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A new stegelytrine leafhopper genus from China and Thailand (Hemiptera: Cicadellidae)

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Abstract

A new Oriental stegelytrine leafhopper genus, *Wyuchiva*, and two new species, *Wyuchiva elegantula* (type species) from Thailand and *Wyuchiva menglaensis* from China, are described and illustrated. The taxonomic position of the new genus is discussed and phylogenetic remarks on this and a related genus, *Temburocera* Webb, 1999, are given.

Key words: Hemiptera, Cicadellidae, Stegelytrinae, new genus, new species, mud-puddling

Résumé

Wyuchiva n. genre et deux nouvelles espce de la sous-famille Stegelytrinae, *W. elegantula* **n. sp.** (espce-type) de la Thalande et *W. menglaensis* **n. sp.** de Chine, sont dcrits et illustre. La position de taxologie pour la nouvelle genre est discute, quelques caracteristiques sur le genre et genre apparents, *Temburocera* Webb, 1999, sont fournies.

Mots-cls: Hemiptera, Cicadellidae, Stegelytrinae, nouvelles genres, nouvelles espce, boue puddling

Introduction

Stegelytrinae Baker is a small leafhopper subfamily from the Palaearctic and Oriental regions. By leafhopper standards the included genera are remarkably diverse and the Oriental genera were either only recently placed in the subfamily (having been unassigned

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by Oman *et al.*, 1990), or have only been recently described (see Webb 1999; Wei & Zhang 2003; Zhang & Wei 2002 and Zhang *et al.* 2002, 2004, 2006). The group is distinguished by the following combination of characters: head usually distinctly narrower than pronotum with eyes encroaching onto pronotum laterally in dorsal view (Figs 1, 3), face with lateral margins not or weakly incurved below eyes and antennae arising low on face (Figs 2, 4), and forewing with cross-vein between claval veins and between outer claval vein and claval suture (Fig. 5).

In the present paper a new Oriental leafhopper genus, *Wyuchiva*, of the subfamily Stegelytrinae, is described, and two new species of the genus are described and illustrated. The new genus evidently forms a group with *Temburocera* Webb from Sarawak and Brunei, based on the following combination of characters: head and clypellus (Figs 1, 2) broad, lateral margin of pronotum short without a dorsopleural carina, and the appendix of the forewing absent (Fig. 5). These characters together indicate that the two genera probably represent a distinct branch of the group, a theory that will be tested in phylogenetic work (in prep.) The new genus itself is distinctive in having the male pygofer solidly attached to the valve and the former with hyaline and membranous areas (Fig. 18); the subgenital plates ligulate, fused to each other basally with a sub-basal medial process articulating with the pygofer (Fig. 18); paramere with an inner subapical process separated by a hyaline band (Fig. 19); and the female pregenital sternite with a deep medial cleft trilobed basally (Fig. 7).

Unlike the Taiwanese Stegelytrinae *Placidus* Schumacher and *Pachymetopius* Matsumura that occur on *Fagus* (Fagaceae) and *Litsea acuminata* (Lauraceae) respectively (pers. comm. C. Dietrich) and Palaearctic Stegelytrinae (*Stegelytra* Mulasant & Rey and *Wadkupfia* Linnavuori), that occur on oaks (*Quercus*, Fagaceae), the biology and host plants of the Oriental genera are unknown. The male specimens of the new species described here, together with some other male Stegelytrinae (Zhang *et al.*, in prep.), were collected on exposed river banks. This behavior, connected to mineral uptake during feeding (‘mud-puddling’), is well known in male Lepidoptera (Boggs & Dau, 2004), but less well known is its occurrence in Cicadellidae (see review by Rakitov *et al.*, 2005).

The material examined in the current work is deposited in the institutions abbreviated in the text as follows:

BMNH The Natural History Museum, London, UK
BPBM The Bishop Museum, Honolulu, Hawaii, USA
IRSNB The Institute royal des Science naturelles de Belgique
NWAFU The Northwest A & F University

Type species. *Wyuchiva elegantula* **sp. n.**

Etymology. The generic name is an arbitrary combination of letters. Gender is female.

Diagnosis. Externally the new genus is similar to *Temburocera* Webb (see introduction) but can be distinguished from the latter by the following characters: 1) lateroapical areas of clypellus depressed; 2) transverse suture between clypellus and clypeus curved ventrally rather than dorsally; 3) apical margin of clypellus less incurved; 4) scutellum without distal extension; and 5) forewing appendix absent (present but very reduced in *Temburocera*). The female pregenital sternite and various structures of the male genitalia are also distinctive (see Introduction).

Descriptions. Head nearly as wide as pronotum, eyes encroaching onto pronotum laterally. Vertex distinctly shorter than width between eyes, smooth; fore and hind margin subparallel; coronal suture extending to apex of head, or obscure. Face slightly longer than broad, lateral margins not incurved below eyes; clypeus relatively narrow, shagreen ventrally, extended dorsally to an imaginary line from below ocellus diagonally to midlength of clypeus, thereafter smooth; clypellus broad and swollen, lateroapical areas depressed (more so in male), apical margin slightly concave; transclypeal suture curved ventrally; lora narrow (more so in male); gena finely rugose, a fine seta adjacent clypeus above lora; rostrum fairly short, extending to apex of fore trochanter, narrow; labrum elongate, extending to near apex of labium; antennae very long, extending to approximately apex of forewing, arising adjacent to lower corner of eye; antennal ledge distinct; laterofrontal suture extended above and laterad of corresponding ocellus; ocelli situated approximately their own diameter from adjacent eye. Pronotum with medial length short, lateral margin short without dorsopleural carina; smooth. Scutellum more or less flat; basal margin about as broad as head; basal width slightly longer than lateral margin; transverse suture slightly depressed. Forewing with five apical cells; middle and outer subapical cells closed; crossvein m-Cu_2 missing; claval veins united by crossvein and a crossvein present between inner claval vein and claval suture; appendix absent. Hind wing with four apical cells. Hind femur long, reaching eye in resting position; apex with setal formula 2+2+1, setae not elevated on strong bases. Hind tibia with four rows of well developed setae, macrosetae on dorsal surface of hind tibiae between two longitudinal rows and other extra setae (present in many Stegelytrinae) absent.

Male pygofer short with row of macrosetae at dorsal margin and posterior half with sparse short setae in dorsal view; dorsal transverse sclerotised area very short in lateral view; posterodorsal margin with internal fold (indicated by broken line in Fig. 18); elongate internal lateral process from base of Xth segment, directed posteroventrally, basally coalesced with pygofer side; narrow oblique hyaline band dorsomedially, and strongly sclerotised slightly curved band adjacent to base of subgenital plate directed dorsad towards pygofer process, area posterior to latter band membranous; irregular

hyaline band along ventral margin adjacent valve and bordering the strongly sclerotised band. Xth segment very short, sclerotised dorsally and laterally. Valve subrectangular. Subgenital plates ligulate, fused to each other basally and with pair of laterobasal processes articulating with pygofer; a group of ventral macrosetae centrally to near apex; apical and ventral margin infolded (indicated by broken line in Fig. 18), with a row of very short spine-like setae apically. Connective 'Y'-shaped, lateral arm well developed, basal area between lateral arms membranous. Inner basal arm of paramere very short, outer basal arm very long; apical process straight, tapered to apex; inner margin subapically with a small heel-like process and a large process separated by a hyaline band, each process with a few short fine setae. Aedeagal shaft moderately robust, laterally compressed with a subapical flangelike expansion on each side; apex bifurcate, gonopore subapical on anterior surface; basal apodeme bifurcate with arms curved laterally.

Female pregenital sternite with deep longitudinally incision exposing valvifers (Fig. 6), in dry specimens forming broad cleft, trilobed basally (Fig. 7).

***Wyuchiva elegantula* sp. n.**
(Figs 1–17)

Diagnosis. Distinguished from the following species by its slightly smaller size, less curved processes of the male Xth segment, and broader base of the aedeagus ventrally in lateral view.

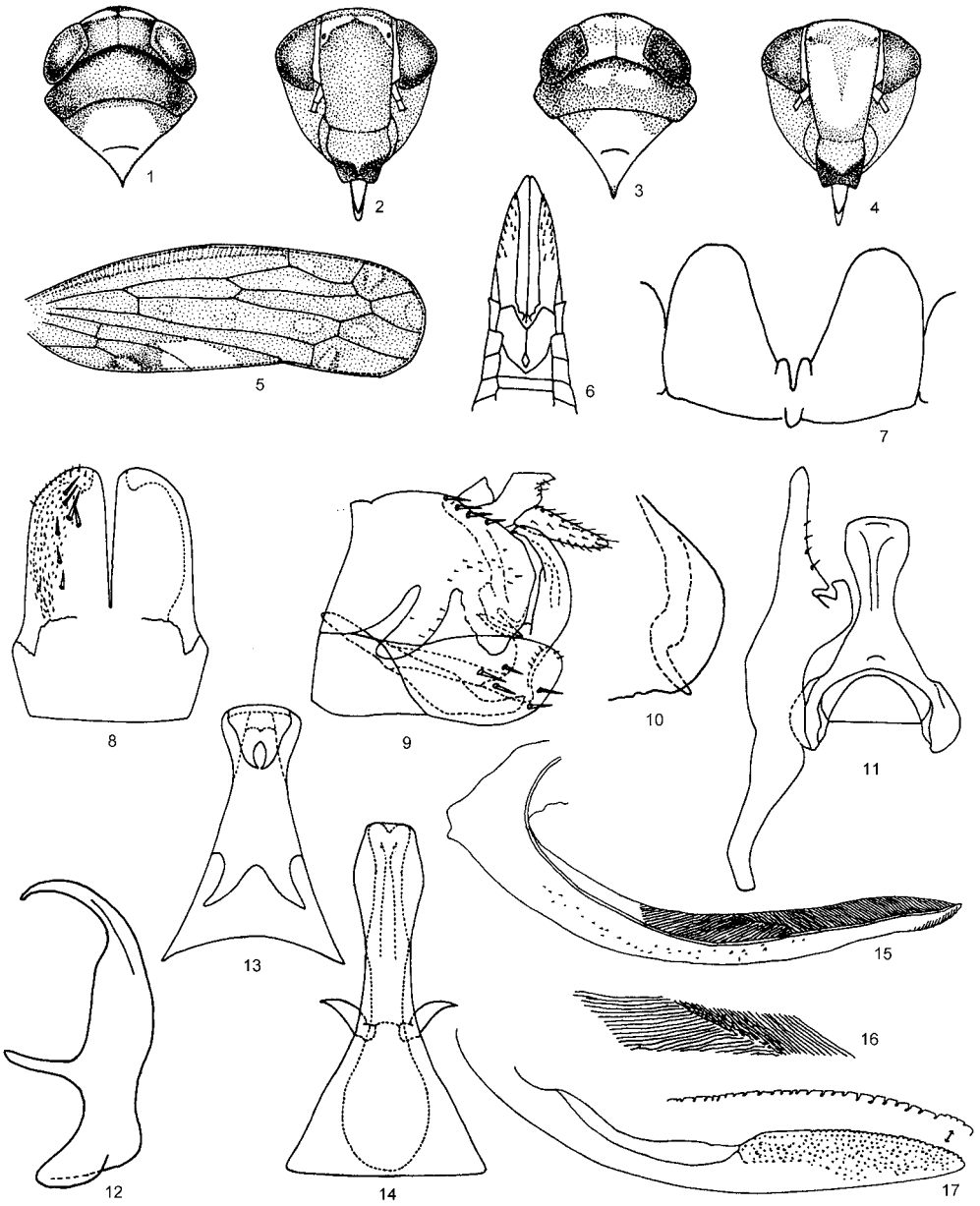
Descriptions. Body length (incl. forewings): ♂ 4.9mm (x4), ♀ 5.0–5.2mm (x7).

Male: generally yellowish brown, lateral areas of face, pronotum, basal triangles of scutellum, darker; vertex sometimes reddish brown; two nearly contiguous irregular transverse bands anteriorly on head, area between inner margin of eye and clypeus, disc of scutellum, and large patch on clavus, yellowish white; clypellus dark brown apically; fore and mid legs pale yellow; forewing with some pale areas in distal cells. Female: generally pale yellow; gena, pronotum laterally, basal triangles of scutellum brown; clypellus dark brown apically; forewing: clavus and adjacent area of wing and apical area of wing, yellowish brown, remainder of wing adjacent costal margin hyaline; some pale patches in distal cells and clavus heavily marked with yellow to whitish yellow.

Male genitalia: lateral internal pygofer process elongate, slightly upturned apically and tapered to apex. Paramere with a straight digitate apical process, tapered to apex; inner margin subapically with small heel-like process and large, strongly upturned, apically crenulate process, separated by hyaline band. Aedeagal shaft moderately robust, laterally compressed with subapical flangelike expansion on each side; apex bifurcate, basal apodeme bifurcate with arms curved laterally; base moderately broad in lateral view.

Material. Holotype: ♂ (BPBM), THAILAND: CHIANG MAI PROV.: Doi Setchep, (water margin), 4.iv.1958, T. C. MAA. Paratypes: THAILAND, CHIANG MAI PROV.: Doi Setchep, T.C. Maa, 1 male, 3 females, 1–5.iv.1958; 1 male, 1 female, 28–31.iii.1958; 2

females, 4.iv.1958 (water margin); 1 female, 1–8.iv.58; Doi Pui, T.C. Maa, 1 male, 2.iv.58 (BPBM, BMNH, NWAFU).



FIGURES 1–17, *Wyuchiva elegantula* **sp. n.** 1, head and thorax, dorsal view (male); 2, face (male); 3, head and thorax (female); 4, face (female); 5, forewing; 6, female apex of abdomen, ventral view; 7, female pregenital sternite, ventral view; 8, valve and subgenital plate, ventral view; 9, male genital capsule and anal tube, lateral view; 10, posterior part of male pygofer side, lateral view; 11, paramere and connective, dorsal view; 12, aedeagus, lateral view; 13, aedeagus anterodorsal view; 14, aedeagus, posterior view; 15, first valvulae, lateral view; 16, detail of sculpture from near midlength of first valvulae; 17, second valvulae, lateral view.

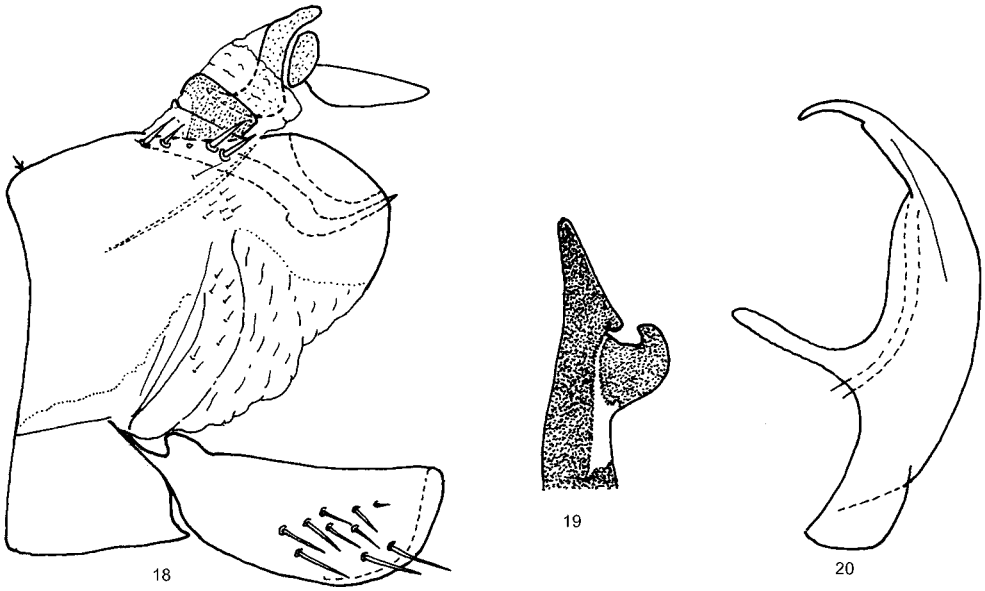
Etymology. Named for its relatively delicate body form.
Distribution. Thailand.
Biology. See Introduction.

***Wyuchiva menglaensis* n. sp.**
(Figs 18–20)

Diagnosis. Differs from the preceding species by its slightly larger size, more curved processes of the male Xth segment, and narrower base of the aedeagus ventrally in lateral view.

Descriptions. Body length (incl. forewings): ♂ 6mm (x1). Generally brown. Lateral areas of face, pronotum, basal triangles of scutellum, darker; vertex reddish brown; two nearly contiguous irregular transverse bands anteriorly on head, area between inner margin of eye and clypeus, disc of scutellum, a large patch on clavus, yellowish white; clypellus dark brown apically; fore and mid legs pale yellow; forewing with some pale areas in distal cells.

Male genitalia: lateral internal pygofer process elongate, strongly upturned apically, tapered to apex. Paramere with straight digitate apical process, tapered to apex; inner margin subapically with small heel-like process and large, strongly upturned, apically crenulate process, separated by a hyaline band. Aedeagal shaft moderately robust, laterally compressed with subapical flangelike expansion on each side; apex bifurcate, basal apodeme bifurcate with arms curved laterally; base broad ventrally in lateral view.



FIGURES 18–20, *Wyuchiva menglaensis* **sp. n.** 18, male genital capsule and anal tube, lateral view; 19, apical part of paramere, ventral view; 20, aedeagus, lateral view.

Material. Holotype: ♂ (IRSNB), CHINA: Yunnan Prov., Mengla CO. (101.56N, 21.48E), 8.iii.(19)99, rain forest, P. Grootaert.

Etymology. Named after its type locality.

Distribution. China.

Biology. See Introduction.

Remarks. Although not stated on the data label, Dr P. Grootaert (IRSNB) informs us that he collected the specimen on an exposed river bank.

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