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A NEW SPECIES OF THE GENUS *DELTONOTUS* HANCOCK, 1904 (ORTHOPTERA: TETRIGIDAE: CLADONOTINAE) FROM VIETNAM

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ABSTRACT

Deltonotus vietnamensis sp. nov. is described from Vietnam. A key to species of the genus *Deltonotus* Hancock, 1904 is given.

Key words: Orthoptera, Tetrigidae, Cladonotinae, *Deltonotus*, new species, key, South-East Asia

НОВЫЙ ВИД РОДА *DELTONOTUS* HANCOCK, 1904 (ORTHOPTERA: TETRIGIDAE: CLADONOTINAE) ИЗ ВЬЕТНАМА

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РЕЗЮМЕ

Из Вьетнама описан *Deltonotus vietnamensis* sp. nov. Дана определительная таблица видов рода *Deltonotus* Hancock, 1904.

Ключевые слова: Orthoptera, Tetrigidae, Cladonotinae, *Deltonotus*, новый вид, определительная таблица, Юго-Восточная Азия

INTRODUCTION

Up to now the genus *Deltonotus* Hancock, 1904 includes six species distributed in Sri Lanka, India and South China. The first species of the genus was described from Sri Lanka by Walker (1871) as *Tettix subcucullatus*. The monotypic genus *Poecilotettix* Bolívar, 1902 was established for *P. gibbiceps* Bolívar, 1902 from South India (Bolívar 1902). Originally the genus *Deltonotus* included only the type species, *D. tectiformis* Hancock, 1904 from Sri Lanka (Hancock 1904). Later Hancock (1907a) showed that his *Deltonotus* was a synonym of *Poecilotettix* Bolívar, 1902, but the latter name was preoccupied by *Poecilotettix*

Scudder, 1897 in the family Acrididae. Therefore he used *Deltonotus* as valid name. This was confirmed by Uvarov (1940). At the same time a new species, *D. cristatus* Hancock, 1907 was described from Sri Lanka (Hancock 1907b). Kirby (1914) synonymized *Deltonotus tectiformis* with *Tettix subcucullatus*. Hebard (1929) described a new species, *D. humilis* Hebard, 1929 from India; he also considered *D. gibbiceps* as a continental subspecies of *D. subcucullatus* and synonymized *D. cristatus* with *D. subcucullatus*. Later he resurrected *D. cristatus* as a valid species (Hebard 1932). Zheng and Liang (1985) described a first Chinese species, *D. hainanensis* Zheng et Liang, 1985 from Hainan Island. Blackith (1992) summarized all

available data on five species of the genus *Deltonotus* including references, depositions of types, measurements and distribution. A brief diagnosis of *Deltonotus* was given by Liang and Zheng (1998). Finally *D. guangxiensis* Liang et Jiang, 2004 was described from continental south-eastern part of China (Liang and Jiang 2004).

MATERIAL AND METHODS

Four specimens of a new species of *Deltonotus* were collected in Vietnam by A.V. Gorochoy, N.L. Orlov and D.N. Fedorenko. All specimens are dry and pinned. The photograph was made by Leica M216. The morphological terminology follows Storozhenko and Paik (2007).

TAXONOMY

Family Tetrigidae Rambur, 1838

Subfamily Cladonotinae Bolívar, 1887

Genus *Deltonotus* Hancock, 1904

Type species – *Deltonotus tectiformis* Hancock, 1904, by monotypy

Deltonotus Hancock, 1904: 111, 1907a: 14; Kirby 1914: 15; Uvarov 1940: 116; Blackith 1992: 43; Liang and Zheng 1998: 29.

Poecilotettix Bolívar, 1902: 580.

Description. Body robust. Antennae filiform, 14-segmented, slightly longer than fore femora; antennal bases situated below lower margin of eyes. Eyes not protruding above vertex in lateral view. Fastigium of vertex in dorsal view much wider than width of one eye, anterior margin of fastigium broadly rounded and reaching anterior edge of eyes (in *D. humilis* anterior part of fastigium angular and far produced in front of eyes). Frontal ridge in lateral view with two excisions, one between eyes and another below antennal sockets. Pronotum in dorsal view with strongly angularly projecting anterior margin; anterior process usually produced over the head (in *D. humilis* and *D. cristatus* anterior process reaching only mid of eyes); posterior process of pronotum short, not reaching apex of abdomen. Median carina of pronotum lamellate, arch-like; lateral carinae in prozona reduced. Hind margin of lateral lobes of pronotum with lower sinus only; posterior angles of lateral lobes in dorsal view broadly rounded. Tegmina

and hind wings absent. Fore and mid femora with sinuate lower carina; hind femora with granulated upper carina. First tarsal segment of hind legs considerably longer than third segment (without claws). Female subgenital plate with angularly rounded or pointed posterior margin. Valves of ovipositor narrow, dentate.

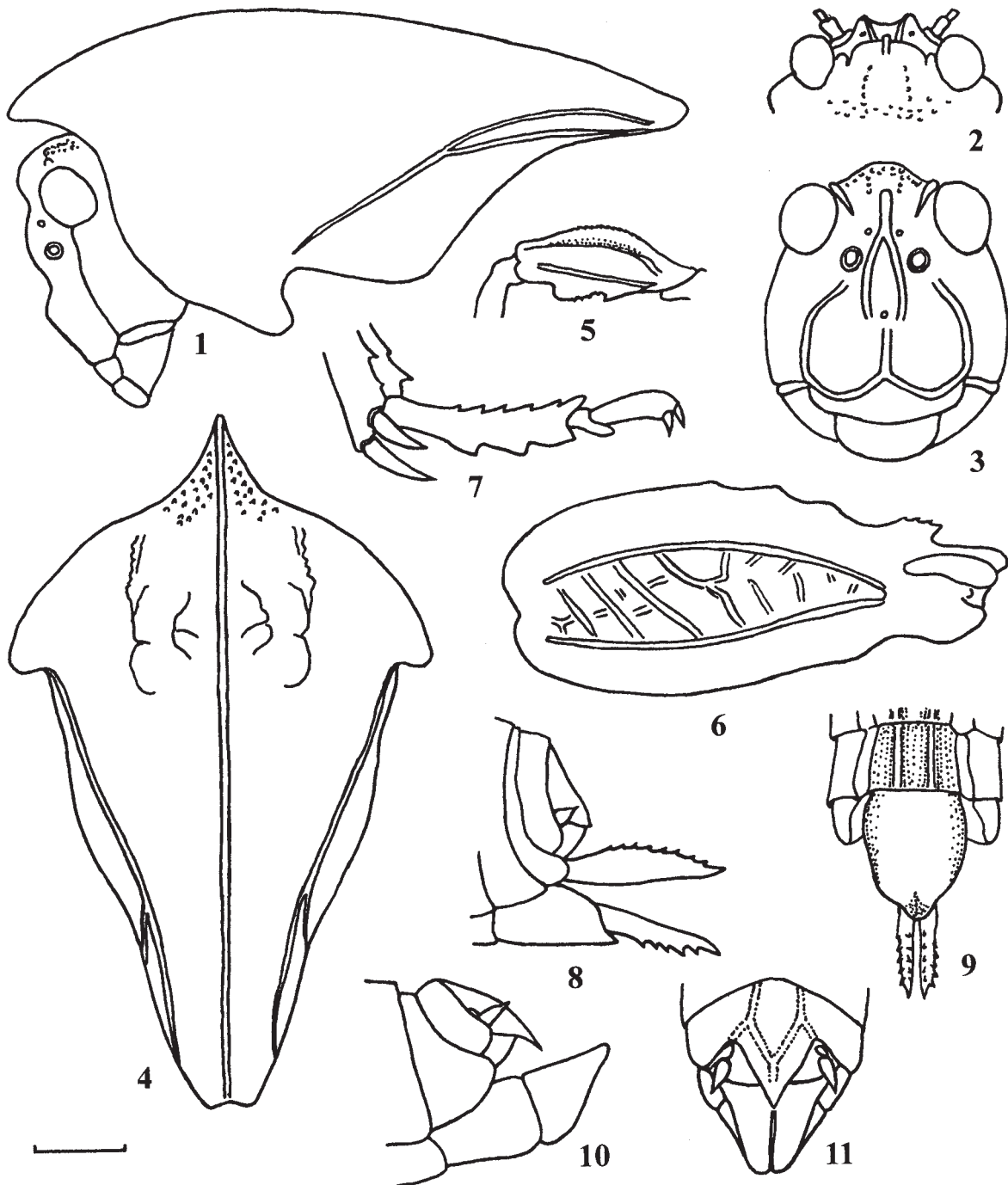
Composition. Seven species (see key below) from Sri Lanka, India, China, and Vietnam.

Deltonotus vietnamensis Storozhenko sp. nov. (Figs. 1–12)

Type material. Holotype female, VIETNAM: Gia Lai Province, 40 km N Kannack, Tram Lap, 11–14 April 1995, coll. A.V. Gorochoy; 1 female paratype, VIETNAM: Gia Lai Province, Ka Bang, Krang Pa, September 1997, coll. N.L. Orlov; 1 male paratypes, Lam Dong Province, environs of Long Lanh, Bi Doup – Nui Ba Nature Reserve, 12°10'N, 108°40'E, 1400–1900 m, 1–22.IV 2008, coll. D. Fedorenko; last instar male larva paratypes, Gia Lai Province, 20 km N Kannack, Buon Luoi, 22–31 March 1995, coll. A.V. Gorochoy.

Type deposition. The holotype and paratypes of the new species are deposited in the Zoological Institute of the Russian Academy of Sciences (Saint Petersburg).

Description. Female (holotype). Body medium sized for genus. Fastigium of vertex broadly rounded, not produced in front of eyes from dorsal aspect, 1.7 times wider than width of one eye from above; median carina of fastigium absent. Frontal ridge in lateral view with deep excision between eyes. Length of median carina of frontal ridge 2 times longer than width of 1st antennal segment. Width of frontal ridge near base of antennae 1.8 times more than width of 1st antennal segment. Antennae (except two basal segments) broken. Head completely covered by anterior process of pronotum. Median carina of pronotum arch-like like in profile. Fore femur 2.6 times as long as wide, with sinuate and finely dentate lower carina; mid femur 2.7 times as long as wide, with gentle sinuate upper and lower carinae. Hind femur stout, 2.2 times as long as wide; upper carina distinctly granulated and acutely sinuate before the apex. Upper side of hind tibia with 6–7 outer and 5–7 inner teeth. First tarsal segment of hind legs 2.1 times longer than 3rd segment (without claws). Subgenital plate 1.2 times as long as wide, with angularly rounded posterior margin. Upper valve of



Figs. 1–11. *Deltonotus vietnamensis* sp. nov.: female, holotype (1–9); male, paratype (10, 11). 1, head and pronotum, lateral view; 2, head, dorsal view; 3, head, frontal view; 4, pronotum, dorsal view; 5, fore femur, lateral view; 6, hind femur, lateral view; 7, hind tarsus, lateral view; 8, 10, apex of abdomen, lateral view; 9, apex of abdomen, ventral view; 11, apex of abdomen, dorsal view. Scale bar: 1 mm for figs 1–6, 8–12; 0.5mm for fig. 7.



Fig. 12. *Deltonotus vietnamensis* sp. nov., female, paratype, lateral view of body.

ovipositor 4 times longer than its maximum width. Lower valve of ovipositor 6.6 times longer than its maximum width. Body greyish brown, with indistinct dark spots on pronotum and tibiae.

Female (paratype). Similar to holotype, but median carina in posterior quarter of pronotum distinctly excised (Fig. 12); width of frontal ridge near base of antennae 1.6 times wider than width of 1st antennal segment; length of antennae 1.1 times longer than length of fore femur; mid segments of antennae 3.5–3.7 times as long as wide; fore femur 3 times longer than wide; and visible part of lower valve of ovipositor 6 times longer than its maximum width. Body greyish brown, with distinct dark and light spots. Antennae light brown with apical two segments dark brown. Upper part of median carina of pronotum light brown with black spots. All tibiae blackish with light rings. Ovipositor light brown.

Male (paratype). Similar to female, but larger. Fastigium of vertex 1.8 times wider than width of one eye from above. Length of median carina of frontal ridge 2 times longer than width of 1st antennal segment. Width of frontal ridge near base of antennae 1.6 times wider than width of 1st antennal segment. Length of antennae 1.1 times longer than length of fore femur; mid segments of antennae 2.7–2.8 times as long as wide. Fore femur 3 times, mid femur 3, hind femur 2.3 times as long as wide. Upper side of hind tibiae with 5–7 outer and 5–7 inner teeth. First tarsal segment of hind legs 2.1 times longer than 3rd segment (without claws). Epiproct narrow triangular, with pointed apex. Subgenital plate short. Cerci with pointed apex. Coloured as female paratype.

Measurements (in mm). Length of body (from frontal ridge to apex of subgenital plate) male 10,

female 9.1–9.7; pronotum male 8.5, female 7.3–7.4; antenna male 2.2, female 2.3; fore femur male 2.1, female 2.1; mid femur male 2.4, female 2.2; hind femur male 6.2, female 5.5; ovipositor 1.6.

Comparison. The differences of the new species from all known congeners are given in the key below.

Key to species of the genus *Deltonotus*

1. Pronotum with velvety black spot on each side near middle. Length of body male 9.0, female 10.0; pronotum male 5.5, female 6.5; hind femur male 5.0, female 5.5 mm. South India (Tamil Nadu: Madurai) ***D. gibbiceps* (Bolivar, 1902)**
 - Pronotum without black lateral spots 2
2. Frontal ridge in lateral view with weak excision between eyes 3
 - Frontal ridge in lateral view with deep excision between eyes 6
3. Hind femur stout, 2.2 times as long as wide; upper carina of hind femora minutely granulated, acutely sinuate before apex. Male unknown. Length of female body 10.0; pronotum 7.0; hind femur 6.0 mm. China (Hainan) ***D. hainanensis* Zheng et Liang, 1985**
 - Hind femur 2.5–3.0 times as long as wide; upper carina of hind femora granulated, but not sinuate before apex 4
4. Anterior process of pronotum reaching only mid of eyes. Female unknown. Length of male body 7.5; pronotum 7.5; hind femur 5.0 mm. Sri Lanka (Hantane) ... ***D. cristatus* Hancock, 1907**
 - Head completely covered by anterior process of pronotum 5
5. Smaller: length of body male 7.5, female 8.5–9.0; pronotum male 7.5, female 7.5–8.0; hind femur male 5.0, female 5.5–6.0 mm. Sri Lanka (Pandalu-oya) ***D. subcucullatus* (Walker, 1871)**

- Larger: length of body male 9.5–11.4, female 15.5–17.0; pronotum male 8.5–10.0, female 11.0–12.5; hind femur male 6.7–7.8, female 8.5–9.4 mm. China (Guangxi) ***D. guangxiensis* Liang et Jiang, 2004**
- 6. Fastigium of vertex in dorsal view far produced in front of eyes. Length of body male 7.8, female 9.2–9.4; pronotum male 5.7, female 5.9–6.0; hind femur male and female 4.7 mm. South India (Elkhill, Valparai) ***D. humilis* Hebard, 1929**
- Fastigium of vertex in dorsal view not produced in front of eyes ***D. vietnamensis* sp. nov.**

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