

The Trechine Beetles of the Philippines

II. A Revised Account of *Luzonotrechus*¹⁾

By

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Abstract Three new species of the trechine genus *Luzonotrechus* are described from high mountains of northern Luzon, the Philippines, under the names of *L. teras*, *L. muscicola* and *L. rotundicollis*. They are muscicolous, considerably differing in external morphology from the three congeners previously known, all of which are semi-endogean. A revised diagnosis of the genus is given, together with a renewed key to the species. The type locality of *L. bontoc* (DARLINGTON), the type species of the genus, is restricted to Mt. Mungeoto in the Province of Benguet on the basis of careful field investigations.

Eight years have already elapsed since the first part of this series of papers was published (UÉNO, 1979). The delay of its completion lay in the expectation that more material of trechine beetles would be brought forth by a second expedition to the Philippines. This was realized in the summer of 1985, and though I failed in participating in the party, a large number of trechine specimens were obtained by several members of the expedition on the Cordillera Central of northern Luzon.

Looking through the collection thus made, I was much surprised to find that six specimens of strange trechines were included in it. They looked like *Trechus* at first sight, but had unusually convex bodies reminding us of certain derivative species of the *Agonotrechus* series. All appeared to be females as the protarsi were not modified, but there was one that had protruded aedeagus. A careful examination revealed that there actually were four males whose aedeagi were very peculiarly modified, and that the six specimens were classified into three allopatric species belonging to a new species-group of *Luzonotrechus*. As in the case of the convex-bodied species of the *Agonotrechus* series (cf. UÉNO, 1987, p. 338), these new *Luzonotrechus* are primarily muscicolous, so that they are radically different from the semi-endogean congeners previously known not only morphologically but also ecologically.

In the meantime, a new trechine beetle was described by PERRAULT (1982, pp. 226, 228, fig. 1) from Mt. Data of the Cordillera Central under the name of *Luzonotrechus orousseti*. His description and illustration showed that the species has ordinarily shaped male genitalia, and though he did not describe the characteristic striation and

1) This study is supported by the Grants-in-aid for Overseas Scientific Research Nos. 60041078 and 61043074 from the Ministry of Education, Science and Culture, Japan.

chaetotaxy of the apical part of elytra, his species seemed to me to belong to the group of *Trechus bakeri*, also endemic to the Cordillera Central of northern Luzon. This was confirmed by my direct examination of the male holotype and a female paratype, which were submitted to my study through the courtesy of the French author. An account of this species will be given in the third part of this series of papers, but I should like to propose herewith the new combination.

Trechus (s. str.) *orousseti* (PERRAULT, 1982), comb. nov.
(=*Luzonotrechus orousseti* PERRAULT, 1982)

In the present paper, which is an extra part of this series, the three new species of *Luzonotrechus* will be described. As they are considerably different from the previously known three, a revised account of the genus will be given, and a key to all the six species will be proposed. New collecting data will be recorded for *L. bontoc* and *L. tumidulus*, and the type locality of the former will be restricted. The abbreviations used herein are the same as those explained in the first part of this series (p. 26).

Before going into further details, I wish to express my hearty thanks to the members of the second zoological expedition to the Philippines, above all to Dr. Kazuo ISHIKAWA, Mr. Yoshiaki NISHIKAWA and Mr. Masahiro SAKAI, for their enthusiastic searches for trechine beetles, to Mr. Hirohisa KIZAKI for finding out the first exact habitat of *Luzonotrechus bontoc*, and to Dr. G. G. PERRAULT for kindly permitting me to examine the type specimens of *Luzonotrechus orousseti*.

Genus *Luzonotrechus* S. UÉNO, 1979

Luzonotrechus S. UÉNO, 1979, Bull. natn. Sci. Mus., Tokyo, (A), 5, p. 26; type species: *Trechus bontoc* DARLINGTON, 1959. — CASALE & LANEYRIE, 1982, Mém. Bioséol., 9, p. 215.

Body short, broad and convex, either depigmented (semi-endogean spp.) or not (muscolous spp.); colour dark brown to reddish brown; apterous.

Head as in the original description, though the mandibles and palpi are shorter and thicker and the antennae are shorter in muscolous species than in semi-endogean ones.

Pronotum with the sides either rounded throughout or straight before hind angles, which are either obtusely denticulate or very obtuse and almost rounded off; postangular pair of marginal setae either present (semi-endogean spp.) or absent (muscolous spp.); other features as in the original description.

Elytra strongly convex in muscolous species, less so in semi-endogean ones; striae either entire (*L. bontoc* and *L. tumidulus*) or degenerated at the sides (*L. unipunctatus* and muscolous spp.); stria 3 with one (*L. unipunctatus* and muscolous spp.) or two (*L. bontoc* and *L. tumidulus*) setiferous dorsal pores; other features as in the original description.

Legs either short (muscolous spp.) or moderate (semi-endogean spp.); profemora

either simple (muscolous spp.) or sexually dimorphic (semi-endogean spp.); external groove on each protibia either deep (semi-endogean spp.) or shallow and not conspicuous (muscolous spp.); in ♂, each protarsus either simple (muscolous spp.) or with one (*L. unipunctatus* and *L. tumidulus*) or two (*L. bontoc*) modified segments; other features as in the original description.

Aedeagus variously modified, always tubular and with small basal part, which bears large sagittal aileron; in muscolous species, median part with a ventro-laterally curved lobe on each side, forming a large concavity at the ventral side; apical part either flattened and bearing a peculiar process on either side of apical orifice (*L. unipunctatus* and muscolous spp.), or remarkably inflated and forming a large bulb (*L. bontoc* and *L. tumidulus*); inner sac inerm, covered with very poorly sclerotized scales in muscolous species; styles as in the original description.

Range. Northern mountains of Luzon, Philippine Islands.

Notes. As described above, there is a considerable difference between the semi-endogean and muscolous species, but they are no doubt congeneric seeing that both show the same disposition of the apical part of the second elytral stria, lack the pre-apical pore, and exhibit peculiar modification of aedeagi. The gap between the two extremes is to some extent bridged by *L. unipunctatus*, in which the elytral striae are degenerated at the sides, the posterior dorsal pore on the third elytral stria is wanting, and the aedeagus bears a pair of peculiar processes at the sides of apical orifice.

It is evident that the members of *Luzonotrechus* became differentiated into two lineages, one heading for muscolous life and the other for subterranean existence. Both seem to have been derived from humicolous ancestors that had colonized in thick warm-temperate forests on the Cordillera Central of northern Luzon. The wide divergence of specialization may have allowed their parallel speciation, so that a set of two endemic species, one muscolous and the other semi-endogean, now exists on Mt. Pangao and another set on Mt. Mungeoto and its immediate vicinity. *Luzonotrechus unipunctatus* is exceptional in this respect; it is semi-endogean in nature but has several non-adaptive features in common with muscolous species. It is probably for this reason that the species can coexist with *L. tumidulus* in the same habitat on Mt. Pangao, which forms a small area richest in the trechine fauna on the Cordillera Central. A similar ecological divergence of lineages is known on the genera of the *Agonotrechus* series narrowly distributed from the Himalayas to the Soviet Far East through southern China, Taiwan and Japan (cf. UÉNO, 1987, p. 338).

Key to the Species

- 1 (6) Pronotal hind angles more or less effaced and devoid of postangular setae; elytra short and broad, suborbicular, and strongly convex on dorsum, with the striae degenerated at the side; stria 3 with only one setiferous dorsal pore; protarsus not modified in ♂; aedeagus with remarkable lateral lobes at the median part; body pigmented; muscolous.

- 2 (3) Pronotal sides hardly arcuate in basal two-fifths, with hind angles distinct though effaced at the corners; aedeagus almost rectangularly bent at the middle, with a pair of short blunt processes at the sides of apical orifice; length 3.70 mm; (Mt. Puguis).....*L. teras* S. UÉNO, sp. nov.
- 3 (2) Pronotal sides arcuate throughout, with hind angles rounded off.
- 4 (5) Pronotum more transverse and less contracted basad, with the sides less strongly rounded in front than behind; eyes feebly convex, genae almost straightly narrowed behind; aedeagus elongate and regularly arcuate, with a pair of very obtuse and rounded processes at the sides of apical orifice; length 3.60–4.00 mm; (Mt. Pangao).....*L. muscicola* S. UÉNO, sp. nov.
- 5 (4) Pronotum less transverse and more strongly contracted basad, with the sides evenly rounded from apex to base; eyes completely flat, genae tumid; length 3.85 mm; (Paoay near Sayangan).....*L. rotundicollis* S. UÉNO, sp. nov.
- 6 (1) Pronotal hind angles distinct though obtuse, and provided with postangular setae; elytra longer, ovate, and less convex on dorsum; protarsus with one or two modified segments in ♂; aedeagus without lateral lobes at the median part; body more or less depigmented; semi-endogean.
- 7 (8) Pronotum larger and more strongly contracted in front; elytral striae obliterated at the side; only one setiferous dorsal pore present on stria 3; aedeagal apical part not bulbous but flattened and with a pair of spiny processes at the sides of apical orifice; protarsus with only one modified segment in ♂; profemur sharply denticulate on the ventral face in ♂; smaller species; length 3.85–4.05 mm; (Mt. Pangao).....*L. unipunctatus* S. UÉNO.
- 8 (7) Pronotum smaller and less contracted in front; elytral striae entire and even; two setiferous dorsal pores present on stria 3; aedeagus with bulbous apical part; larger species.
- 9 (10) Protarsus with two modified segments in ♂; profemur strongly angulate on the ventral face in ♂; bulbous apical part of aedeagus sharply distinguished from tubular arcuate basal half in lateral view; length 4.00–4.50 mm; (Mt. Mungeoto).....*L. bontoc* (DARLINGTON).
- 10 (9) Protarsus with only one modified segment in ♂; profemur very obtusely angulate on the ventral face in ♂; bulbous apical part of aedeagus gradually inflated from less arcuate basal third in lateral view; length 4.25–4.75 mm; (Mt. Pangao).....*L. tumidulus* S. UÉNO.

Luzonotrechus teras S. UÉNO, sp. nov.

(Figs. 1–3)

Length: 3.70 mm (from apical margin of clypeus to apices of elytra).

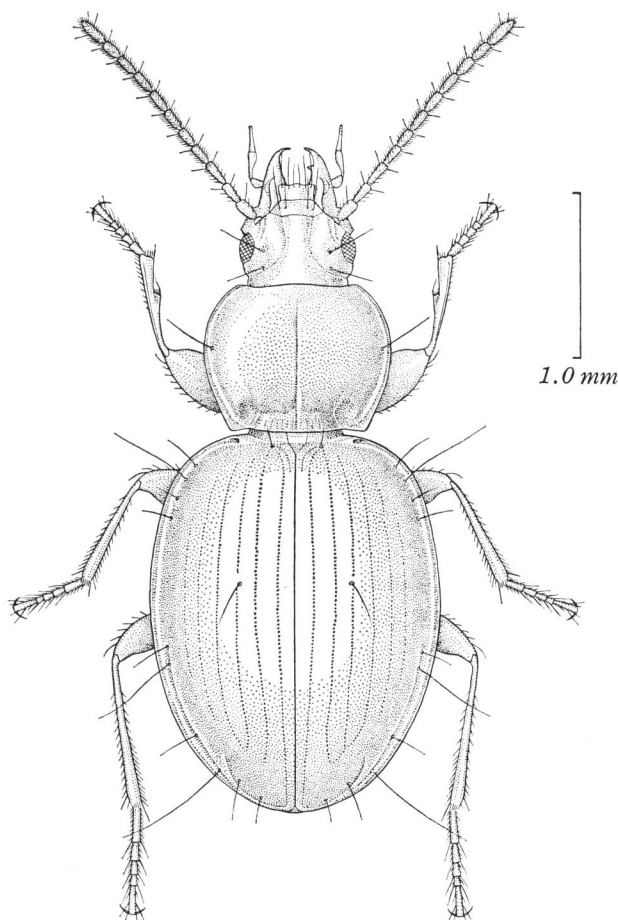


Fig. 1. *Luzonotrechus teras* S. UÉNO, sp. nov., ♂, from Mt. Puguis in Bontoc Province.

Distinguished at first sight from the previously described species by the dark-coloured body, suborbicular elytra, the absence of the postangular pair of marginal setae on pronotum, simple male protarsus, and the presence of remarkable lateral lobes at the median part of aedeagus.

Body very short and broad, with small head and suborbicular hind body. Colour dark brown, shiny, elytra partially blackish and faintly iridescent; palpi pale; antennae (becoming lighter towards apices), epipleura and legs brown, obviously lighter than body.

Head small, wider than long, and moderately depressed above, with deep entire frontal furrows not angulate at middle; frons moderately convex, supraorbital areas gently so, the latter bearing two pair of closely lying setiferous pores situated on lines parallel to each other; microsculpture distinct, mostly consisting of wide meshes; eyes

flat, about twice as long as genae, which are contracted behind and gently convex; neck wide, with the anterior constriction sharply marked at the sides; labrum transverse, with the apical margin shallowly bisinuate; mandibles stout, moderately arcuate at the apical parts; palpi fairly stout, with the penultimate segments widely dilated towards apices; antennae short, only reaching basal eighth of elytra, segment 2 subequal in length to segment 4 and about three-fourths as long as segment 3, apical segments subequal to one another, each subovate and slightly more than twice as long as wide, terminal segment the largest, evidently longer than scape.

Pronotum much wider than head, wider than long, widest at five-ninths from base, and more strongly narrowed towards apex than towards base; PW/HW 1.58, PW/PL 1.20, PW/PA 1.71, PW/PB 1.40; dorsum well convex and covered with distinct microsculpture mostly formed by fine transverse lines; sides sharply bordered throughout, the border being narrow in front but becoming wider behind middle and widely reflexed near hind angles, widely and moderately rounded in front, hardly arcuate in basal two-fifths, and not sinuate before hind angles, which are distinct but narrowly rounded at the corners; anterior pair of marginal setae inserted at the widest part, posterior or postangular pair absent; apex slightly arcuate at middle, with front angles rounded and hardly produced; base wider than apex and slightly bisinuate, PB/PA²⁾ 1.22; median line deep though hardly widening basad; apical transverse impression vague, obscurely wrinkled; basal transverse impression mal-defined; basal foveae large and deep, rounded, and smooth at the bottom; basal area longitudinally strigose.

Elytra short and broad, suborbicular though somewhat ovate, much wider than prothorax, widest at about middle, and more regularly narrowed towards apices than towards bases; EW/PW 1.56, EL/EW 1.30; disc strongly convex and covered with distinct microsculpture consisting of fine transverse lines; shoulders rounded, prehumeral borders complete to the base of stria 5 and almost perpendicular to the mid-line at the innermost portions; sides narrowly bordered throughout, feebly arcuate from behind shoulders to apical third, then moderately arcuate to apices which are conjointly rounded; striae shallow, impunctate, 1–5 almost entire, 6 slight though traceable, 7 degenerated and only partially visible as vestiges, 8 deeply impressed behind the middle set of marginal umbilicate pores; scutellar striole distinct, fairly long; apical striole short but deep, slightly arcuate and directed to stria 5; intervals flat, apical carina obtuse; stria 3 with a single setiferous dorsal pore at two-fifths from base; marginal umbilicate pores aggregated and regular.

Ventral surface smooth; anal sternite provided with a pair of marginal setae in ♂. Legs short and stout; profemur simple in ♂; protibia straight, moderately dilated towards apex, and shallowly grooved on the external face; tarsi short, without modified segments in ♂ protarsus.

Male genital organ fairly large and rather heavily sclerotized. Aedeagus about three-sevenths as long as elytra, narrow, flattened tubular, and almost rectangularly bent at the middle, with both proximal and apical halves feebly arcuate; both sides of

2) Both PA and PB values are approximate, as the front and hind angles are rounded.

the median part roundly projected ventro-laterad as remarkable lamellar lobes, forming a large oval concavity at the ventral side; proximal part of this concavity conspicuously carinate on each side just inside lateral lobes, the carinae obscurely continuing and converging apicad to obtusely carinate median line behind middle; apical part sub-triangularly depressed on the dorsal surface before small apical orifice, and with a short blunt process on each side at the apical end of the depression; apical lobe short, broad and flattened, triangular with blunt tip in dorsal view, weakly deflexed and blunt at the extremity in lateral view; basal part small, abruptly and strongly curved ventrad, with very small basal orifice whose sides are moderately emarginate; sagittal aileron large and elongate, with the dorsal (proximal) part heavily sclerotized. Inner sac very small, wholly covered with very poorly sclerotized scales and devoid of copulatory piece. Styles unusually small, of nearly equal size, each with very slender apical part bearing four weak setae at the apex.

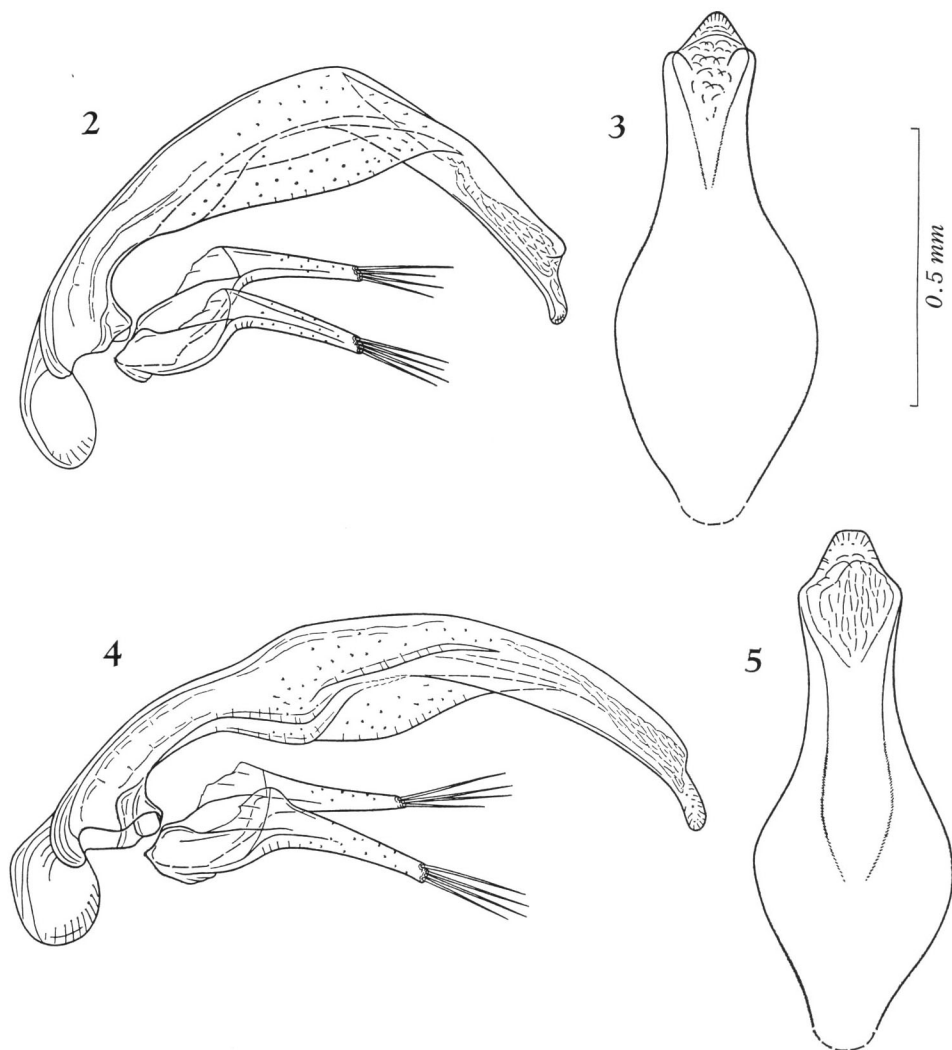
Female unknown.

Type specimen. Holotype: ♂, 19-VII-1985, M. SAKAI leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Mt. Puguis, 2,000 m in altitude on the southern slope, in Bontoc Province, on the Cordillera Central of northern Luzon, Philippine Islands.

Notes. Though strikingly differing in facies, this new species seems to have some relationship with *L. unipunctatus*, especially in view of the absence of posterior dorsal pore on the third elytral stria, laterally degenerated elytral striae, and the possession of a pair of short processes at the sides of aedeagal apical orifice, which correspond to the spiny processes in the latter species. Most discrepancies between the two species seem to have resulted from the different modes of life, since *L. teras* does not show any trend to become a subterranean inhabitant. On the other hand, *L. teras* (and also *L. muscicola*) is remarkable for the absence of modified segments in the male protarsi, a peculiarity that is very exceptional in the subfamily Trechinae. It is difficult to explain what this means, but it may have some correlation with the peculiar modification of male genitalia.

The unique type specimen of this interesting species was found in a collection of trechine beetles taken in a thick broadleaved forest surrounding a small lake at the southern side of Mt. Puguis (2,102 m in height), which is about 33 km distant to the northeast from Mt. Pangao, the type locality of *L. muscicola*, *L. unipunctatus* and *L. tumidulus*. According to SAKAI, who made the collection, all his specimens of trechine beetles were taken by sifting dead leaves accumulated on the forest floor. This kind of habitat may not be natural for *L. teras* or the species may be exceedingly rare, since no other specimens of this trechine were found in the rich collections made by other members of the expedition and in the material obtained by myself in the same forest in the summer of 1977.



Figs. 2-5. Male genitalia of *Luzonotrechus* spp.; left lateral view (2, 4), and apical part of aedeagus, dorso-apical view (3, 5). Figure 4 is drawn from slightly ventral side so as to show the peculiar ventral carinae. — 2-3. *L. teras* S. UÉNO, sp. nov., from Mt. Puguis in Bontoc Prov. — 4-5. *L. muscicola* S. UÉNO, sp. nov., from Mt. Pangao in Bontoc Prov.

Luzonotrechus muscicola S. UÉNO, sp. nov.

(Figs. 4-5)

Length: 3.60-4.00 mm (from apical margin of clypeus to apices of elytra).

Closely allied to the preceding species, but can be distinguished from it by the

different configuration of prothorax and aedeagus.

Similar to *L. teras* in facies and coloration. Head as in *L. teras* but obviously smaller; genae somewhat shorter and less convex, about two-fifths as long as eyes, and almost straightly convergent towards neck constriction; antennae a little shorter, only reaching basal ninth of elytra even in ♂. Pronotum shorter and more strongly contracted basad than in *L. teras*, widest at about middle, and more strongly narrowed towards apex than towards base, with the sides arcuate throughout and strongly rounded in basal two-thirds; PW/HW 1.62–1.70 (M 1.66), PW/PL 1.24–1.31 (M 1.28), PW/PA 1.70–1.78 (M 1.74), PW/PB ca. 1.43–1.49 (M ca. 1.46); side borders less widely reflexed near hind angles than in *L. teras*; front angles a little more clearly marked than in *L. teras*, hind angles rounded off, PB/PA ca. 1.15–1.25 (M ca. 1.19). Elytra as in *L. teras*, though the basal part is less ample and the sides are more regularly arcuate in basal halves; EW/PW 1.53–1.57 (M 1.55), EL/EW 1.31–1.36 (M 1.34); striae shallower than in *L. teras*, 5 usually incomplete, 6 vestigial, 7 obsolete; setiferous dorsal pore on stria 3 situated at about basal third. Anal sternite provided with a pair of sexual setae in ♂, with two pair of them in ♀.

Male genital organ basically similar to that of *L. teras*, but larger and more straightened. Aedeagus elongate, nearly a half as long as elytra, gently inclined to the right, moderately and regularly arcuate from base to apex, and not rectangularly bent at the middle, with apical lobe subtruncated at the tip in dorsal view; ventral carinae before middle more salient than in *L. teras*; dorso-lateral processes at the sides of apical orifice very obtuse and rounded; dorsal depression at the apical part much more elongate than in *L. teras* and not triangular; sagittal aileron large and fairly broad. Styles as in *L. teras*, but the left style is longer than the right.

Type series. Holotype: ♂, allotype: ♀, paratypes: 2 ♂♂, 26–VII–1985, K. ISHIKAWA leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Mt. Pangao, 2,340 m in altitude, above Palapal of Monamon Sur, in Bontoc Province, on the Cordillera Central of northern Luzon, Philippine Islands.

Notes. The type series of this new species was taken in the same gully on the western slope of Mt. Pangao (2,443 m in height) as the type materials of *L. unipunctatus* and *L. tumidulus* were obtained, but from a different habitat. All the four specimens known were found from beneath moss-mats covering wet decayed trunks of fallen trees lying at the side of the narrow stream. This reminds us of the habitats of *Stevensius* and *Iga* belonging to the *Agonotrechus* series, with which *Luzonotrechus* may bear certain remote relationship.

***Luzonotrechus rotundicollis* S. UÉNO, sp. nov.**

(Fig. 6)

Length: 3.85 mm (from apical margin of clypeus to apices of elytra).

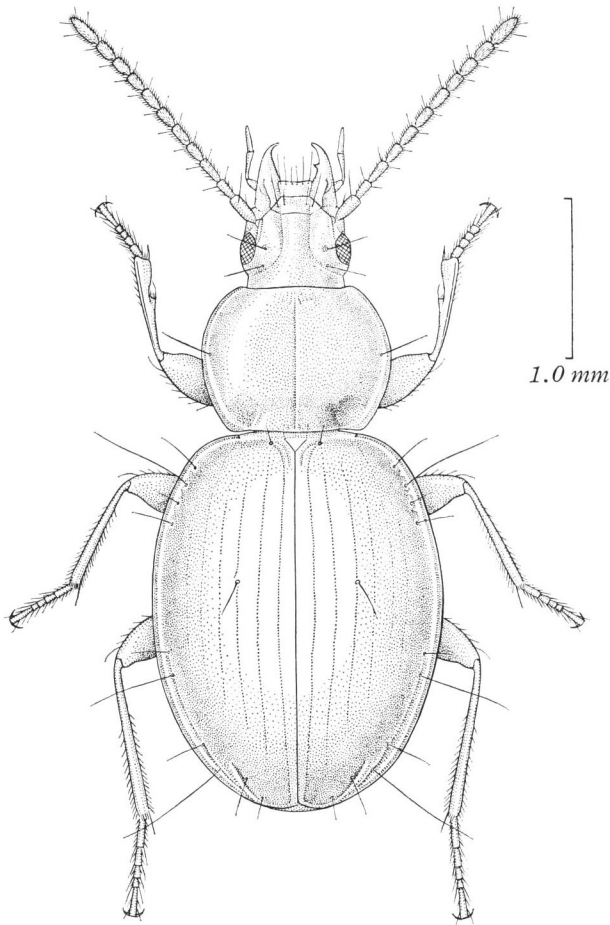


Fig. 6. *Luzonotrechus rotundicollis* S. UÉNO, sp. nov., ♀, from Paoay near Sayangan in Benguet Province.

Closely allied to *L. muscicola*, and barely distinguished from it by the different configuration of prothorax and some other details.

Very similar to *L. muscicola* in facies and coloration. Head as in *L. muscicola*, but the eyes are completely flat and the genae are tumid though relatively short (about two-fifths as long as eyes), making the head subparallel-sided at middle; labrum very slightly emarginate at apex, whose median part is almost straight, not bisinuate; antennae reaching basal tenth of elytra in ♀. Pronotum longer and more strongly contracted towards base than in *L. muscicola*, widest at about middle, and almost equally narrowed in front and behind though the base is a little wider than apex; PW/HW 1.64, PW/PL 1.22, PW/PA 1.70, PW/PB ca. 1.54, PB/PA ca. 1.10; sides strongly arcuate throughout, more evenly rounded from apex to base than in *L. muscicola*. Elytra as

in *L. muscicola*, but the shoulders are more widely rounded; EW/PW 1.56, EL/EW 1.36; striae degenerated at the side as in *L. muscicola*. Ventral surface and legs as in *L. muscicola*.

Male unknown.

Type specimen. Holotype: ♀, 11-VII-1985, Y. NISHIKAWA leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Paoay, 2,400 m in altitude, near Sayangan in Benguet Province, on the Cordillera Central of northern Luzon, Philippine Islands.

Notes. Though males have been unknown, the specimen recorded above is regarded as belonging to a new species, not to a new subspecies of *L. muscicola*, since the external difference between the Paoay and Pangao specimens is of the same order as that between the Pangao and Puguis ones. It is probable that the male genitalia of *L. rotundicollis* will be found basically similar to those of *L. teras* and *L. muscicola* but different from the latter in the shape of aedeagus.

The holotype of this new trechine was taken by sifting mosses growing on a decayed trunk of a dead tree lying in a small broadleaved forest that remained at the side of cultivated fields near the small village of Paoay, about 600 m northwest of Sayangan. The collecting site is about 24.5 km distant to the south-southwest from Mt. Pangao, the type locality of *L. muscicola*, and is about 2.7 km southwest of Singakalsa on the western slope of Mt. Mungeoto, the type locality of *L. bontoc*. Several members of the expedition made every effort to obtain additional specimens, but failed in finding any, probably because of the paucity of favourable habitats.

Luzonotrechus unipunctatus S. UÉNO, 1979

Luzonotrechus unipunctatus S. UÉNO, 1979, Bull. natn. Sci. Mus., Tokyo, (A), 5, pp. 30, 35, figs. 6-8; type locality: Mt. Pangao in Bontoc Prov. — PERRAULT, 1982, Nouv. Rev. Ent., 12, p. 228. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, p. 215.

No additional record.

Luzonotrechus bontoc (DARLINGTON, 1959)

Trechus bontoc DARLINGTON, 1959, Pacif. Ins., 1, p. 342, fig. 6; type locality: Mt. Mungeoto in Benguet Prov. (see notes).

Luzonotrechus bontoc: UÉNO, 1979, Bull. natn. Sci. Mus., Tokyo, (A), 5, p. 30, figs. 1-3. — PERRAULT, 1982, Nouv. Rev. Ent., 12, p. 228. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, p. 215, fig. 135.

Additional specimens examined. 2 ♀♀, Mt. Mungeoto, 2,350 m alt., Singakalsa, Benguet Prov., northern Luzon, 24-III-1983, H. KIZAKI leg. (NSMT); 1 ♂, 1 ♀, Mt. Mungeoto, 2,240 m alt. on NW slope, Benguet Prov., northern Luzon, 27-VII-1985, Y. NISHIKAWA leg. (NSMT).

Notes. This interesting species was described from "Baguio and vicinity, Moun-

tain Prov., N. Luzon," but as DARLINGTON himself remarked in its original account, the two specimens of the type series were "actually taken along the Bontoc Road north or northwest [actually northeast] of Baguio, probably at an altitude of about 2200 m under stones in damp places but not by running water." While staying at Harvard in 1967-'68, I personally inquired of DARLINGTON about the precise locality of his specimens and was answered that it had been a gully at the side of the Bontoc Road near its highest point (cf. UÉNO, 1979, p. 32). Only two or three gullies on the Mungeoto-Nangaoto Mountains fitted to his oral description, and though I myself had failed in obtaining this trechine in the summer of 1977, I specially asked every Japanese zoologist who intended to visit the area to search for the beetle in the gullies under consideration.

Through the efforts of several friends of mine, two of those gullies were at last proved to be inhabited by the species in question, one running down the western slope of Mt. Mungeoto and the other lying near the northwestern end of the same mountain about 1.1 km north of the first locality. Since no other habitats of the trechine beetle have been located in spite of careful investigations, I herewith restrict the type locality of *Luzonotrechus bontoc* (DARLINGTON) to Mt. Mungeoto north-northeast of the village of Sayangan in the Province of Benguet. This is needed as the members of *Luzonotrechus* show considerable allopatric speciation on the Cordillera Central and have never been met in the immediate vicinities of Baguio City.

Mt. Mungeoto is a head on the Cordillera Central about 33 km northeast of Baguio, about 22 km south-southwest of Mt. Pangao, and 2,710 m in height. It is very steep at the eastern side but less so at the western, and is adjacent to Mt. Nangaoto on the north. According to KIZAKI and NISHIKAWA, who collected the specimens recorded above, *L. bontoc* was dug out from loose deposits of soil and gravel at the sides of the shaded gullies.

Luzonotrechus tumidulus S. UÉNO, 1979

Luzonotrechus tumidulus S. UÉNO, 1979, Bull. natn. Sci. Mus., Tokyo, (A), 5, pp. 30, 32, figs. 4-5; type locality: Mt. Pangao in Bontoc Prov. — PERRAULT, 1982, Nouv. Rev. Ent., 12, p. 228. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, p. 215.

Additional specimens examined. 3♂♂, 3♀♀ (incl. allotype herewith designated), Mt. Pangao, 2,340 m alt., above Palapal, Monamon Sur, Bontoc Prov., northern Luzon, 26-VII-1985, K. ISHIKAWA & Y. NISHIKAWA leg. (NSMT).

Notes. This is the largest known species of the genus; four of the six additional specimens examined, all of which were obtained in the same gully that the holotype had been found, are larger than the latter.

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