

A New Anophthalmic *Trechiana* (Coleoptera, Trechiniae)
from Central Hokkaido, Northeast Japan^{1,2)}

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Abstract A new anophthalmic species of the trechine genus *Trechiana* is described from the southern part of the Sorachi Hills in central Hokkaido, Northeast Japan, under the name of *T. kuznetsovi*. It belongs to the group of *T. borealis*, and is mainly characterized by the peculiarly shaped pronotum with at least a pair of discal setae and the unique conformation of male genitalia.

Since the trechine fauna of the Hidaka and the Yûbari Mountain Ranges in central Hokkaido was dealt with by the senior author in 1971, nothing has been added to our knowledge about the *Trechiana* species occurring in this northern island of Japan. It is true that a strange *Trechiana*-like trechine beetle, *Accoella akirai* S. UÉNO (1990, p. 170, fig. 1), was discovered at the southern tip of southwestern Hokkaido, but it has no direct relationship with the group of *Trechiana borealis*, to which all the five, previously known species belong. This species-group is considered to have been derived from an ancestral species of the group of *T. oreas*, which somehow reached southern central Hokkaido across the sea by sweepstakes dispersal (cf. UÉNO, 1971, pp. 7, 26).

Recently, through the Russo-Japanese co-operative investigations of the East Asian insect fauna, a new species of anophthalmic *Trechiana* of the group of *T. borealis* was unexpectedly discovered at the southern part of the Sorachi Hills, which run at the western side of the Yûbari Range parallel to it and can be regarded as a branch ridge of the latter. Most striking is that this new trechine occurs at the foot of a hill only 519 m in height, whereas all the other members of the same species-group inhabit the alpine or the subalpine zone above 1,000 m in altitude. It will be described in the present paper under the name of *Trechiana kuznetsovi*.

1) This study is supported in part by the Grant-in-aid for Scientific Research No. 03640633 from the Ministry of Education, Science and Culture, Japan.

2) Report No. 17 from the Japan/Russia Cooperative East Asian Entomological Program.

The abbreviations used herein are the same as those explained in the senior author's 1971 paper (p. 6).

The authors wish to express their deep indebtedness to Dr. V. N. KUZNETSOV, Dr. A. B. EGOROV, Messrs. Susumu KANENO and Masahiro ÔHARA either for their kind help in the field or for obtaining additional information about the habitat of the new species.

Trechiana (s. str.) *kuznetsovi* S. UÉNO et LAFER, sp. nov.

(Figs. 1–3)

Length: 4.95–5.80 mm (from apical margin of clypeus to apices of elytra).

Belonging to the group of *T. borealis* and related to *T. inflexus* S. UÉNO (1971, pp. 8, 18, figs. 12–14) from Mt. Ashibetsu-daké and Mt. Yûbari-daké, both of which lie on the Yûbari Mountain Range, but distinguished at first sight from that species by its larger size, darker coloration, larger prothorax with much ampler and squarer basal part, much less sinuate sides, less acute hind angles and at least a pair of discal setae, more ovate elytra with broader basal parts, more salient shoulders and much deeper and distinctly punctate striae, the 5th of which joins apical striole, and differently shaped aedeagus with differentiated coupulatory pieces.

Body robust, with small head, fairly large subcampanulate prothorax and large ovate hind body. Colour reddish brown, darker than in *T. inflexus*, shiny, and faintly iridescent on elytra; palpi, apical halves of antennae, and legs more or less lighter than dorsum.

Head small, about as wide as or slightly wider than long, widest a little behind middle, and moderately depressed above, with wide neck and shallow neck constriction; frontal furrows deep throughout, rather feebly curved and not angulate at middle; frons and supraorbital areas moderately convex; microsculpture distinct, mostly consisting of transverse meshes and lines; trace of eyes distinct though small; genae feebly and evenly convex, completely devoid of hairs; neck constriction shallow and not sharply marked; labrum transverse, widely emarginate at apex; mandibles fairly slender, briefly but sharply arcuate at apices; mentum tooth porrect and bifid; palpi slender, with penultimate segments gradually dilated towards apices and apical segments gradually tapered towards blunt tips; antennae filiform though rather short, reaching or extending slightly beyond basal third of elytra, segment 2 the shortest, slightly shorter than each of segments 8–10 and three-fourths as long as segment 3, which is about as long as 4 or 5, segments 6 and 7 subequal in length and slightly shorter than the preceding segments, segment 8 about three-eighths as wide as long, terminal segment the longest, obviously longer but narrower than scape.

Pronotum subcampanulate, much wider than head, distinctly wider than long, widest at about two-thirds from base or a little behind that level, and much more strongly contracted at apex than at base; PW/HW 1.38–1.49 (M 1.43), PW/PL 1.18–1.28 (M 1.22), PW/PA 1.47–1.56 (M 1.53), PW/PB 1.09–1.17 (M 1.13); sides gently

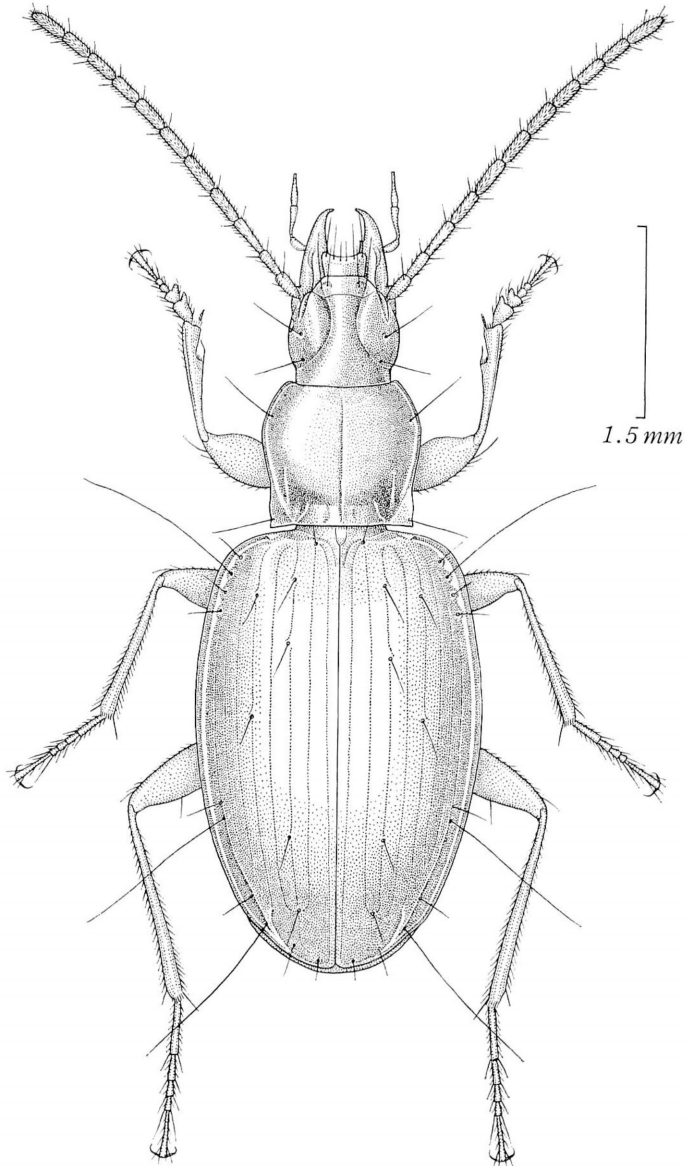


Fig. 1. *Trechiana* (s. str.) *kuznetsovi* S. UÉNO et LAFER, sp. nov., ♂, from Noborikawa in central Hokkaido.

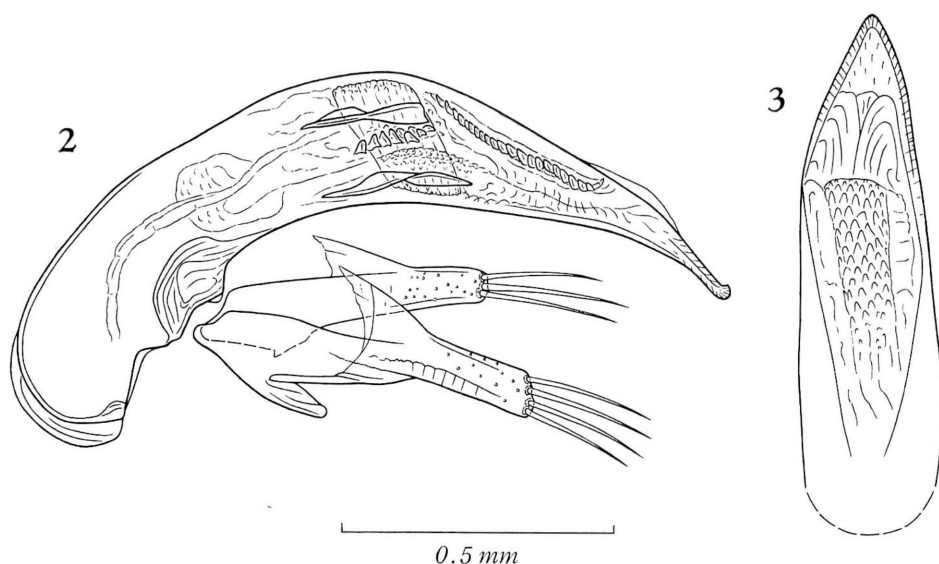
and evenly arcuate in front, slightly sinuate at about basal third, and then either sub-parallel or slightly convergent towards hind angles, which are rectangular though often obtusely denticulate laterad at the corners; lateral borders narrow in front, becoming wider behind middle, and widely reflexed in basal part; both lateral and postangular

setae present, the latter slightly removed forwards; apex either straight or slightly emarginate, with front angles obtusely produced forwards; base much wider than apex, PB/PA 1.29–1.42 (M 1.35), either almost straight or very slightly bisinuate; surface convex and smooth, usually with a pair of discal setae at about three-fifths from base, sometimes also with an additional seta on one side; basal part very wide, ample; microsculpture formed by fine transverse lines, though partially degenerated; median line deeply impressed, somewhat widened in basal area and almost reaching base; apical transverse impression obsolete, basal one deep though mostly contained in large basal foveae and interrupted at middle; basal foveae large and deep, somewhat uneven at the bottom, and divergent anteriorly; postangular carinae distinct though sometimes obtuse; basal marginal area more or less uneven.

Elytra ovate, much wider than prothorax and obviously longer than wide, usually widest at about three-sevenths from bases, and more gradually narrowed towards apices than towards bases, with broad ample basal parts; EW/PW 1.58–1.72 (M 1.66), EL/EW 1.47–1.57 (M 1.52); shoulders distinct though rounded; humeral borders reaching the base of interval 6 but not the base of stria 5 as the latter abruptly curves inwards at the basal portion; sides widely reflexed before middle, gently arcuate from behind shoulders to the level of the apicalmost pore of the marginal umbilicate series, and then conjointly rounded at apices, each usually with very slight preapical emargination; surface convex though rather widely depressed on the disc, with steep apical declivity; microsculpture mostly obliterated, though consisting of fine transverse lines; striae entire, deeply impressed and clearly punctate throughout, striae 4–5 inwardly curved at the basal parts, 8 deepened behind the middle set of marginal umbilicate pores; scutellar striole deep; apical striole also deep, rather strongly arcuate, and joining stria 5; intervals slightly convex on the disc; apical carina prominent; stria 3 with three setiferous dorsal pores at $1/9$ – $1/8$, about $1/3$ and about $2/3$ from base respectively; preapical pore situated at the apical anastomosis of striae 2 and 3, and much more distant from apex than from suture; stria 5 with two setiferous dorsal pores at $1/7$ – $1/5$ and $3/7$ – $1/2$ from base respectively; humeral set of marginal umbilicate pores regular, the four pores being ranged equidistantly.

Ventral surface smooth; anal setae as usual for a member of the *borealis* group. Legs rather stout; protibiae straight, moderately dilated towards apices, each with a deep longitudinal groove on the external face; tarsi not particularly slender; in ♂, two proximal segments of each protarsus widely dilated, stoutly produced inwards at apices, and furnished beneath with adhesive appendages.

Male genital organ fairly large and heavily sclerotized. Aedeagus elongate, three-eighths as long as elytra, gently arcuate from base to apex, lightly depressed, tubular in basal half, and gradually narrowed from behind middle in profile, with apical lobe flattened and moderately curved ventrad; basal part elongate, not abruptly bent, with small basal orifice, whose sides are deeply emarginate; sagittal aileron present though narrow; apical lobe elongated subtriangular in dorsal view, very narrow and dorsally tuberculate at the tip in lateral view; ventral margin shallowly, widely and unevenly



Figs. 2-3. Male genitalia of *Trechiana* (s. str.) *kuznetsovi* S. UÉNO et LAFER, sp. nov., from Noborikawa in central Hokkaido; left lateral view (2), and apical part of aedeagus, dorso-apical view.

emarginate in profile. Inner sac armed with three anisotropic copulatory pieces, one right lateral and two left lateral, and two groups of sclerotized teeth; right lateral copulatory piece vertical, lamellar and rolled; left lateral ones narrow and twisted, horizontally lying one above the other at the middle of aedeagus and partially enveloped with minute scales covering folded sac membrane; proximal teeth-patch left lateral, lying just below dorsal sclerite, consisting of large teeth, and mostly covered with minute scales of sac membrane; dorso-apical teeth-patch much larger than the left lateral, horizontally extending backwards from apical orifice. Styles large and elongate, left style being much larger than the right, each usually bearing four long setae at the apex, though the right style sometimes lacks one of them.

Type series. Holotype: ♂, allotype: ♀, 2-VII-1992, V. N. KUZNETSOV leg. Paratypes: 5 ♂♂, 4 ♀♀, 2-VII-1992, V. N. KUZNETSOV leg.; 1 ♂, 2-VII-1992, S. KANENO leg.; 4 ♂♂, 1 ♀, 20-VII-1992, M. ÔHARA leg.

The holotype and allotype are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are distributed to the above collection and that of the Institute of Biology and Pedology, Far East Branch of the Russian Academy of Sciences, Vladivostok.

Type locality. Noborikawa, 240 m in altitude, of Momijiyama in Yûbari-shi, central Hokkaido, Northeast Japan.

Notes. Because of the broad body form, broad basal part of pronotum and elongate aedeagus, this new species is most closely related to *T. inflexus* S. UÉNO of the

Yûbari Mountains. This is also suggested by the geographical situation of the type locality, which is only 23 km distant to the south-southwest by west from Mt. Yûbaridaké and lies near the spot where the southern extension of the Yûbaris approaches to that of the Sorachis. The new species is, however, considerably different from the latter not only in external morphology but also in aedeagal structure. The presence of discal setae on pronotum is of particular interest, since these setae are known to exist only in *T. watanabei* S. UÉNO (1971, pp. 7, 15, fig. 11), which occurs at the middle altitude of Mt. Tottabetsu-daké of the Hidakas, and are absent in all the high altitude members of the species-group. Besides, the differentiated inner armature of male genitalia is unique to *T. kuznetsovi*. Though the aedeagal tube itself resembles that of *T. inflexus*, this species possesses a hyaline vertical lamella as is found in *T. borealis* S. UÉNO (1961, p. 331, figs. 1-2; 1971, pp. 7, 8, figs. 1-6) in addition to two narrow sclerites.

The habitat of *T. kuznetsovi* was found along a narrow stream near Kaedé coal mine. This stream is one of the headsprings of the Horoka-kuruki-gawa, a tributary of the Yûbari-gawa River that flows northwest into the Sea of Japan. There is a small dam across the narrow stream at an elevation of 240 m, forming a thin deposit of soil and gravel at its base. It is this spot that harbours the trechine beetle, which is neither upper hypogean nor even endogean at least early in the summer. All the type specimens were found either from beneath stones or from the thin deposit of soil, and were fairly active when exposed.

The discovery of *T. kuznetsovi* at a low altitude of the Sorachi Hills suggests that other new species of the same lineage could be found on the low hills at the eastern side of the Ishikari Lowland. It is to be hoped that careful investigations, particularly of the upper hypogean zone, will be made in that part of Hokkaido in near future and bring those trechine beetles to light.

要 約

上野俊一・G. Sh. LAFER: 道央地方産ナガチビゴミムシ属の1新盲目種。——北海道空知山地の南部、夕張市紅葉山登川で発見されたナガチビゴミムシ属の盲目種を新種と認め、ズンドウメクラチビゴミムシ *Trechiana* (s. str.) *kuznetsovi* S. UÉNO et LAFER と命名し記載した。この種はヒダカメクラチビゴミムシ種群に属し、夕張山地の高山帯から知られるユウバリメクラチビゴミムシに類縁に近いが、大型で、基部の異常に広い前胸背板に1対以上の背剛毛があり、雄交尾器の形状もいちじるしく異なっている。同じ種群の既知種がすべて高山性ないし亜高山性であるのに対して、この新種が標高わずか 240 m の山麓に生息することは、今後も新しい盲目種の発見があるだろうと予測させるものである。

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Elytra, Tokyo, **20** (2): 143, Nov. 15, 1992

A New Locality of *Trechiana sichotanus* (Coleoptera, Trechinae)

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Trechiana (Leptepaphiama) sichotanus (LAFER) (originally *Leptepaphiama sichotana* LAFER, 1989, *Opred. Nasek. Dal'nego Vostoka SSSR*, **3** (1), p. 143, fig. 89–1) is a remarkable trechine beetle described from four females collected in the subalpine zone of Mt. Lysaya on the Khrebet Partizanskij u Benevskogo in Primorskij Kray. They were found from under stones lying beside the headspring of a narrow stream at 1,400–1,500 m in altitude.

On a recent collecting trip, a female specimen of this species was collected on the western side of the same mountain range to the southwest of the type locality. It was dug out from the upper hypogean zone about 50 cm below the surface at an elevation of only 480 m. This can be considered to be an example of the well known fact that anophthalmic or micropthalmic trechine beetles occur underground at low elevations but are rather frequently met with on or near the surface at the heights of mountains.

The collecting data of the specimen in question are as follows: 1 ♀, Mt. Konstantinopol, Malaja Muladza Valley, 480 m alt., Partizanskij Khrebet, Partizanskij Co., Primorskij Kray, 13–VIII–1992, S. UÉNO leg. (NSMT).

This specimen, 6.00 mm in the length of body, is somewhat different from the type series in the shape of pronotum, which is more widely dilated anteriorly and has the sides more strongly arcuate in front, but otherwise agrees with the latter in all the important points. The standard ratios of its body parts are as follows [those of the type series are given in brackets]: PW/HW 1.43 [1.34–1.38], PW/PL 1.11 [1.07–1.10], PW/PA 1.49 [1.45–1.48], PW/PB 1.64 [1.52–1.53], PB/PA 0.91 [0.95–0.97], EW/PW 1.86 [1.87–1.90], EL/EW 1.45 [1.44–1.47].