

## A Revision of the Himalayan Trechine Beetles of the Genus *Stevensius*<sup>1)</sup>

By

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The genus *Stevensius* was erected by JEANNEL (1923, p. 432) for a Himalayan trechine of peculiar facies, which was described at the same time under the name of *S. lampros*. He considered that the genus belongs to the same group as *Agonotrechus* despite a marked difference in appearance between them, and later (1928, pp. 23, 85-93) combined them in the phyletic series of *Agonotrechus*. In 1937, the same author (p. 87, fig. 8) described a new alpine trechine from Yunnan and placed it in *Stevensius* with some reservation. He then pointed out a striking resemblance of the Yunnanese species (*S. gregoryi*) to *Kozlovites caviceps* JEANNEL (1935, p. 280, fig. 9) from Tibet, and in 1962 (p. 184) suggested its removal from *Stevensius*. Thus, only the type-species, *S. lampros*, had remained in the genus until an unquestionable second species was reported by myself (UÉNO, 1973 a, p. 61, figs. 3-5) from northeastern Nepal.

For comparison with the Nepalese material, I examined two specimens of "*S. lampros*" from Sandakpuh in West Bengal, both collected by H. G. CHAMPION on the same day and probably at the same spot. One of them was obtained by exchange from the British Museum (Natural History) through the courtesy of Dr. E. B. BRITTON, and the other was borrowed from the Museum of Comparative Zoology, Harvard University, through the courtesy of Professor P. J. DARLINGTON, JR. Externally, they agreed fairly well with the accounts of *S. lampros* given by JEANNEL and ANDREWES, with the exception of their light coloration. However, the male genitalia of the MCZ specimen seemed different from those of the example described and illustrated by JEANNEL. Unfortunately, I was unable at that time to reach a definite conclusion regarding the specific identity of the Sandakpuh specimens, since the MCZ male was teneral and had a somewhat deformed aedeagus.

Since then, I have had opportunities of visiting the British Museum (Natural History) and the Muséum National d'Histoire Naturelle, Paris, where I was able to examine the type material of *S. lampros* through the kindness of Messrs. P. M. HAMMOND and A. DESCARPENTRIES. Two more male specimens of the Sandakpuh population were also available for my study through the courtesy of Mr. M. E. BACCHUS of the British Museum and Dr. W. WITTMER of the Naturhistorisches

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Museum Basel. A careful comparative study of all these specimens has revealed that the Sandakpuh population should be regarded as representing a species distinct from *S. lampros*, although this and true *S. lampros* are at the sibling level of speciation. I am now taking the opportunity to revise the genus and to describe the new species under the name of *S. brunneus*. I have excluded Yunnanese *gregoryi* from *Stevensius*; I have seen the type of "*S.*" *gregoryi* in the British Museum and that of *Kozlovites caviceps* in the Zoological Institute, Academy of Sciences, Leningrad, and agree with JEANNEL in considering the former not to be a congener of *S. lampros* and its direct relatives, although I cannot decide with confidence if the Yunnanese species is really close to the Tibetan or not (cf. UÉNO, 1975, pp. 147, 150).

The abbreviations used in this paper are as follows: HW—greatest width of head; PW—greatest width of pronotum; PL—length of pronotum, measured along the mid-line; PA—width of pronotal apex; PB—width of pronotal base; EW—greatest width of elytra; EL—greatest length of elytra; M—arithmetic mean; BM—British Museum (Natural History), London; MP—Muséum National d'Histoire Naturelle, Paris; NMB—Naturhistorisches Museum Basel; MCZ—Museum of Comparative Zoology, Harvard University, Cambridge; NSMT—National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my deep gratitude to my friends whose names are given in the introduction above, for their kindness in facilitating my studies of this interesting group of trechine beetles. Hearty thanks are also due to Mr. P. M. HAMMOND, who kindly read the manuscript of this paper.

#### Genus *Stevensius* JEANNEL, 1923

*Stevensius* JEANNEL, 1923, Ann. Mag. nat. Hist., (IX), 12, p. 432; type-species: *Stevensius lampros* JEANNEL, 1923; 1928, Abeille, Paris, 35, pp. 23, 28, 90 — CSIKI, 1928, Coleopt. Cat., pars 98, p. 284. — ANDREWES, 1935, Fn. Brit. Ind., Coleopt. Carab., 2, pp. 61, 78.

Medium-sized trechines having the following combination of morphological features:

Body short, broad and convex, more or less constricted between prothorax and hind body, more or less depigmented, and devoid of inner wings; surface glabrous and polished. Colour dark reddish brown, shiny, sometimes black on the dorsal surface. Head voluminous, with deep entire frontal furrows which do not widely diverge in front; frons longitudinally convex, the convexity continuing anteriad onto clypeus; eyes present though small and flat; genae well developed, much longer than eyes, with two supraorbital setae as usual; labrum emarginate at apex; mandibles bidentate, without premolar tooth even on the right one; mentum perfectly fused with submentum, the former bearing a broad bifid tooth in apical emargination and the latter normally quadrisetose; ligula narrow and porrect; palpi short but fairly thin, penultimate segment of maxillary palpus asetose and glabrous; antennae submoniliform, short and stout. Pronotum cordate, perfectly bordered at

the sides, with both lateral and postangular setae; hind angles distinct, more or less denticulate; basal foveae distinct; no postangular carinae. Elytra short, broad and strongly convex; striae either vestigial or distinct though abbreviated; scutellar striole either short or vestigial; apical striole not long but distinctly impressed, being free at the anterior end; a single setiferous dorsal pore present on or on the site of stria 3 at about one-third from base; preapical pore normally absent; marginal umbilicate pores regular, the four pores of the humeral set being equidistant; apical pores present, both adjoining apical striole. Ventral surface glabrous; anal sternite with a pair of sexual setae in ♂, with three pair of sexual setae in ♀. Legs stout; protibiae straight, deeply grooved on the external face, and finely pubescent on the anterior face; in ♂, the two proximal segments of each protarsus widely dilated and sharply produced inwards at apices.

Aedeagus normal, nearly symmetric, more or less recurved at the apical end, and ventrally bent at the basal part, which bears a sagittal aileron; inner sac armed with a copulatory piece, which is spatulate and lateral; styles short and broad, each bearing at least four apical setae.

*Range.* Eastern Himalayas (West Bengal and Nepal).

*Notes.* It is worth noting that one of the paratypes of *S. brunneus* possesses a large preapical pore on its left elytron (see p. 252). This pore is situated at the site of apical anastomosis of the 2nd and 3rd striae, just as in the case of *Agonotrechus* and some of its derivatives, indicating that the genus *Stevensius* must have been derived from an ancestor, in which the apical triangle of setae was complete. A similar reversion of preapical pore is known in *Trechiana lavicola* occurring in Central Japan (cf. UÉNO, 1960, p. 53; 1973 b, p. 189).

### Key to the Species

- 1 (4) Pronotal base distinctly narrower than apex; elytral striae either vestigial or absent; aedeagus not flattened nor laterally expanded; West Bengalese.
- 2 (3) Dorsal surface more or less blackish, elytra largely black; pronotal hind angles rectangular; elytra somewhat angulate at the shoulders; aedeagus large, about two-fifths as long as elytra, moderately sclerotized, not arcuate at middle, and not parallel-sided in profile, with elongate basal part; sagittal aileron well developed; length 4.30–4.50 mm; (Tonglu) . . . . . *S. lampros* JEANNEL.
- 3 (2) Dorsal surface wholly dark reddish brown; pronotal hind angles more or less obtuse; elytra regularly rounded at the shoulders; aedeagus small, less than one-third as long as elytra, rather poorly sclerotized, tubular, regularly arcuate, and parallel-sided in profile, with small basal part; sagittal aileron thin and hyaline, sometimes very narrow; length 4.15–4.45 mm; (Sandakpuh) . . . . . *S. brunneus* S. UÉNO, sp. nov.
- 4 (1) Pronotal base about as wide as apex; elytra distinctly striate; aedeagus large, about two-fifths as long as elytra, flattened, laterally expanded at the median

part and bearing a very large sagittal aileron; length 3.95–4.35 mm; East Nepalese (Khangbachen) ..... *S. striatulus* S. UÉNO.

*Stevensius lampros* JEANNEL, 1923

(Fig. 2)

*Stevensius lampros* JEANNEL, 1923, Ann. Mag. nat. Hist., (IX), 12, p. 433, fig. 18; type-locality: Tonglu; 1928, Abeille, Paris, 35, p. 92, figs. 1328–1331. — CSIKI, 1928, Coleopt. Cat., pars 98, p. 284. — ANDREWES, 1935, Fn. Brit. Ind., Coleopt. Carab., 2, p. 79, figs. 16–17.

This trechine, known only from the type-series, was so carefully described and illustrated by JEANNEL and ANDREWES, that its full redescription in the present paper is unnecessary. However, important features of the species, including standard ratios of its body parts, are summarized below to facilitate comparison between closely related members of the genus.

Length: 4.30–4.50 mm (from apical margin of clypeus to apices of elytra).

Colour dark reddish brown, shiny; dorsal surface more or less blackish, elytra at least being largely black; palpi, antennae and legs reddish brown; sutural interval and margins of elytra usually reddish.

Head as in the following species, large, with wide neck; antennae reaching basal one-fourth of elytra. Pronotum also very similar in shape to that of *S. brunneus*, but the disc is less convex, the front angles are less rounded, the hind angles are clearly rectangular, and the marginal gutters are wider in front. Elytra somewhat angulate at the shoulders and with a little more oblique prehumeral borders than in *S. brunneus*, but otherwise similar to those of the latter. The standard ratios of body parts are as follows: PW/HW 1.31, PW/PL 1.25–1.34 (M 1.28), PW/PA 1.40–1.48 (M 1.43), PW/PB 1.56–1.61 (M 1.58), PB/PA 0.88–0.94 (M 0.91), EW/PW 1.56–1.61 (M 1.58), EL/EW 1.29–1.34 (M 1.31).

Male genital organ markedly different in shape from that of *S. brunneus*; large and moderately sclerotized. Aedeagus about two-fifths as long as elytra, not arcuate at middle, but strongly bent towards the ventral side at the basal part, which is elongate and nearly straight; basal orifice fairly large, with the sides widely emarginate; sagittal aileron narrow though well developed; viewed laterally, apical part gradually attenuate without curving ventrad, then briefly produced and dorsally recurved at the extremity; ventral side not emarginate at middle in profile. Inner sac scaly near apical orifice and armed with a very large copulatory piece, which is spatulate and attenuate towards apex; surface of the piece scaly all over. Styles short and broad, left style being larger than the right, each provided with four setae at apex.

*Type depositary.* British Museum (Natural History).

Of the three specimens of the type-series, two females are now preserved in the BM collection and a male is in the MP collection. One of the BM specimens bears a type label, so does the MP specimen. Thus, it becomes necessary to select a lectotype from these two.

Taxonomically, the MP specimen fits better to the type concept, since it is the only known male that exhibits all the important specific characters. However, JEANNEL (1923, p. 433) expressly stated in his original description that the type was "in coll. H. E. ANDREWES", which was later incorporated into the British Museum collection. In the consideration of this premise, I have to select, though rather reluctantly, the BM specimen as the lectotype of *Stevensius lampros*.

*Specimens examined.* 1 ♀ (herewith designated as the lectotype), Tonglu, Single La Ridge, 10,000–12,000 ft., West Bengal, India, 1~7-XI<sup>2)</sup>-1920, H. STEVENS leg. (BM); 1 ♀ (paralectotype), same locality, 10,000 ft., 9-IX-1920, H. STEVENS leg. (BM); 1 ♂ (paralectotype), same locality, 10,000 ft., 13~16-VI-1920, H. STEVENS leg. (MP).

*Range.* West Bengal; known only from the type-locality.

*Notes.* As is usual with the method adopted by JEANNEL, the male genital organ of the paralectotype was mounted on a permanent slide. It is more than 55 years old now, and the preservation is not sufficiently clear to produce a sharp image. Therefore, my sketch of the organ inserted in this paper (Fig. 2) may not be very accurate in certain details. Most unfortunately it is not possible to examine its dorsal aspect without removing it from the original slide. However, my illustration will, I believe, suffice to show the decisive genitalic difference between *S. lampros* and *S. brunneus*.

*Stevensius brunneus* S. UÉNO, sp. nov.

(Figs. 1, 3-4)

Length: 4.15–4.45 mm (from apical margin of clypeus to apices of elytra).

Externally very similar to *S. lampros* and confidently separated from that species only on aedeagal features.

Colour lighter than in *S. lampros*, dark reddish brown on the dorsal surface and reddish brown on the ventral surface, shiny, not blackish even on elytra; palpi pale; antennae and legs reddish brown, the former becoming paler towards apices.

Head voluminous, with deep entire frontal furrows which are subparallel in front and moderately curving round behind; frons longitudinally convex, the convexity continuing onto clypeus and forming a round anterior end, though the narrow marginal area of clypeus is flat and merges on each side into the anterior end of frontal furrow; supraorbital areas wide and convex; microsculpture composed of polygonal meshes, which are distinct and nearly isodiametric on neck but more or less wide and not sharply impressed on the other parts; eyes small and flat, only two-thirds as long as genae or still shorter; genae well developed, tumid; neck wide, with the anterior constriction sharply marked at the sides; labrum transverse, with the apex distinctly emarginate; mandibles fairly long though stout; antennae reaching basal two-

2) Not September, though JEANNEL (1923, p. 433) recorded so in his original account.

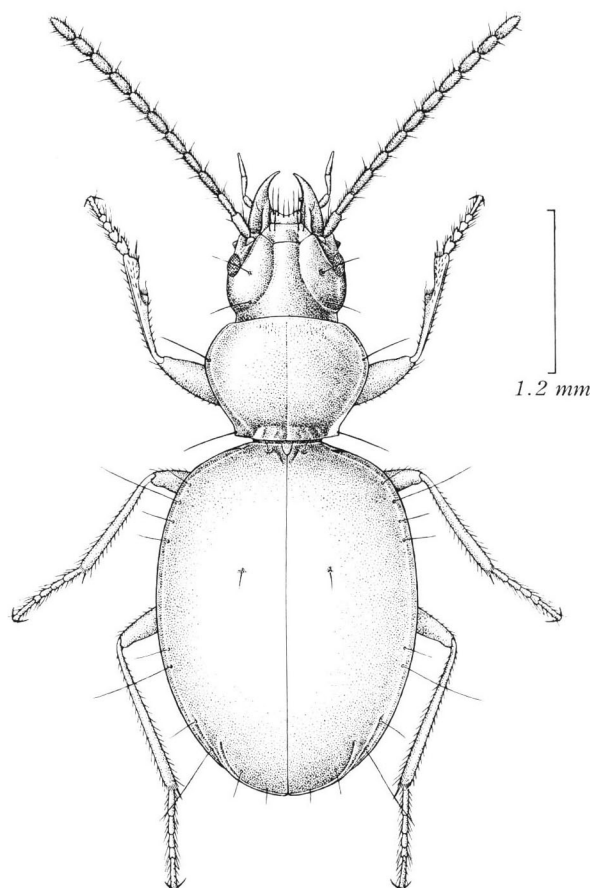


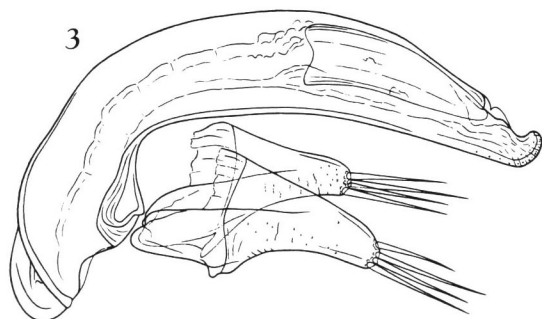
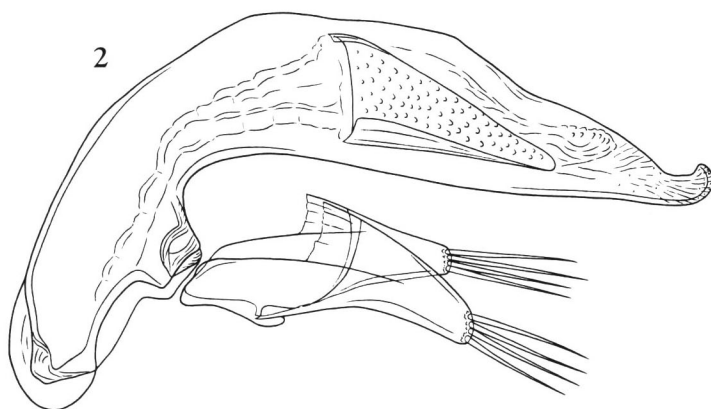
Fig. 1. *Stevensius brunneus* S. UÉNO, sp. nov., ♂, of Sandakpuh in West Bengal.

ninths of elytra or extending slightly beyond that level, terminal segment the longest, scape and segment 3 a little longer than the remainings, each of which is about four-sevenths as wide as long.

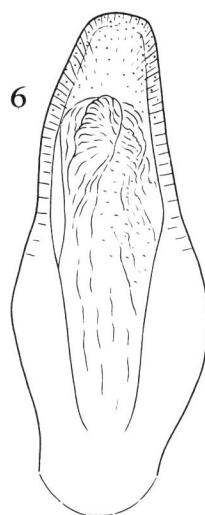
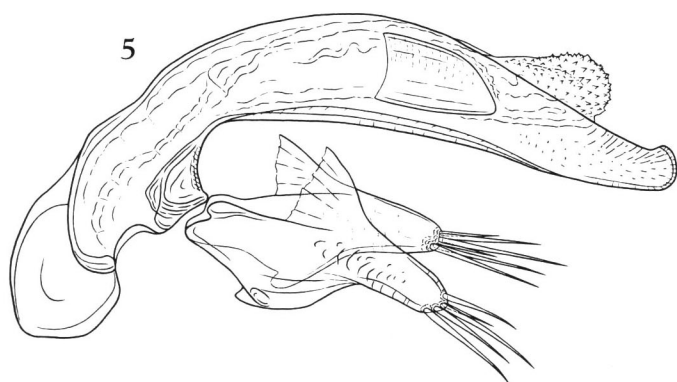
Pronotum transverse cordate, widest at about five-eighths from base, and more strongly contracted towards base than towards apex; PW/HW 1.30–1.36 (M 1.33), PW/PL 1.27–1.28 (M 1.28), PW/PA 1.43–1.46 (M 1.44), PW/PB 1.55–1.63 (M 1.58); surface convex, microsculpture formed by fine transverse lines though partially obsolescent; sides narrowly bordered in front (more narrowly than in *S. lampros*), widely reflexed behind, strongly arcuate before the widest part, less so behind, and

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Figs. 2–6. Male genitalia of *Stevensius* spp.; left lateral view (2, 3 and 5), and apical part of aedeagus, dorsal view (4 and 6). — 2. *S. lampros* JEANNEL, paralectotype, of Tonglu in West Bengal. — 3–4. *S. brunneus* S. UÉNO, sp. nov., holotype, of Sandakpuh in West Bengal. — 5–6. *S. striatulus* S. UÉNO, holotype, of Khangbachen in northeastern Nepal.



0.4 mm



nearly straight or very slightly sinuate before hind angles, which form an obtuse denticle on each side; front angles rounded, hardly projecting forwards; base narrower than apex, PB/PA 0.88–0.95 (M 0.91), nearly straight at the median part but more or less oblique and reflexed on each side; median line deeply impressed near base though hardly widening; apical transverse impression vague, though the apical area is longitudinally wrinkled as a rule; basal area depressed and rugose, basal transverse impression shallow and poorly defined, basal foveae large, deep, smooth and divergent anteriorly.

Elytra broad, short ovate and convex, widest at about middle or slightly before that level; EW/PW 1.55–1.60 (M 1.58), EL/EW 1.29–1.36 (M 1.33); shoulders regularly rounded without any indication of humeral angles; prehumeral border very slightly arcuate, long, extending inwards to near basal peduncle without distinct terminal point; sides regularly arcuate, not emarginate before apices, which are conjointly rounded; striae vestigial, either absent altogether or visible as traces on the disc; scutellar striole very short but distinct; apical striole moderately curved and free at the anterior end; apical carina obvious though obtuse; a single setiferous dorsal pore present on or on the site of stria 3 at about one-third from base or a little behind that level; preapical pore normally absent, but in one of the paratypes (MCZ specimen), a large setiferous preapical pore exists on the left elytron (but not on the right) at the site of the apical anastomosis of striae 2 and 3, which is a little more distant from apex than from suture; microsculpture composed of fine transverse lines though largely obliterated.

Ventral surface and legs as in the other species of the genus.

Male genital organ small and rather poorly sclerotized. Aedeagus a little less than one-third as long as elytra, tubular and regularly arcuate; basal part relatively short though strongly bent towards the ventral side, with small basal orifice, the sides of which are emarginate; sagittal aileron small and hyaline, sometimes very narrow; apical part regularly attenuate in both the lateral and dorsal views and dorsally recurved at the extremity; ventral side widely emarginate in profile. Inner sac armed with a large spatulate copulatory piece, which is thin and hyaline. Styles short and broad, left style larger than the right, each normally provided with four setae at apex though there are five apical setae on the left style in one of the paratypes (MCZ specimen).

*Type depository.* British Museum (Natural History).

*Type-series.* Holotype: ♂, Sandakphu (=Sandakpuh), 12,000 ft., Darjeeling Hills, West Bengal, India, 5–V–1934, H. G. CHAMPION leg. (BM). Allotype: ♀, same data as the holotype (NSMT). Paratypes: 1 ♂, same data as the holotype (MCZ); 1 ♂, same locality, 3,500–3,600 m, 8–VI–1975, W. WITTMER leg. (NMB).

*Notes.* It is unfortunate that none of the three male specimens available for this study are in a satisfactory condition. The BM specimen is fully mature but is not in a very good state, while the other two are more or less teneral. Besides, the MCZ specimen has crushed prothorax, whose exact measurement cannot be taken.

Under this situation, I selected the BM specimen as the holotype in view of the taxonomic importance of the male genitalia.

*Stevensius striatulus* S. UÉNO, 1973

(Figs. 5–6)

*Stevensius striatulus* S. UÉNO, 1973, Annot. zool. Japon., **46**, p. 61, figs. 3–5; type-locality: Khang-bachen.

This Nepalese species was fully described by myself and nothing seems necessarily added to the original account. It is characterized mainly by the brownish coloration, the wide basal part of pronotum with large hind angles, the distinctly striate elytra, and the flattened, laterally expanded aedeagus with a very large sagittal aileron. To facilitate comparison, the original sketches of the male genitalia are reproduced herewith (Figs. 5–6).

*Type depository.* National Science Museum (Nat. Hist.), Tokyo.

*Range.* Northeastern Nepal; known only from the type-locality.

### Summary

The Himalayan trechine beetles of the genus *Stevensius* are revised; "*S.*" *gregoryi* JEANNEL from Yunnan is excluded from the genus, and a species closely related to the type-species is newly described. The trechines now included in *Stevensius* are *S. lampros* JEANNEL, *S. brunneus* sp. nov., and *S. striatulus* S. UÉNO, whose diagnostic characters are shown in a key.

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