

## New Oculate *Trechiana* (Coleoptera, Trechinae) from Miyagi Prefecture, Northeast Japan<sup>1)</sup>

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**Abstract** Three new oculate species of the trechine genus *Trechiana* are described mainly from Miyagi Prefecture, Northeast Japan. All belong to the group of *T. oreas*, and two of them, named *T. namigatai* and *T. tokui*, are closely related to *T. kurosawai* S. UÉNO of the *nivalis* complex. The remaining one, named *T. oniceps*, also resembles members of the *nivalis* complex in chaetotaxial characters, but is markedly different from them in conformation of the inner armature of its male genitalia and probably belongs to another lineage.

Meeting the wishes of the bereaved family, the Japanese Society of Coleopterology has resolved to publish the posthumous manuscript of the late Mr. Toku WATANABE, who passed away on January 14, 1989, at the age of 79. The manuscript is entitled "The Coleoptera of Miyagi Prefecture, Japan," and contains a list of collecting data of beetles in that prefecture chiefly recorded by himself. In this list are included three species of trechine beetles belonging to the genus *Trechiana*, of which only one anophthalmic species was previously described (*T. masatakai* S. UÉNO, 1983, p. 12, figs. 6–7). The two undescribed ones have functional eyes and belong to the group of *T. oreas*, which has not been thoroughly studied as yet. Actually, there is one more undescribed species of the same group, which was discovered on the mountains on the borders of Miyagi, Yamagata and Akita Prefectures, though it is not included in WATANABE's collection.

In the present paper, which is dedicated to the late Mr. Toku WATANABE, I am going to describe these three species under the names of *T. namigatai*, *T. tokui* and *T. oniceps*. The abbreviations used herein are the same as those explained in the previous papers of mine.

I wish herewith to express my hearty thanks first of all to the late Mr. Toku WATANABE, who devoted himself to clarification of the insect fauna of Miyagi Prefecture in which he resided and afforded every facility for us in making field researches. Deep gratitude is also acknowledged to the following friends of mine, who either helped me in the field or offered invaluable specimens for my study: Professor Masataka SATÔ, Professor Yoshiaki NISHIKAWA, Messrs. Seiji MORITA, Huzio NAMIGATA and Masaaki TOMOKUNI.

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*Trechiana* (s. str.) *namigatai* S. UÉNO, sp. nov.

(Figs. 1-3)

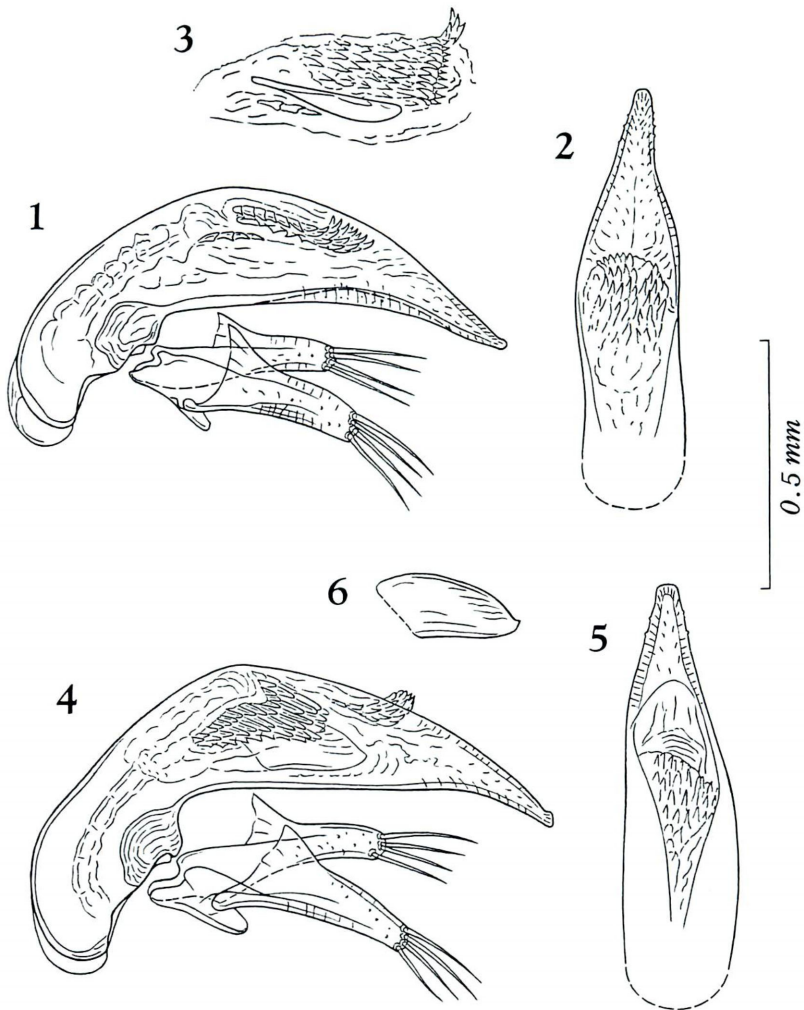
Length: 4.90-5.70 mm (from apical margin of clypeus to apices of elytra).

Almost identical with *T. kurosawai* S. UÉNO (1986, p. 140, figs. 8-10) in external morphology, and confidently distinguished from the latter only by difference of male genitalia. Colour as in *T. kurosawai*, though dark individuals sometimes occur. Eyes variable in size, usually longer than genae and sometimes twice as long as the latter, but rarely a little shorter than the latter. Antennae usually reaching basal two-fifths of elytra, though the length is variable to some extent according to individuals. Standard ratios of body parts: PW/HW 1.33-1.48 (M 1.41), PW/PL 1.17-1.27 (M 1.21), PW/PA 1.51-1.63 (M 1.57), PW/PB 1.34-1.47 (M 1.41), PB/PA 1.08-1.17 (M 1.12), EW/PW 1.44-1.56 (M 1.50), EL/EW 1.52-1.62 (M 1.55).

Male genitalia basically similar to those of *T. kurosawai*, but different from the latter in the configuration of aedeagal tube and copulatory piece. Aedeagus about three-tenths as long as elytra, less slender than in *T. kurosawai*, gently compressed, and rather strongly curved ventrad just behind apical orifice, though the left ventral margin forms a thin lamella at the curved part and masks the curvature in left lateral view, with the dorsal margin semicircularly rounded in profile; basal part rather short, moderately curved ventrad, and moderately emarginate at the sides of basal orifice; sagittal aileron fairly large; apical orifice large; viewed laterally, apical lobe curved ventrad and tapered towards the apex, which is slightly reflexed and blunt at the tip; viewed dorsally, apical lobe narrow, slightly inclined to the left, gradually tapered, and blunt at the extremity; ventral margin gently convex at middle in right lateral view, but almost straight in left lateral view. Inner sac armed with a copulatory piece and two patches of sclerotized teeth; copulatory piece very narrow, lying at the right side of dorsal teeth-patch and wholly concealed by the latter, very thin at the proximal part, gradually dilated towards apex, and narrowly rounded at the tip; teeth-patches as in *T. kurosawai*, though the teeth of the ventro-proximal one are more regularly ranged in a horizontal longitudinal row. Styles as in *T. kurosawai*, each bearing usually four, sometimes three setae at the apex.

*Variation in elytral chaetotaxy.* Of the 29 specimens examined, 4 (3 ♂♂, 1 ♀), or 13.8%, are aberrant in the number of setiferous dorsal pores on elytra. One (♂) of them has an extra pore on the third stria of the left elytron, another (♂) is lacking in the third pore of the third stria on the right elytron, another (♀) is lacking in the pore of the fifth stria on the right elytron, and the other (♂) possesses a second pore on the fifth stria of the left elytron.

*Type series.* Holotype: ♂, Katta-daké, 30-VII-1983, S. UÉNO leg. Allotype: ♀, Hyôtan-numa, 26-VII-1979, M. SATÔ leg. Paratypes: 7 ♂♂, 5 ♀♀, Hyôtan-numa, 26-VII-1979, M. SATÔ & M. TOMOKUNI leg.; 4 ♂♂, Katta-daké, 23-VII-1976, S. MORITA leg.; 2 ♂♂, Katta-daké, 30-VII-1983, S. UÉNO leg.; 2 ♂♂, 2 ♀♀, Saémonzawa Migimata, 24-VII-1976, T. WATANABE leg.; 5 ♂♂, Jizô-zan, 17-VIII-1962,



Figs. 1-6. Male genitalia of *Trechiana* (s. str.) spp.; left lateral view (1, 4), apical part of aedeagus, dorso-apical view (2, 5), extracted and extended inner sac showing copulatory piece, left lateral view (3), and separated copulatory piece, left lateral view (6). — 1-3. *T. namigatai* S. UÉNO, sp. nov., from Katta-daké of the Zaô Mountains. — 4-6. *T. tokui* S. UÉNO, sp. nov., from Mt. Funagata-yama.

S. UÉNO leg. Preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, except for a pair of the paratypes from Saémon-zawa Migimata, which are in the late Mr. WATANABE's collection.

*Localities.* Hyôtan-numa (1,600 m alt.) at the northwestern side of Sugi-gaminé, Katta-daké (1,600-1,620 m alt.; type locality !), Saémon-zawa Migimata (1,200 m alt.), and Jizô-zan (1,450-1,600 m alt.), all on the Zaô Mountains on the

borders of Miyagi and Yamagata Prefectures in northeastern Honshu, Japan.

Of the four collecting sites recorded above, only Jizô-zan belongs to Yamagata Prefecture, while all the others lie at the Miyagi side of the Zaô Mountains.

*Notes.* Though indistinguishable from *T. kurosawai* of the Azuma Volcanoes in external characters, the Zaô population of oculate *Trechiana* must be specifically different from the Azuma one because of evident genitalic differentiation. Most pronounced is the difference in configuration of the copulatory piece, though there are discrepancies between the two also in the shape of the aedeagal tube itself.

*Trechiana namigatai* seems endemic to the alpine and subalpine zones of the Zaô Volcanoes, which are about 47 km distant to the north-northeast from the Azuma Volcanoes and are separated from the latter by several low places, above all by the valleys of the Matsu-kawa and the Mogami-gawa Rivers. The southernmost known locality is Hyôtan-numa, a marshy place on the northwestern slope of Sugi-ga-miné. The habitat on Katta-daké, the type locality, lies about 2.4 km north-northwest of Hyôtan-numa, and Saémon-zawa Migimata is about 3.5 km distant to the northeast from the type spot. The other collecting site, Jizô-zan, lies at the Yamagata side of the Zaô Volcanoes, and is about 2.5 km distant to the north-northwest from the type spot. At every locality, the trechine beetle is found from under stones lying in humid places shaded by low scrubs, usually at the sides of narrow gullies.

*Trechiana* (s. str.) *tokui* S. UÉNO, sp. nov.

(Figs. 4-6)

Length: 4.90-5.50 mm (from apical margin of clypeus to apices of elytra).

Externally very similar to *T. kurosawai* and *T. namigatai*, and difficult to distinguish from them without examination of male genitalia, but strikingly differing in conformation of aedeagal inner armature. Colour as in *T. kurosawai*. Eyes variable in both size and convexity, usually flat but sometimes moderately convex; genae four-sevenths to five-sevenths as long as eyes. Antennae as in *T. namigatai*, equally variable in length. Pronotum usually with sharper hind angles than in *T. namigatai*. Elytral striae deeply impressed and rather distinctly crenulate, usually deeper than in *T. namigatai*. Standard ratios of body parts: PW/HW 1.34-1.46 (M 1.41), PW/PL 1.17-1.28 (M 1.22), PW/PA 1.51-1.65 (M 1.57), PW/PB 1.36-1.45 (M 1.41), PB/PA 1.06-1.16 (M 1.12), EW/PW 1.45-1.58 (M 1.49), EL/EW 1.51-1.61 (M 1.56).

Male genitalia similar to those of *T. namigatai* in the configuration of aedeagal tube, but slightly larger and markedly different from the latter in the conformation of inner armature. Aedeagus about one-third as long as elytra, much more strongly curved ventrad before middle than in *T. namigatai*, and with more elongate and straightly [extending basal part; basal orifice with shallowly emarginate sides; sagittal aileron narrow; viewed laterally, apical lobe gently curved ventrad and dorsally tuberculate at the extremity; viewed dorsally, apical lobe almost symmetrical, relatively broad at the base, and gradually tapered towards the tip, which is somewhat

tuberculate; ventral margin distinctly emarginate before apex in lateral view. Inner sac armed with a fairly large copulatory piece and two patches of sclerotized teeth; copulatory piece broad though thin, spatulate, with the apex obtusely angulate; left proximal teeth-patch large, obviously larger than the right dorsal, apically dilated and briefly recurved towards the dorsal side; right dorsal teeth-patch almost horizontal, dilated to the left towards the apex. Styles as in *T. namigatai* though a little slenderer.

*Variation in elytral chaetotaxy.* Of the 26 specimens of the type series, 4 (3 ♂♂, 1 ♀), or 15.4%, are aberrant in the number of setiferous dorsal pores on the third stria of elytra. Two (1 ♂, 1 ♀) of them have an extra (fourth) pore on the right elytron, while the other two (2 ♂♂) are lacking in the second pore on the right elytron. No aberration is found for the pore on the fifth stria.

*Type series.* Holotype: ♂, allotype: ♀, 1,240 m alt. on ESE slope, 21-VI-1973, S. UENO leg. Paratypes: 11 ♂♂, 3 ♀♀, same collecting data as for the holotype and allotype; 5 ♂♂, 1 ♀, same locality, 16-VII-1977, T. WATANABE leg.; 3 ♀♀, 1,260 m alt. on ESE slope, 21-VI-1973, S. UENO leg.; 1 ♂, summit, 3-VII-1976, T. WATANABE leg.; 1 ♀, Senbonmatsu, 21-VI-1973, T. WATANABE leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, with the exception of several paratypes which are preserved in the late Mr. WATANABE's collection.

*Type locality.* Mt Funagata-yama, on the borders of Miyagi and Yamagata Prefectures in northeastern Honshu, Japan.

All the four collecting sites hitherto known belong to Taiwa-machi in Miyagi Prefecture. Most specimens were taken at two spots on the east-southeastern slope of the mountain, at 1,240 m and 1,260 m in altitude, respectively. One male specimen was taken near the summit at an elevation of 1,480 m, and one female was taken at Senbonmatsu at an elevation of 900 m.

*Further specimen examined.* 1 ♀, Ohkura, 280 m alt., Miyagi-machi, Miyagi Pref., 25-VII-1978, T. WATANABE leg. (NSMT).

*Notes.* The three species, *T. kurosawai*, *T. namigatai* and *T. tokui*, form a compact group within the *nivalis* complex, being indistinguishable from one another by external morphology alone. Of these, *T. tokui* is rather isolated from the other two, since the basic pattern of its aedeagal inner armature is quite different from that in the others. This is strange, since the topographical gap between the known ranges of *T. kurosawai* and *T. namigatai* is more decisive than between those of *T. namigatai* and *T. tokui*. Anyway, these three trechines must be derived from a common ancestor, and become differentiated after the eruption of the three recent volcanoes now harbouring the respective species. The relative isolation of *T. tokui* may be ascribed to certain subtle difference in the history of its speciation, though it is difficult to determine it at the present moment.

Mt. Funagata-yama, the type locality of *T. tokui*, is a dormant volcano about 37 km north-northeast of Jizō-zan of the Zaō Volcanoes, which is the northernmost

known locality of *T. namigatai*. Only its eastern side has so far been investigated, because it is the easiest way of access to the summit. The trechine beetle has been found in an area from a gully at about 900 m in altitude to just below the summit, but is most abundant at the upper part of a deciduous broadleaved forest above 1,200 m in altitude. There, most specimens were found from under stones lying in a gully, which had no running water on fine days but was always very humid.

It is most probable that the single specimen from Ohkura belongs to *T. tokui*, though it is impossible to identify it conclusively as it is a female. The standard ratios of its body parts are as follows: PW/HW 1.35, PW/PL 1.21, PW/PA 1.56, PW/PB 1.40, PB/PA 1.11, EW/PW 1.52, EL/EW 1.53. The specimen was collected at the side of the Ohkura Reservoir, which is only 280 m above sea-level, a place that seems too low to permanently harbour *T. tokui*. Perhaps this individual had been carried down by a flood of the Ohkura-gawa River from somewhere at the higher part of Mt. Funagata-yama, and was accidentally met by the late Mr. WATANABE.

*Trechiana* (s. str.) *oniceps* S. UÉNO, sp. nov.

(Figs. 7–11)

Length: 5.85–6.50 mm (from apical margin of clypeus to apices of elytra).

Belonging to the group of *T. oreas* and chaetotaxially identical with the members of the *nivalis* complex, but decisively differing from them in basic pattern of aedeagal inner armature.

Obviously larger than any of the known species belonging to the *nivalis* complex. Colour dark brown, shiny, and more or less iridescent on elytra; appendages and ventral surface of hind body reddish brown.

Head small, a little wider than long, and depressed above, with deep entire frontal furrows moderately divergent in front and behind; frons and supraorbital areas gently convex, the latter bearing two pair of supraorbital setae on lines slightly convergent posteriad; microsculpture distinct though fine, mostly consisting of transverse meshes but partially of isodiametric ones; eyes variable in size and convexity, usually flat but sometimes moderately convex; genae very oblique, nearly straight or very slightly convex, four-sevenths to five-sixths as long as eyes; neck wide, with the anterior constriction distinctly marked at the sides; labrum transverse, deeply emarginate at apex though the central portion of apical margin is nearly straight; mandibles slender, moderately arcuate at the apical parts, and sharply pointed at the tips; mentum tooth broad, distinctly bifid at the tip; palpi slender, with penultimate segments gradually dilated towards apices; antennae long and slender, reaching basal four-ninths of elytra in ♂, basal two-fifths of elytra even in ♀, segment 2 about two-thirds as long as segment 3 or 4, segments 5–10 gradually decreasing in length, 8–10 each fully 3.5 times as long as wide, terminal segment the longest though evidently narrower than scape.

Pronotum subcordate, much wider than head, a little wider than long, widest

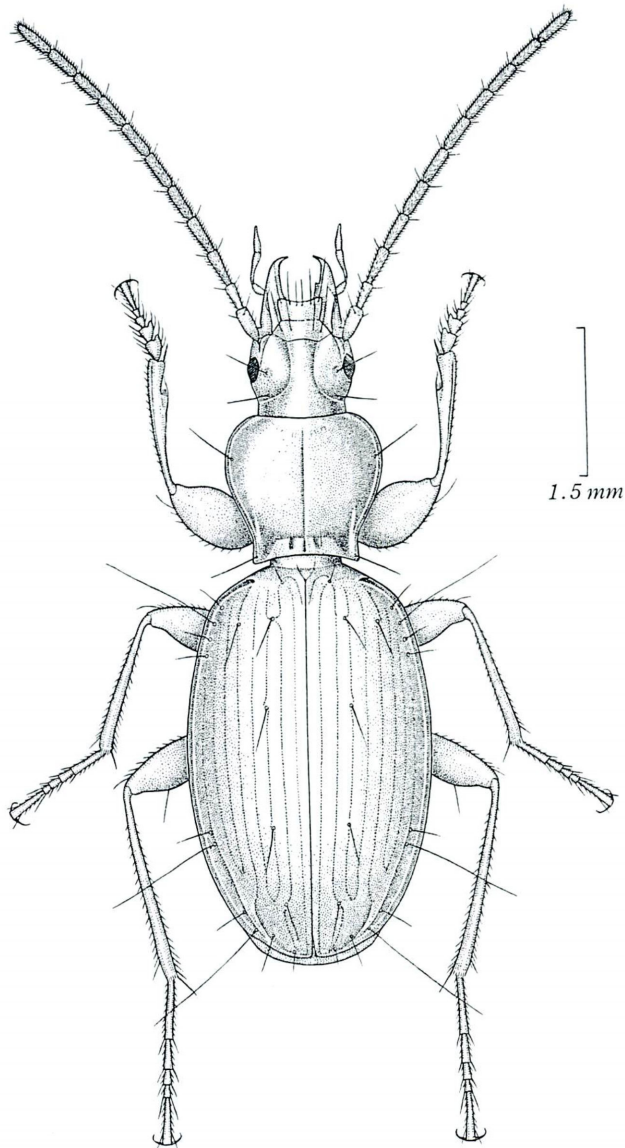


Fig. 7. *Trechiana* (s. str.) *oniceps* S. UÉNO, sp. nov., ♂, from the Onikôbé-tôgé.

at about five-eighths from base, and more strongly contracted towards apex than towards base, with fairly long basal part; PW/HW 1.40–1.48 (M 1.45), PW/PL 1.15–1.20 (M 1.17), PW/PA 1.55–1.64 (M 1.61), PW/PB 1.41–1.48 (M 1.45); sides narrowly reflexed throughout, strongly arcuate in front, less so at middle, deeply sinuate at a level between basal seventh and sixth, and then more or less (usually a little) divergent

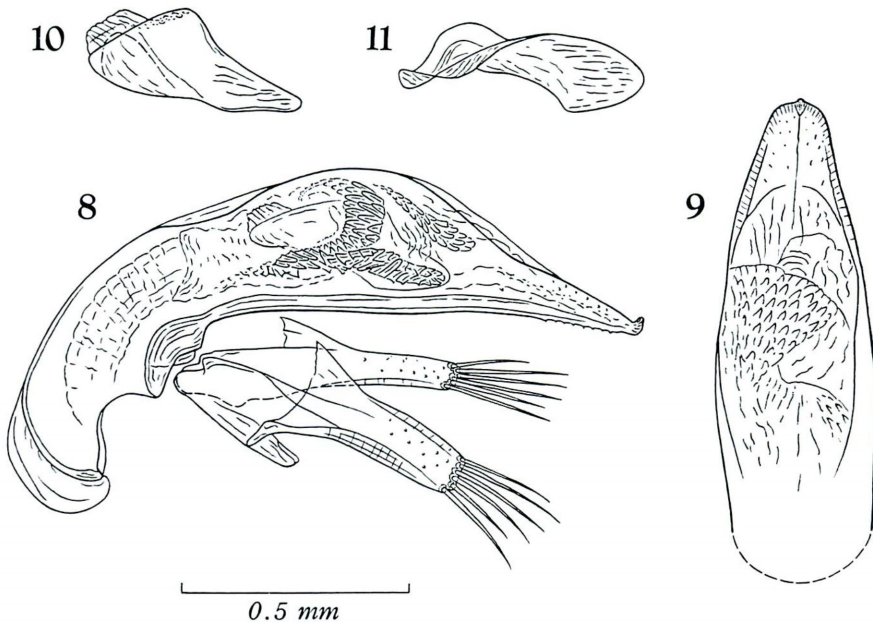
towards hind angles, which are sharp and gently produced postero-laterad; apex narrower than base, nearly straight or slightly emarginate, with front angles very obtuse and hardly produced; base nearly straight at middle, PB/PA 1.08–1.15 (M 1.11); surface convex, with vague transverse striations; median line sharply impressed, widening in basal area; apical transverse impression vague though bearing distinct longitudinal striae; basal transverse impression with a distinct foveole on each side of median line and laterally merging into large subtriangular basal foveae, which are deep and smooth at the bottom; postangular carinae sharp and fairly long; basal area more or less uneven; microsculpture mostly formed by fine transverse lines.

Elytra oblong-ovate, much wider than pronotum, widest at about four-ninths from bases, and more gradually narrowed towards bases than towards apices; EW/PW 1.57–1.64 (M 1.59), EL/EW 1.58–1.61 (M 1.59); shoulders obtuse, with prehumeral borders slightly arcuate and evidently oblique at the innermost portions; sides narrowly reflexed throughout, gently arcuate from behind shoulders to the level of the seventh umbilicate pore, then rounded to apices without distinct preapical emargination; each apex almost rectangular; surface moderately convex at the sides but widely depressed on the disc, with the apical declivity rather gentle; microsculpture mostly degenerated, though consisting of fine transverse lines; striae shallow but entire, distinctly crenulate, 1–5 deepened in basal area, 8 deeply impressed behind the middle set of marginal umbilicate pores; scutellar striole distinct though not very long; apical striole short but deep, moderately arcuate, and joining stria 5; intervals slightly convex only near suture; apical carina sharp; stria 3 normally with three setiferous dorsal pores as illustrated, stria 5 with a single setiferous dorsal pore at the same level as the first pore of the internal series; preapical pore located a little behind the level of the terminus of apical striole, and much more distant from apex than from suture; marginal umbilicate pores well aggregated.

Ventral surface smooth; anal sternite with a pair of sexual setae in ♂, with two pair of them in ♀. Legs long and slender; protibiae straight, gently dilated towards apices, longitudinally grooved on the external face, and glabrous on the anterior face even at the apical portion; in ♂, two proximal segments of each protarsus widely dilated and stoutly produced inwards at apices.

Male genitalia small though heavily sclerotized, utterly different from those of the two preceding species in both shape and structure. Aedeagus fully one-third as long as elytra, nearly straight though gradually dilated to behind middle, and widely membranous on the dorsal surface; basal part elongate, rather abruptly bent ventrad, and deeply emarginate at the sides of basal orifice; sagittal aileron large though hyaline; viewed laterally, apical lobe narrow, very slightly curved ventrad, gradually tapered towards the tip, which is distinctly tuberculate dorsad; viewed dorsally, apical lobe very broad, gradually tapered towards the apex, which is subtruncate and obtusely angulate at the middle; ventral margin very slightly bisinuate in profile. Inner sac armed with a large copulatory piece and two patches of sclerotized teeth; copulatory piece about two-fifths as long as aedeagus, twisted from





Figs. 8–11. Male genitalia of *Trechiana* (s. str.) *oniceps* S. UÉNO, sp. nov., from the Onikôbê-tôgê; left lateral view (8), apical part of aedeagus, dorso-apical view (9), separated copulatory piece, left lateral view (10), and the same, dorsal view (11).

right proximal to left apical, widely lamellar in apical half, and narrowly rounded at the apex, with a fin-shaped, strigate dorsal crest on the left proximal edge; left lateral teeth-patch narrow and very long, sigmoidally curved from dorso-proximal to ventro-apical, though the middle portion is tightly folded inside the long horizontal ventral part *in situ*, and the dorsal portion is curved to the right above the dorsal edge of copulatory piece; right dorsal teeth-patch horizontal and apically dilated to the left. Styles large, left style longer and much broader than the right, each bearing usually five or six, rarely four setae at the apex.

*Variation in elytral chaetotaxy.* Of the six specimens of the type series, only the holotype has normally developed setiferous dorsal pores on the elytra. The allotype is lacking in the third pore of the third stria on both the elytra. In all the paratypes, setiferous dorsal pores on the third elytral stria are asymmetrical; two of them are lacking in the second pore on the left elytron, one lacking in the third pore on the left elytron, and the remaining one lacking in the third pore on the right elytron. No aberration is found for the pore on the fifth stria.

On the other hand, no chaetotaxial variation is found in the specimens of the Hanadaté-tôgê population. All the six specimens examined have three setiferous dorsal pores on the third stria and one on the fifth on both the elytra.

*Type series.* Holotype: ♂, 4-VIII-1983, S. UÉNO leg. Allotype: ♀ (somewhat

teneral), 3-VIII-1983, Y. NISHIKAWA leg. Paratypes: 4 ♂♂, 3~4-VIII-1983, S. UÉNO leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Onikôbé-tôgé, 670 m in altitude at the northern side, in Ogachi-chô of Akita Prefecture, northeastern Honshu, Japan.

*Further specimens examined.* 3 ♂♂, 3 ♀♀, Hanadaté-tôgé, 650 m alt. at ESE side, Naruko-chô, Miyagi Pref., 4-VIII-1983, S. UÉNO & Y. NISHIKAWA leg. (NSMT).

*Notes.* This is an interesting new species not directly related to any of the described members of the species-group. It does not seem to belong even to the two species-complexes hitherto recognized (*oreas* complex and *nivalis* complex), possessing a melange of characters from them. Its true affinity can be clarified when all the *Trechiamia* species occurring on non-volcanic mountains in northern prefectures (Iwaté and Akita Prefectures) are brought to light. For instance, a probable close relative of *T. oniceps* occurs on the non-volcanic Mahiru Mountains on the borders of Iwaté and Akita Prefectures, but the upper part of Kurikoma Volcano, which lies only 20 km east-northeast of the Onikôbé-tôgé, is inhabited by a species of the *oreas* complex utterly different from *T. oniceps*.

The type specimens of *T. oniceps* were dug out from colluvia accumulated at the side of a small branch of the Yakunai-gawa River at the northern side of the Onikôbé-tôgé, a pass on the borders of Akita and Miyagi Prefectures. Though this habitat was typically upper hypogean, the trechine beetle does not show any morphological modification adaptive to the subterranean environment. It is probable that the beetle has settled down at the depth of the colluvia, mainly because the locality is on a relatively low mountain.

The specimens from the Hanadaté-tôgé, which lies on the borders of Miyagi and Yamagata Prefectures and is about 13 km south by east of the type locality, agree well with the type series except for a little more elongate aedeagus. Like the Onikôbé-tôgé specimens, they were dug out from a colluvium emplaced at the side of a narrow stream on the east-southeastern slope of the pass. They are 5.75–6.35 mm in the length of the body, and have the following standard ratios: PW/HW 1.39–1.44 (M 1.41), PW/PL 1.12–1.15 (M 1.14), PW/PA 1.59–1.63 (M 1.62), PW/PB 1.45–1.52 (M 1.49), PB/PA 1.06–1.11 (M 1.09), EW/PW 1.54–1.65 (M 1.61), EL/EW 1.57–1.60 (M 1.59).

The specific name of this new species is derived from its type locality, Onikôbé-tôgé, which means the Pass of Oni's Head (=head of Japanese ogre).

## 要 約

上野俊一：宮城県に分布する有限のナガチビゴミムシ類。——宮城県の山地では、有限のナガチビゴミムシ類がこれまでに3種見つかっている。いずれもイワキナガチビゴミムシ種群のもので、この報文に発表した新名とそれらの産地は次のとおりである。

1. ザオウナガチビゴミムシ *Trechiamia* (s. str.) *namigatai* S. UÉNO:— 蔵王山 (杉ヶ峰瓢箪沼,

刈田岳, 左エ門沢右股, 地藏山).

2. フナガタナガチビゴミムシ *Trechiana* (s. str.) *tokui* S. UÉNO:— 船形山(頂上, 東南東斜面, 千本松).

宮城町大倉の大倉ダム付近で採集された雌の1個体もこの種であろう。おそらく、大倉川の増水によって、下流へ運ばれたものと思われる。

3. オニコウベナガチビゴミムシ *Trechiana* (s. str.) *oniceps* S. UÉNO:— 花立峠 [宮城県鳴子町] および鬼首峠 [秋田県雄勝町].

これらのうち、最初の2種はイデナガチビゴミムシ亜群に属し、吾妻山に固有のクロサワナガチビゴミムシ *T. kurosawai* S. UÉNO に類縁がきわめて近い。3種のあいだに外形上の差異はほとんどないが、雄交尾器、とくに交尾片や歯斑の形態に見られる特徴は、分化が種の段階に達していることを明瞭に示している。この点で、フナガタナガチビゴミムシは、他の2種の場合と少し異なった特性をもつ。いずれにしても、これらのチビゴミムシ類は、それほど古くない時代に共通の祖先から分かれ、新しい火山の高所へ定着することにより隔離されて、急速な分化を遂げたものだろう。

これに対して、宮城県北西端の非火山性山地に局在するオニコウベナガチビゴミムシは、上翅の剛毛式などの特徴ではイデナガチビゴミムシ亜群のものに似ているが、雄交尾器の構造は特異で、外部形態もかなり違っている。おそらく独立の亜群を形成するものと思われるが、この問題については、より北方の非火山性山地にすむ新種を記載するときに、改めて検討したい。

## References

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