



<http://dx.doi.org/10.11646/zootaxa.3774.6.3>

<http://zoobank.org/urn:lsid:zoobank.org:pub:A49D09BA-6134-4488-943C-D78418602AA3>

## Species of the subgenus *Cantotrella* (Orthoptera: Gryllidae: Podoscirtinae: *Varitrella*) from Singapore, Malaysia and Indonesia

ANDREJ V. GOROCHOV<sup>1</sup> & MING KAI TAN<sup>2</sup>

<sup>1</sup>Zoological Institute, Russian Academy of Sciences, Universitetskaya Emb. 1, Saint Petersburg 199034, Russia.

E-mail: orthopt@zin.ru

<sup>2</sup>Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Republic of Singapore.

E-mail: orthoptera.ming kai@gmail.com

### Abstract

Ten species of the subgenus *Cantotrella* Gorochov, 2006 belonging to the genus *Varitrella* Gorochov, 2003 of the tribe Podoscirtini are recorded from Singapore, Malaysia and Indonesia. Eight of them are new and described here: *V. (C.) orion* sp. nov.; *V. (C.) trusmadi* sp. nov.; *V. (C.) striata* sp. nov.; *V. (C.) robusta* sp. nov., *V. (C.) sukau* sp. nov., *V. (C.) tawau* sp. nov., *V. (C.) amoena* sp. nov., *V. (C.) manukan* sp. nov.

**Key words:** crickets, taxonomy, Orthoptera, Gryllidae, Podoscirtinae, Podoscirtini, *Varitrella*, *Cantotrella*, new species, Singapore, Malaysia, Indonesia

### Introduction

The subgenus *Cantotrella* Gorochov, 2006 (Fig. 1) was established for 10 species belonging to the genus *Varitrella* Gorochov, 2003 of the tribe Podoscirtini; these species are known from the Philippines, Thailand and one island of Indonesia (Java), but two of these species were included in this subgenus under question (Gorochov, 2006). Other representatives of the genus *Varitrella* (distributed in Malacca, Sumatra and Sri Lanka) were put in the nominotypical subgenus, and two species from Borneo were considered as possibly belonging to this genus (Gorochov, 2003). Moreover, the genus was divided into four species groups in the latter paper; three of them belong now to *Cantotrella*.

It is necessary to note that composition of the genus *Varitrella* in the Orthoptera Species File (Eades *et al.*, 2013) is incorrectly cited: in this catalogue, only three species are included in *Cantotrella*, and seven species are put in the subgenus *Varitrella*. But in reality, the latter (nominotypical) subgenus contains only two species mentioned in this catalogue as valid ones (*Platydaetylus varipennis* Walker, 1869 and *Madasumma nigrifrons* Chopard, 1931; Gorochov, 2006), and *Cantotrella* includes more numerous species listed below, in the discussion on this subgenus. The new finds described here support reasonability of such classification but with some corrections.

### Material and methods

This paper is based on material collected mainly by the co-authors. The specimens studied are deposited at the Zoological Institute of the Russian Academy of Sciences in St Petersburg (ZIN) and Zoological Reference Collection, Raffles Museum of Biodiversity Research, National University of Singapore (ZRC). Nomenclature of some morphological structures used here are given after the following authors: for wings, traditional nomenclature adapted to Gryllidae mainly by Sharov (1968) and Chopard (1969); for male genitalia, classical nomenclature by Randell (1964) insignificantly modified by Gorochov (1986, 2002). Explanations of the terms are presented in Figs 11 and 29–31.

City, small Manukan Island, sea level, secondary forest, on leaf of bush at night, 24–25 April 2013, A. Gorochov, M. Berezin, V. Gorochova, E. Tkatsheva (ZIN).

Paratype (female): same data as for holotype (ZIN).

**Description.** Male (holotype). Size of body almost as in *V. sukau*. Coloration yellowish (very light) with following marks: head with light grey area behind ocelli (near them), a pair of brownish longitudinal stripes behind eyes, very sparse dark and darkish dots on dorsum and maxillary palpi, and rather sparse small brown spots on antennae; pronotum with sparse dark dots and small spots on disc and lateral lobes, and with slightly darkened (almost indistinct) stripe on each lateral lobe along its dorsal edge; tegmina almost transparent but with rather numerous and diverse dark spots as well as with darkish dots and short stripes; abdomen with light brown dorsum of majority of tergites. Head with somewhat more angularly projected rostrum (in profile) than in previous congeners; scape approximately 2.1 times as wide as rostral apex; pronotum distinctly narrowing to head and with obtusely angulate posterior edge of disc (Fig. 9); tegmina and legs typical of this subgenus, but with apical area of dorsal tegminal field moderately long (Fig. 19); anal plate without distinct central membranous area but with rather long and shallow median (almost groove-like) concavity; genital plate as in previous congeners; genitalia with epiphallus similar in shape to that of second and third species groups of *Cantotrella* (its dorsal spines situated almost at apex of epiphallus, and rest of epiphallus lacking denticulate parts), without visible ectoparameres (possibly they strongly reduced and looking as membranous fold-like lobes similar to those of *V. conspersa* and *V. depressa* but lacking sclerotized areas), and with long rachis almost not widened distally and having virga-like median spine (Figs 53–55).

Female. General appearance as in male, but head dorsum with several light grey areas situated between ocelli and posterior edge of head, dorsal tegminal field yellowish (semitransparent) with sparse small dark marks along lateral edge as well as very sparse darkish dots on proximal part and more numerous short darkish stripes on distal half, venation of this field with 11 more or less oblique longitudinal veins and numerous and somewhat irregular crossveins, lateral tegminal field with 8–9 branches on *Sc* and slightly sparser and more regular (but less distinct) crossveins. Genital plate similar to that of *V. robusta* but with somewhat wider both distal part of this plate and its posteromedian notch; ovipositor much shorter than in latter species (hind femur approximately 1.3 times as long as ovipositor) and with drilling apex (Figs 56–58).

Length in mm. Body: male 15, female 17; body with wings: male 27, female 33; pronotum: male 2.7, female 3.2; tegmina: male 18, female 23; hind femora: male 12.5, female 14.5; ovipositor 11.

**Comparison.** The new species possibly belongs to the second species group of *Cantotrella*, as it has similarly reduced ectoparameres in the male genitalia. This species is distinguished from all the other species of the second group by the absence of sclerotized areas in the inner surface of these membranous ectoparameres, and from all the other congeners by membranous ectoparameres in combination with a characteristic structure of the epiphallus.

## References

- Chopard, L. (1930) 1.—The Gryllidae of Sarawak. *Sarawak Museum Journal*, 4, 1 (12), 1–42, pl. 1–8.
- Chopard, L. (1969) *The fauna of India and adjacent countries: Orthoptera. Vol. 2. Grylloidea*. Zoological Survey of India, Calcutta, 421 pp.
- Eades, D.C., Otte D., Cigliano, M.M. & Braun, H. (2013) *Orthoptera Species File. Version 5.0/5.0*. Available from: <http://Orthoptera.SpeciesFile.org> (accessed 29 December 2013)
- Gorochov, A.V. (1986) System and morphological evolution of Gryllidae (Orthoptera) with description of new taxa. Communications 1 and 2. *Zoologicheskij zhurnal*, 65 (4, 6), 516–527, 851–858. [in Russian]
- Gorochov, A.V. (2002) Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 1: the male genitalia and Indo-Malayan Podoscirtini. *Zoosystematica Rossica*, 10 (2), 303–350.
- Gorochov, A.V. (2003) Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 2: Indo-Malayan and Australo-Oceanian Podoscirtini. *Zoosystematica Rossica*, 11 (2), 267–303.
- Gorochov, A.V. (2006) Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 5: new Indo-Malayan and Madagascan Podoscirtini. *Zoosystematica Rossica*, 15 (1), 33–46.
- Randell, R.L. (1964) The male genitalia in Gryllinae (Orthoptera: Gryllidae) and a tribal revision. *Canadian Entomologist*, 96 (12), 1565–1607.
- Sharov, A.G. (1968) Phylogeny of orthopteroid insects. *Proceedings of the Paleontological Institute, USSR Academy of Sciences*, 118, 1–216. [in Russian]
- Tan, M.K. (2012) *Orthoptera in the Bukit Timah and Central Catchment Nature Reserves (Part 2): Suborder Ensifera*. Raffles Museum of Biodiversity Research, National University Singapore, Singapore, 70 pp. [uploaded 14 November 2012]