

New Anophthalmic Trechines of the *Trechiamma tamaensis*
Complex (Coleoptera, Trechinae)¹⁾

Shun-Ichi UÉNO

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

and

Shinzaburo SONE

Nihon Bayer Agrochem K. K., Yuki Research Center,
Yuki 9511–4, Ibaraki, 307 Japan

Abstract Two new species of anophthalmic trechine beetles belonging to the *Trechiamma tamaensis* complex are described from the vicinities of Mt. Fuji-san under the names of *T. masaakii* and *T. tanzawanus*. The former seems most plesiomorphic of the species-complex, while the latter varies in chaetotaxial characters towards the *echigonis* complex.

In 1981, the senior author dealt with the anophthalmic trechine beetles belonging to the *tamaensis* complex of the group of *Trechiamma habei*, and classified the specimens then known into three allopatric species (cf. UÉNO, 1981). Five years later, a fourth species was discovered on the Miura Peninsula and was described under the name of *T. terraenovae* (UÉNO, 1988). Two more species of the same species-complex were recently found in the vicinities of Mt. Fuji-san, one from the eastern end of the Misaka Mountains and the other from the western part of the Tanzawa Mountains. Both are chaetotaxially unusual for members of the *tamaensis* complex, and are taxonomically important in this respect. They will be described in the present paper under the names *T. masaakii* and *T. tanzawanus*.

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

Before going into details, the authors wish to express their hearty thanks to Messrs. Sumao KASAHARA and Masaaki NISHIKAWA for their kindness extended to them during the course of this study, and to Naomi SONE who helped excavations on Mt. Mitsutôgê-yama.

1) This study is supported by the Grant-in-aid No. 06640914 for Scientific Research from the Ministry of Education, Science and Culture, Japan.

Trechiana (s. str.) *masaakii* S. UÉNO et SONE, sp. nov.

[Japanese name: Mitsutôgê-mekura-chibigomimushi]

(Figs. 1-4)

Length: 4.75-5.15 mm (from apical margin of clypeus to apices of elytra).

Belonging to the *tamaensis* complex of the group of *T. habei* (cf. UÉNO, 1981, 1988) and recognized at first sight on the presence of preapical pore on elytra, with the exception of certain unusual individuals of *T. varians* S. UÉNO (1981, p. 122, figs. 2, 7-8, 11). Probably related to *T. pallidior* S. UÉNO (1981, p. 127, figs. 3, 9-10), but the prothorax is obviously more transverse, and the elytra are a little shorter on an average and more widely depressed on the disc, with stria 2 always forming an apical anastomosis with stria 3. Readily recognized also on unusually short aedeagus and other peculiarities of male genitalia.

Colour as in *T. pallidior*, relatively pale. Head generally similar to that of *T. pallidior*, but a little more transverse with more regularly convex genae; antennae reaching or almost reaching the middle of elytra. Pronotum larger and obviously more transverse than in *T. pallidior*, widest at about two-thirds from base, and a little more strongly contracted towards ante-basal constriction than towards front angles, with the sides strongly arcuate in front, deeply sinuate at a level between basal fifth and fourth, and then divergent towards hind angles, which are sharp and posterolaterally produced; PW/HW 1.41-1.44 (M 1.43), PW/PL 1.20-1.25 (M 1.23), PW/PA 1.44-1.47 (M 1.45), PW/PB 1.40-1.48 (M 1.44); apex either very slightly emarginate or slightly bisinuate, about as wide as base, PB/PA 0.97-1.04 (M 1.01), with front angles blunt and only slightly produced forwards; base either widely emarginate or nearly straight at middle; sculptures as in *T. pallidior*, though the basal transverse impression bears a distinct longitudinal foveole on each side of median line.

Elytra similar in many respects to those of *T. varians*, relatively short, ovate, widest at about four-ninths from base, and widely depressed on the disc; EW/PW 1.64-1.68 (M 1.66), EL/EW 1.47-1.50 (M 1.48); striae as in *T. varians*, but the stria 2 always forms an apical anastomosis with the stria 3 just behind the terminus of apical striole, which joins the stria 5 through a slight sinuation; stria 3 with a single setiferous dorsal pore at 1/10-1/8 from base; stria 5 with two setiferous dorsal pores at 1/5-1/4 and 1/2-5/9 from base, respectively; preapical pore always present, lying at the apical anastomosis of striae 2 and 3, and much more widely distant from apex than from suture. Legs somewhat stouter than in *T. pallidior*.

Male genital organ small, rather lightly sclerotized. Aedeagus only two-sevenths as long as elytra, short and robust, with large basal part and short flattened apical lobe; dorsal margin semicircularly rounded from base to apex in lateral view; basal part large, hardly bent, with very large basal orifice, whose sides are deeply emarginate only at the posterior parts; sagittal aileron very small though appreciable; apical lobe straight, gradually narrowed towards apex, which is subtriangular in dorsal view and very obtusely denticulate dorsad in lateral view; in profile, ventral margin nearly

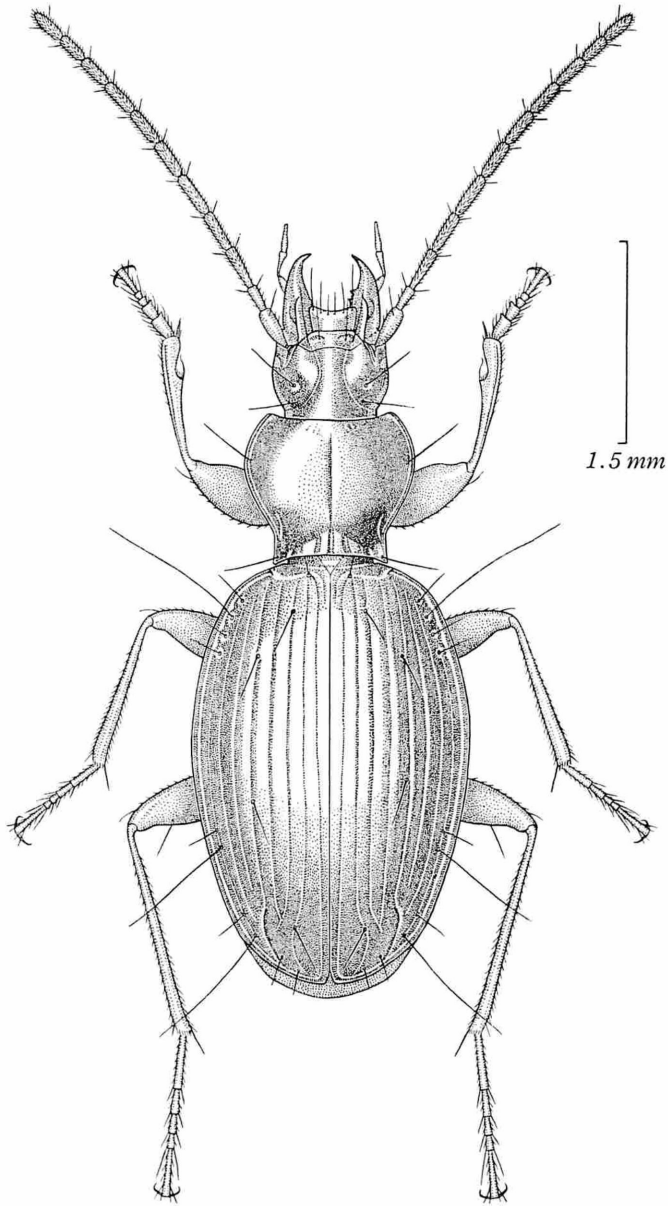


Fig. 1. *Trechiana* (s. str.) *masaakii* S. UÉNO et SONE, sp. nov., ♂, from Mt. Mitsutôgê-yama of the Misaka Mountains.

straight at middle and distinctly emarginate at the base of apical lobe. Copulatory piece fairly large, fully one-third as long as aedeagus, fairly slender in dorsal view; dorsal lobe subvertical, sagittate at the proximal part, apically extending into an arcuate hor-

izental lobe, which projects towards the right side and is rounded at the extremity; ventral lobe large and lamellar at the proximal part. Left proximal teeth-patch small, almost vertical, consisting of fairly large sclerotized teeth; right apical teeth-patch also small. Styles fairly large and broad, left style obviously larger than the right, each bearing three or four apical setae.

Type series. Holotype: ♂, 1-V-1994, S. UÉNO leg. Allotype: ♀, 3-X-1993, M. NISHIKAWA leg. Paratypes: 1 ♂, 3-X-1993, M. NISHIKAWA leg.; 1 ♂, 1-V-1994, S. UÉNO leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Mt. Mitsutôg -yama, 1,380 m in altitude at the northwestern side, in Kawaguchiko-machi of Yamanashi Prefecture, Central Japan.

Notes. This is a distinctive species readily recognized on the presence of the preapical pore on the elytra and the unusually short aedeagus with very large basal part. It is true that about one-fifth of the known specimens of *T. varians* possess the preapical pore at least on one elytron, but the genitalic difference between the two is decisive. Loss of the preapical pore commonly found in the members of the *tamaensis* complex is an obvious apomorphic character. The present species is therefore most plesiomorphic so far as concerned with the elytral chaetotaxy.

Trechiana masaakii is isolated on Mt. Mitsutôg -yama (1,786 m in height), which lies at the eastern end of the Misaka Mountains. Lying at the northern side of Mt. Fuji-san, this small mountain range is separated from the Hakon  Volcanoes, which harbour *T. pallidior*, by the Sakaha-gawa Valley, the western part of the Tanzawa Mountains, the D shi-gawa Valley, the D shi Hills and the Katsura-gawa Valley. The distance from the type locality of the following new species, *T. tanzawanus*, to Mt. Mitsutôg -yama is about 30 km in a bee-line towards the west-northwest. The mountain range is largely granitic and not favourable for harbouring anophthalmic trechines. There is, however, a non-granitic gully covered with deciduous broadleaved trees on the northwestern slope of Mt. Mitsutôg -yama. The present species seems confined to the upper hypogean zone of this gully, and has rarely been dug out from wet coluvia deposited at the sides of basins of small waterfalls.

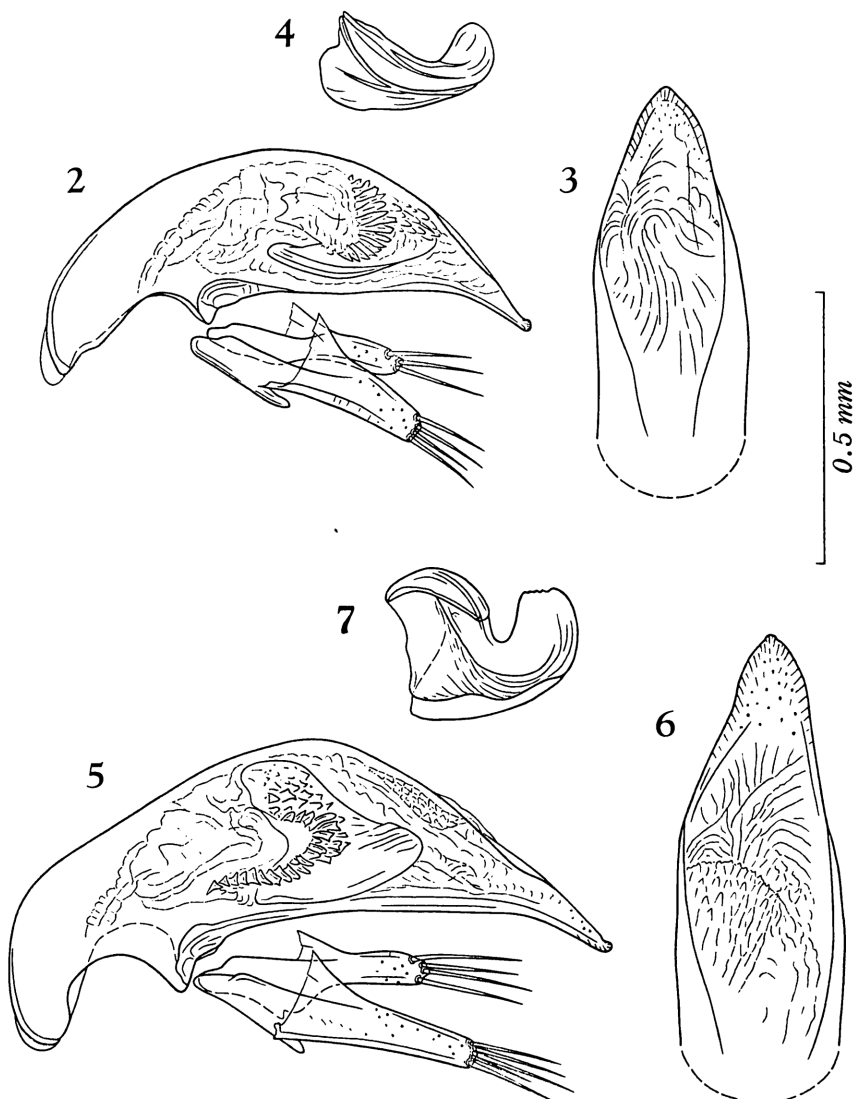
***Trechiana* (s. str.) *tanzawanus* S. U NO et SONE, sp. nov.**

[Japanese name: Nishitanzawa-mekura-chibigomimushi]

(Figs. 5-7)

Length: 4.50-5.10 mm (from apical margin of clypeus to apices of elytra).

Belonging to the *tamaensis* complex and distinguished at first sight from all the other known species, with rare exceptions in *T. varians*, by the absence of setiferous dorsal pore on the 3rd elytral stria. From the latter species, it is clearly separated by the differently shaped male genitalia, above all by the large broad copulatory piece with a deep wide emargination at the right side between the proximal part and arcuate apical lamella.



Figs. 2-7. Male genitalia of *Trechiana* (s. str.) spp.; left lateral view (2, 5), apical part of aedeagus, dorso-apical view (3, 6), and separated copulatory piece, dorsal view (4, 7). — 2-4. *T. masaakii* S. UÉNO et SONE, sp. nov., from Mt. Mitsutôgê-yama. — 5-7. *T. tanzawanus* S. UÉNO et SONE, sp. nov., from the Kosugê-zawa at Kurokura.

Closely similar in facies to *T. varians* of the eastern part of the Tanzawa Mountains, but the colour is usually somewhat lighter, the pronotal hind angles are more or less sharper and postero-laterally produced, and the elytra are deeply striate on the disc and more clearly punctate, with the apical stria almost always joining stria 7

instead of stria 5.

Colour light reddish brown, shiny, faintly iridescent on elytra; palpi, ventral surface of hind body, and legs pale yellowish brown.

Head as in *T. varians*, antennae reaching the middle of elytra. Pronotum also similar to that of *T. varians*, but the hind angles are almost always sharper than in the latter species and postero-laterally produced; PW/HW 1.33–1.41 (M 1.37), PW/PL 1.12–1.18 (M 1.15), PW/PA 1.38–1.48 (M 1.42), PW/PB 1.32–1.40 (M 1.37), PB/PA 1.00–1.08 (M 1.04). Elytra relatively flat, widely depressed on the disc, with the apical declivity steep at the terminal part; EW/PW 1.65–1.72 (M 1.68), EL/EW 1.48–1.53 (M 1.51); striae entire, clearly punctate or crenulate, striae 1–3 or 1–4 deeply impressed, obviously deeper than external ones, stria 2 extending to apex without forming apical anastomosis with stria 3, which forms an apical anastomosis with stria 4, stria 8 deepened posteriorly; apical striole short but deep, moderately curved, almost always joining the inwardly curved apical part of stria 7; stria 3 normally devoid of setiferous dorsal pores, though a setiferous pore exists at about basal 1/8 of right elytron in a paratype (♀); stria 5 with two setiferous dorsal pores at 1/5–1/4 and 3/5–2/3 from base, respectively; preapical pore always absent. Legs as in *T. varians*.

Male genital organ similar to that of *T. varians*, though more robust, especially in proximal half of aedeagus. Aedeagus higher at middle and less gradually narrowed towards apex than in *T. varians*, with large basal bulb which is semicircularly emarginate at the sides of basal orifice; sagittal aileron very small though present; viewed dorsally, apical lobe narrower at the apical part and obtusely tuberculate at the extremity. Copulatory piece larger and broader than in *T. varians*, about one-third as long as aedeagus, dorso-ventrally sagittate at the left side, the two lobes being obtusely subangulate at the left proximal corners; apical part extending into a wide arcuate lamella directed to the right, forming a deep emargination at the right side of the sclerite, and subtruncated at the apex which is minutely serrulate; right dorsal wall high at the proximal part, longitudinally depressed on the external face, and covering the right portion of deep dorsal concavity. Left lateral teeth-patch fairly thick and recurved; right apical teeth-patch fairly large and horizontally extended.

Type series. Holotype: ♂, allotype: ♀, paratypes: 5 ♂♂, 7 ♀♀, 25–VII–1994, S. UÉNO & S. SONE leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Kosugé-zawa, 540 m in altitude, at Kurokura of the western part of the Tanzawa Mountains, in Yamakita-machi of Kanagawa Prefecture, on the Pacific side of Central Japan.

Notes. This species is doubtless close to *T. varians* and cannot be distinguished with confidence from certain exceptional individuals of the latter species. It seems to have become differentiated from a peripheral population of *T. varians*, which may have been formed by such aberrant individuals as to lose the setiferous dorsal pore of the internal series. Later differentiation of the copulatory sclerite made the peripheral population isolated from the eastern populations, and has completed the speciation

of *T. tanzawanus*. It is worth noting that the loss of the setiferous dorsal pore on the 3rd elytral stria is a feature shared by the members of the *echigonis* complex widely distributed in the southern part of the Tôhoku District, although the two species-complexes are definitely different in the conformation of copulatory piece.

So far as has been known, the present species is localized at the western foot of the Hadano-tôgé 12.3 km distant to the west by south of the Yabitsu-tôgé, the type locality of *T. varians*. The intervening area between the two localities is largely granitic, forming an intricate barrier against the subterranean dispersal of anophthalmic trechines. The type specimens of *T. tanzawanus* were dug out from a thick muddy colluvium deposited at the left side of a non-granitic gully in a deciduous broadleaved forest. Several isolated individuals were met at a depth of 30 cm or so, but most specimens were taken from a depth of more than 1 m.

要 約

上野俊一・曾根信三郎：ヨウザワメクラチビゴミムシ亜群の2新種。——御坂山地東端の三ツ峠山と、西丹沢玄倉の小菅沢から、ヨウザワメクラチビゴミムシ亜群の新種をそれぞれ記載し、これらにミットウゲメクラチビゴミムシ *Trechiana masaakii* S. UÉNO et SONE およびニシタンザワメクラチビゴミムシ *T. tanzawanus* S. UÉNO et SONE の新名を与えた。両種とも上翅背面の剛毛配列が特異で、前者は亜群のうちでもっとも祖先的な、また後者はもっとも派生的な特徴を示している。

References

- UÉNO, S.-I., 1981. *Trechiana tamaensis* (Coleoptera, Trechinae) and its close relatives. *Mem. natn. Sci. Mus., Tokyo*, (14): 117-132.
- 1988. Discovery of an anophthalmic *Trechiana* (Coleoptera, Trechinae) on the Miura Peninsula, Central Japan. *Kontyû, Tokyo*, 56: 45-51.