

A New *Agonotrechus* (Coleoptera, Trechinae) from Nepal, with Notes on its Congeners¹⁾

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Abstract A new Himalayan species of the trechine genus *Agonotrechus* is described from eastern Nepal under the name of *A. tenuicollis*. It is related to *A. iris* ANDREWES of northwestern Uttar Pradesh. Brief notes are given on all the other known species of the genus.

The trechine beetles of the genus *Agonotrechus* are seldom met with in museum collections, mainly because they are usually very rare. Two of the five species previously described have been known from only single individuals, and one of the other three from two specimens. To make the matter worse, these specimens are dispersed to several European museums, and are not easily re-examined by direct comparison. Only the exception is *A. horni* JEDLIČKA from the Island of Taiwan, which was carefully redescribed by myself on the basis of the holotype and a long series of newly obtained materials (UÉNO, 1980).

Before making the study on the Taiwanese species, I obtained a specimen of *Agonotrechus* from the Nepal Himalaya, but was unable to determine its systematic status solely from descriptions given by previous authors. According to the accounts of Indo-Burmese species given by ANDREWES (1935, pp. 74-78), the Nepalese trechine appeared intermediate between *A. iris* ANDREWES and *A. andrewesi* JEANNEL, but no reliable characteristics separating the former from the latter two were found out in his key and descriptions, nor was I able to decide to which of the two the Nepalese form was more closely related.

Fortunately, the types of both the Indian species in question are preserved in the British Museum (Natural History), and I was able to examine them recently through the kind arrangement of Dr. STORK and Mr. HAMMOND. A mere look at these types was sufficient to conclude that my specimen belonged to a new species related to *A. iris*, and I am going to describe it in the present paper under the name of *A. tenuicollis*. Since the original description of *A. iris* is far from sufficiency, I take this opportunity to give a supplementary account of the species and also brief notes on the other congeners.

The abbreviations used in this article are the same as those explained in previous

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papers of mine.

Before going into further details, I wish to express my hearty thanks to Professor Yoshiaki NISHIKAWA and the other members of the Himalayan Expedition 1979, whose help made my collectings very fruitful. I am also deeply indebted to Dr. N. E. STORK and Mr. P. M. HAMMOND, whose kind arrangement enabled me to complete this paper, and to Mr. Kimio MASUMOTO who carried the important types from London to Tokyo.

Agonotrechus tenuicollis S. UÉNO, sp. nov.

(Figs. 1-3)

Length: 5.15 mm (from apical margin of clypeus to apices of elytra).

Intermediate between *A. iris* and *A. andrewesi* both in size and in general appearance, but no doubt closer to the former than to the latter. Readily distinguished from *A. iris* by the shape of head, prothorax and aedeagal apical lobe.

A winged species of medium size, with small fore body and ample elytra. Colour black, shiny and iridescent; head (except for the interocular area), apical margin of pronotum, lateral margins of elytra, and ventral surface (excepting apical sternites) dark brown; palpi, antennae (becoming darker towards apices), and legs brown to dark brown.

Head small and short, depressed, with entire frontal furrows which are deeply impressed in front and widely divergent behind; frons and supraorbital areas gently convex, the latter bearing two pair of supraorbital setae on lines divergent posteriorly; microsculpture fine though distinct, mostly consisting of transverse meshes; eyes large and convex, their long axes being parallel to each other; genae short, hardly convex, about two-ninths as long as eyes, and abruptly convergent towards neck constriction, which is deep and sharply marked; neck relatively narrow; labrum transverse, simply emarginate at apex; mandibles fairly slender; mentum fused with submentum, the former with a simple broad tooth in apical emargination and the latter sexsetose; palpi fairly slender, penultimate segments gradually dilated towards apices, apical ones slender, blunt at the extremities; antennae filiform and slender, almost reaching the middle of elytra, segment 3 subequal in length to each of the succeeding segments and 1.2 times as long as segment 2, segments 7-9 each cylindrical and about 3.5 times as long as wide, terminal segment the longest though much narrower than scape.

Pronotum subquadrate, wider than head and wider than long though not particularly transverse, widest at three-fifths from base and more strongly contracted towards apex than towards base; PW/HW 1.35, PW/PL 1.30, PW/PA 1.63, PW/PB 1.17; surface moderately convex, with vague transverse striations; microsculpture formed by fine transverse lines and meshes; sides rather widely reflexed throughout, moderately arcuate before the widest part but feebly so behind and very slightly sinuate just before hind angles, which are rectangular though somewhat blunt at the tips; both lateral and postangular setae present, the latter being just in front of hind angle;

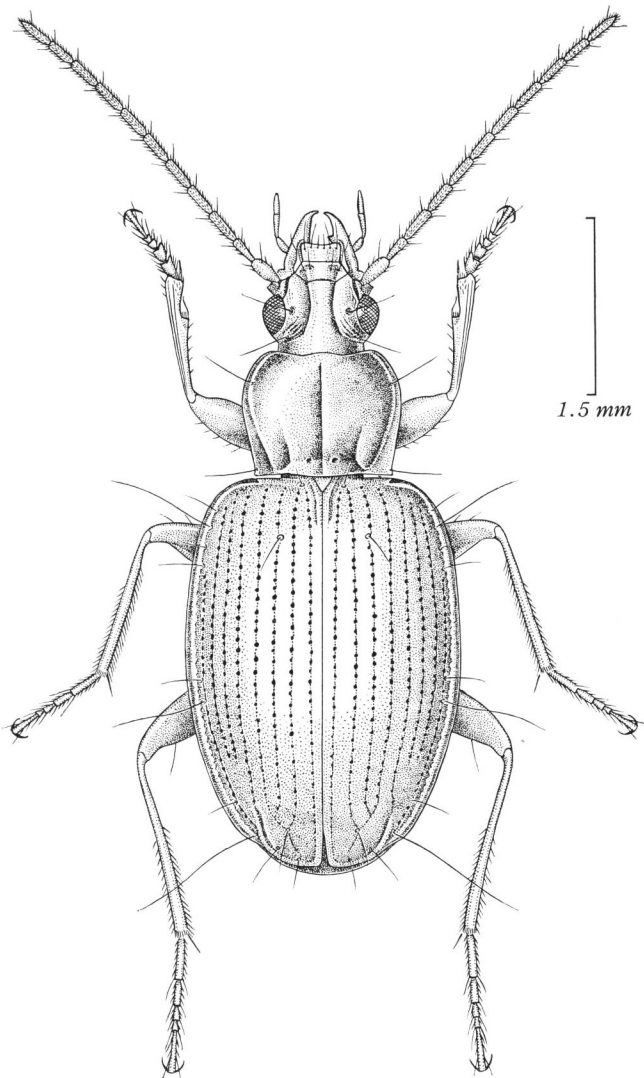


Fig. 1. *Agonotrechus tenuicollis* S. UÉNO, sp. nov., ♂, from Shivinokhola in eastern Nepal.

apex bisinuate, with front angles rather widely rounded; base very slightly bisinuate, obviously wider than apex, PB/PA 1.40; median line distinct, a little deepening in basal area, which is narrow and somewhat uneven; apical transverse impression vague, basal one continuous though mal-defined, with a foveole on each side of median line; basal foveae fairly large and deep, transversely strigose at the bottom; postangular carinae absent.

Elytra ovate, much wider than prothorax, widest at about four-ninths from base, and more regularly narrowed towards apices than towards bases; EW/PW 1.76,

EL/EW 1.42; surface well convex, though the apical declivity is not so steep; microsculpture formed by fine transverse lines but not sharply impressed; shoulders distinct, with arcuate prehumeral borders; sides rather widely reflexed, very feebly arcuate from behind shoulders to the middle, then gently so to the level of the apicalmost pore of the marginal series, and narrowly rounded at apices through slight preapical emargination; striae entire, deeply and equally impressed throughout, coarsely punctate though the punctures become finer apically; scutellar striole long and deeply impressed; apical striole short but deep, hardly arcuate in anterior portion, and joining stria 5; intervals smooth, almost flat even on the disc; apical carina sharply raised; stria 3 with a single setiferous dorsal pore at about basal seventh; preapical pore situated at the apical anastomosis of striae 2 and 3 well behind the level of the terminus of apical striole, and a little more distant from apex than from suture; marginal umbilicate pores regular.

Ventral surface glabrous and smooth; anal sternite provided with a pair of sexual setae in ♂. Legs fairly long and slender; protibia straight, gently dilated towards apex, longitudinally bisulcate on the external face, and microscopically pubescent on the anterior face at its apical portion; tarsi fairly thin, segment 4 with a long ventral apophysis in pro- and mesotarsi; in ♂, two proximal segments of each protarsus rather weakly dilated and inwardly denticulate at apices.

Male genital organ very small though moderately sclerotized. Aedeagus a little more than one-fifth as long as elytra, compressed, arcuate from base to apex though only feebly so at middle, with small basal part rather abruptly bent ventrad and relatively long apical lobe gently curved ventrad; basal orifice small, with the sides not emarginate; sagittal aileron porrect though not particularly large; viewed dorsally, apical lobe nearly parallel-sided and widely rounded at the tip; viewed laterally, apical lobe narrow, gradually tapered towards apex which is narrowly rounded; ventral margin widely emarginate at middle in profile. Inner sac armed with a large spatulate copulatory piece largely covered with scales, which is nearly three-eighths as long as aedeagus. Styles fairly narrow, left style obviously longer than the right, each bearing four apical setae of unequal lengths.

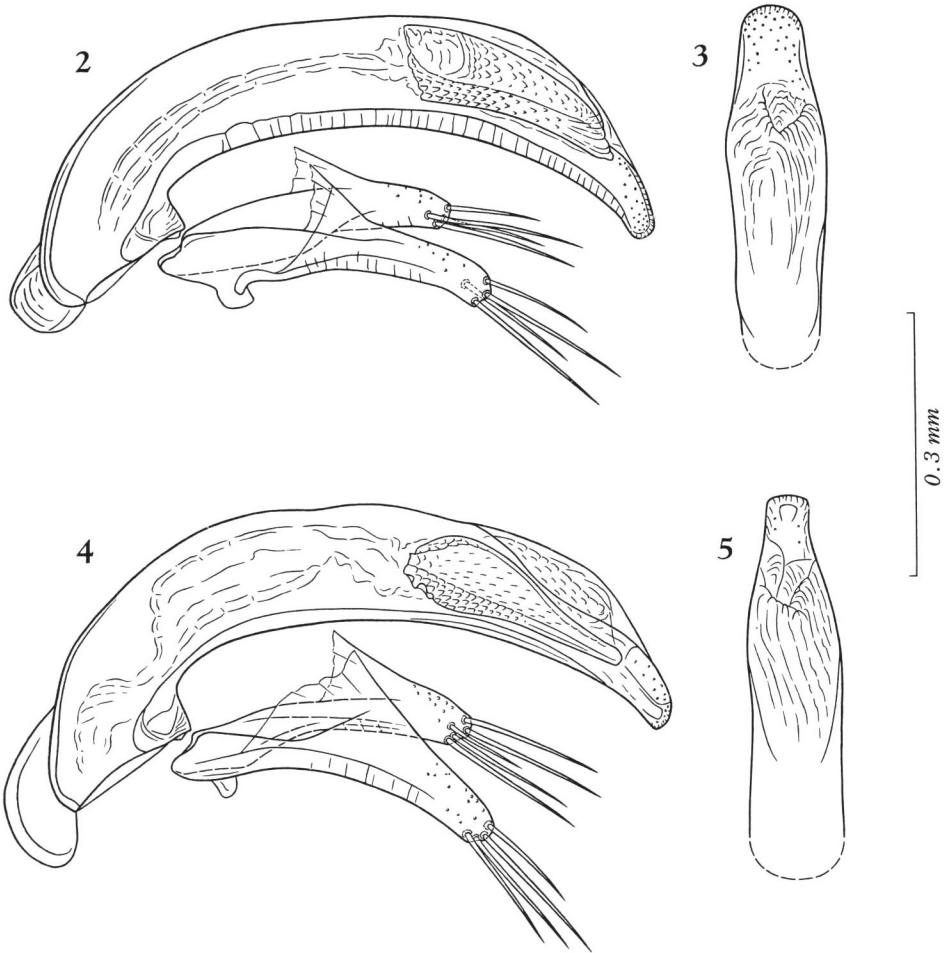
Female unknown.

Type specimen. Holotype: ♂, 14-XI-1979, Y. NISHIKAWA leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Shivinokhola between Pokhare and Drumthali, 1,920 m in altitude, in Sindhu District of Bagmati Zone, eastern Nepal.

Range. Eastern Nepal.

Notes. It is worth noting that the present species has closer affinity with *A. iris* of northwestern Uttar Pradesh than with *A. andrewesi* of the Darjeeling District, although its locality is much nearer to the latter area. Most species of apterous trechines occurring in eastern Nepal are closely related to those distributed in Sikkim and West Bengal, not to the West Himalayan ones. Probably there is certain dif-



Figs. 2-5. Male genitalia of *Agonotrechus* spp.; left lateral view (2, 4), and apical part of aedeagus, dorso-apical view (3, 5). — 2-3. *A. tenuicollis* S. UÉNO, sp. nov., holotype, from Shivinokhola in eastern Nepal. — 4-5. *A. iris* ANDREWES, holotype, from Dobhalwala in NW Uttar Pradesh.

ference in the mode of dispersal between alate and apterous forms, and the former may have spread over the latter in rather a recent time.

Shivinokhola, the type locality of *A. tenuicollis*, is a small village lying on the southern slope of the Nambarjung Danda, which is the western extension of the Kalinchok Danda. The name of the village is the same as that of the torrent running through it, a tributary of the Sun Kosi that empties into the Bhote Kosi River at a point just southwest of Bahrabise. At the back of human dwellings, there is a cascade whose upper edge forms a kind of small dam. The single known specimen of *A.*

tenuicollis was found from under a stone at the edge of the slowly flowing water. This spot was situated at the periphery of a rhododendron forest and was shaded by a large rock. The habitat was exactly the same as those of bembidiines and was considerably different from those of apterous trechines.

Agonotrechus iris ANDREWES, 1935

(Figs. 4-5)

Agonotrechus iris ANDREWES, 1935, Fn. Brit. Ind., Coleopt. Carab., 2, pp. 75, 76, pl. 1, fig. 5; type locality: Dobhalwala. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, p. 115.

Though beautifully illustrated in colour (ANDREWES, 1935, *loc. cit.*), the type specimen of this rare species is not in a good condition of preservation. It has lost the fifth to eleventh segments of the left antenna and the third to eleventh segments of the right, the left protibia and tarsus, the third to fifth segments of the right pro-tarsus, the right mesotibia and tarsus, and the right hind leg. Even the coloration does not accord with ANDREWES' description; it is not "piceous black" but dark brown with fairly strong iridescence, though the marginal areas of elytra have darker hue. The specimen was in this state when I first saw it in 1973, and since it is glued on a piece of cardboard, it must have been in the same condition when it was described by ANDREWES. In all probability, ANDREWES' colour illustration must have been prepared by imaginary restoration, and his description of the colour may have been biased by that of its congeners, *A. birmanicus* and *A. andrewesi*.

However, *A. iris* is a good species. It is characterized by the following combination of morphological features:

Length 5.55 mm (from apical margin of clypeus to apices of elytra). Colour dark brown, shiny and iridescent, with darker hue in the marginal areas of elytra; palpi and antennae (basal portions at least) yellowish brown; ventral surface and legs brown. Head as in *A. tenuicollis*, but the neck is broader, the eyes are more obliquely set, and the genae are less strongly contracted behind; antennal segment 3 somewhat longer, about 1.3 times as long as segment 2. Pronotum larger and more transverse than in *A. tenuicollis*, a little more strongly contracted at base, with the sides more strongly and more widely arcuate in front and more widely, though slightly, sinuate before hind angles, which are nearly rectangular though blunt at the tips; lateral margins a little more widely reflexed throughout. Elytra as in *A. tenuicollis* though the apical striole is more regularly arcuate. Standard ratios of body parts: PW/HW 1.39, PW/PL 1.33, PW/PA 1.66, PW/PB 1.20, PB/PA 1.39, EW/PW 1.68, EL/EW 1.40.

Male genitalia similar to those of *A. tenuicollis* though evidently differing in the shape of aedeagal apical lobe. Aedeagus just one-fifth as long as elytra, more regularly arcuate than in *A. tenuicollis*, bearing much larger sagittal aileron; viewed dorsally, apical lobe obviously narrower than in *A. tenuicollis*, with the tip subtruncated; viewed laterally, apical lobe broader and less obviously curved ventrad, with the tip not

rounded at the ventral corner but subangulate; ventral margin evenly emarginate in profile. Copulatory piece as in *A. tenuicollis*, though much narrower in apical half. Styles somewhat broader than in *A. tenuicollis*; in the holotype, an extra apical seta present on the right style.

Female unknown.

Specimen examined. 1 ♂ (holotype), Dobhalwala, Dehra Dun, Uttar Pradesh, N India (BM).

Range. Northwestern part of Uttar Pradesh, northern India.

Notes. As was already noted, the holotype, the only known specimen, of this species is not in a good state of preservation. It is said to have been bought from STAUDINGER.

Agonotrechus andrewesi JEANNEL, 1923

Agonotrechus andrewesi JEANNEL, 1923, Ann. Mag. nat. Hist., (9), 12, p. 430, fig. 17; type locality: Kurseong. — ANDREWES, 1930, Cat. Ind. Ins., (18), p. 13; 1935, Fn. Brit. Ind., Coleopt. Carab., 2, pp. 75, 77, fig. 15. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, p. 115.

Agonotrechus Andrewesi: JEANNEL, 1928, Abeille, Paris, 35, pp. 87, 89, figs. 1324–1327. — CSIKI, 1928, Coleopt. Cat., (98), p. 284.

This species can be readily recognized on the following combination of external features:

Relatively small species of 4.75 mm in the length of body (from apical margin of clypeus to apices of elytra). Colour brownish black, shiny and faintly iridescent; head, apical area of pronotum, margins of elytra, and ventral surface more or less brownish; palpi pale; antennae and legs light brown. Head smaller than in the two preceding species, with less prominent eyes and more oblique genae; labrum bisinuate at apex; antennae reaching basal four-ninths of elytra, with segment 3 about 1.3 times as long as segment 2. Pronotum similar to that of *A. tenuicollis*, but more strongly contracted at apex, with the sides more strongly arcuate in front and hardly sinuate before hind angles, which are obtuse and somewhat rounded; lateral margins rather narrowly reflexed. Elytra more strongly convex and more deeply striate than in *A. tenuicollis*, with the apical declivity much steeper than in the latter; sides more narrowly reflexed and more regularly arcuate than in *A. tenuicollis*. Standard ratios of body parts: PW/HW 1.44, PW/PL 1.37, PW/PA 1.71, PW/PB 1.18, PB/PA 1.45, EW/PW 1.67, EL/EW 1.42.

Female unknown.

Specimen examined. 1 ♂ (holotype), Kurseong, West Bengal, NE India (BM).

Range. Darjeeling District in West Bengal, northeastern India.

Notes. This must be a very rare insect, only two specimens having been known so far. I myself made two collecting trips to the Darjeeling District and searched for the trechine beetle on the mountains stretching between Darjeeling and Kurseong. However, I failed in finding out its habitats, which must have been somewhere in wet

shaded places.

Agonotrechus birmanicus (H. W. BATES, 1892)

Trechus birmanicus H. W. BATES, 1892, Ann. Mus. civ. Stor. nat. Genova, **32**, p. 297; type locality: Karin Asciiui Ghecù.

Agonotrechus birmanicus: JEANNEL, 1923, Ann. Mag. nat. Hist., (9), **12**, p. 429; 1928, Abeille, Paris, **35**, p. 87, figs. 1319–1323. — CSIKI, 1928, Coleopt. Cat., (98), p. 284. — ANDREWES, 1930, Cat. Ind. Ins., (18), p. 13; 1935, Fn. Brit. Ind., Coleopt. Carab., **2**, p. 75, fig. 14. — CASALE & LANEYRIE, 1982, Mém. Biospéol., **9**, p. 115, fig. 83.

Closely similar to *A. tenuicollis*, but readily distinguished from it by the following points: head with flatter eyes, more oblique genae and bisinuate apical margin of labrum, hence resembling that of *A. andrewesi*; pronotum broader at base, with the sides distinctly sinuate before hind angles; elytra less ample, with the striae a little shallower and less coarsely punctate; aedeagal apical lobe broader in profile and only gently curved ventrad.

Range. Karen Mountains in eastern Burma.

Notes. Though I have been unable to see the lectotype, I have examined several paralectotypes of this species. I specially looked for this trechine on the mountains in northwestern Thailand, but my efforts were not repaid.

Agonotrechus tonkinensis JEDLIČKA, 1939

Agonotrechus tonkinensis JEDLIČKA, 1939, Neue Carab. Ostasien (XII), Praha, p. 1; type locality: Chapa. — CASALE & LANEYRIE, 1982, Mém. Biospéol., **9**, p. 115.

I have been unable to examine any specimen of this species. JEDLIČKA's original description is poor, failing in pointing out any characters of diagnostic importance. The only exception is the size of the insect, which is said to measure 6.5 mm (most probably including mandibles). Because of this peculiarity and of the isolated occurrence, I consider it a good species belonging to the group of *A. birmanicus*.

Range. Northern Vietnam.

Agonotrechus horni JEDLIČKA, 1932

Agonotrechus Horni JEDLIČKA, 1932, Čas. Čs. Spol. ent., **29**, p. 82; type locality: Suisharyo.

Agonotrechus horni: UÉNO, 1980, Bull. natn. Sci. Mus., Tokyo, (A), **6**, p. 108, figs. 1–3. — CASALE & LANEYRIE, 1982, Mém. Biospéol., **9**, p. 115.

This species was carefully redescribed by myself (UÉNO, 1980), and no supplementary account is needed here. It is different from the continental species in several peculiarities and is regarded herewith as belonging to its own species-group.

Range. Taiwan.

Key to the Species

- 1 (10) Elytral stria 3 with a single setiferous dorsal pore near base; [group of *A. birmanicus*].
- 2 (9) Smaller species of less than 5.6 mm in the length of body.
- 3 (8) Pronotum with lateral margins widely reflexed and with hind angles nearly rectangular; elytra less convex, with rather gentle apical declivity.
- 4 (7) Eyes strongly convex; labrum with simply emarginate apex; prothorax narrower at base.
- 5 (6) Prothorax smaller and narrower, with the sides moderately arcuate only before the widest part; aedeagal apical lobe broader in dorsal view, widely rounded at the tip; eastern Nepal. *A. tenuicollis* S. UÉNO, sp. nov.
- 6 (5) Prothorax larger and more transverse, with the sides more widely and strongly arcuate in front; aedeagal apical lobe narrower in dorsal view, subtruncated at the tip; northwestern Uttar Pradesh. *A. iris* ANDREWES.
- 7 (4) Eyes rather flat; labrum with bisinuate apex; prothorax broader at base; eastern Burma. *A. birmanicus* (H. W. BATES).
- 8 (3) Pronotum with lateral margins rather narrowly reflexed and with hind angles obtuse and somewhat rounded; elytra strongly convex, with very steep apical declivity; Darjeeling District. *A. andrewesi* JEANNEL.
- 9 (2) Larger species of more than 6.0 mm in the length of body; northern Vietnam *A. tonkinensis* JEDLIČKA.
- 10 (1) Elytral stria 3 with two setiferous dorsal pores; relatively small species, with transverse prothorax and short elytra; Taiwan; [group of *A. horni*] *A. horni* JEDLIČKA.

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