

A New Anophthalmic *Trechiana* (Coleoptera, Trechinae) from Gifu Prefecture, Central Japan

Masamichi MATSUI

1015–5, Shimonojô, Ueda-shi, Nagano, 386–1101 Japan

and

Masafumi MATSUI

Graduate School of Human and Environmental Studies, Kyoto University, Sakyô, Kyoto, 606–8501 Japan

Abstract A new blind trechine beetle of the genus *Trechiana* is described from the prospecting adits at the Tokuyama Dam site in Gifu Prefecture, Central Japan, under the name of *Trechiana misawai*. The new species is very similar to *Trechiana gracilior* S. UÉNO in male genital organ and occurs within the range of distribution of the latter.

In the autumn of 2008, the junior author carried out a faunal survey of the prospecting adits at the Tokuyama Dam site, in Ibigawa-chô (former Fujihashi-mura) of Gifu Prefecture, Central Japan, where some anophthalmic trechine beetles were obtained accidentally. In the following year, 2009, the authors tried to obtain additional materials at the same site and successfully obtained substantial number of the beetle. After a careful examination of these materials, the trechines are considered to be a distinct new species, although closely related to *Trechiana gracilior* S. UÉNO, which also occurs near the Tokuyama Dam site.

The abbreviations used in this paper are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetic mean.

Before going further, the authors express their deep gratitude to Messrs. Koji HINO, Yasuo AOI, Kazumi KANEDA, Ms. Sanae HIROSE of the Japan Water Agency, Tokuyama Dam Operation & Maintenance Office and Mr. Masao KITSUKAWA of the Japan Water Resources Environment Technology Center for their permission and help to collect materials. Hearty thanks are also due to Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for providing us with his publications, Dr. Yasuchika MISAWA of the Civil Engineering and Eco-Technology Consultants for help

in collecting materials, Mr. Kenji KITAYAMA, Hirakata-shi, and Mr. Yoshinori ITOH, Nagoya-shi, for their kind help in the course of the present study.

Trechiamma (s. str.) *misawai* MATSUI et MATSUI, sp. nov.

[Japanese name: Tokuyama-mekura-chibigomimushi]

(Figs. 1–9)

Length: 5.65–5.95 mm in ♂♂, 5.40–6.00 mm in ♀♀ (from apical margin of clypeus to apices of elytra).

A large species with small fore-body, narrow head, strongly cordate pronotum, elongated oval elytra, and in particular, male genitalia closely similar to that of *Trechiamma gracilior*. Colour brown, shiny; distal half of elytra somewhat paler; elytra, and sometimes also pronotum, weakly iridescent; palpi, antennae, and legs yellowish brown.

Head subquadrate, about as long as or slightly shorter than wide, and depressed above, with frontal furrows not particularly deep though clearly impressed, moderately diverged in front, widely so behind towards shallow neck constriction; frons and supraorbital areas gently convex; genae only slightly convex; neck very wide; labrum transverse, widely and shallowly emarginate at apex; mandibles slender, moderately arcuate at the apical portions, with acute apices; mentum tooth simple and large with round tip; antennae slender, reaching the middle of elytra, with antennomere 2 about three-fifths as long as antennomere 3 or 4, antennomeres 8–10 each about three times as long as wide, terminal antennomere evidently longer than scape but usually somewhat shorter than antennomere 3.

Pronotum cordate and convex, much wider than head, wider than long, widest at about two-thirds from base, and rather strongly contracted in front and behind; in ♂♂, PW/HW 1.46–1.55 (M 1.51), PW/PL 1.17–1.25 (M 1.21), PW/PA 1.41–1.51 (M 1.48), PW/PB 1.29–1.39 (M 1.34); in ♀♀, PW/HW 1.45–1.53 (M 1.49), PW/PL 1.17–1.26 (M 1.22), PW/PA 1.46–1.54 (M 1.49), PW/PB 1.30–1.39 (M 1.35); sides strongly and evenly arcuate, distinctly and deeply sinuate at about one-fourth from base, and then usually parallel or feebly divergent towards hind angles; apex slightly emarginate, with front angles a little produced and narrowly rounded; base straight or slightly emarginate, a little wider than apex; in ♂♂, PB/PA 1.06–1.15 (M 1.11); in ♀♀, PB/PA 1.07–1.19 (M 1.11); hind angles sharp but not produced, though sometimes slightly protruded posteriad.

Elytra elongated ovate and moderately convex, though depressed on the disc, much wider than pronotum, usually widest at about four-ninths from base, and equally narrowed towards base and towards apices; in ♂♂, EW/PW 1.56–1.66 (M 1.62), EL/EW 1.57–1.67 (M 1.62); in ♀♀, EW/PW 1.49–1.58 (M 1.53), EL/EW 1.60–1.68 (M 1.63); shoulders distinct though very obtuse, with prehumeral borders moderately oblique; sides weakly but evenly arcuate from behind shoulders to the level of the

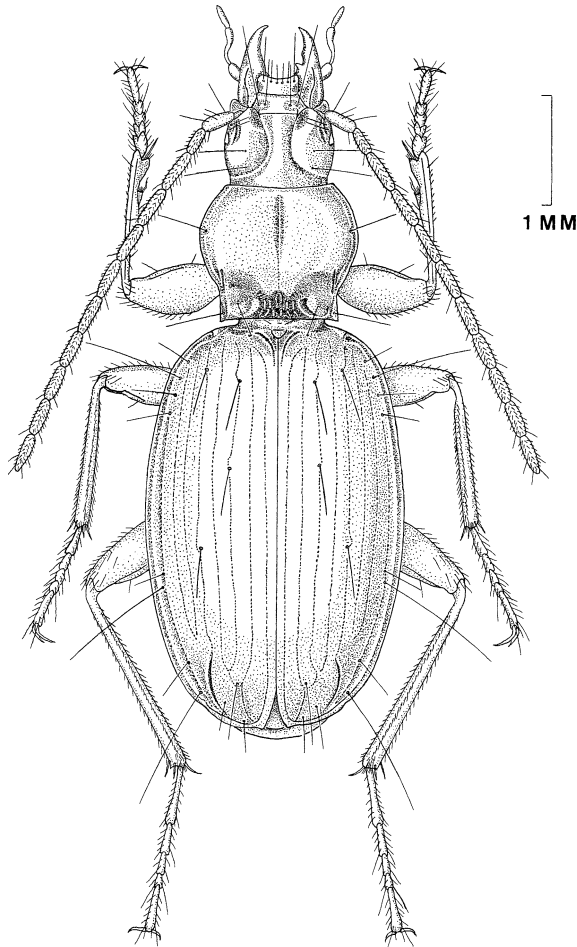
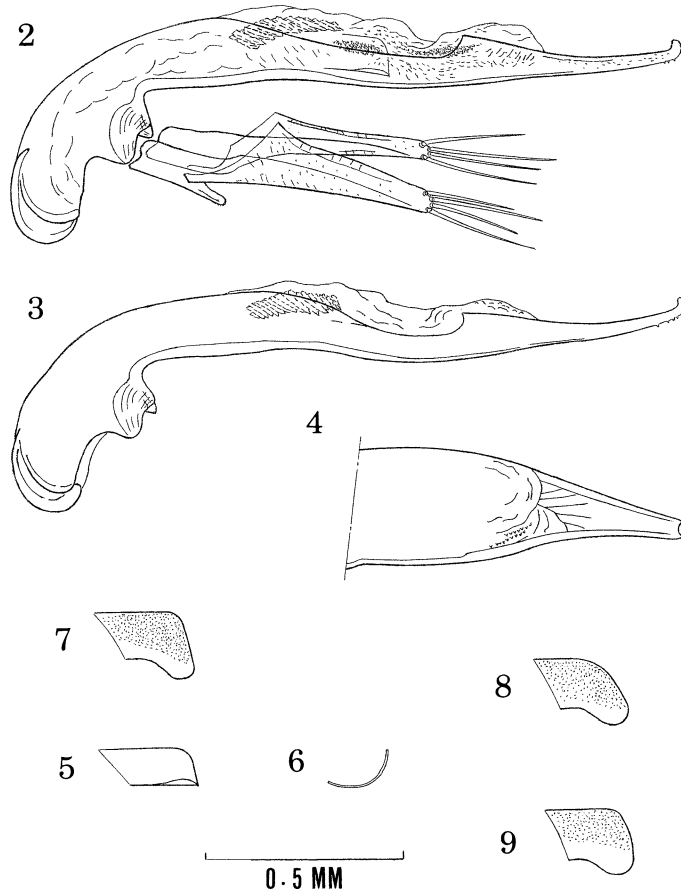


Fig. 1. *Trechiana misawai* MATSUI et MATSUI, sp. nov., ♂, from the Tokuyama Dam site.

seventh pore of the marginal umbilicate series; apices widely rounded with shallow but distinct preapical emargination, usually forming a small re-entrant angle at suture; striae relatively deep though superficial, vaguely crenulate, becoming shallower at the side though even stria 7 is entire; scutellar striole distinct though not long; apical striole deeply impressed, weakly curved in front, usually joining stria 5 without interruption but rarely joining stria 7; intervals slightly convex on the disc but flat at the side; two setiferous dorsal pores on stria 3 situated at $2/15-2/13$ and $1/3-5/12$ from base, respectively, those on stria 5 at $1/9-1/7$ and $5/9-5/8$ from base, respectively.

Legs fairly long though rather stout.

Male genital organ large, elongate and moderately sclerotized, and very similar to



Figs. 2-9. Male genitalia of *Trechiana (Trechiana) misawai* MATSUI et MATSUI, sp. nov., from the Tokuyama Dam site; left lateral view (2), the same, showing aedeagus with strongly reflexed apical part (3), apical part of aedeagus, dorsal view (4), separated copulatory piece, left lateral view (5), the same, apical view (6), the same, left dorso-lateral view (7), and the same, showing the variation in shape (8, 9).

that of *Trechiana gracilior* in both the shape and structure, but the proximal part of aedeagus is thinner in lateral view, the apical lobe narrower in both lateral and dorsal views and decisively differing from the latter in the shape of copulatory piece with rounded ventro-apical corner. Aedeagus about four-ninths as long as elytra, strongly flattened and gutter-shaped, very slightly arcuate before middle and slightly or often obtusely turned up in apical third; lateral walls much reduced, with a distinct convexity on the left side of apical orifice but not on the right; basal part relatively small, thin, and moderately bent towards the ventral side, bearing a heavily sclerotized sagittal aileron; basal orifice relatively small, with the sides deeply and subangulately emarginate; viewed

laterally, apical lobe long, narrow and almost straight, gradually tapering towards the extremity, which is distinctly reflexed; viewed dorsally, apical lobe narrow, inclined to the left and gradually narrowed towards the blunt tip; ventral margin slightly but widely sinuate in profile. Inner sac armed with a copulatory piece and three patches of teeth or scales; copulatory piece fairly large and moderately sclerotized, spatulate but variable to some degree, weakly rolled, with the ventro-apical corner obviously rounded and transparent; proximal teeth-patch composed of large, heavily sclerotized teeth, extending from left lateral to dorsal, with the apical portion sigmoidally curved on a horizontal plane; viewed dorsally, right apical teeth-patch elongated trigonal, consisting of small teeth, lying at the right dorsal side, just inside apical orifice; the third teeth-patch small, lying at the left dorsal side just behind the proximal. Styles long and slender, each bearing four long apical setae.

Type series. Holotype: ♂, allotype: ♀, prospecting adit, 360 m alt., 23-IV-2009, M. MATSUI, M. MATSUI & K. KANEDA leg. Paratypes: 2 ♂♂, 1 ♀, same locality, 360 m alt., 29-X-2008, Masafumi MATSUI & Y. MISAWA leg.; 8 ♂♂ (1 ♂ teneral), 9 ♀♀ (1 ♀ teneral), same locality, 360 m alt., 23-IV-2009, M. MATSUI, M. MATSUI & K. KANEDA leg.; 1 ♂, 2 ♀♀, same locality, 300 m alt., 23-IV-2009, M. MATSUI, M. MATSUI & K. KANEDA leg.; 2 ♀♀, same locality, 360 m alt., 2-XII-2009, K. KANEDA leg. The holotype and allotype will be kept in the collection of the National Museum of Nature

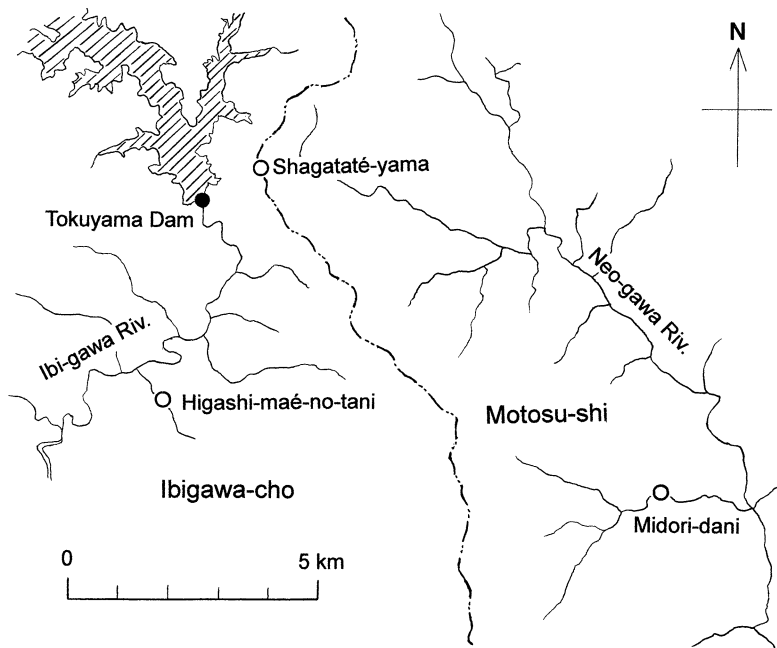


Fig. 10. Map showing the distribution of two *Trechiana* species. ● — *Trechiana misawai* sp. nov.; ○ — *Trechiana gracilior* S. UÉNO.

and Science, Tokyo.

Type locality. Prospecting adit at the Tokuyama Dam site (360 m alt.), in Ibigawa-chô of Gifu Prefecture, Central Japan.

Notes. Despite close resemblance to *T. gracilior* in male genitalia, the present new species is distinguished externally from it by the following details: the head is less transverse; the pronotum is usually more transverse and more contracted anteriorly, with wider base and more strongly, evenly arcuate sides that are deeply sinuate; the elytra are ampler at the basal part, with wider and more rounded apical part. The Tokuyama Dam site, the type locality of this new trechine, is located within the distributional range of *T. gracilior*. Furthermore, Shagataté-yama, the northernmost known locality of *T. gracilior*, is only 1.3 km distant to the east-northeast in a beeline from the Tokuyama Dam site (Fig. 10). Hence, in future, this new species would be found sympatrically with *T. gracilior*, since both the species seem to have a similar ecological niche. Although the mode of speciation is not clear for the present, the two species must have differentiated from their common ancestor that occurred somewhere on the present Ibi Hills. Individuals of *T. misawai* were mainly found from under abandoned boards used for adit construction. This new species belongs to the *ohshimai* complex.

Etymology. The specific name is dedicated to Dr. Yasuchika MISAWA, who continuously helps us in collecting valuable insect specimens.

要 約

松井正通・松井正文：岐阜県から発見された *Trechiana* 属メクラチビゴミムシの 1 新種。——岐阜県揖斐川町徳山ダムの試掘横坑より採集された個体に基づき、*Trechiana misawai* sp. nov. トクヤマメクラチビゴミムシを記載した。本種の ♂ 交尾器の構造・形態は近隣に棲息するネオメクラチビゴミムシ *Trechiana gracilior* S. UENO のそれに酷似するが、骨片および外部形態に明瞭な差異が認められる。

References

- UENO, S.-I., 1980. The anophthalmic trechine beetles of the group of *Trechiana ohshimai*. *Bull. natn. Sci. Mus., Tokyo*, (A), **6**: 195–274.
 ——— & K. KITAYAMA, 2005. Anophthalmic trechines (Coleoptera, Trechinae) from Shagataté-yama in the northwestern part of Mino Province, Central Japan. *Elytra, Tokyo*, **33**: 649–657.