

Minypatrobus darlingtoni (new genus and new species),
a Notable Addition to the Carabid-Fauna of Japan

By

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In 1952, an example of a small carabid-beetle belonging to the subfamily Patrobrinae was obtained by Mr. ISHIDA on Mts. Daisetsu in Hokkaido. It was a strange species and, partly due to the female sex of the specimen, it was difficult to the writer at that time to point out an exact taxonomic position of this small insect. In the year following, however, some additional specimens of the same species were discovered by Messrs. KUROSAWA and YOSHIDA at the same locality, and the materials were generously offered to the writer's study. In examining these specimens, the writer came to a conclusion that the unfamiliar species should be placed close by the North American genus *Patroboidea* VAN DYKE.

There was, however, still remaining a problem whether or not the species in question was really congeneric with the North American species. This seemed to the writer to be hardly determinable with the original description. Dr. DARLINGTON was kind enough to send the writer an example of the rare North American species and his paper of use for the present work. This made the writer finally to decide possible that the Japanese species was to form an independent new genus closely related to *Patroboidea*. The description of this new Patrobid will be given below.

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Minypatrobus S. UÉNO, gen. nov.

Type-species: *Minypatrobus darlingtoni* S. UÉNO, sp. nov.

Apterous. Body elongate and convex; surface glabrous, impunctate.

Head large and wide, with frontal furrows well impressed; eyes small; genae long and conspicuous, not hairy; present two supraorbital pores, the hind one of

which is located far behind the hind level of eyes and close to neck-constriction; this constriction distinct both on dorsal and lateral sides; clypeus trapezoidal, with a single seta on each side, emarginate on front margin, in this emargination the membranous portion of the basal part of labrum sometimes visible. Labrum trapezoidal, emarginate on front margin and sexsetose. Mandibles short and stout, more or less hooked at apices. Mentum free, not fused with submentum, with a wide and deeply cleft tooth in apical emargination; submentum with two setae on each side (including one front angular seta); ligula rounded at apex and with two apical setae which are inserted in a single pore; paraglossae narrow, extending well beyond ligula. Palpi stout; apical segments subacuminate, weakly tumid behind middle (more tumid in labial palpus than in maxillary palpus) and slightly truncated at the tips; penultimate segments dilated towards apices (more strongly dilated in maxillary palpus than in labial palpus), distinctly shorter than

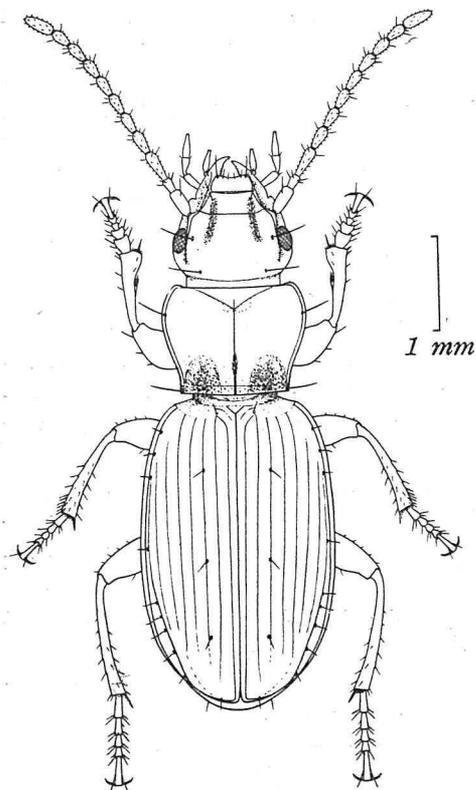


Fig. 1. *Minypatrobus darlingtoni* gen. et sp. nov., ♂, of Nagayamadaké on Mts. Daisetsu.

apical segment and asetose in maxillary palpus, a little shorter than apical one and inwardly bisetose in labial palpus. Antennae short; segment 1 twice as long as segment 2 and bearing a single subapical seta on the dorso-anterior face; segment 2 smallest, 1.5 times longer than wide; segment 3 about as long as segment 1; segments 4–11 submoniliform, segments 4–10 shorter than segment 3 and longer than segment 2, segment 11 about as long as segment 3.

Pronotum transverse subcordate, convex; lateral sides narrowly bordered, widely rounded in front and sinuate just before hind angles which are nearly rectangular; present both lateral and postangular setae, the latter of which is inserted almost on the angle; median line distinct but not excessively wide; basal foveae large.

Elytra elongate-ovate, moderately convex; shoulders effaced, lateral sides hardly emarginate before apices which are rounded; striae shallow, usually obliterated both near base

and before apex as well as on lateral side, stria 8 deep in apical part but becoming shallower and sometimes almost disappearing before middle; scutellar striole present though very short, apical one obliterated; intervals smooth; interval 3 with three setiferous dorsal pores usually adjoining stria 3; marginal series usually composed of eight umbilicate pores (sometimes nine, rarely ten) and not specialized into regular groups, though always spaced at middle.

Ventral surface glabrous; metasternal process bordered; metepisterna wide, a little longer than wide; anal sternite with one seta in ♂, two in ♀ on each side, an inner pair of these four setae in ♀ distant from the margin.

Legs short and stout; tibiae (especially protibiae) rather strongly dilated towards apices; tarsal segments glabrous and smooth on dorsal surface, segment 4 in pro- and mesotarsi deeply emarginate; in ♂ protarsi with proximal two segments dilated and provided beneath with sexual adhesive appendages; claws simple.

Male genital organ of *Patroboidea*-type. Aedeagus entirely open to dorsal side, forming a gutter, with basal lobes nearly symmetric; apex hooked and produced dorsally; inner sac inerm. Styles arcuate, without apical prolongation and each with a single apical seta; an additional piece present on the ventral side of each style.

On account of several remarkable features, the present new genus may be placed among the tribe Deltomerini. The well developed genae and the structure of its male genital organ are suggestive in determining its position, though the number of the marginal umbilicate pores on elytra does not correspond to that seen in the European genera.

In these respects, and though their general appearances are markedly different from each other, *Minypatrobis* is no doubt closely allied to *Patroboidea*. The diagnostic differences between these two genera may be summarized as seen below.

Patroboidea VAN DYKE: Body flat, with appendages slender; alate; neck rather narrow, neck-constriction deep; mandibles fairly slender; apical segments of palpi pointed at the tips; antennal segment 1 plurisetose, segment 2 wider than long and globular, segment 3 very long, about as long as segments 1 + 2, segments 4-11 subfiliform; pronotal median line wide, forming a furrow; elytral striae entire, scutellar striole long, apical striole distinct; mesosternum pubescent; metepisterna narrow, twice as long as wide; sternites sparsely pubescent; anal sternite in ♀ with three pairs of setae, which are all marginal; apex of each style briefly but distinctly prolonged.¹⁾

Minypatrobis gen. nov.: Body convex, with appendages robust; apterous; neck

1) According to the description and the figure given by Dr. DARLINGTON (Ent. Amer., 18, (n. s.), 1938, p. 145, pl. 6, fig. 6).

wide, neck-constriction shallow; mandibles short and stout; apical segments of palpi slightly truncated at the tips; antennal segment 1 unisetose, segment 2 longer than wide and normal, segment 3 normal, much shorter than segments 1 + 2, segments 4-11 submoniliform; pronotal median line normal; elytral striae more or less incomplete, scutellar striole very short, apical striole obliterated; mesosternum glabrous; metepisterna wide, a little longer than wide; sternites glabrous; anal sternite in ♀ with two pairs of setae, an inner pair of which is distant from margin; apex of each style not prolonged.

It is interesting that there are found in Hokkaido certain carabids, whose close relatives are not known in Palaearctic Continent but occur in North America. Another example of the similar case is *Nebria shibanaii*, whose closest allies are *N. paradisi* and *N. kincaidi*, both of which are found in the continent of North America.

***Minypatrobus darlingtoni* S. UÉNO, sp. nov.**

Length: 5.0-5.7 mm (from front margin of clypeus to anal end).

Body elongate and convex. Colour somewhat reddish brown to dark brown, shiny, elytra usually somewhat darker than the rest of body; ventral side brown; palpi pale brown; clypeus, labrum, mandibles, antennae and legs reddish brown to brown.

Head large, wide and convex, smooth on dorsal surface, and with vague transverse striations on the ventral surface of genae; frontal furrows moderately deep and wide, somewhat uneven, diverging behind and extending to the level of front supraorbital pore, with a few punctures in the posterior parts of them; eyes small and flat, rather coarsely faceted; genae moderately convex and about as long as eyes; neck-constriction distinct though shallow, with sparse minute punctures; microsculpture formed by nearly isodiametric meshes, though rather depressed; front margin of clypeus widely but not deeply emarginate, that of labrum deeply emarginate; antennae short and stout, reaching basal two-ninths of elytra.

Pronotum transverse subcordate, convex, fully 1.2 times wider than head, fully 1.3 times wider than long, widest at about two-thirds from base; lateral sides widely and gently rounded in front, moderately sinuate just before hind angles, with lateral seta inserted at a little before the widest part; apex slightly but widely emarginate, a little wider than base, which is a little oblique on each side and slightly sinuate inside the angle; front angles a little advanced and rounded at the tips, hind angles nearly rectangular or somewhat obtuse; median line clearly impressed, not reaching apex and somewhat widening basally; front transverse impression shallow (sometimes almost obliterated), vaguely wrinkled, basal transverse impression obsolete; basal foveae large and deep, punctured, the

punctures extending onto whole basal area though rather sparse at the middle; surface with vague transverse striations; microsculpture consisted of rather wide meshes (partly almost isodiametric).

Elytra elongate-ovate, moderately convex though somewhat flat on disk, about 1.35 times wider than pronotum, about 1.6 times longer than wide, widest at about middle; lateral sides narrowly and evenly reflexed, widely but weakly rounded, the border reaching at base a point approximately opposite to stria 6; striae shallow, finely crenulate, becoming shallower near base and obliterated before apex, outer striae much shallower than inner ones and sometimes almost disappearing;²⁾ intervals slightly convex on the disk but flat on the lateral side; interval 3 with three dorsal pores usually adjoining stria 3, located at about one-fourth,

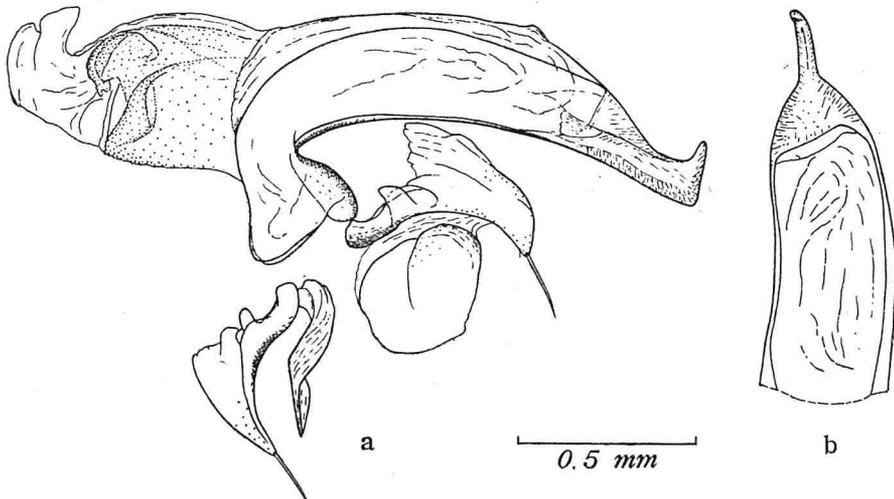


Fig. 2. Male genital organ of *Minypatrobis darlingtoni* gen. et sp. nov., paratype, of Nagayamadaké; left lateral view, with right style removed and showing external face (a), and apical part of aedeagus, dorsal aspect (b).

middle and three-fourths from base respectively (the positions of these pores variable to a certain degree according to individuals); microsculpture consisted of wide meshes.

The lateral sides of prosternum, prepisterna, mesosternum, mesepisterna and the lateral sides of metasternum more or less punctured; metepisterna and sternite 1 somewhat wrinkled.

Legs short and stout; femora robust; tibiae slightly arcuate; protarsal segments

2) In the male paratype, the elytral striae are unusually deep and are moderately impressed even at the lateral side, though they are obliterated before apex as in the other type-specimens. Consequently, the intervals are more convex than in the others. This specimen may be an extreme case of individual variation.

1 and 2 widely dilated in ♂, each with the apical angles slightly but distinctly produced.

Male genital organ well chitinized. Aedeagus moderately arcuate, with basal part strongly bent; ventral side regularly but not deeply concave; apical part rather wide, subangulate ventrally and produced dorsally at the extremity; in dorsal aspect, aedeagus curving to right side, with narrow apical prolongation. Styles fairly wide and rather strongly arcuate, tapering towards apices which are not specially prolonged, left style wider than right style; each style provided with one apical seta, adding to this a minute seta present just before the apical one on the ventral side of left style; the additional piece of left style nearly circular, that of the right elongate and twisted.

Holotype: ♂, allotype: ♀ (Nagayamadaké, 29-VII-1953, collected by Y. KUROSAWA). Paratypes: 1 ♂ (Nagayamadaké, 29-VII-1953, by Y. KUROSAWA); 1 ♀ (Yukomambetsu, 20-VII-1952, by H. ISHIDA).

Type-localities: Nagayamadaké and Yukomambetsu, on Mts. Daisetsu in Hokkaido.

The holotype, the allotype and the male paratype are deposited in the writer's collection. The female paratype is preserved in the collection of the Museum of Comparative Zoology (Cambridge, Mass.).

The Nagayamadaké specimens of this remarkable new species were found at a high elevation under large stones deeply buried in the ground, coexisting with a new species of Trechid. The Yukomambetsu specimen was obtained under a trunk of rotten wood. It is noticeable that these habitats of *Minypatrobus darlingtoni* are quite different from that of *Patroboidea rufa*, which is found "under cover by streams".³⁾

3) DARLINGTON, 1938, loc. cit., p. 146.