

A New Upper Hypogean Species of the Subgenus *Yuadorgus*
(Coleoptera, Trechinae) from Southwestern
Shikoku, Southwest Japan

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Abstract A new species of the trechine subgenus *Yuadorgus* is described from the southwestern part of the Island of Shikoku, Southwest Japan, under the name of *Ryugadous* (*Yuadorgus*) *kasaharai*. This is the first upper hypogean species of the subgenus and marks the southwestern limit of the range of generic distribution.

In the present paper, we are going to describe a new upper hypogean species of trechine beetle from southwestern Shikoku, Southwest Japan, in dedication to the memory of Sumao KASAHARA (1935–2001). KASAHARA was a good friend of ours and always helped the second author of the present paper in determining the scientific names of newly found species. He was deeply interested in the carabid fauna of the Island of Shikoku, and described some new pterostichine and harpaline species from the Shikoku Mountains in collaboration with ITÔ. We both miss him sorely.

What is taken up to his memory is a new species of *Yuadorgus* of the trechine genus *Ryugadous* discovered by the second author on a hill lying on the left side of the Shimanto-gawa River, where no eyeless trechine beetles have previously been known. This is not only the first upper hypogean species of the genus but a species occurring at the southwestern periphery of the generic distribution. As is usual for a member of the genus *Ryugadous*, external peculiarity of the new species is not particularly pronounced, but its specific status is clearly exhibited by the characteristic configuration of its male genitalia.

The abbreviations employed in the present paper are the same as those explained in a previous paper of the first author's (cf. UÉNO, 1979, pp. 2–3).

Ryugadous (Yuadorgus) kasaharai S. UÉNO et Y. ITÔ, sp. nov.

(Figs. 1–3)

Length: 3.80–4.35 mm (from apical margin of clypeus to apices of elytra).

Externally similar to *R. elongatulus* S. UÉNO (1979, pp. 4, 7, figs. 6–8) from Ganigoé-no-kanaudo at Okuôdô, but the pronotum is narrower at the base on an average with the sides less deeply sinuate before the base, and the elytra are more regularly rounded at the sides in apical two-thirds, more evenly convex on the disc, and usually less salient at the humeral angles. Definitely different from *R. elongatulus* in the configuration of male genitalia as will be described later.

Colour more or less evidently darker than in *R. elongatulus*, legs and venter of hind body particularly darker, sometimes with dark reddish brown tibiae. Head as in *R. elongatulus*, though the labrum is less deeply emarginate at the apex, which is nearly straight in median third; antennae a little longer, reaching apical third to three-sevenths (usually two-fifths) of elytra in ♂, apical three-sevenths of elytra in ♀. Pronotum usually more contracted at the base than in *R. elongatulus*, widest at about three-fourths from base; PW/HW 1.35–1.45 (M 1.39), PW/PL 0.99–1.06 (M 1.02), PW/PA 1.34–1.43 (M 1.38), PW/PB 1.39–1.49 (M 1.44), PB/PA 0.91–1.00 (M 0.96); sides more narrowly bordered, before the widest part in particular, than in *R. elongatulus*, similarly arcuate in front but usually less deeply sinuate at about basal fifth or a little behind that level, and then either subparallel or very slightly convergent towards hind angles, which are more or less sharp and protrude posteriorly; front angles obtuse though more or less produced forwards.

Elytra elongate, much wider than pronotum and about half as long again as wide, widest at about middle, and more gradually narrowed towards bases than towards apices, with ample rounded apical halves; EW/PW 1.65–1.75 (M 1.70), EL/PL 2.49–2.74 (M 2.61), EL/EW 1.47–1.54 (M 1.52); sides moderately rounded in apical two-thirds, with apices rather widely and almost conjointly rounded; humeral angles usually less salient than in *R. elongatulus*; dorsum more strongly convex, with a deep round depression in basal area; striation as in *R. elongatulus*, with distinct scutellar striole, striae 1–4 deepened in basal depression, stria 5 also deeply impressed at the basal portion; stria 3 with a single setiferous dorsal pore at 1/7–1/5 from base, stria 5 with two setiferous dorsal pores at about 3/10 and 5/8 from base, respectively. Legs as in *R. elongatulus*.

Male genital organ very small and lightly sclerotized, generally similar to that of *R. elongatulus*, but markedly different in the longer and narrower apical lobe of aedeagus and short, somewhat parallelogrammatic copulatory piece. Aedeagus a little less than two-sevenths as long as elytra, gently arcuate and lightly compressed, with the dorsal margin semicircularly rounded in profile in proximal two-thirds; basal part fairly large, hardly bent ventrad at the level of parameral articulation, with large basal orifice whose sides are only shallowly emarginate; sagittal aileron distinct though small; viewed dorsally, apical lobe nearly parallel-sided and narrowly rounded at the

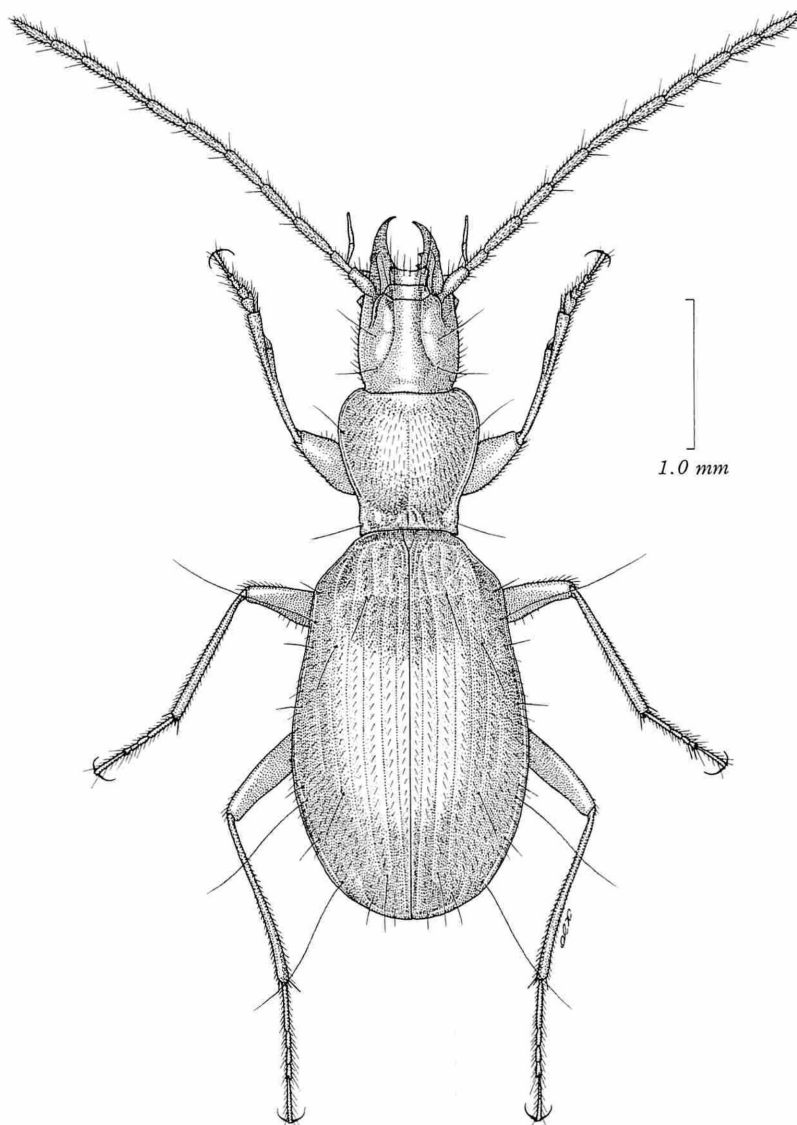
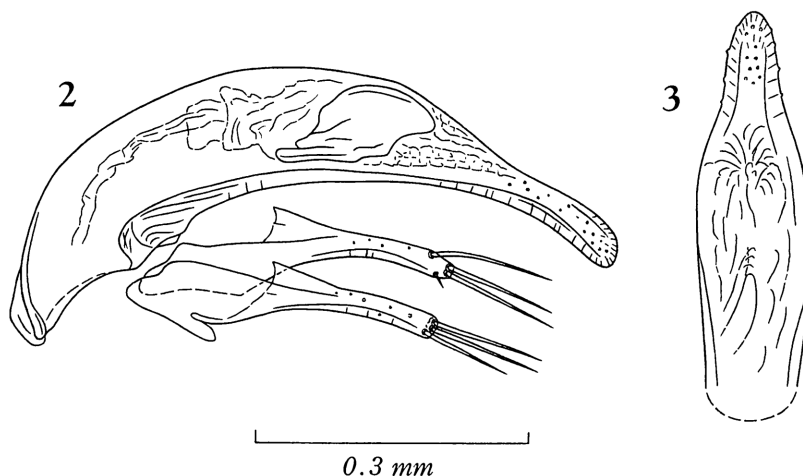


Fig. 1. *Ryugadous (Yuadorgus) kasaharai* S. UENO et Y. ITÔ, sp. nov., ♂, from Fudô-yama in southwestern Shikoku.

tip; viewed laterally, apical lobe long and narrow, feebly curved ventrad, gradually and slightly dilated towards apex, which is rounded; ventral margin shallowly but widely emarginate in profile. Inner sac covered with hardly sclerotized scales near apical orifice and armed with a copulatory piece about two-sevenths as long as aedeagus; copulatory piece somewhat parallelogrammatic with bisinuate ventro-apical and more ir-



Figs. 2–3. Male genitalia of *Ryugadous (Yuadorgus) kasaharai* S. UÉNO et Y. ITÔ, sp. nov., from Fudô-yama in southwestern Shikoku.; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

regularly sinuate dorso-proximal margins, narrow area along ventral margin more heavily sclerotized than the other part, particularly in rod-like proximal portion. Styles slender with narrow apical parts, left style only slightly longer than the right, each bearing three apical setae, which are sometimes supplemented with a short or minute fourth seta on one style (cf. Fig. 2).

Type series. Holotype: ♂, allotype: ♀, paratypes: 7♂♂, 6♀♀ (incl. 2 teneral ♀♀), 20-IX-1993, Y. ITÔ leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Fudô-yama, 550 m in altitude on the north-northeastern slope, in Taishô-chô of Kôchi Prefecture, on the Pacific side of the Island of Shikoku, Southwest Japan.

Notes. Of the two, previously known congeners of *Yuadorgus* isolated in the southwestern part of the subgeneric distributional area (cf. fig. 1 in UÉNO, 1979, p. 2), *R. pravus* S. UÉNO (1979, pp. 4, 6, figs. 4–5) occurs in an abandoned adit of an antimony mine, called Miyano-tani-no-kanaudo, which is geographically nearer to the habitat of *R. kasaharai* than Ganigoé-no-kanaudo is, the latter being inhabited by the other species, *R. elongatulus*. The former adit is about 11 km distant to the east-northeast from Fudô-yama, whereas the latter adits are about 17.5 km distant to the north-northwest from the same hill. Unlike Fudô-yama which lies on the left (southern) side of the Shimanto-gawa River, the two mines are located on the right (northern) side, and Miyano-tani-no-kanaudo is much nearer to (only 1.8 km distant from) the river than Ganigoé-no-kanaudo is (about 7 km distant from the river). In spite of such a geographical situation, *R. kasaharai* is doubtless closer to *R. elongatulus* than to *R. pravus*

in both the external and genitalic morphology. This is particularly apparent in the configuration of the male genitalia, since those of the latter species are quite unique (cf. figs. 4–5 in UÉNO, 1979, p. 5).

Fudô-yama is a hill 780 m in height lying about 6 km south of the Shimanto-gawa River. The type specimens of *R. kasaharai* were dug out from colluvia deposited along the headwaters of a stream flowing down the eastern side of the hill and emptying into the Shimanto-gawa. The collecting site is about 150 m below the northern ridge and shaded by a small patch of mainly evergreen broadleaved trees. This patch of natural forest is not large and surrounded by plantations of Japanese cedar. The trechine beetle was found at a depth of 40–70 cm, together with another upper hypogean carabid, *Pterostichus* (*Sphodroferonia*) *miyamai* KASAHARA et Y. ITÔ (1987, p. 142, figs. 1–5; also Y. ITÔ & KASAHARA, 1988).

要 約

上野俊一・伊東善之：四国南西部の地下浅層から見つかったヒラタメクラチビゴミムシ亜属の1新種。——四国の南西部，四万十川本流の左岸（南側）に位置する不動山の地下浅層から，イシカワメクラチビゴミムシ属ヒラタメクラチビゴミムシ亜属の1新種を記載し，これを昨年9月に亡くなった笠原須磨生氏に捧げて，カサハラメクラチビゴミムシ *Ryugadous* (*Yuadorgus*) *kasaharai* S. UÉNO et Y. ITÔ と命名した。この新種は，同属の種としては初めて地下浅層から記録されるものであり，しかもその生息地が属の分布域の南西端に位置することでひじょうに興味深い。

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