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Two new species of *Aradus* FABRICIUS, 1803 from Sichuan, China (Heteroptera: Aradidae)

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Abstract

Two new species of the flat bug genus *Aradus* FABRICIUS 1803 from the Chinese Province of Sichuan are described and figured. Both taxa belong to the group of Far Eastern Palaearctic species with long setigerous tubercles on antennal segments II+ III. *Aradus emeiensis* sp. nov. is closely related to *A. quinlingshanensis* HEISS 2003 and *Aradus turnai* sp. nov. to *A. smetanai* HEISS 2003..

Key words: Heteroptera, Aradidae, *Aradus*, new species, China.

Introduction

The fauna of the flat bug genus *Aradus* occurring in the P.R. of China is still insufficiently known and due to its large size and the rich diversity of habitats, each research- and collecting trip brings new taxa to light. Examination of specimens from the south-western province of Sichuan proved that there are two unrecorded species, which are described as *Aradus emeiensis* sp. nov. and *Aradus turnai* sp. nov. below. Both belong to the group of actually 6 known East-Palaearctic and Oriental *Aradus* species which are characterised by antennal segments II+III (and partly IV) beset with long setigerous tubercles (HEISS 2003).

Measurements were taken with a micrometer eyepiece, 20 units equal 1 mm unless otherwise stated.

Depository of types: CAU - Entomological Museum, China Agricultural University, Beijing
CEHI - Collection Ernst Heiss, Innsbruck Austria

Taxonomy

***Aradus emeiensis* sp. nov.** (Fig. 2, photo 1)

Holotype: Female, SW-China, Sichuan Prov., Mt. Emei 1000 m, E Xunyangba, 4 – 20 V 1989 V.Kuban (CEHI).

Diagnosis: Closely related to *Aradus quinlingshanensis* HEISS 2003 sharing the wide triangularly projecting dorsal external laterotergites (deltg) but is distinguished by much wider paranota and very long acute preocular tubercles (Figs. 1-2).

Description: Female, macropterous. Clypeus and lateral parts of head, carinae of pronotum, lateral margins of scutellum and veins of corium beset with vertical cylindrical tubercles. Antennal segment I smooth, II + III with long rod like tubercles which bear a stiff bristle apically, IV is missing.

General colouration of body and antennae ochraceous, dark brown to blackish are the small smooth depressions of head, the smooth areas between the longitudinal carinae of pronotum, the apical depressed half of scutellum and deltg VII + VIII, the latter yellowish along inner margin. Membrane brownish with lighter spots. Legs ochraceous with indistinct ring like darker markings on femora.

H e a d : Slightly longer than width across eyes (26 / 24.5); lateral borders of clypeus subparallel, apex tuberculate. Antenniferous tubercles diverging anteriorly, nearly reaching apex of antennal segment I. Eyes globose, protruding laterally, preocular tubercle very long and acute, postocular portion of head subangulate, beset with a patch of longer tubercles. Vertex medially and laterally covered with scale like setigerous tubercles except on the small smooth ovate laterad depressions. Antennae with segment I shortest, subcylindrical, II longest and cylindrical, III as II but shorter, IV is missing. Relative length of antennal segments I / II / III / - = 6 / 27.5 / 17 / -. Rostrum arising from an open atrium, reaching anterior margin of mesosternum.

P r o n o t u m : About 2.82 x as wide as long (62 / 22), paranota widely expanded laterally, slightly reflexed, their margins irregularly dentate with a larger tooth anterolaterally. Posterior margin concave at middle. Disk with four longitudinal carinae, the inner ones reaching from anterior to posterior margin, diverging posteriorly, the lateral ones are shorter.

S c u t e l l u m : Triangular, longer than wide (29 / 20) with strongly carinate lateral margins. Disk raised at basal 1/3 covered with scale-like granulation dorsally, sloping part beset with tubercles, apically depressed and transversely rugose.

A b d o m e n : Posterolateral angles of deltg II – VII distinctly protruding, lateral margins of deltg III + IV straight, of V – VII sinuate, deltg VIII triangular with a midlateral tooth. Corium expanded and reflexed anterolaterally and distinctly narrower than pronotum, reaching posterior margin of deltg V. Veins of corium elevated, beset with long tubercles which are vanishing basally along the Qu-vein. Membrane fully developed with distinct veins, surface wrinkled. Spiracles II – VII ventral, remote from lateral margin, VIII lateral and visible from above.

L e g s : Long and slender, trochanters of fore- and middle legs fused to cylindrical femora, trochanter of hind legs separated by a suture.

M e a s u r e m e n t s : Holotype : Length 7.2 mm; width of pronotum 3.2 mm, width of corium at base 2.75 mm; width of abdomen across tergite IV 3.2 mm; ratio length of antenna segment II / width of head 1.12.

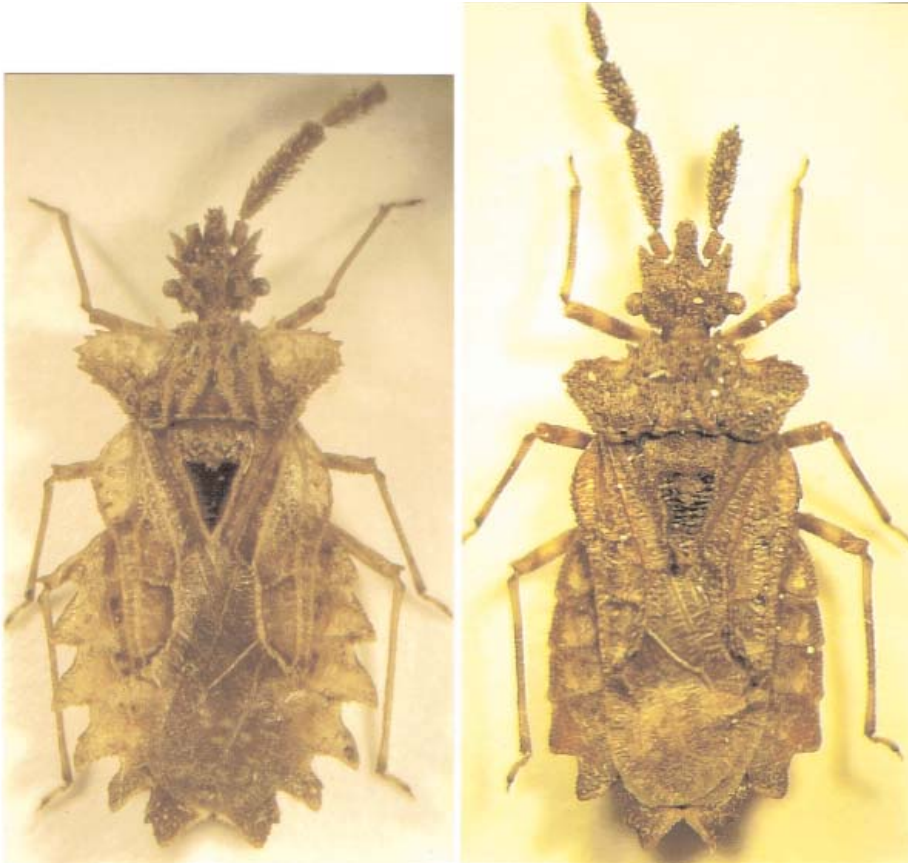
The male sex is yet unknown.

E c o l o g y : The specimen was found under loose bark of a dead leaf tree.

E t y m o l o g y : This interesting species is named after the type locality, Mount Emei (Emei Shan) in Sichuan, China.

D i s c u s s i o n : Although only a single female specimen is at hand, *Aradus emeiensis* sp. nov. is distinctive and easily recognized by the structure of the antennae and by the dentate outline of the lateral border of abdomen shared only by *A. quinlingshanensis*. The latter is of larger size (7.6 / 7.2 mm), its paranota are less expanded (2.5x width / length against 2.8 in *emeiensis*) and the preocular tubercle is shorter and less acute (Figs. 1-2).

Since the publication of the Catalogue of Palaearctic Heteroptera (HEISS 2001) which included only 3 species belonging to this group (*A. transiens* KIRITSHENKO 1913, *A. omeiensis* HSIAO 1964, *A. malaisei* KORMILEV 1976) 3 more species were described since including the abovementioned *A. quinlingshanensis* HEISS 2003 (*A. miyamotoi* HEISS &



1

2

Photo 1 – 2. 1 - *Aradus emeiensis* sp. nov., holotype female dorsal view; 2 – *Aradus turnai* sp. nov., holotype male dorsal view.

SHONO 2003 and *A. smetanai* HEISS 2003) all differing from *emeiensis* by less laterally projecting delgt III-VII and different structure and shape of pronotum.

***Aradus turnai* sp. n.** (Fig.3-9, photo 2)

H o l o t y p e : Male, N-Sichuan, China, Micang Shan 1300 – 1400m, 32°40 N, 106°55 E, 5-6 VI 2007 J.Turna (CEHI); Paratypes: 2 males collected with holotype (CAU, CEHI).

D i a g n o s i s : This species is habitually closest to *A. smetanai* from Taiwan but is larger (6.8 / 6.2 mm), has shorter antennae, wider paranota and different male genitalic structures.

D e s c r i p t i o n : Male, macropterous. Body covered with ochraceous scale-like flat granulation; vertex, pronotal carinae and veins of corium are beset with erect tubercles.

Antennal segment I smooth, II + III with long setigerous tubercles, IV with smaller ones and longer setae on basal 2/3, apex pilose.

General colouration of body and antennae brown, blackish are the smooth depressions of head laterad of vertex, the smooth areas between the longitudinal carinae of pronotum and the apical half of scutellum. An anterolateral spot on pronotum, the basal lateral expansion of corium and inner margin of paratergites VIII ochraceous, membrane brown. Legs ochraceous, femora and tibiae brownish at base and apex with a wide brownish ring at middle, tarsal segment II apically brown.

H e a d : Slightly wider than long (26.5 / 25); lateral margins of clypeus subparallel, apex granulate. Antenniferous tubercles reaching 2/3 of antennal segment I. Eyes globose, protruding laterally, preocular elevation blunt, postocular margin of head beset with longer tubercles. Vertex with elevated setigerous tubercles medially and 2 (1 + 1) smooth ovate depressions laterad. Antennae long and slender, 2.17 x as long as width of head (57.5 / 26.5), segment I shortest, subcylindrical, II longest and cylindrical, III as II but shorter, IV as III but thinner. Relative length of antennal segments I / II / III / IV = 6 / 22 / 16.5 / 13.5. Rostrum arising from an open atrium, slightly reaching beyond anterior margin of mesosternum.

P r o n o t u m : About 2.70 x as wide as long (54 / 20), paranota widely expanded laterally, slightly reflexed and angularly rounded, their margins irregularly dentate with a larger tooth anterolaterally. Posterior margin concave at middle. Disk with four longitudinal carinae, the inner ones reaching from anterior to posterior margin, diverging posteriorly, the lateral ones are shorter.

S c u t e l l u m : Triangular, longer than wide (30 / 20) with carinate lateral margins. Disk raised at basal 1/3 there covered by scale-like granulation, posterior 2/3 depressed and transversely rugose.

A b d o m e n : Lateral borders subparallel, posterolateral angles of deltg II – V only slightly protruding, VI angular, VII sinuate and strongly protruding, VIII triangular. Corium expanded and reflexed anterolaterally, reaching posterior margin of deltg V. Membrane fully developed with distinct veins, surface wrinkled. Spiracles II – VII ventral, remote from lateral margin, VIII lateral and visible from above.

L e g s : Long and slender, trochanters of fore- and middle legs fused to cylindrical femora, trochanter of hind legs separated by a suture.

G e n i t a l i c s t r u c t u r e s : Genital segment VIII cup-like, paratergites triangularly projecting posteriorly. Pygophore subglobose, flattened dorsally, a distinct apically club shaped keel is visible between parandria (Fig. 9); parandria with rounded apex (Fig.8); parameres slender, falciform with some longer bristles at base of shaft (Fig. 3-5); tergite IX consisting of 2 slender elongate structures flanked by vertically raised rounded sclerites laterad (Fig. 6,7).

M e a s u r e m e n t s : Holotype : Length 6.8 mm; width of pronotum 2.7 mm; width of corium at base 2.55 mm; width of abdomen across tergite IV 3.0 mm; ratio length of antennae / width of head 2.17.

The female sex is yet unknown.

E t y m o l o g y : I dedicate this interesting species to Jaroslav Turna, who collected these and many other Heteroptera in China and made them available to me for scientific studies.

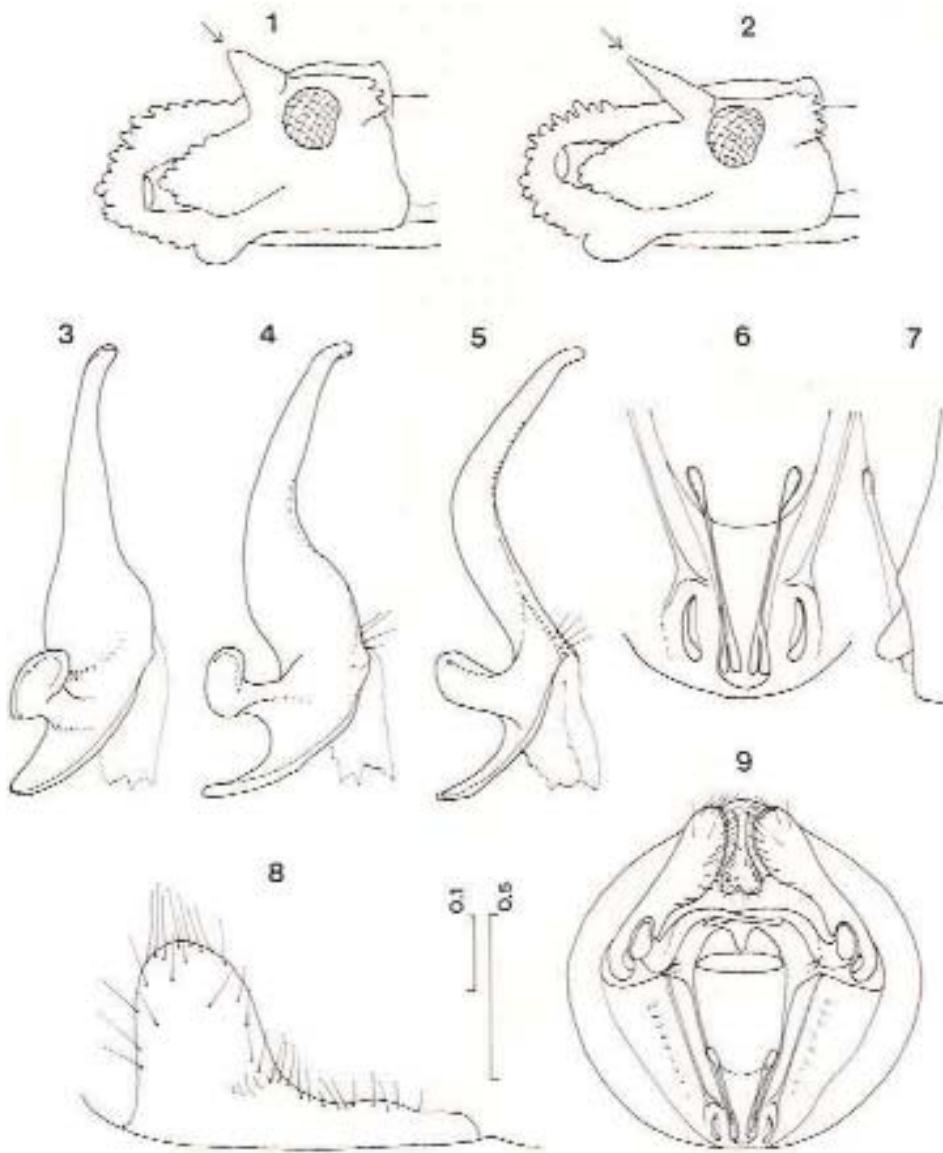


Fig. 1-9. 1 – *Aradus quinlingshanensis*, head lateral; 2 – *Aradus emeiensis* holotype female, head lateral 3 -9 *Aradus turnai* sp. nov. ; 3 - 5 left paramere in different positions ; 6 – structures of tergite IX dorsal ; 7 – ditto lateral ; 8 – parandrium ; 9 – pygophore dorsal view. Scale bar : 0.1 mm (Fig. 3-8), 0.5 mm (Fig.9).

D i s c u s s i o n : *A. turnai* sp. nov. is closely related to *A. smetanai*, sharing a similar habitus, structure of antennae and pronotum. However the pronotum is more transverse

(ratio width / length 2.70 / 2.47 in *smetanai*), antennae shorter (length / diatone 2.17 / 2.27) and the male genitalic structures are different.

Acknowledgments

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Zusammenfassung

Aus der Provinz Sichuan in Südwest-China werden zwei neue Arten der Gattung *Aradus* FABRICIUS 1803 : *Aradus emeiensis* sp. nov. und *Aradus turnai* sp. nov. beschrieben und abgebildet. Beide gehören zur einer Artengruppe mit langen, borstentragenden, stiftförmigen Tuberkeln auf den Fühlern II + III, von der bisher 6 Taxa nur aus dem Fernen Osten und der Orientalischen Region bekanntgeworden sind.

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