

New Records of *Kurasawatrechus* (Coleoptera, Trechinae) from Central Shinano, Central Japan

Shun-Ichi UÉNO

Department of Zoology, National Science Museum (Nat. Hist.),
3–23–1 Hyakunin-chô, Shinjuku, Tokyo, 169–0073 Japan

Abstract Two endogean species of the trechine genus *Kurasawatrechus* are recorded for the first time from the central part of the Province of Shinano, Central Japan. One of them is *K. kawaguchii* S. UÉNO hitherto known from the northern part of the Southern Japanese Alps including a tuff cave on a foothill, and the other is a new species related to it and described under the name *K. matsuii* S. UÉNO.

Late in the spring of 1993, I made a short collecting trip to the central part of Nagano Prefecture, or Shinano Province, with Yoshiaki NISHIKAWA and Shinzaburo SONE. Our main target was to locate certain habitats of anophthalmic trechine beetles, either endogean or upper hypogean, since no such beetles had theretofore been known from the area. In Nagano Prefecture, anophthalmic trechines had been recorded before that time from only the alpine and subalpine zones of the so-called Japanese Alps, or the Hida and the Akaishi Mountain Ranges, and a tuff cave lying at the northern foot of the latter (UÉNO, 1973, 1974, 1979). It was, however, expected that certain anophthalmic trechines, endogean species in particular, should occur on lower mountains in the central part of the province.

This trip was unfortunately not so successful as we expected. The only one station that was found to be inhabited by an endogean trechine of the genus *Kurasawatrechus* yielded females alone, and though it looked similar to *K. kawaguchii* previously known from the Southern Japanese Alps, it was impossible to determine its true identity without examination of male genitalic characters.

In the meanwhile, a specimen of another *Kurasawatrechus* collected in the area concerned was submitted to me for taxonomic study by Masamichi MATSUI through his brother Masafumi, an eminent herpetologist. A close examination of this specimen, fortunately a male, proved that it was different from *K. kawaguchii* in both external and genitalic features, but as the differences were rather subtle, it was not easy to decide definitely whether they were of specific importance or merely of subspecific value. To obtain ampler material, particularly males, was essential for drawing the final conclusion.

At last in the summer of 1998, I found an opportunity to make a searching investigation of the two areas, and with the aid of Akiko SAITO, succeeded in obtaining ade-

quate materials including males. A careful examination of this collection has revealed beyond doubt that the specimen first collected by MATSUI belongs to a new species and that the specimens collected by myself in 1993 should be identified with *K. kawaguchii*.

In the present paper, I am going to describe the new species under the name of *K. matsuii* and to record the other as the northernmost known population of *K. kawaguchii*. The abbreviations used herein are the same as those explained elsewhere.

I wish to express my heartfelt thanks to the following friends of mine, who either offered invaluable specimen for my study or helped my investigations in the field: Drs. Masamichi MATSUI, Masafumi MATSUI, Yoshiaki NISHIKAWA, Akiko SAITO and Shinzaburo SONE.

Kurasawatrechus kawaguchii S. UÉNO, 1973

Kurasawatrechus kawaguchii S. UÉNO, 1973, Bull. natn. Sci. Mus., Tokyo, **16**, p. 20, figs. 4–6; type locality: Mt. Nyûgasa-yama; 1979, Mem. natn. Sci. Mus., Tokyo, (12), p. 117; 1985, Coleopt. Japan Col., Osaka, **2**, p. 86, pl. 16, fig. 11. — CASALE & LANEYRIE, 1982, Mém. Biospéol., Moulis, **9**, p. 99.

Additional specimens examined. 5 ♀♀, 30–V–1993, S. UÉNO leg.; 7 ♂♂, 2 ♀♀, 10–VIII–1998, S. UÉNO & A. SAITO leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

New locality. Mozawa-yama, head of the Dakimawashi-zawa, 1,270 m in altitude, in Takeshi-mura of Nagano Prefecture, Central Japan.

Notes. The specimens recorded above perfectly accord in both external and genitalic features with the type and other previously known specimens of *Kurasawatrechus kawaguchii* from the northern part of the Southern Japanese Alps. The standard ratios of the body parts in the fourteen specimens examined from the Dakimawashi-zawa (length of body 3.20–3.60 mm) are as follows: PW/HW 1.34–1.44 (M 1.39), PW/PL 1.13–1.21 (M 1.16), PW/PA 1.28–1.40 (M 1.34), PW/PB 1.26–1.35 (M 1.31), PB/PA 0.97–1.08 (M 1.02) [PA/PB 0.93–1.03 (M 0.98)], EW/PW 1.56–1.65 (M 1.61), EL/PL 2.55–2.71 (M 2.61), EL/EW 1.36–1.44 (M 1.40).

The Dakimawashi-zawa is a small upper branch of the Ozawané-gawa, a tributary of the Chikuma-gawa River, and flows down the northeastern slope of Mozawa-yama, which lies on the eastern continuation of Utsukushigahara. The new collecting sites of *K. kawaguchii* lie in a deciduous broadleaved forest along the stream of the gully. They are about 25.5 km distant to the north-northeast from Kaza-ana Cave on Ryû'unji-yama, the northernmost locality of the species previously known, and about 37.5 km distant to the north from Mt. Nyûgasa-yama, the type locality.

At this locality, the anophthalmic trechine beetle was first found from almost vertical fissures of weathered shale at the roadside about 10 m above the stream of the gully. Since this spot had already been dug down to solid bed rock, we went upstream in 1998 to look for other habitats of the beetle, and succeeded in locating a similar place about 60 m removed from the roadside one. It was a shallow hollow at the foot of

a cliff of weathered shale just above the water, and fissures were not vertical though slanting and mostly filled with slime. It was therefore not difficult to remove layers of small slabs from the bed rock. The trechine beetle was usually found crawling on the surface of slabs thinly coated with slime and also on the bed rock which was likewise coated with slime. Since the succeeding new species was also found under a very similar condition, narrow fissures of weathered rocks must be an ordinary habitat of such small short-legged anophthalmic trechines as the members of *Kurasawatrechus*.

***Kurasawatrechus matsuii* S. UÉNO, sp. nov.**

[Japanese name: Matsui-mekura-chibigomimushi]

(Figs. 1–3)

Length: 2.95–3.25 mm (from apical margin of clypeus to apices of elytra).

Closely allied to *K. kawaguchii*, but different in the ampler pronotum with obviously broader basal part, thinner antennae with briefly stalked middle segments, coarser and largely reticulate microsculpture of elytra, a little more extensive pubescence on abdominal sternites, and less regularly arcuate aedeagus with nearly straight apical half.

Somewhat smaller on an average than *K. kawaguchii*; coloration as in the latter. Microsculpture distinct on head, mostly consisting of isodiametric meshes on frons and supraorbital areas but of wide meshes on vertex, and also distinct on pronotum where the reticulation is mostly wide; microsculpture of elytra obviously coarser than in *K. kawaguchii*, mostly consisting of wide meshes instead of fine transverse lines though partially formed by irregularly transverse lines.

Head as in *K. kawaguchii*, but the genae are less convex at the posterior parts and the antennae are evidently thinner and much less stoutly submoniliform; antennae reaching basal three-tenths of elytra in ♂, basal fourth of elytra in ♀, segment 2 only slightly shorter than scape and about three-fourths as long as segment 3, which is somewhat longer than 4, segments 5–10 very slightly decreasing in length towards apex, each elongated subovate with brief stalk and nearly 2.5 times as long as wide, terminal segment the largest, about as wide as and much longer than scape.

Pronotum ampler than in *K. kawaguchii*, with obviously broader basal part; PW/HW 1.36–1.41 (M 1.39), PW/PL 1.13–1.20 (M 1.16), PW/PA 1.28–1.35 (M 1.33), PW/PB 1.20–1.23 (M 1.21); sides less strongly arcuate in front, a little more gradually convergent posteriad, widely sinuate at about basal two-sevenths, and then more or less divergent towards hind angles; apex always narrower than base, PB/PA 1.05–1.12 (M 1.09) [PA/PB 0.89–0.96 (M 0.92)], the latter very slightly emarginate at middle; front angles porrect, hind angles sharp though usually a little less so than in *K. kawaguchii*.

Elytra similar to those of *K. kawaguchii* though less convex on dorsum; EW/PW 1.54–1.65 (M 1.59), EL/PL 2.49–2.69 (M 2.58), EL/EW 1.38–1.41 (M 1.40); striation as in *K. kawaguchii*, apical striole almost straight in front and directed either to stria 7 or to stria 5; chaetotaxy as in *K. kawaguchii*.

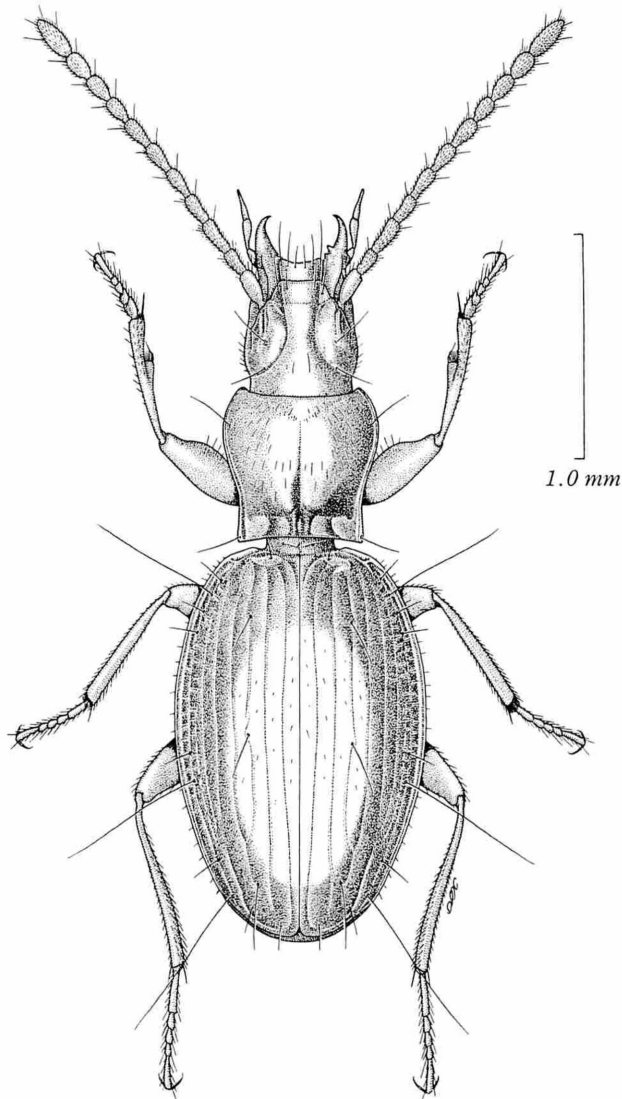
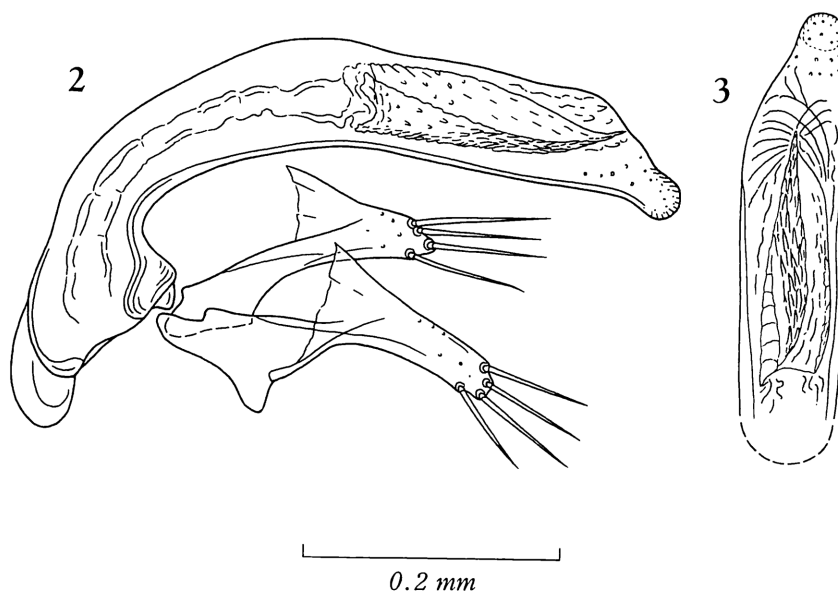


Fig. 1. *Kurasawatrechus matsuii* S. UENO, sp. nov., ♂, from the Ishidô-sawa on Higashitarô-yama.

Ventral surface a little more extensively pubescent than in *K. kawaguchii*. Legs as in the latter.

Male genital organ similar to that of *K. kawaguchii*, but different in configuration of aedeagal tube and copulatory piece. Aedeagus two-sevenths as long as elytra, tubular though widely membraneous on dorsum, moderately arcuate in proximal half but nearly straight in apical half, with the basal part strongly bent ventrad, shallowly emarginate at the sides of basal orifice and provided with an elongate sagittal aileron; viewed dorsally, apical lobe inclined to the left, briefly parallel-sided, and widely



Figs. 2–3. Male genitalia of *Kurasawatrechus matsuii* S. UÉNO, sp. nov, from the Ishidô-sawa on Higashitarô-yama; left lateral view (2), and apical part of aedeagus, dorsoapical view (3).

rounded at the tip; viewed laterally, apical lobe curved ventrad and widely rounded at the tip; integument becoming thinner at the ventral side of the terminal portion, forming a round “window”. Copulatory piece large, nearly two-fifths as long as aedeagus, largely covered with sclerotized scales, and with very thin apical portion. Styles large, left style much longer than the right, each bearing four stout setae at the apex.

Type series. Holotype: ♂, allotype: ♀, 9–VIII–1998, S. UÉNO & A. SAITO leg. Paratypes: 1 ♂, 3–VI–1971, M. MATSUI leg.; 1 ♀, 9–VIII–1998, S. UÉNO & A. SAITO leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Ishidô-sawa on Higashitarô-yama, 730 m in altitude, at Nakagumi of Sanada-machi in Nagano Prefecture, Central Japan.

Notes. Though closely related to *K. kawaguchii*, the Ishidô-sawa population of *Kurasawatrechus* is doubtless different from it at the species level. The differences are above all pronounced in configuration of the antennae, the basal part of the pronotum, and the apical half of the aedeagus. I am therefore thoroughly convinced at present that the Chikuma-gawa Valley forms a barrier against the subterranean dispersal of *Kurasawatrechus*, *K. matsuii* on the right side and *K. kawaguchii* on the left.

The Ishidô-sawa is a branch of the Soéhi-gawa flowing down the northern slope of Higashitarô-yama lying to the north of Ueda City. The collecting site of *K. matsuii* is located in a mixed forest of evergreen conifers and deciduous broadleaved trees near the mouth of the branch stream. It is about 27 km distant to the north-northeast from

the Dakimawashi-zawa on Mozawa-yama, which is the northernmost known locality of *K. kawaguchii*. All the known specimens of the present species were found from nearly horizontal fissures of weathered shale lying on the left side of the stream about 1 m above the water. We searched for other habitats of the beetle along the narrow stream, but failed in finding out any.

要 約

上野俊一：信濃中央部から新たに記録されるクラサワメクラチビゴミムシ類。——長野県中央部の武石村南部と真田町南西部とから、それぞれ1種の地中性メクラチビゴミムシを新たに記録した。前者は、これまで南アルプスの北部のみから知られていたカマナシメクラチビゴミムシ *Kurasawatrechus kawaguchii* S. UENO に同定され、種の分布域が北へ大きく延びた。後者もこの種に近縁のものだろうと考えられるが、触角、前胸部、雄交尾器などの形状や微細印刻のようすに明らかな差異があるので別種と認め、発見者の松井正通博士に捧げてマツイメクラチビゴミムシ *Kurasawatrechus matsuii* S. UENO と命名し、この論文に記載した。

References

- CASALE, A., & R. LANEYRIE, 1982. Trechodinae et Trechinae du monde. Tableau des sous-familles, tribus, séries phylétiques, genres, et catalogue général des espèces. *Mém. Biospéol., Moulis*, **9**: i+1–226 [with “Addenda et corrigenda jusqu’en 1982”, 6 pp. (1989)].
- UENO, S.-I., 1973. Two new endogean *Kurasawatrechus* (Coleoptera, Trechinae) from the Japanese Alps. *Bull. natn. Sci. Mus., Tokyo*, **16**: 15–22.
- 1974. A new subalpine species of the genus *Kurasawatrechus* (Coleoptera, Trechinae). *Kontyû, Tokyo*, **42**: 265–269.
- 1979. The blind trechine beetles of the genus *Kurasawatrechus* from the Southern Japanese Alps. *Mem. natn. Sci. Mus., Tokyo*, (12): 113–122.
- 1985. Carabidae (Nebriinae, Elaphrinae, Loricarinae, Scaritinae, Broscinae, Trechinae). In UENO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 54–88 [incl. pls. 11–16]. Hoikusha, Osaka. (In Japanese, with English book title.)