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TWO NEW SPECIES OF TETRIGIDAE (ORTHOPTERA: TETRIGOIDEA: TETRIGIDAE) FROM GUANGXI, CHINA

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ABSTRACT

In this paper, 2 new species, *Macromotettix nanshana* **sp. nov.** and *Coptotettix guangxiensis* **sp. nov.** of Tetrigidae (Orthoptera) are described from China. Type specimens were deposited at the Institute of Entomology, Sun Yat-sen University, and College of Life Sciences, Nanjing Normal University, China.

Key Words: Orthoptera, Tetrigoidea, Tetrigidae, new species, China

RESUMEN

En este trabajo se describen dos especies nuevas de Tetrigidae (Orthoptera) de China: *Macromotettix nanshanensis* **sp. nov.** and *Coptotettix guangxiensis* **sp. nov.** Los especímenes tipo fueron depositados en el Instituto de Entomologia de la Universidad de Sun Yat-sen y en el College of Life Sciences, Nanjing Normal University, China.

Palabras Clave: Orthoptera, Tetrigoidea, Tetrigidae, nuevas especies, China

The family Tetrigidae belongs to Tetrigoidea of the order Orthoptera. The family has been divided into nine subfamilies: Batrachideinae, Cladonotinae, Cleostratinae, Discotettiginae, Lophotettiginae, Metrodorinae, Scelimeninae, Tetriginae, and Tripetalocerinae (Eades et al. 2013). The genus *Macromotettix*, a member of the subfamily Metrodorinae, was erected by Günther in 1939. To date, there are 24 known *Macromotettix* species (Günther, K. 1973; Jiang & Zheng 1998; Liang & Zheng 1998; Zheng & Jiang 2002a, 2003; Zheng & Ou 2003; Zheng 2005; Deng et al. 2007a, 2007b ; Zheng et al. 2009a, 2009b; Zheng & Ou 2010; Deng et al. 2010; Zheng et al. 2012; Eades et al. 2013) . Also the genus *Coptotettix* within the subfamily Tetriginae was erected by Bolívar in 1887, and it includes 71 known species (Zheng et al. 2013 and the references therein) in the world.

This article presents 2 new species, *Macromotettix nanshanensis* Liang & Jiang **sp. nov.** and *Coptotettix guangxiensis* Jiang & Liang **sp. nov.** All types are deposited at the College of Life Sciences, Nanjing Normal University (Nanjing), and Institute of Entomology, Sun Yat-sen University (Guangzhou), China.

MATERIAL AND METHODS

In Jul and Aug 2006, we investigated insects in the Fangcheng Golden Camellia National Nature Reserve of Guangxi (Forestry Department of Guangxi 1993), located in Fangchenggang City of Guangxi Zhuang Autonomous Region, China. Among the specimens collected, 2 new species of Tetrigoidea were found. The new species described were collected by net sweeping during the day, along edges of streams and roads within the Nature Reserve.

In the descriptions below the following conventions were adopted for specimen measurements: body length: the distance from apex of fastigium verticis to posterior margin of tenth abdominal tergite; tegmen: the visible distance from base of tegmen to the apex in lateral vew; hind femur: the distance from base of hind femur to the apex of genicular or kneelobe. Measurements of specimens were in millimeters (mm).

The taxonomic system of Eades et al. (2013) was adopted here.

MACROMOTETTIX NANSHANENSIS LIANG ET JIANG, **SP. NOV.** (FIGS. 1-2)

Type Material

HOLOTYPE: ♂, CHINA: Guangxi: Fangcheng District, Nanshan mountain (N 21° 62' E 108° 27'), 100-400m, 16-VII-2006, collected by Guo-Fang Jiang. PARATYPE: 1♂, 3♀♀, same data as the holotype.

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Diagnosis

This new species is similar to *Macromotettix longtanensis* (Zheng & Jiang 2003) and *M. wuliangshana* (Zheng & Ou 2003), but differs in the following characteristics: 1) upper margins of antennal fossa and lower margins of eyes at the same horizontal line; 2) in profile, median carinae of the pronotum arched between transverse sulci and humeral angles; 3) hind process of the pronotum slightly exceeding top of hind femur; 4) lateral carinae constricted backward on the prozona; 5) disc of the pronotum without short longitudinal carinae; 6) ventro-cephalad angle of lateral lobes of the pronotum circular arc; 7) wings slightly exceeding the apex of hind process of pronotum; 8) basal half of the dorsal median carinae of pronotum smooth, the other half with fine teeth. Because no males of *M. longtanensis* or *M. wuliangshana* were available for study, only the female characters above were compared.

Coloration. Body brown. Occiput and transverse sulci of pronotum black brown, part behind humeral angles with black brown transverse spots. Fore and middle femora and tibiae with 2 black brown spots respectively, top of the first and second tarsi dark. Dorsal margin and outside of hind femora with 3 black brown spots, the basal spots small and undistinct, ventral side black brown; knee black brown. Hind tibiae light brown, with light rings on the base and middle sections of tibiae; ends of the first and second segments and the entire third segment of pulvillus black brown. Wings dark brown.

Male

Size small. Head slightly protruding above pronotum. Width of an eye 1.25 times the width of vertex; lateral carina slightly flip up; anterior margin straight, nearly flush with anterior margins of eyes; entire median carina distinct, both sides with shallowly concave (Fig. 1); in profile, vertex and frontal costa forming rounded obtuse angle. Front costa arc prominent between antennal base, not concave in front of lateral ocelli (Fig. 2); longitudinal sulcus gradually wide from top to bottom, the width slightly narrower than the width of antennal scape. Antennae filiform, 16-segmented, the length of the 12th segment eight times greater than its width, and the base located between the middle of the front edge of eyes. Eyes globose, upper margins distinctly visible over the top of pronotum.

Anterior margin of pronotum nearly straight, entire median carina distinct (Fig. 1); in profile, median carina undulated between transverse sulci and humeral angles, and median carina beyond elytra relatively flat, with 4-5 small tubercles (Fig. 2); lateral carinae of the prozona reduce posteriorly; disc of pronotum with numerous tubercles; humeral angles obtusely angular, lacking abbreviated carinae between humeri; hind process of pronotum long cone-shaped, apex slightly exceeding the apex of hind femur. Humeral apex ridge and lower margin of pronotum connected behind the middle of lower margin of pronotum. Lateral lobes of pronotum become warped, anterior angles of lateral lobes circular arc; posterior margin of each lateral lobe with 2 pits.

Tegmina ovate-oblong, apex round-obtuse shaped. Wings developed, reaching or slightly extending past apex of pronotal posterior process. Subgenital plate short cone-shaped.

Dorsal margins of fore and middle femora slightly curved, ventral margin nearly straight; the greatest width of mid-femur slightly wider than width of visible parts of tegmina, proportion 1:0.75-0.85. Hind femora of robustness, length 2.8 times greater than the depth; subapical teeth in front of the knee acute angulate, knee teeth angulate; the basal half of the dorsal carinae of hind femora smooth, the apical half with fine teeth. Dorsal and ventral margins and faces of the 3 pairs of femora with fine hairs. Outer side of hind tibia with 8-9 spines, inner side with 7-9 spines. Length of first segment of the hind tarsus longer than the third, length of the third pul-



Fig. 1. *Macromotettix nanshana*, **sp. nov.**, male, dorsal view of body.

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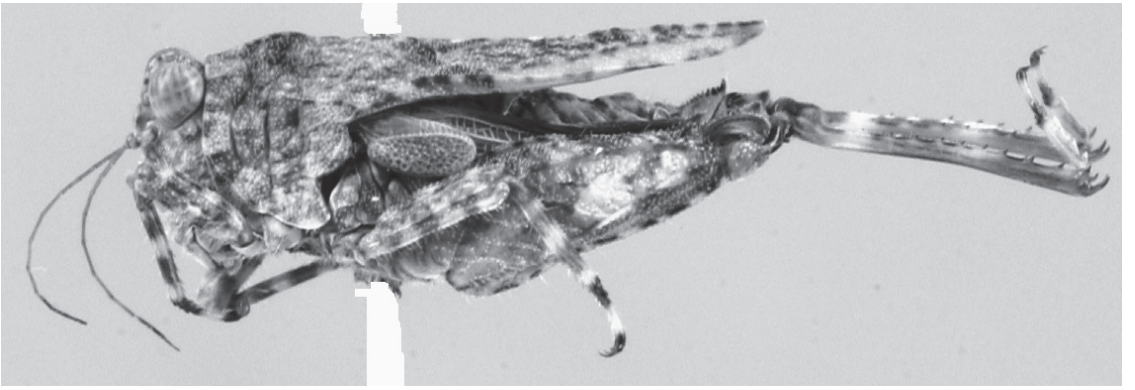


Fig. 2. *Macromotettix nanshana*, **sp. nov.**, male, lateral view of body.

villus under the first segment almost equal to summation of length of the first and second pulvillus; apices of 3 pulvilli obtuse.

Female

Wings developed, slightly passing the apex of hind process of pronotum. Ovipositor narrow and short, length of dorsal ovipositor 2.5 times width of ventral ovipositor, margin with small teeth. The breadth of the subgenital plate greater than its length, with small acute angle projecting in the middle of posterior margin. Other characters similar to male.

Measurements

Length of body, ♂: 7.9-8.0 mm, ♀: 8.5-9.3 mm; length of pronotum, ♂: 7.8-7.9 mm, ♀: 8.2-8.8 mm; length of hind femur, ♂: 5.2 mm, ♀: 5.7-6.2 mm.

Etymology

Macromotettix nanshanensis is named after the type locality, Nanshan, Fangcheng, Guangxi, China.

Distribution

Guangxi, China.

Coptotettix Guangxiensis, **sp. nov.** (Figs. 3-4)

Type Material

HOLOTYPE: 1♂, CHINA: Guangxi: Fangcheng District, Station of Shangyue (N 21° 62' E 108° 27'), 80-100 m, 15-VII-2006, collected by Jian-Wen Liu. PARATYPE: 1♀, same data as the holotype.

Diagnosis

This new species is allied to *Coptotettix fangchengensis* (Zheng & Jiang 2002b), but differs in the following: 1) no abbreviated carinaes behind shumeri on the dorsum surface; 2) Inner side of hind tibia with 9-12 spines;.3) color of all femora and wings dark.

Coloration. Body dark green. On the pronotal dorsum, lateral region of each lateral carinae of prozona black, and humeri with 2 longitudinal



Fig. 3. *Hedotettix guangxiensis*, **sp. nov.**, male, dorsal view of body.

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Fig. 4. *Hedotettix guangxiensis*, **sp. nov.**, male, lateral view of body.

triangular black spots outside abbreviated carinaes. Color of all femora and wings dark. Body color of female same as coloration of male, but the humeri of pronotum without longitudinal black spots.

Male

Head with vertex slightly narrower than the width of an eye in dorsal view, proportion 0.8:1.0 (Fig. 3), frontal costa of vertex moderately arcuate, median carina of fastigium obvious; lateral margins of vertex constricted anteriorly, and the margins upheaval. In profile, head not projecting above the dorsal surface of pronotum (Fig. 4); slightly protuberant before anterior margins of eyes, fastigio-facial angle rounded subobtuse; frontal costa as seen in cephalic aspect relatively narrow, longitudinal sulcus deeply narrow, the sulcus width about two-third times the width of the antennae base. Antennae filiform, situated the ventral one-third of the anterior margin of eyes, 14-segmented, length of a segment in middle about 5 times greater than width. Eyes globose, lateral ocelli situated on the dorsal one-third of anterior margins of eyes.

Pronotum relatively flat, frontal margin of pronotum slightly projecting as obtuse triangle; median carina completed, lateral carinae parallel on prozona, the prozona nearly square; humeri forming an obtuse triangle, with a pair of abbreviated carinaes between humeri. In profile, middle keel of pronotum flaked, its highest point placed between transverse sulci and humeri; hind process of pronotum wedge-shaped, only reaching apex of femora. Posterior margin of lateral lobe with 2 pits, posterior angle downward, culminating in a narrow rounded point.

Tegmina long, ovate, apex slightly narrow; wings reaching the apex of pronotal process. Upper and lower margins of fore femora slightly straight; upper margins of middle femur arcuate, lower margins straight, width of mid femur distinctly wider than width of the visible parts of tegmina. Length of hind femur 3.3 times the width, subapical teeth right-angled, kneelobe sally. Outer side of hind tibia with 10-12 spines, inner side with 9-12 spines. Length of the first segment of a hind tarsus longer than the third, pulvilli shallow, individually increasing in length distad, all apices of pulvilli sharp. Subgenital plate cone-shaped, with a concave in middle of posterior margin.

Female

Body larger than the male. Width of mid femur slightly narrower than width of the visible parts of tegmina. Wings not reaching apex of hind process of pronotum. Ovipositor narrow and long, length of upper ovipositor about 3.3 times longer than its width, both dorsal margins of dorsal valves and ventro-external margin of ventral valves with teeth. Length of subgenital plate larger than its width, middle of posterior margin with a triangular carinula.

Measurements

Body small. Length of body: ♂, 8.8 mm, ♀, 10.9 mm; length of pronotum: ♂, 7.8 mm, ♀, 9.8 mm; length of hind femur: ♂, 6.0 mm, ♀, 7.8 mm.

Etymology

Coptotettix guangxiensis is named after the type locality, Guangxi, China.

Distribution

Guangxi,China.

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