

Alpine Trechids from Hokkaido, Japan

I. The Japanese Representative of the Subgenus *Trechus*

By

Shun-Ichi UÉNO

Zoological Institute, College of Science, University of Kyoto

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In recent years, alpine fauna has drawn much attention of Japanese coleopterists, a number of new carabids having been described from the high mountains of Japan. The writer himself has conducted extensive surveys on many peaks and ranges, and, with the aid of many entomologists and alpinists, has made up a fairly large collection of mountainous trechids, which covers the large part of Honshu, Shikoku and Kyushu. On the contrary, too little has hitherto been known about the alpine fauna of Hokkaido, where high mountains are usually difficult to approach. The collections previously made in this island contain but one species of apterous trechid that was found on Mts. Daisetsuzan. This situation is quite perplexing to analyse the trechid fauna of the Japanese Islands, especially from the zoogeographical point of view. The writer, therefore, has planned to make systematic surveys of the outstanding mountains in Hokkaido. To accomplish the work, however, many years will be required, since the adequate season for collecting is considerably limited in the island. From now on, the writer will publish occasionally a series of short papers dealing with the subject when new knowledges will be obtained. Its first part will be devoted to the description of a new species of the subgenus *Trechus*, which has been known for the last decade to inhabit the alpine zone of Mts. Daisetsuzan. The two succeeding parts will contain the report of the trechids found on the Hidaka mountain range.

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Trechus (s. str.) **nakaguroi** S. UÉNO, sp. nov.

Trechus (s. str.) *nakaguroi* S. UÉNO, 1953 (in litt.), Shin Konchû, Tokyo, 6 (11), p. 42.

Diagnosis: General appearance short and wide, with short appendages. Body not depigmented; apterous. Head wide, with large eyes and deep frontal furrows; mentum tooth deeply bifid. Pronotum transverse, with lateral sides not sinuate posteriorly; postangular seta present; base wider than apex; hind angles forming on each side a small denticle; basal transverse impression continuous. Elytra ovate, with rounded shoulders; striae entire though very faint at the sides; apical striole fairly deep and moderately curved, joining stria 5 through a feeble sinuation; stria 3 with two dorsal pores, the basal one of which is situated usually at basal one-fifth. Protibiae externally grooved. Aedeagus slender and hardly arcuate at middle, with the apical part narrowly prolonged; sagittal aileron well developed; two copulatory pieces present, right piece much larger than the left; each style with four apical setae.

Description: Length: 3.3–3.7 mm (from front margin of clypeus to anal end).

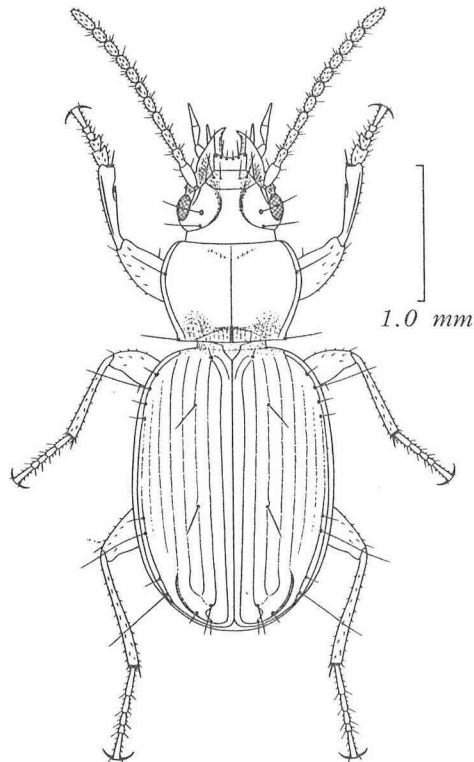


Fig. 1. *Trechus* (s. str.) *nakaguroi* sp. nov., ♂, of Mt. Nagayama-daké.

Apterous. Colour dark reddish brown to castaneous black, shiny, faintly iridescent; head black exclusive of the anterior parts; elytra more or less darker (excluding interval 1 as well as basal and marginal areas); palpi, antennae, epipleura and legs yellowish brown; anal sternite usually lighter than the other sternites.

Head wide and moderately convex, with entire frontal furrows, which are deep throughout, widely divergent both in front and behind and not angulate at middle; eyes relatively large but rather flat; genae short, about two-fifths as long as eyes or still shorter, very slightly convex and abruptly converging towards neck constriction, which is fairly deep; neck wide; microsculpture well impressed, composed mostly of wide meshes; mandibles stout, hooked at apices; mentum tooth short and wide, deeply cleft at apex; palpi short and thick, with apical segments subacuminate towards the tips, evidently longer than penultimate segment in maxillary palpus but shorter than the penultimate in labial palpus; penultimate segment of maxillary palpus widely dilated towards apex; antennae relatively short and stout, subfiliform, longer in ♂ than in ♀, i.e. reaching basal one-fourth of elytra in ♂ and basal one-fifth of elytra in ♀; antennal segment 2 about six-sevenths as long as segment 3 and nearly as long as segment 4.

Pronotum transverse, moderately convex though somewhat depressed on the disk, 1.27–1.34 times wider than head (mean 1.31), 1.41–1.46 times wider than long (mean 1.44), widest at about three-fifths from base; the ratio of the greatest width to the width of apex 1.39–1.44 (mean 1.41), that to the width of base 1.27–1.32 (mean 1.30); lateral sides entirely bordered and rather widely reflexed, moderately and widely rounded for the whole length and not sinuate behind, with marginal gutters becoming very narrow near front angles; postangular seta situated almost on the angle; apex slightly but widely emarginate; base nearly straight or slightly bisinuate, 1.05–1.13 times wider than apex (mean 1.08); front angles hardly advanced but rounded; hind angles nearly rectangular or somewhat obtuse, forming on each side a small denticle; median line distinct, widening near base and almost reaching apex, though it becomes very faint before apical transverse impression, which is nearly obsolete but longitudinally wrinkled; basal transverse impression narrow and continuous, merging on each side into large basal fovea, which is fairly deep and smooth; postangular carina either absent or rudimentary; surface smooth, with vague transverse striations, basal area longitudinally strigose; microsculpture formed by fine transverse lines.

Elytra ovate and convex, though more or less depressed on the disk, 1.37–1.46 times wider than pronotum (mean 1.42), 1.37–1.42 times longer than wide (mean 1.39), widest usually at a little behind middle but sometimes at about middle; shoulders rounded; prehumeral border reaching the base of stria 5 and ending perpendicularly to the mid-line; lateral sides feebly rounded at middle and very slightly emarginate before apices, each one of which is either rounded

or subangulate; striae crenulate and shallow, inner striae deeper than the outer, stria 5 somewhat deepening near base, striae 6-7 faint, stria 8 deeply impressed in apical half but becoming very faint before the middle group of marginal umbilicate series; scutellar striole distinct; apical striole fairly deep and moderately curved, joining stria 5; intervals smooth, slightly convex near suture but flat at the sides; apical carina prominent; stria 3 with two setiferous dorsal pores situated at one-sixth to two-ninths from base (usually at about one-fifth from base) and about middle to apical two-fifths (usually at about five-ninths from base); preapical pore located at the meeting point of striae 2 and 3 and close to apex; microsculpture formed by fine transverse lines but usually indistinct.

Ventral surface smooth; anal sternite with one seta on each side in ♂, two in ♀. Legs short; protibiae with a deep groove on the external face.

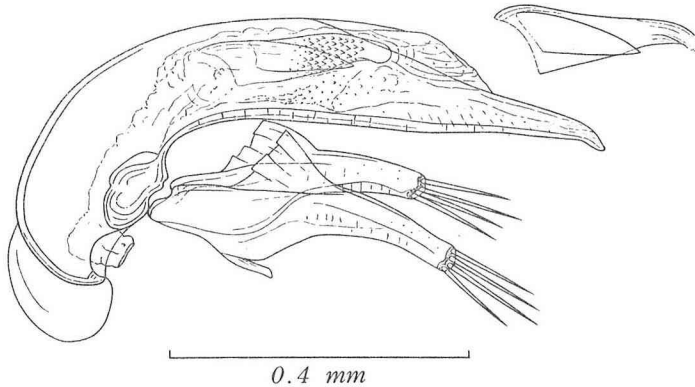


Fig. 2. *Trechus* (s. str.) *nakaguroi* sp. nov., of Mt. Nagayama-daké; male genital organ, left lateral view, with separated copulatory pieces.

Male genital organ fairly large and moderately chitinized. Aedeagus slender, hardly arcuate at middle and gradually attenuated towards apex, which is prolonged and curving to the ventral side at the extremity in profile; viewed dorsally, apical part narrowly prolonged, with the apex somewhat dilated and rounded; basal part well bent towards the ventral side, with small basal orifice, the lateral sides of which are moderately emarginate; sagittal aileron large and hyaline; ventral side slightly concave before middle and slightly convex before apex. Inner sac armed with two copulatory pieces, which are covered on the left side with a group of small teeth; right copulatory piece large, subtriangular and somewhat spatulate, with the apex feebly twisted from right proximal to left apical; left copulatory piece triangular, less than two-thirds as long as the right piece, with the apex acute. Styles fairly large, left style obviously longer than the right, each provided with four setae at apex.

Type-specimens: Holotype: ♂, allotype: ♀ (Mt. Nagayama-daké, 29-VII-1953, collected by Y. KUROSAWA). Paratypes: 1 ♂ (Mt. Hokuchin-daké, 2-VIII-1950, by F. NAKAGURO); 1 ♀ (Yukomanbetsu, 20-VII-1952, by H. ISHIDA); 15 ♂♂, 1 ♀ (Mt. Nagayama-daké, 29-VII-1953, by Y. KUROSAWA and A. YOSHIDA).

The holotype and the allotype are preserved in the writer's collection. The paratypes are in the collection of the writer and of the National Science Museum, Tokyo.

Type-localities: Mt. Nagayama-daké, Mt. Hokuchin-daké and Yukomanbetsu, all on the Daisetsu-zan mountains, in Hokkaido.

This is the first species to be described from Japan as a member of the subgenus *Trechus* (s. str.)¹⁾. It is isolated within the subgenus and seems to form a particular species-group, whose affinity cannot be determined readily. In the adjacent regions of Japan, there are known some species of trechids belonging to the subgenus *Trechus*, i.e. *T. apicalis* MOTSCHULSKY (group of *T. amplipollis*) from Kamchatka, *T. bontoc* DARLINGTON, *T. bakeri* JEANNEL and *T. latior* DARLINGTON (group of *T. indicus*) from Luzon, *T. montanus* MOTSCHULSKY (group of *T. quadristriatus*) from Transbaikalia, *T. almonius* REITTER (group of *T. lederi*) from Irkutsk, *T. suenoni* JEANNEL and *T. tuxeni* JEANNEL (group of *T. lederi*) from Shansi in northern China. Geographically, Hokkaido is closest to the range of *T. apicalis*, from which the present new species may easily be distinguished by the presence of two copulatory pieces in aedeagal inner sac. The same feature may also be useful in discriminating *T. nakaguroi* from the species of the group of *T. indicus* and of *T. lederi*. The Japanese species may be related, though remotely, to the group of *T. quadristriatus*, but is separated from the latter by the deeply grooved protibiae and the different shape of pronotum. On the other hand, it shows some resemblance to the North American members of the subgenus. After all, *T. nakaguroi* cannot be attributed to any of the species-groups hitherto known, and may have so evolved in the Island of Hokkaido as to form an independent species-group.

The present new species is primarily the inhabitant of the alpine zone and is seldom met with below the timber-line. The Nagayama-daké and the Hokuchin-daké specimens of the type series were found under stones along snow couloirs, which were situated in the alpine meadows at altitudes of 1,700-2,000 m. On the other hand, the Yukomanbetsu specimen is said to have been taken from under a log in a forest below the timber-line.

1) *Trechus edai* was described by JEDLIČKA (1952, Acta Mus. Silesiae, 2, p. 51) as "le premier vrai *Trechus* du Japon". Really, however, it belongs to the subgenus *Epaphius*, as was clearly stated in the original description as "le troisième (intervalle) avec 3 pores". Moreover, it is a mere local form of *T. (Epaphius) vicarius* H. W. BATES.