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Notes on *Duvalioblemus sichuanicus* (Coleoptera, Trechinae), with Special Reference to its Habitat[1)]

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Abstract A brief supplementary note is given on the endogean anophthalmic trechine beetle, *Duvalioblemus sichuanicus* DEUVE, 1995. Its type locality is corrected to Mt. Wahui Shan, and the original account of its habitat is also revised.

Duvalioblemus sichuanicus is a small trechine beetle described from western Sichuan, Southwest China. It is the first endogean anophthalmic species known from China, and was carefully described by DEUVE (1995), who considered it to have certain remote relationship to *Aepiblemus caeculus* BELOUSOV et KABAK (1993) from Kazakhstan.

Early in the autumn of 1996, the authors had an opportunity to visit the type locality of this species and succeeded in obtaining a series of its topotypical specimens. A close examination of this material has revealed that DEUVE's original description is good in many respects, and there are only some morphometrical data that have to be supplemented. On the other hand, his account of the type locality is completely erroneous and misleading. It is obvious that DEUVE is not primarily responsible for this misdirection; he must have cited an incorrect memorandum of the anonymous collector.

In the present paper, the authors are going to give some supplementary accounts of this interesting species, and then to clarify the exact location of its habitat and the condition of existence. To supply such an information seems indispensable for future investigations of the endogean fauna of China, since endogean anophthalmic trechines were never discovered before in spite of careful searches made in various parts of the

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country. The abbreviations used herein are the same as those explained in the first author's previous papers.

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Duvalioblemus sichuanicus DEUVE, 1995

Duvalioblemus sichuanicus DEUVE, 1995, Revue fr. Ent., (N. S.), **17**, p. 16, figs. 3, 19–20; type locality: Mt. Wahui Shan [originally "col à 40 km au nord de Jiulong", "route entre Sabde et Jiulong"].

Length: 2.50–2.95 mm (from apical margin of clypeus to apices of elytra).

A small anophthalmic trechine beetle of elongate body form, with large head, small prothorax and elongated oval hind body; appendages short and stout. In fully mature specimens, body wholly reddish brown, shiny and translucent, with palpi, apical segments of antennae, and four posterior legs somewhat lighter than the other parts. In younger specimens, head and prothorax light reddish brown, hind body and legs yellowish brown, particularly on the ventral side. Microsculpture sharply impressed on head, consisting of polygonal meshes which are mostly wide but partially isodiametric; that on pronotum composed of fine, irregularly transverse lines partially forming transverse meshes; that on elytra mostly obliterated, though vestiges of fine transverse lines are perceptible here and there.

Head large, only a little shorter than pronotum, with convex genae which are sparsely covered with short pubescence; antennae short and stout, only reaching basal fourth of elytra, segments 6–9 each ovoid and about 1.5 times as long as wide, terminal segment the largest. Elytra elongate, feebly arcuate at the sides, with strongly rounded shoulders and distinct prehumeral borders; apices usually forming a re-entrant angle at suture, which is sometimes large and clearly separates one from the other; striae 1–3 distinct and punctate on the disc but more or less obsolete in basal area, stria 4 traceable though fragmentary, stria 8 impressed only near the middle and apical sets of marginal umbilicate pores; scutellar striole vestigial though perceptible; apical striole short but clearly impressed, only feebly curved anteriad, and free at the anterior end though seemingly directed to the site of stria 5. Aedeagus very small, only one-fourth as long as elytra, slender and lightly arcuate, with small basal bulb bearing a distinct sagittal aileron and blunt apex very slightly curved ventrad; copulatory piece anisotopic, spatulate, scaly on the surface, and acutely produced at the apex; styles narrow and rather short, each bearing four long setae at the apex. Other features as described by DEUVE.

Standard ratios of body parts in 16 mature specimens (excluding 2 teneral ones) are as follows: PW/HW 1.16–1.22 (M 1.18), PW/PL 1.21–1.30 (M 1.25), PW/PA 1.27–1.33 (M 1.29), PW/PB 1.41–1.56 (M 1.47), PB/PA 0.84–0.92 (M 0.88) [PA/PB 1.09–1.19 (M 1.14)], EW/PW 1.51–1.61 (M 1.56), EL/PL 2.78–3.05 (M 2.91), EL/EW

1.46–1.55 (M 1.50).

Specimens examined. 1 ♂, 27–IX–1996, M. SATÔ leg.; 4 ♂♂, 5 ♀♀ (incl. teneral 1 ♂, 1 ♀), 28–IX–1996, S. UÉNO, M. SATÔ, S. NOMURA & ZHAO L. leg.; 5 ♂♂, 3 ♀♀, 29–IX–1996, S. UÉNO, M. SATÔ & ZHAO L. leg.

Type locality. Mt. Wahui Shan, 3,930–3,940 m in altitude, of the Dichi Shan Mountains, in Jiulong Xian of western Sichuan, Southwest China.

Notes. DEUVE (*op. cit.*, p. 17) compared his *Duvalioblemus* with *Duvalius* in the belief that they should share isotopy of the copulatory piece. Actually, however, the sclerite is anisotopic in *Duvalioblemus* and is similar in basic conformation to those of *Kurasawatrechus*, *Stygiotrechus* and their relatives. In such archaic groups as the *Trechiama* series and the *Trechoblemus* series, the sclerite often takes ventral position by torsion of the inner sac without changing its conformation, and looks like an isotopic piece. On the other hand, DEUVE is certainly right in comparing his Chinese genus with *Oroblemites* and *Aepiblemus* of Central Asia, and in pointing out its remote affinity to the latter genus.

In describing *Aepiblemus*, BELOUSOV and KABAK (1993, pp. 139–141) made detailed comparison between their new genus and the then known genera belonging to the *Trechoblemus* complex and the subtribe Aepina. Their view is wrong in considering that the aedeagus of *Aepiblemus caeculus* shows a remarkable resemblance to those of *Aepus gracilicornis* WOLLASTON and *Thalassobius testaceus* SOLIER, but is otherwise thorough and convincing. It is above all interesting in pointing out close resemblance between *Aepiblemus caeculus* and *Daiconotrechus iwatai* (S. UÉNO) (1970, p. 610, figs. 4–6, 1971, p. 183, fig. 1) and genitalic similarity between the Central Asian species and *Gotoblemus ii* S. UÉNO (1970, p. 619, fig. 11).

The first author of the present paper (UÉNO) has examined all the known genera of these two groups, and has concluded that *Aepiblemus* may be a remote descendant of an *Oroblemites*-like ancestor, and that it may be the nearest known relative of *Duvalioblemus*. These genera are considerably different in details, but resemble each other in general appearance as well as in the elytral chaetotaxy and striation. Actually, they are very similar to each other, though a comparison of fig. 3 in DEUVE's paper (1995, p. 6) with fig. 9 in BELOUSOV and KABAK's (1993, p. 138) gives quite a different impression. Besides, DEUVE's illustration is misleading in showing denticulate pronotal hind angles and unusually broad oval elytra with the apical striole turning towards the third stria at the anterior end, though his description is correct as regards these points. Incidentally, the male genitalia are very small in all the genera under consideration, above all in *Aepiblemus*, in which the aedeagus is only about one-fifth as long as the elytra.

The conclusion that *Duvalioblemus* may be a remote relative of *Aepiblemus* naturally leads us to consider that *Duvalioblemus* may also be related to *Oroblemites* S. UÉNO et PAWŁOWSKI (1981, p. 148). The latter genus contains a single known species, *O. medvedevi* (JEANNEL) (1962, pp. 95, 96) from Tianshan, and is different from the Sichuan genus in many diagnostic features, including the presence of completely

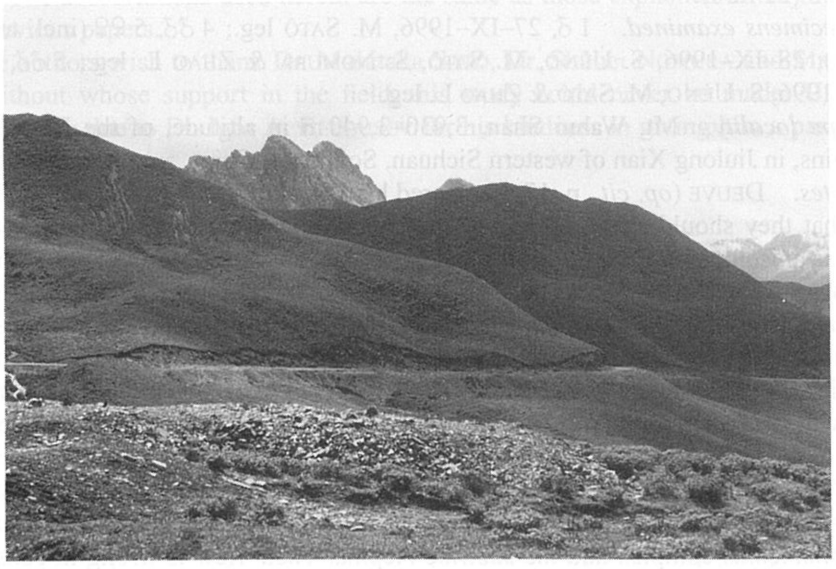


Fig. 1. Alpine grassland at the pass Wahuishan Shankou, Jiulong Xian, western Sichuan.

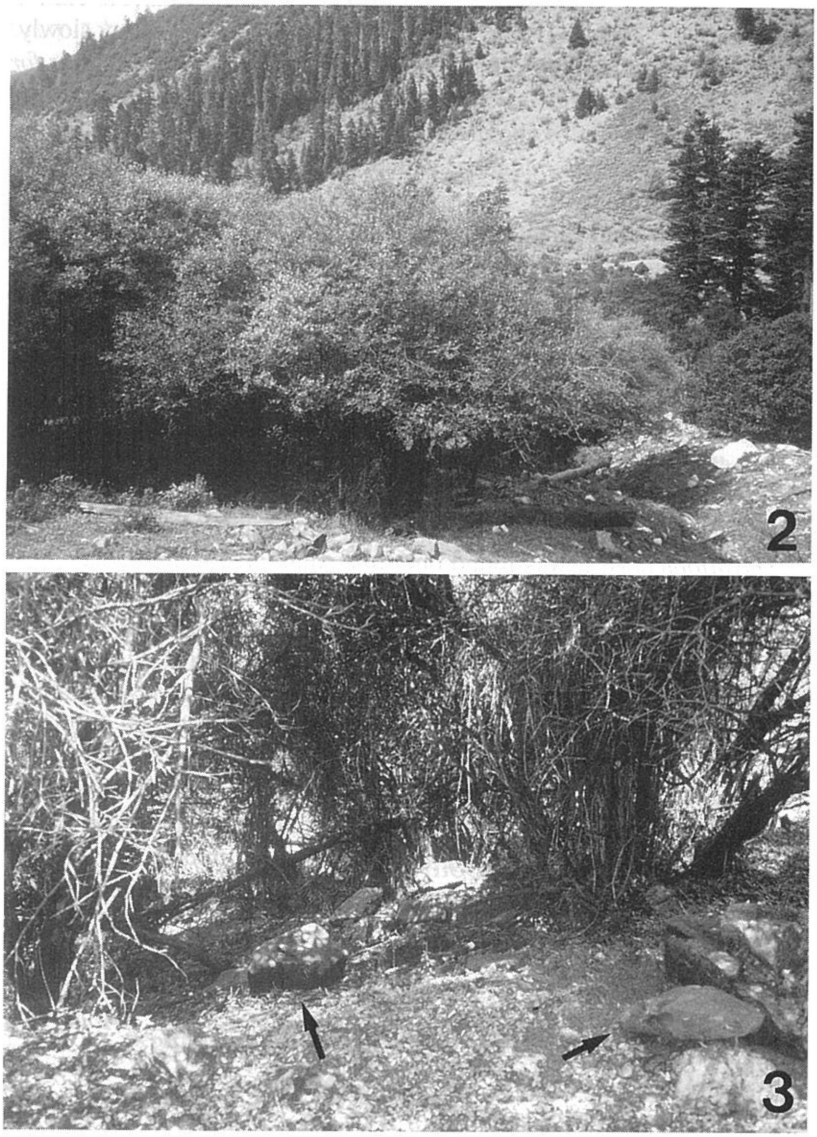
faceted eyes which are minutely pubescent. However, they are identical in the chaetotaxy and striation (though much reduced in *Duvalioblemus*) of the elytra, and also share very peculiar mode of pubescence on the dorsum, which is restricted to the humeral areas of the elytra. At the present moment, we are unaware of specific variation within respective genera, since all the three are monotypical. When other species of these or related genera are found in the wide intervening area, which is more than 2,500 km long in a bee-line, we shall be able to understand their phylogenetic relationship on a sounder basis.

Locality and Habitat

Duvalioblemus sichuanicus was described from "Chine, Sichuan, route entre Sabde et Jiulong, col à 40 km au nord de Jiulong, env. 3000 mètres, forêt de *Picea*." This account is, however, inaccurate in many respects, as was already pointed out in the introduction of this paper.

In the first place, the road leading from Sabde (now called Shade) to Jiulong is the highest at the pass called the Wahuishan Shankou on the borders of Kangding Xian and Jiulong Xian, which attains to a height of 4,350 m. It is situated about 38 km north of Ka'er, the central town of Jiulong, so that it must be the "col à 40 km au nord de Jiulong." However, it stands in an alpine grassland well above the timber-limit, where no anophthalmic trechines can be expected (cf. Fig. 1).

The town of Ka'er lies about 2,900 m above sea-level, and the 3,000 m point on



Figs. 2–3. Habitat of *Duvalioblemus sichuanicus* DEUVE on Mt. Wahui Shan in Jiulong Xian, western Sichuan. —— 2. A *Salix* thicket along the upper stream of the Jiulong He River, with small *Abies* forests at the back. —— 3. Ground under the *Salix* thicket; *Duvalioblemus* was found from beneath the large stones indicated by arrows.

the northward road along the Jiulong He River is marked in a narrow cultivated field surrounded by pine trees just outside the town. Vegetation in the valley slowly changes towards the north, and the sparse pine forest is replaced by a forest of *Abies forrestii* C. C. ROGERS at a height of about 3,700 m. It goes up for about 300 m in altitude and is abruptly replaced at a height of about 4,000 m by a low *Salix* thicket intermingled with *Rosa omeiensis* and *Quercus pannosa*, which extends for a short distance along the upper course of the Jiulong He. The timber-limit is at the bottom of a cirque at the western side of Mt. Wahui Shan. A beautiful picture of this place is shown on pages 116–117 of the "Nature Reserves in Sichuan Province" (ed. by HU Tieqing; 1991), since establishment of a new nature reserve to be called "Mt. Wahui Shan Nature Reserve" was planned by the Sichuan Forestry Department and the Chinese Academy of Sciences. Unfortunately, many of the *Abies* trees shown in the picture were recently cut down before protection by law, but they should have been there when the types of *Duvalioblemus sichuanicus* were collected, since this beautiful *Abies* forest must be the "forêt de *Picea*" noted in its original account.

Near the end of September, 1996, four entomologists from Japan and China made a three-day investigation in the Jiulong He drainage, and succeeded in locating the habitat of *Duvalioblemus*. It was found only in a small area in immediate proximity to the timber-limit of Mt. Wahui Shan, both in the *Abies* forest and in the *Salix* thicket. In the latter, which is nearer to the narrow stream of the Jiulong He, the trechine beetle was taken from beneath large stones embedded in the ground (cf. Fig. 3). It was invariably found on the soil, not on the surfaces of upturned stones, and was rather sluggish when exposed. This may be the usual mode of life for the trechine species, since the ground was humid everywhere under the thicket. In the *Abies* forest, which had been largely cleared, *Duvalioblemus* was mostly found from beneath abandoned logs, and a specimen was taken even from under a bark on the underside of a log. Since the ground in the clearances became dried, the anophthalmic trechine must have been attracted to the humid environment under large logs and survived there at least for the moment.

From what is explained above, it is evident that the collecting data of the type series of *Duvalioblemus sichuanicus* should be emended as follows: "Chine, Sichuan, entre Shade et Jiulong, mont Wahui Shan, env. 4,000 mètres, forêt d'*Abies*."

要　　約

上野俊一・赵　立軍：中国産地中性メクラチビゴミムシの一種 *Duvalioblemus sichuanicus* DEUVE，とくにその生息場所について．—— *Duvalioblemus sichuanicus* は，現時点で中国から知られる唯一の地中性メクラチビゴミムシで，四川省九龙县の瓦灰山で発見された．原記載は要をえたもので，この種の特性をよく表しているが，計測値がほとんど示されていないうえに，補足ないし修正を要する点もいくつかある．また，その基準産地については，"沙德と九龙のあいだで，九龙の北方40 kmにある峠，標高約 3,000 m，エゾマツ林" と記されているが，これにはいくつもの誤りがあり，そのためにわたしたちも生息地の特定に苦労した．実際の生息場

所は，圏谷の底にあるシラビソ類の森林限界付近で，標高は4,000 mに近く，大きい石や倒木の下の地中にすんでいる．峠自体（瓦灰山山口という）は森林限界よりかなり上に位置し，乾燥した高山の草地で，盲目地中性のチビゴミムシがすみうるような環境ではない．この論文では，原記載の不備を補うとともに，生息地を特定してその概況を説明し，基準産地も“瓦灰山”に改めた．

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Host Records of Two Species of Anobiidae (Coleoptera), and a Brief Note on the Egg-laying Behavior of *Oligomerus explanatus* SAKAI[1)]

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In the course of cerambycid research, we were unexpectedly able to confirm the host plants of two Japanese anobiids, *Holcobius japonicus* (PIC, 1903) and *Oligomerus explanatus* SAKAI, 1982.