; lateral frontal suture extending onto vertex, incurved apically, touching lateral margin of corresponding ocellus; transclypeal suture somewhat

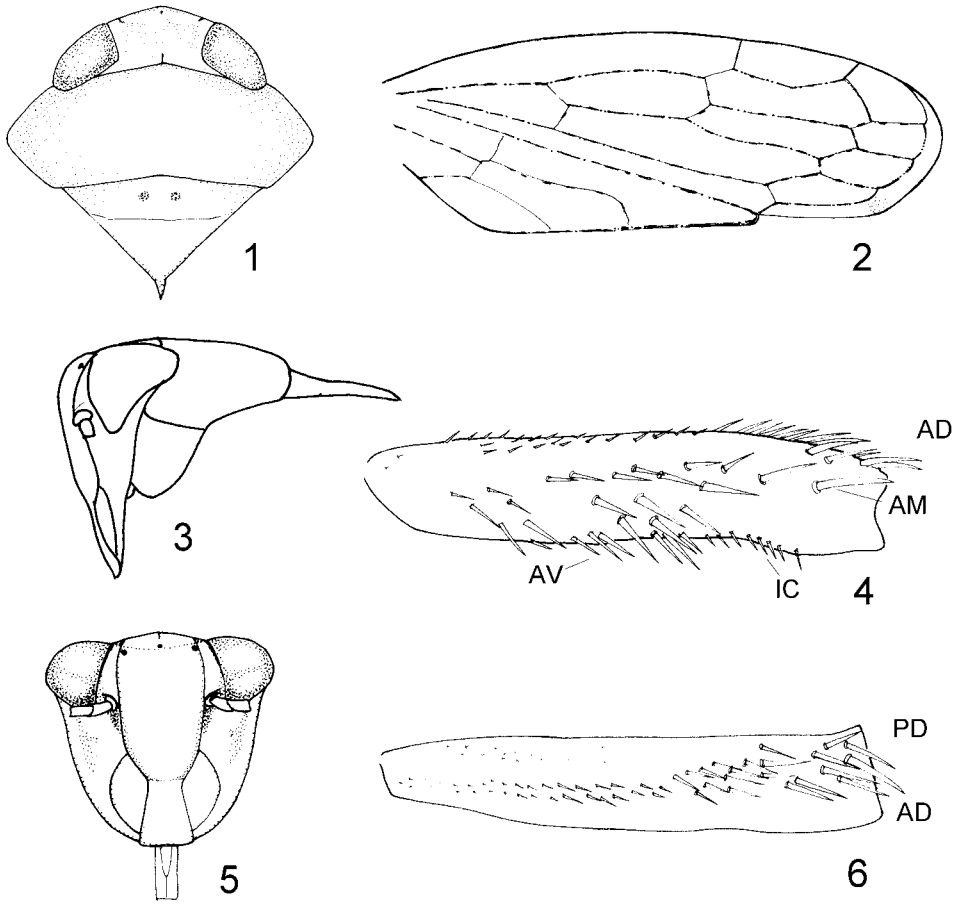
indistinct; clypellus very narrow basally, broadening apically with apical margin very slightly concave; gena nearly flat; lora broad; rostrum narrow, extending to apex of trochanter, labrum about half length of labium; antennae long, extending to near apex of forewing, arising adjacent to lower corner of eye; antennal ledge present; antennal pit shallow. Pronotum approximately 3x broader than median length; posterior margin slightly concave; lateral margin long; lateral carina present, curved dorsally toward adjacent eye (Figs 1, 3, 5). Proepisternum apparent (Fig. 3). Scutellum approximately equal in length to pronotum, with transversal depression distinct; basal width longer than medial length; posterior half weakly elevated and inclined from transverse suture; posterolateral carina absent; postnotum short, median carina absent (Figs 1, 3). Forewing transparent, with 5 apical cells; 5th apical cell normal; foremargin convex throughout length; middle and outer subapical cells closed, inner subapical cell open; outer subapical cell slightly shorter than medial subapical cell; crossvein present basally between inner claval vein and claval suture, situated at one third distance from base to apex of clavus; appendix moderately broad, slightly truncate apically, extended to fourth apical cell; claval margin strongly elevated and crimped at apex (Fig. 2). Legs densely setose. Fore femur with AM setae arranged irregularly, with numerous macrosetae basad of AM1; IC setae long, comblike; dorsal surface with two groups of very short setae over basal three fifths (AD and PD rows) and more irregularly arranged setae distally (AD row) (Figs 4, 6). Fore tibia rounded dorsally; AD setal row with apical seta thick and others small, short, and irregularly arranged; PD setae thick and in distinctly different length near apex; AV and PV setal rows extending from base to apex (Figs 7–10). Hind femur broadened distally and slightly bowed; several irregularly arranged distal setae elevated on strong bases; numerous relatively shorter setae subapically (Fig. 14). Hind tibia moderately flattened and bowed; PD setae long; AD setae very stout and with some short setae between stout ones; several supranumeral setae present between AD and PD rows (Figs 11, 12).

Male pygofer side longer than broad, with short dorsal and apical macrosetae; dorsal margin nearly horizontal adjacent to segment X; vertical hyaline band absent; phragma with a strongly developed shelf-like sclerotised area from pygofer side to apex of dorsal apodeme of aedeagus (Figs 16, 17), and a nearly Y-shaped medial sclerotised area (in dorsal/ventral view) between segment X and basal apodeme of aedeagus (Fig. 19). Valve broad and almost as long as wide, semicircular, similar to length of subgenital plate in ventral view (Fig. 21). Subgenital plates long, extended to near posterior margin of pygofer; inner margins slightly diverging, apex rounded, outer margin slightly convex, with a dorsal elongate lobe laterobasally holding style preapical lobe; a few irregularly arranged short to moderately long slender setae laterally and apically (Figs 17, 21). Connective somewhat T-shaped; stem moderately long; arms short; stem not extended beyond apex of medial sclerotised area (Figs 18–20). Style with anterior medial lobe very short, anterior lateral apodeme straight and elongate; lateral preapical lobe slight, gradually merging into apical process, the latter strong, elongate, tapered to moderately

acute apex, a few fine ventral setae subapically (Figs 18, 20). Aedeagus simple, shaft elongate, cylindrical, strongly curved dorsally and anteriorly, tapering apically with a short acute processes subapically on dorsal surface and a triangular processes on each side slightly distad of midlength; basal apodeme very short; gonopore indistinct, probably apical (Figs 20–22). Segment X very long (Figs 16, 17).

Female unknown.

Distribution. China (Tibet).



FIGURES 1–6. *Paradoxivena zhamuensis* **sp. n.** 1, head and thorax, dorsal view; 2, forewing; 3, head and thorax, lateral view; 4, forefemur, anterior surface; 5, face; 6, forefemur, dorsal surface.

***Paradoxivena zhamuensis* sp. n.**

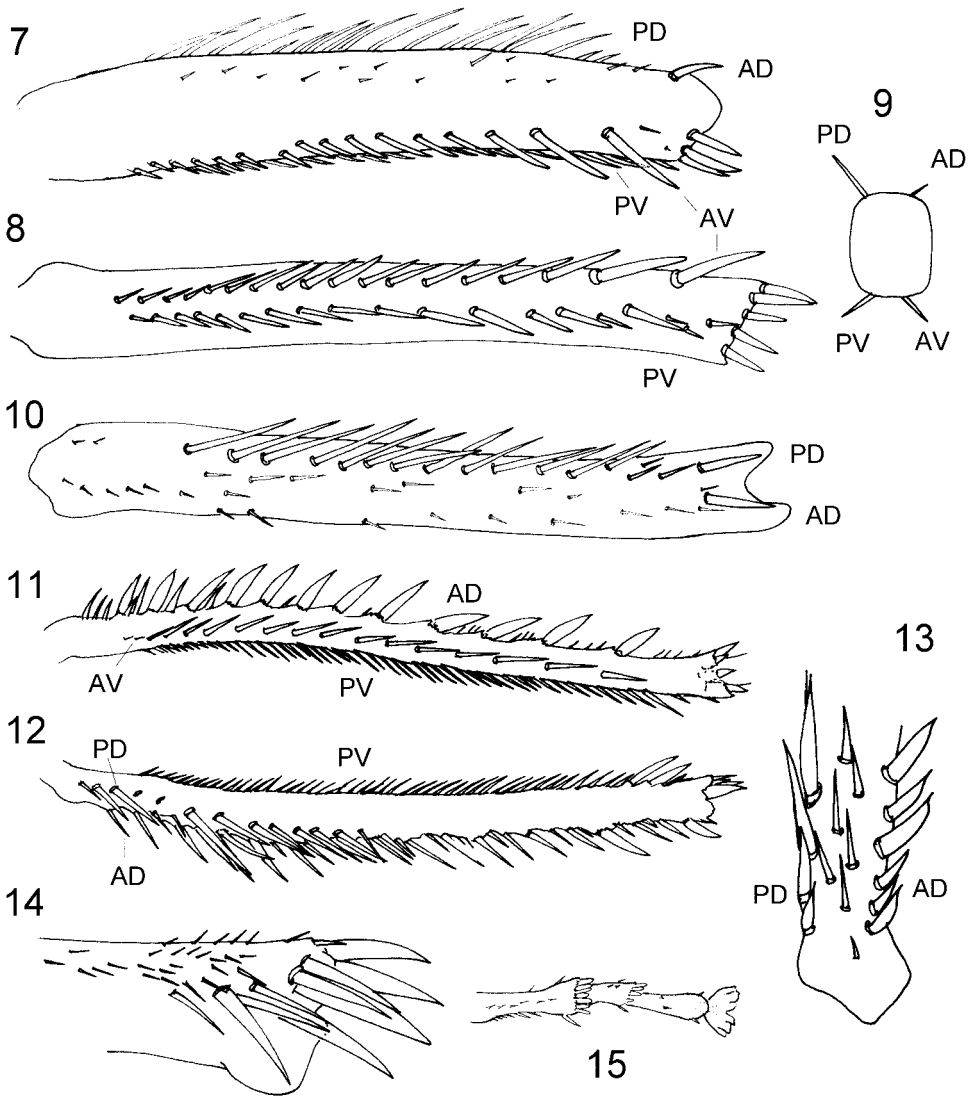
Description. Body length: 6.2mm. Vertex generally yellowish brown, with a small dark spot medially and apically; coronal suture black; lateral frontal suture dark brown; ocelli dark brown; eyes brown; gena with a elongate dark brown patch near corresponding eye. Thorax generally brown, scutellum with a pair of dark brown spots before blackish brown

transverse depression. Forewing pale yellow, with very sparse yellowish white setae over veins; a dark brown spot on appendix. Hind wing white. Abdomen generally blackish brown. Face shagreen, gena wrinkled. Other characters are as described for the genus.

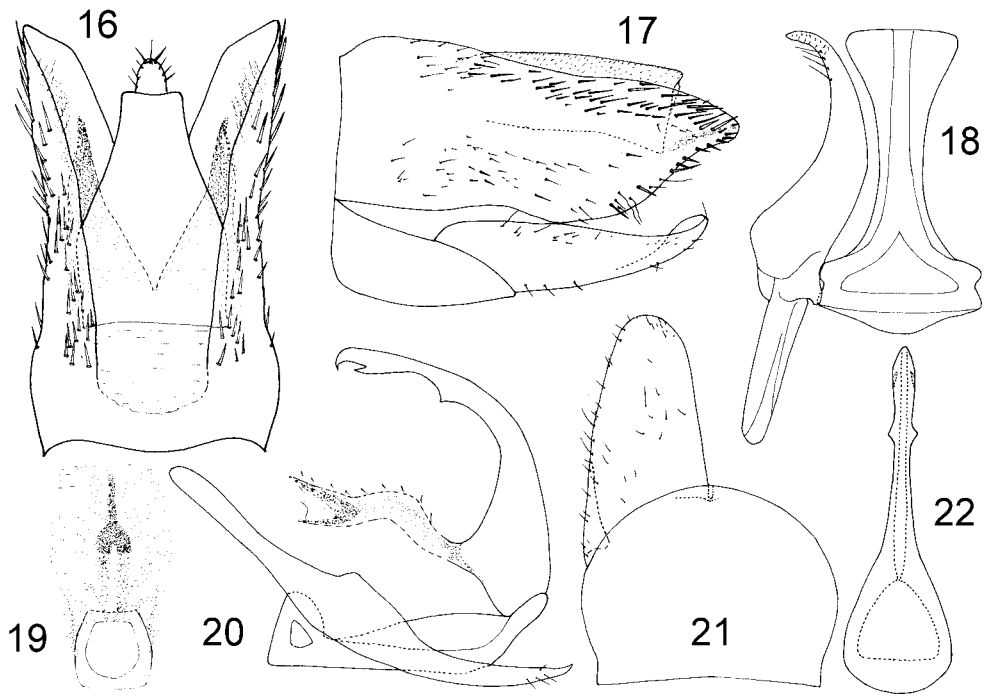
Material. Holotype: ♂ (CAU), China: Tibet, Zhamu (N29.9, E95.62), 1700m, 8-VII-1978, Fa-Sheng Li.

Etymology. Named after the locality of the holotype.

Biology. Unknown.



FIGURES 7–15. *Paradoxivena zhamuensis* **sp. n.** 7, foretibia, anterior surface; 8, foretibia, ventral surface; 9, cross section of foretibia; 10, foretibia, dorsal surface; 11, hind tibia, anterior surface; 12, hind tibia, posterior surface; 13, apex of hind tibia, dorsal surface; 14, apex of hind femur, anterior surface; 15, hind tarsomeres and pretarsus, ventral surface.



FIGURES 16–22. *Paradoxivena zhamuensis* **sp. n.** 16, male genital capsule and segment X, dorsal view; 17, male genital capsule and segment X, lateral view; 18, style and connective, ventral view.; 19, base of aedeagus and dorsal connective, ventral view; 20, aedeagus, style and connective, lateral view; 21, valve and subgenital plate, ventral view; 22, aedeagus, posterodorsal view.

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