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Notes on the Male of *Balazucellus hubeicola* Deuve, 2001 (Coleoptera, Carabidae, Trechinae)

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Abstract The second specimen of *Balazucellus hubeicola* Deuve, 2001 is recorded from the type locality, Dashennongjia, Hubei, China. A complementary description including the characteristics of the male genitalia is given.

The genus *Balazucellus* Deuve, 2001, which belongs to the tribe Trechini of the subfamily Trechinae, is monotypic for *Balazucellus hubeicola* Deuve, 2001 described from Shennongjia in western Hubei, China. It is supposed to belong to the *Trechoblemus* phyletic series (Jeannel, 1928; Casale & Laneyrie, 1982; Casale *et al*., 1998). The type species was described based on a single female specimen theretofore known, and no additional record has appeared so far; thus, the systematic position of this genus is not conclusively clarified above all for lack of the male specimen. At the occasion of my visit to the National Museum of Nature and Science, Tsukuba (NSMT) in the autumn of 2017, I came across a minute trechine specimen with unfamiliar appearance, which is a male collected in 2002 from Shennongjia, among unsorted material of trechines without identification labels.

After a close examination, the male specimen was identified as *Balazucellus hubeicola*. As my identification was approved by the original author afterwards (Thierry Deuve, 2019, pers. comm.), I am going to record the second, and the first male, specimen of *B*. *hubeicola*, and to describe its morphological features in this report. Concerning the circumstances mentioned above, few remarks should be made; Dr. Shun-Ichi Uéno, who had arranged the trechine collection in NSMT at that time, has already suggested the presence of the specimen in his paper on new humicolous trechines from Shennongjia (Uéno, 2004, p. 277), in which he mentioned as "I have succeeded in finding out the natural habitats of all the described species of trechine beetles."

Before going further, I would like to express my sincere gratitude to Dr. Thierry Deuve (Muséum National d'Histoire Naturelle, Paris), who kindly confirmed my identification by examining the photographs of the specimen in question at my request and encouraged to write this paper. My cordial thanks are also due to Mr. Artur Gitzen (Neuhofen) for taking trouble to examine his private Trechini collection and to read the manuscript of this paper. I am very grateful to Dr. Hiraku Yoshitake (Kyushu Okinawa Agricultural Research Center, NARO, Itoman) for reading and correcting the draft, Dr. Munetoshi Maruyama (Kyushu University Museum, Fukuoka) for making the suggestive comments on the manuscript, and to Dr. Shûhei Nomura (NSMT) for his kind support for the examination of the specimens. Abbreviations used herein are as follows: HL — length of head, measured from clypeal apex to neck constriction along the mid-line; HW — maximum width of head; PL — length of pronotum, measured along the mid-line; PW — maximum width of pronotum; PA — width of pronotal apex; PB — width of pronotal base; EL — length of elytra; EW — maximum width of elytra.

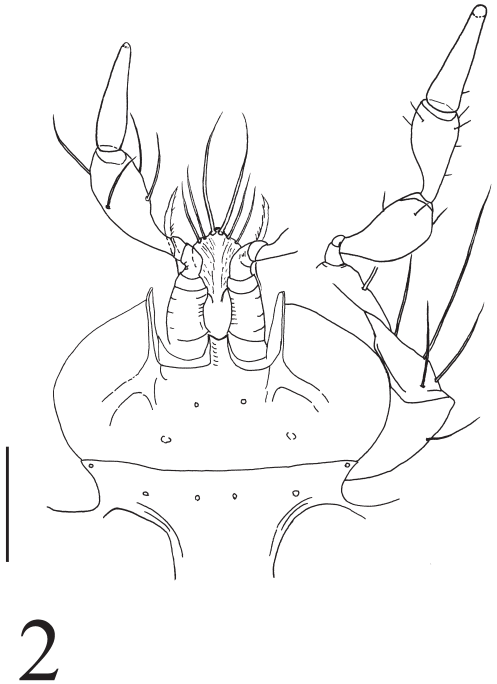

Fig. 1–2. *Balazucellus hubeicola* DEUVE, male. —— 1, Dorsal habitus (black spots on right elytron indicate the positions of marginal umbilicate and discal pores); 2, buccal appendages, ventral view. Scales: 0.50 mm for Fig. 1; 0.15 mm for Fig. 2.

Balazucellus hubeicola DEUVE, 2001

(Figs. 1, 2 & 3 a, d & e)

Balazucellus hubeicola DEUVE, 2001: 46, fig. 3 (type locality: Mont Dashennongjia, 2,800–3,000 m, Hubei, Chine).

Description. The following is only complementary to the original, concentrated chiefly on the morphometric data, male characters, and some features unnoticed in the original description.

M a l e. Body length (measured from the anterior margin of clypeus to apices of elytra): 2.99 mm. Head strongly transverse, though seems to be less so as compared with the habitus of the holotype; genae very tumid especially in posterior parts, rather densely covered with pubescence of various length and provided with two pairs of fairly long and stout temporal setae, which are located at upper and lower positions; pre-ocular suture conspicuous as in the holotype, linear and blackish, obliquely extending dorsad to the level of the anterior supraorbital pores; labrum blackish at the central part along the incised apical margin; ligula hexasetose with apical margin somewhat narrowly produced at middle; paraglossae ordinary; penultimate labial palpomere tumid behind middle, quadrisetose, and surmounted by thin subfusiform apical segment, which is widest before middle; penultimate maxillary palpomere short, widely, rather rapidly dilated towards apex and provided with several relatively long but thin hairs, apical maxillary palpomere widest at base and gradually narrowed towards blunt apex, with a few very minute vestigial hairs (Fig. 2). Scutellum large. Elytra with lateral margin only minutely serrulate throughout at each root of fringing cilia (“non serrulées” in the

Fig. 3. Male genitalia of the *Trechoblemus* series. —— a, d & e, *Balazucellus hubeicola*; b, *Duvaliopsis pilosella* (Miller); c, *Duvalioblemus sichuanicus* Deuve. —— a–c, Aedeagus, left lateral view; d, styles, left lateral view; e, aedeagus, dorsal view. Scale: 0.20 mm.

holotype); distance between the third and the fourth pore of marginal umbilicate series larger than those between the each preceding pores as in the holotype; apices somewhat truncate as in the holotype. Protarsus with proximal two segments dilated, stoutly spurred inwards at apices and provided beneath with adhesive appendages; mesotarsal segment 1 a little shorter than segments 2–3 combined; metatarsal segment 1 obviously longer than segments 2–3 combined, but shorter than segments 2–4 combined; last visible ventrite with a pair of apical marginal setae. Male genitalia remarkably large, much larger than those of the supposed relative, *Duvalioblemus sichuanicus* Deuve 1995 (Fig. 3 a & c). Aedeagus about three-sevenths as long as elytra, tubular and gently arcuate, tapering apicad towards the distinct apical tubercle, which is more strongly protruding dorsad than ventrad in profile; in lateral view, basal part broad but rather short, not strongly bent ventrad; basal orifice wide, with the sides gently emarginate; sagittal aileron large, convex on the ventral side and protruding caudad; in dorsal view, apical part inclined to the left and regularly attenuate to the apical tubercle, which is slenderer than in lateral view and slightly curved to the right. Inner sac armed with a small but clearly differentiated copulatory piece and two patches of weakly sclerotised teeth or scales; copulatory piece

lamellar, nail-shaped, located at about the level of the proximal end of apical orifice almost in ventral position; the left ventral teeth patch composed of larger teeth, located a little behind the copulatory piece, obliquely extending dorsad; the right dorsal teeth patch composed of smaller teeth or scales, positioned around the proximal end of the apical orifice and curving along the fold of the inner sac membrane. Styles relatively long; left style, which is a little longer than the right, with four apical setae, while the right with five setae.

Measurements. HL 0.474; HW 0.625; PL 0.600, PW 0.746; PA 0.581; PB 0.460; EL 1.785, EW 1.186; HW/HL 1.32; PW/HW 1.19; PW/PL 1.24; PW/PA 1.28; PW/PB 1.62; EW/PW 1.59; EL/PL 2.97; EL/EW 1.50.

Specimen examined. 1 ♂ (NSMT), Dashennongjia, 3,000 m alt., Shennongjia Linqu, W. Hubei, C. China, 11.V.2002, T. KISHIMOTO leg.

Notes. The line drawing of the habitus of the holotype of *Balazucellus hubeicola* is missing the labrum for some reason, while a pair of conspicuous temporal setae, which is not mentioned in the original description, is clearly illustrated on its gena on each side (DEUVE, 2001, p. 45). It is rather unexpected that *Balazucellus* possesses remarkably large aedeagus, which reminds us of the aedeagi of certain species of the *Trechus* CLAIRVILL or *Epaphius* LEACH lineages, even though its configuration also can be regarded as more or less similar to the aedeagi of species of the genus *Trechoblemus* GANGLBAUER or *Duvaliopsis* JEANNEL, both of which belong to the *Trechoblemus* series (Fig. 3 b). Among the previously known genera, *Duvalioblemus* DEUVE, 1995 from Sichuan, China seems to be most closely similar to *Balazucellus* in having the very short body with well but gently convex dorsum, and especially in strongly transverse, full-cheeked head with anteriorly incised labrum and bifid mentum tooth. The original author himself considered the relationships between these two genera and enumerated the diagnostic features of *Balazucellus* as follows: mentum free (mentum fused with submentum in *Duvalioblemus*); pre-ocular cicatrix conspicuous (more vestigial in *Duvalioblemus*); protibia without external groove (widely distinctly grooved in *Duvalioblemus*); recurrent striole of elytra effaced (short but distinct in *Duvalioblemus*); and pubescence on elytra denser (relatively sparse in *Duvalioblemus*) (DEUVE, 1995, 2001). Here, it seems to be necessary to note that the labial suture is visible in the subgenus *Yunnanoblemus* DEUVE, 2014 of *Duvalioblemus*, which accords with the nominate subgenus in other features mentioned above (DEUVE, 2014). Although DEUVE did not point out, the number of setae on both ligula and submentum of *Balazucellus* (= six) is smaller than that of *Duvalioblemus* (= usually eight); besides, humeral set of the marginal umbilicate series of the elytra is somewhat differently arranged between these two genera (fourth pore is somewhat isolated in *Balazucellus* while equidistantly arranged in *Duvalioblemus*). In addition to these, by the examination of the male specimen mentioned above, it became clear that *Balazucellus* differs from *Duvalioblemus* also in having the following features: male protarsi with two dilated segments (with single dilated segment in *Duvalioblemus* s. str., though unknown in the subgenus *Yunnanoblemus*); aedeagus considerably larger and distinctly tuberculate at apex (fairly small and simple at apex in the previously described species of *Duvalioblemus*). In connection with the last point, it should also be noted that according to BELOUSOV and KABAK (2003), one of the undescribed species of *Duvalioblemus* from northern Sichuan possesses the particularly modified aedeagal apex, which is hooked upwards. This characteristic may be indicative of the potentiality to form a tuberculate apex of the aedeagal apical lobe like that of *Balazucellus*, even though the aedeagus itself of this species is as small as those of the other congeners.

要　　約

内藤隆夫：*Balazucellus hubeicola* Deuve（鞘翅目オサムシ科チビゴミムシ亜科）の雄．――――中国湖北省大神農架から 1 雌のみに基づいて新属新種として記載されたアトスジチビゴミムシ属群の無眼のチビゴミムシ，*Balazucellus hubeicola* Deuve, 2001 の第二の個体を記録し，雄の第二次性徴および交尾器形態について追加記載を行った．本種との類縁性が推定される *Duvalioblemus* 属の構成種とは異なり，本種の雄前符節は基部 2 節が拡張し，雄交尾器中央片が特に大きい点が注目される．

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