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Papers Celebrating the 80th Birthday of Professor ANDRZEJ WARCHALOWSKI

## Two new species of the genus *Gonioctena* CHEVROLAT from China (Coleoptera: Chrysomelidae: Chrysomelinae)

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ABSTRACT. *Gonioctena* (*Brachyphytodecta*) *andrzeji* new species and *G. (Gonioctena) warchalowskii* new species from Hubei and Sichuan provinces, central China (Chrysomelidae: Chrysomelinae) are described. The distinctive characters of these new species in relation to others are discussed. *Gonioctena andrzeji* new species resembles *G. (Brachyphytodecta) issikii* CHŪJŌ most closely but is distinguished by the colour of the elytra, the punctuation of pronotum and the shape of aedeagus. *G. (Gonioctena) warchalowskii* new species is allied to *G. (G.) filippovi* MEDVEDEV, differing in the punctuation and colour of pronotum, markings of elytra and the shape of aedeagus; *G. (Gonioctena) warchalowskii* new species is also allied to *G. suwai* TAKIZAWA but differs in the colour of the legs, the punctuation of the elytra and the shape of aedeagus. Illustrations of habitus, antennae, aedeagi, spermatheca (when present), of the two new species are included.

Key words: entomology, taxonomy, Coleoptera, Chrysomelidae, *Gonioctena*, new species, China.

### INTRODUCTION

The genus *Gonioctena* was erected by CHEVROLAT in DEJEAN (1837), its type species being *Chrysomela viminalis* LINNÉ, 1758. It includes eleven subgenera, (DACCORDI 1994), mainly based on the characters of the pronotal setae in the angles, elytral striae and apical five segments of antennae. The genus *Gonioctena* is mainly distributed in Asia, Europe, North Africa and North America. The 29 Chinese species are arranged in 5 subgenera (*Asiphytodecta*, *Brachyphytodecta*, *Gonioctena*, *Platyphytodecta*, *Sinomela*). In China, the species of the genus *Gonioctena* occur in most areas except Qinghai province. In the present paper, we describe two new species from Sichuan

and Hubei provinces, Central China. The type specimens are deposited in Institute of Zoology, Chinese Academy of Sciences, Beijing, China; The Natural History Museum, London; in the collections of dr. Michel BERGEAL, Versailles, France; dr. Mauro DACCORDI, Verona, Italy; dr. Horst KIPPENBERG, Herzogenaurach, Germany; and prof. Andrzej WARCHAŁOWSKI, Wrocław, Poland.

#### MATERIAL AND METHODS

Internal and external morphological characters form the basis of this work. Specimens were examined using a Leica microscope with a drawing tube (8 to 100x). Measurements were made using an ocular micrometer. Internal sclerotized structures were dissected in hot water. Heavily sclerotized parts were soaked in a dilute solution of potassium hydroxide (about 25%), then put in acetic acid and in ethanol finally. Species have been characterized using colour form, clypeus, eyes, mouth-parts, antennae, pronotum, scutellum, elytra, legs, puncturation of head, pronotum, elytra and ventral side. The terms mesoventrite and metaventrite replace the terms mesosternum and metasternum following LAWRENCE (1999) and BEUTEL & HASS (2000).

#### DEPOSITORIES

**IZAS:** Institute of Zoology, Chinese Academy of Sciences, Beijing, China.

**BMNH:** The Natural History Museum, London, United Kingdom.

**MBc:** Michel Bergeal's collection, Versailles, France.

**MDc:** Mauro DACCORDI's collection, Verona, Italy.

**HKc:** Horst KIPPENBERG's collection, Herzogenaurach, Germany.

**AWc:** Andrzej WARCHAŁOWSKI's collection, Wrocław, Poland.

The following standards were used for characters:

Body length: measured from the apex of the clypeus to the apex of the elytra.

Body width: measured at base of the elytra.

Length of pronotum: average length at middle.

Width of pronotum: average width at middle.

Suture length: measured from the base of the elytral suture to apex.

Width of elytra: measured at the middest point.

Colour: description based on specimens that are viewed with magnification and artificial illumination.

#### ***Gonioctena (Brachyphytodecta) andrzeji* DACCORDI et GE, new species**

(Figs. 1, 2, 3, 4, 5, 6, 11)

#### ETYMOLOGY

The new species is named in honour of our friend and colleague Prof. Dr. Andrzej WARCHAŁOWSKI of Poland for his work on Chrysomelidae.

## DESCRIPTION (based on holotype):

Colour: Head, pronotum, elytra, and prothoracic hypomera reddish brown; maxillary palpi segments 1-2 reddish brown, segments 3-4 dark brown; boarder of the lateral and posterior margin of the pronotum black, boarder of the anterior margin black, but less dense in colour; eyes, scutellum, legs and underside of body black; antennae segments 1-5 dark brown, segments 6-11 black; tarsi and claws reddish brown; anterior margin of prosternum, apical boarder of abdominal sternites reddish brown.

Body length: 4.10 mm; width: 2.32 mm.

Body ovoid, moderately large, convex in lateral view, wings present, dorsal surface without pubescence (Fig. 1).

Head: anterofrontal ridge separated from clypeus; clypeus trapezoidal, with small, widely separated, puncturation and sparse pubescence; base of clypeus not raised; middle part of labrum incised; front smooth, with dense, small puncturation; coronal suture and frontal suture present; vertex with sparse puncturation; eyes oblong; dorso-ventral eye length 0.16 mm, interocular distance 0.72 mm; Mandible short, robust, outer surface with sparse pubescence and without puncturation, the external side with a deep hollow in which lies the last palpomere; third segment of maxillary palpi shorter than fourth, apex of fourth segment truncate. Antennae extending base of elytra, preapical segments as long as broad, not flattened; antennae segments (1-11) length (in millimeter): 0.20 : 0.10 : 0.13 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.16 (Fig. 5).

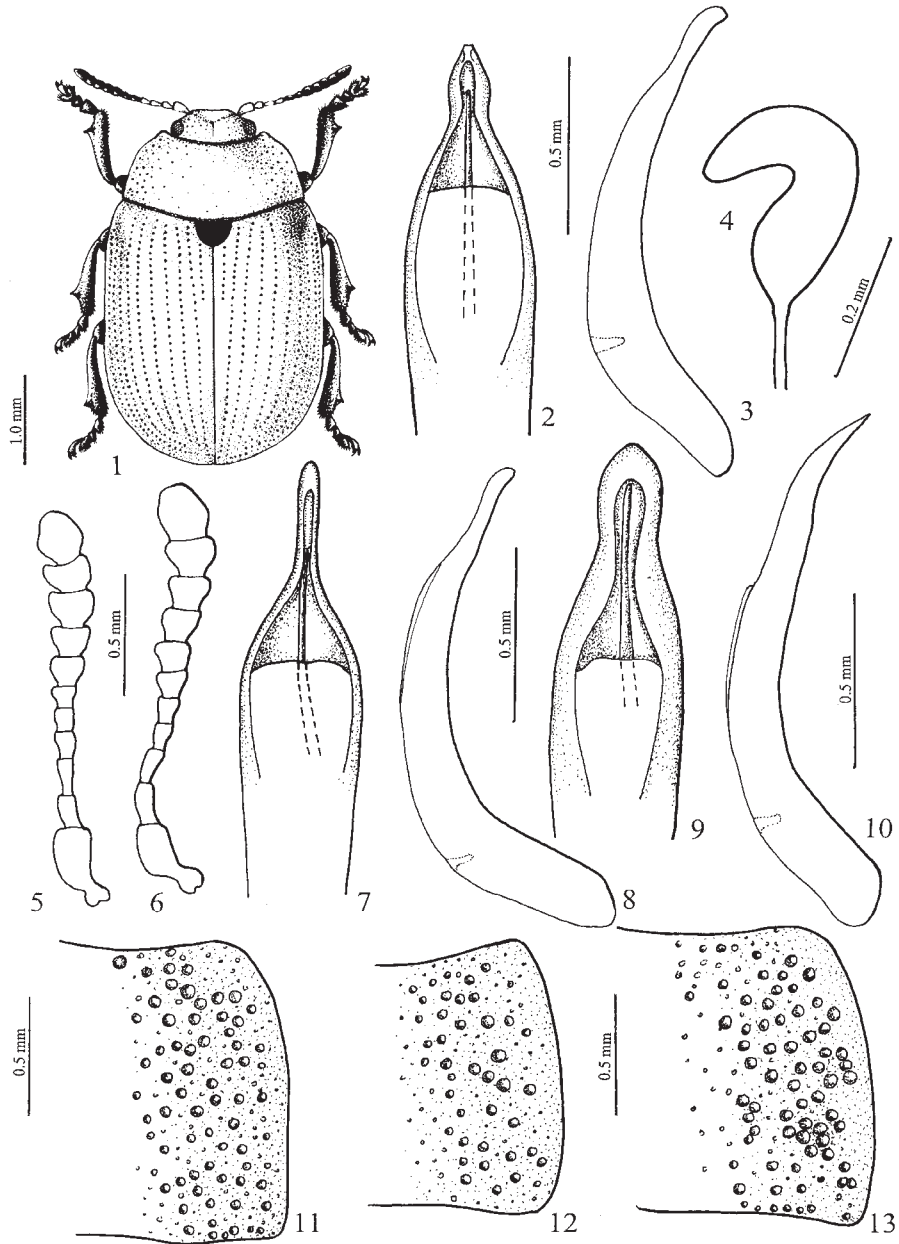
Pronotum: length: 0.98 mm; width: 2.16 mm. Cilia of anterior margin of pronotum absent; anterior margin bordered, posterior margin absent; lateral margin not visible from above and lacking setigerous puncturation on both anterior and posterior corners; disc smooth, not strongly dilated anterior to middle; puncturation on pronotum sparse, puncturation on disc smaller than those on head; puncturation lateral to disc slightly larger; scutellum: wide, posterior half rounded, smooth and without puncturation.

Elytra: suture length: 3.04 mm; width of elytra: 2.56 mm. Humeral calli present; elytra with regular separate striae, puncturation larger than those on side of pronotum; interspaces of elytral striae with sparse and small puncturation. Epipleuron horizontal, smooth and without puncturation; outer edge sharp, without bristles along inner side.

Legs: femora with dense puncturation; apices of all the tibia expanded externally; hind tarsal segment 3 complete and entirely pubescent beneath; tarsal claws appendiculate.

Underside: hypomera without puncturation and shagreened; cilia present on anterior margin of prosternum; middle part of intercoxal prosternal process more than half width of apex; prosternum without puncturation, truncate behind, and not emarginate; anterior coxal cavities open behind; mesoventrite shorter than prosternum between coxae; intercoxal process of metaventrite bordered and truncate anteriorly, with sparse puncturation, metaventrite shorter than prosternum; mesepisternum and metepisternum with sparse puncturation; abdominal segments with dense puncturation; first sternite of abdomen without carina; last abdominal sternite of male without emargination; pygidium with trapezoidal apex.

Medial lobe of the aedeagus with the apical section short, a little enlarged before the apex; base not fissured (Figs. 2, 3).



1-6, 11. *Goniocetena andrzeji* n. sp.: 1 – habitus; 2 – aedeagus, dorsal view; 3 – aedeagus, lateral view; 4 – spermatheca; 5 – antenna, male; 6 – antenna, female; 11 – lateral side of pronotum; 7-8, 12. *Goniocetena fulva* (MOTSCHULSKY): 7 – aedeagus, dorsal view; 8 – aedeagus, lateral view; 12 – lateral side of pronotum; 9-10, 13. *Goniocetena issikii* (ЧИЮД): 9 – aedeagus, dorsal view; 10 – aedeagus, lateral view; 13 – lateral side of pronotum

## VARIATIONS

All males of the type series are very similar in size, shape and lustre. The female is slightly larger and broader, but not significantly different from the male. Spermatheca simple (Fig. 4). Sometimes colour of dorsal side and anterior margin of prosternum yellowish brown; head and prothorax complete black. Measurements of the paratypes are as follows: body length: 3.38-4.60 mm; body width: 2.16-2.50 mm; length of pronotum: 0.72-1.14 mm; width of pronotum: 2.08-2.36 mm; suture length: 2.72-3.40 mm; width of elytra: 2.44-3.20 mm; dorso-ventral eye length: 0.73-0.80 mm; interocular distance: 0.16-0.18 mm; average antennae segment (1-11) length (in millimeter): 0.13 : 0.13 : 0.14 : 0.13 : 0.13 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.09 : 0.16. (Fig. 6).

## TYPE MATERIAL

Holotype: male: China, W. Hubei prov., Dashennongjia Ant. Res. Muyu, E. slope, 2000 m, 12-15 Jun 1997, Bolm Lgt. / Holotype / *Gonioctena andrzejii* sp. nov., Daccordi M. & Ge S.Q., 2007 (IZAS). Paratypes: China: W Hubei prov. Dashennongjia Nat. Res. Muyu, E slope, 2000 m; 12-15 June 1997, Bolm leg, 1 male and 1 female (MBc), 1 male and 1 female (HKc), 1 male and 1 female (AWc), 2 males and 4 females (MDc); 1 male, same locality, 1-5 July 1998, 1700-2500 m, Bolm leg. (MDc); 1 male, China: W. Hubei, Dashennongjia mts., 31.5°N - 110.3°E, 2400 m, 17.VI.2000, leg. J. Turna (MDc); 1 male and 3 females, China: NW Hubei, Shennongjia Nat. Res., 1-5 July 1998, 1700-2500 m, Bolm leg. (MDc); 3 females, China: W Hubei, 21-24.VI.2001, Dashennongjia mts., 31.5°N, 110.3°E, 2500-3000 m, J. Turna leg. (MDc); 1 male, Sichuan: Wushan Liziping, 1850 m, 19 May 1994, leg. Wen-Zhu Li / 32024 (IZAS); 1 male, same locality, 1850 m, 19 May 1994, leg. Jian Yao / 33820, (IZAS); 1 male, same data except leg. Xing-Ke Yang / 14453 (MDc); 1 male, same data except, leg. You-Wei Zhang / 136614 (IZAS); 1 male, same locality, 1870 m, 4 July 1993, leg. Jian Yao / 13640 (IZAS); 1 male, same locality, 1850 m, 4 August 1993, leg. Xiao-Lin Chen / 11172 (IZAS); 1 male, same locality, 1850 m, 18 May 1994, leg. Jian Yao / 33969 (IZAS); 1 male, same locality, 1850 m, 28 May 1994, leg. Jian Yao / 33968 (IZAS); 1 female, same locality, 1850 m, 19 May 1994, leg. Jian Yao / 33819 (MDc); 1 female, same locality, 1850 m, 19 May 1994, leg. You-Wei Zhang / 136698 (IZAS); 1 female, same locality, 1850 m, 19 May 1994, leg. You-Wei Zhang / 136957 (MDc); 1 female, same locality, 1850 m, 19 May 1994, leg. You-Wei Zhang / 136958 (IZAS); 1 female, same locality, 1850 m, 04 August 1993, leg. Xiao-Lin Chen / 11162 (IZAS); 1 female, same locality, 1870 m, 04 July 1993, leg. Run-Zhi Huang / 14970 (IZAS); 1 female, same locality, 1850 m, 04 July 1993, leg. Jian Yao / 13635, (IZAS); 1 female, same locality, 1850 m, 04 July 1994, leg. Jian Zhao / 13686 (IZAS); 1 female, same locality, 1850 m, 04 July 1993, leg. Run-Zhi Huang / 14937 (MDc); 1 female, same locality, 1850 m, 04 July 1993, leg. Jian Yao / 13650 (MDc); 1 female, same locality, 1850 m, 03 July 1993, leg. Wen-Zhu Li / 3733 (IZAS); 1 female, same locality, 1850 m, 18 May 1994, leg. Xing-Ke Yang / 9708 (IZAS). 1 female, Hubei: Shennongjia, 900-1700 m / 26 May 1981, leg. Yin-Heng Han; 1 female, Hubei: Shennongjia: Honghuaduo Linchang / 25 July 1981, 1640 m, leg. Yin-Heng Han (IZAS); 3 males and 1 female, Hubei: Shennongjia: Hongping Linchang / 25 July 1981, 1640 m, leg.

Yin-Heng Han (IZAS); 5 males, Hubei: Shennongjia Hongping Linchang, 1660 m, 16 July 1981, Leg. Yin-Hen Han (IZAS); 1 male, Hubei: Shennongjia, 900-1700 m, 26 May 1981, Yin-Heng Han (IZAS).

#### DIAGNOSIS

The new species is quite similar to *Gonioctena (Brachyphytodecta) fulva* MOTSCHULSKY, which differs from the new species in having the following principal characteristics: lateral sides of the pronotum with sparser puncturation (Fig. 12), interspace of elytral striae with much sparser puncturation, apical section of aedeagus distinctly longer than in the new species (Figs. 7, 8). *G. issikii* CHŪJŌ is also similar to *G. andrzeji* but in this species the elytra are black with the periphery reddish, the puncturation at the sides of prothorax are broader and more closely set (Fig. 13); and the apex of the aedeagus is more gently rounded (Figs. 9, 10).

#### DISTRIBUTION

China: Hubei, Sichuan.

#### *Gonioctena (Gonioctena) warchalowskii* DACCORDI et GE, new species

(Figs. 14, 15, 16, 17, 18)

#### ETYMOLOGY

The new species is named with respect and affection for Prof. Dr. Andrzej WARCHALOWSKI well known specialist in Chrysomelidae.

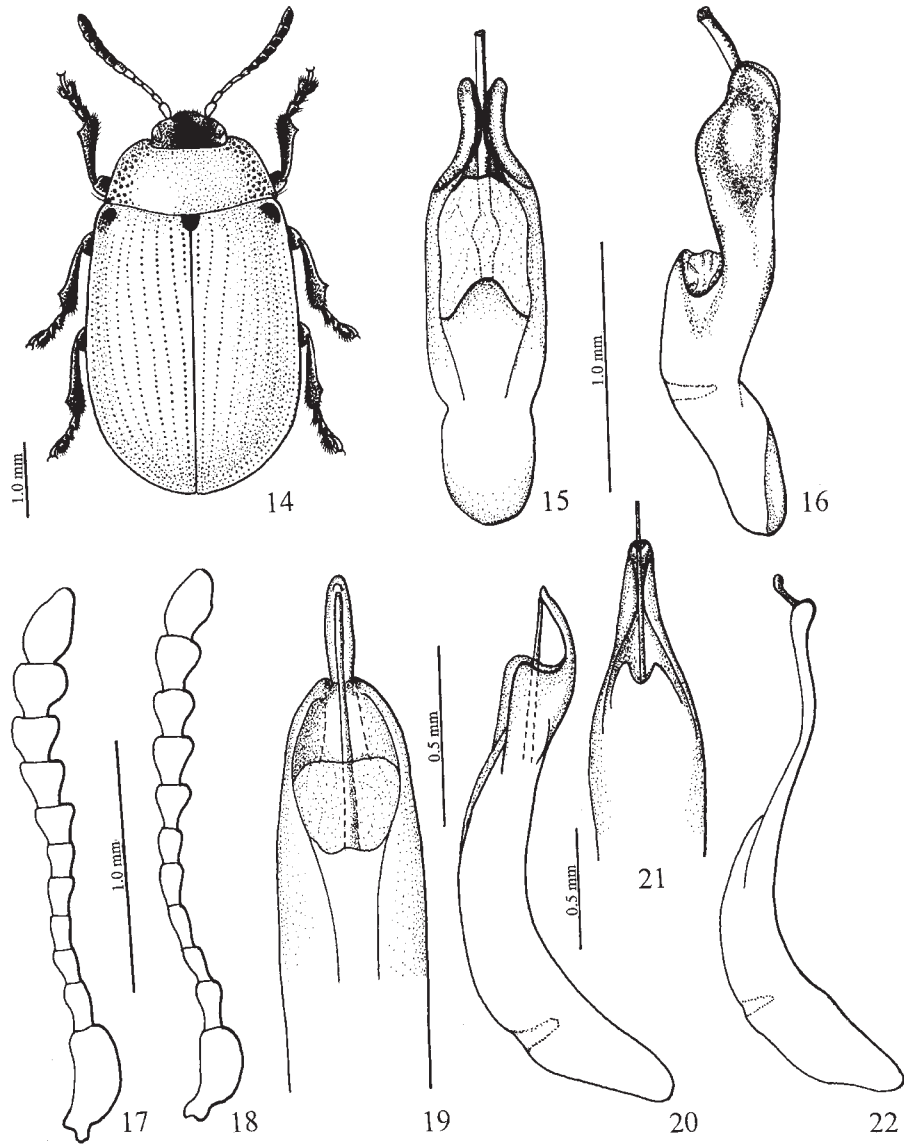
#### DESCRIPTION (based on holotype):

Colour: head black; pronotum and elytra dark brown, anterior margin of pronotum black; antennal segments 1-6 reddish brown, segments 7-11 black; mandible black, segments of maxillary palpi 1-3 dark brown, segment 4 black; scutellum and underside of body black, prothoracic hypomera dark brown; legs black, claws dark brown; humeral calli with small, rounded black markings, apex of elytra with irregular, indistinct markings.

Body length: 5.16 mm; width: 2.76 mm.

Body elongate, large; convex in lateral view; wings present; dorsal surface without pubescence (Fig. 14).

Head: anterofrontal ridge separated from clypeus; clypeus trapezoidal, impunctate, with sparse pubescence; base of clypeus not raised; middle part of labrum incised; frons smooth, with dense puncturation; coronal suture present, frontal suture absent; vertex with dense, puncturation; eyes oblong, dorso-ventral eye length 0.14 mm, interocular distance 0.82 mm; mandible robust, outer surface with sparse pubescence and with sparse puncturation; the external side with a deep hollow in which the last palpomere lies; third segment of maxillary palpi shorter than fourth; apex of fourth segment truncate; Antennae extending base of elytra, preapical segments flat, broader than long; antennae segments (1-11) length (in millimeter): 0.14 : 0.05 : 0.05 : 0.05 : 0.05 : 0.05 : 0.05 : 0.05 : 0.08 : 0.08 : 0.12 (Fig. 18).



14-18. *Goniocтена warchalowskii* n. sp.: 14 – habitus; 15 – aedeagus, dorsal view; 16 – aedeagus, lateral view; 17 – antenna, female; 18 – antenna, male; 19-20. *Goniocтена filippovi* MEDVEDEV: 19 – aedeagus, dorsal view; 20 – aedeagus, lateral view; 21-22. *Goniocтена suwai* TAKIZAWA: 21 – aedeagus, dorsal view; 22 – aedeagus, lateral view (redrawn from TAKIZAWA)



Pronotum: length: 0.93 mm; width: 2.53 mm. Cilia on anterior margin of pronotum absent; anterior margin bordered, posterior margin not bordered; lateral margins not visible from above, setigerous puncturation on sides of posterior corners present, lacking on sides of anterior corners; lateral calli absent; disc smooth, weakly dilated anterior to middle; puncturation on disc sparse, same as those on head with sparse and moderate punctures; lateral puncturation dense and distinctly larger; scutellum: smooth and without puncturation.

Elytra: suture length: 4.13 mm; width of elytra: 3.16 mm. Humeral calli present, elytra with regular elytral striae, strial puncturation smaller than those on side of pronotum; interspaces of elytral striae with fine, sparse puncturation. Epipleuron horizontal, smooth and without puncturation; outer border sharp, without bristles along inner side.

Legs: femora with dense puncturation; tibial apices each angularly dilated; hind tarsal segment 3 complete and entirely pubescent beneath; tarsal claws appendiculate.

Underside: hypomera without puncturation and shagreened; cilia of anterior margin of prosternum present; middle part of intercoxal prosternal process more than half width of apex; prosternum without puncturation, truncate behind, and not emarginate; anterior coxal cavities open behind; mesoventrite shorter than prosternum between coxae; intercoxal process of metaventrite margined and truncate anteriorly, with sparse puncturation; metaventrite shorter than prosternum; mesepisternum and metepisternum with sparse puncturation; abdominal segments with dense puncturation; first sternite of abdomen without carina; last abdominal sternite of male without emargination; pygidium with trapezoidal apex.

Medial lobe of the aedeagus with two wide symmetrical impressions at the sides near the apex; base not fissured (Figs. 15, 16).

#### VARIATIONS

All males of the type series are very similar in size, shape and luster. In the female the body is slightly longer and broader, but not significantly different from the male. The spermatheca is absent in the female of this species.

Measurements of the paratypes are as follows: body length: 5.14-5.28 mm; body width: 2.72-2.89 mm; length of pronotum: 0.91-1.20 mm; width of pronotum: 2.52-2.54 mm; suture length: 4.10-4.52 mm; width of elytra: 3.14-3.56 mm; dorso-ventral eye length: 0.12-0.21 mm; average interocular distance: 0.83-0.85 mm; average antennae segment (1-11) length (in milimeter): 0.20 : 0.10 : 0.13 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.08 : 0.16. (Fig. 18).

#### TYPE MATERIALS

Holotype: male, China: W. Hubei Prov., Dashennongjia Nat. Res., Muyu, E. Slope, 2000 m, 12-15 Jun. 1999, Bolm. lgt / Holotype / *Gonioctena warchalowskii* sp. nov., Daccordi M. & Ge S.Q., 2007 (IZAS). Paratypes: same data as holotype, 1 female type specimen is deposited in the IZAS collections; 1 female in BMNH collection and 1 male and 2 females, China, W Hubei, 17.VI.2000, Dashennongjia mts., 31.5°N - 110.3°E, 2400 m, Jaroslav Turna leg. are deposited in MDC collection.



## DIAGNOSIS

The new species is quite similar to *Gonioctena* (*Gonioctena*) *suwai* TAKIZAWA, which differs in the shape of the aedeagus (Figs. 21, 22, redrawn from TAKIZAWA 1985) and in having light brownish legs and dense broad puncturation on the elytral interstria. *Gonioctena* (*Gonioctena*) *filippovi* MEDVEDEV differs from *G. warchalowskii* in having the following characteristics: smaller dimensions (body length: 5.3 mm; width: 3.0 mm); pronotum black, sides of pronotum with distinctly denser puncturation, disc of pronotum with much smaller puncturation; elytra without markings; also the shape of aedeagus is quite different (Figs. 19, 20).

## DISTRIBUTION

China: Hubei.

## ACKNOWLEDGEMENTS

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