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Two new species of *Scaphisoma* Leach from Nepal and North India (Coleoptera: Staphylinidae: Scaphidiinae)

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Scaphisoma rubripenne sp. n. is described from Central Nepal, and *Scaphisoma diversicorne* sp. n. is described from North Eastern India. Both species are well characterized by their external morphological characters, in particular by the length ratios of the antennal segments.

Key-words: Coleoptera, Staphylinidae, Scaphidiinae, *Scaphisoma*, taxonomy, Nepal, North India.

INTRODUCTION

At present, 93 species of *Scaphisoma* Leach are reported from the Himalayas and adjacent regions of northern India, Meghalaya included (Löbl 1992). The species diversity of *Scaphisoma* appears unusually high in that area, in particular compared to that of South India with 13 recorded species (Löbl 1979). It is also significantly higher than that of the People's Republic of China (Löbl 2000, and unpublished data) with to date 57 identified species. Since 1992, I have examined several new collections from the Nepal Himalayas. Nevertheless, the study of these collections revealed only a single additional Nepalese scaphidiine species, *Scaphoxium hartmanni* (Löbl 2001). Among the Asian scaphidiines housed in the Vienna Naturhistorisches Museum, two additional new species of *Scaphisoma* were identified recently, one coming from Nepal, the second from the North Indian state Meghalaya. Their descriptions are given below.

MATERIAL AND METHODS

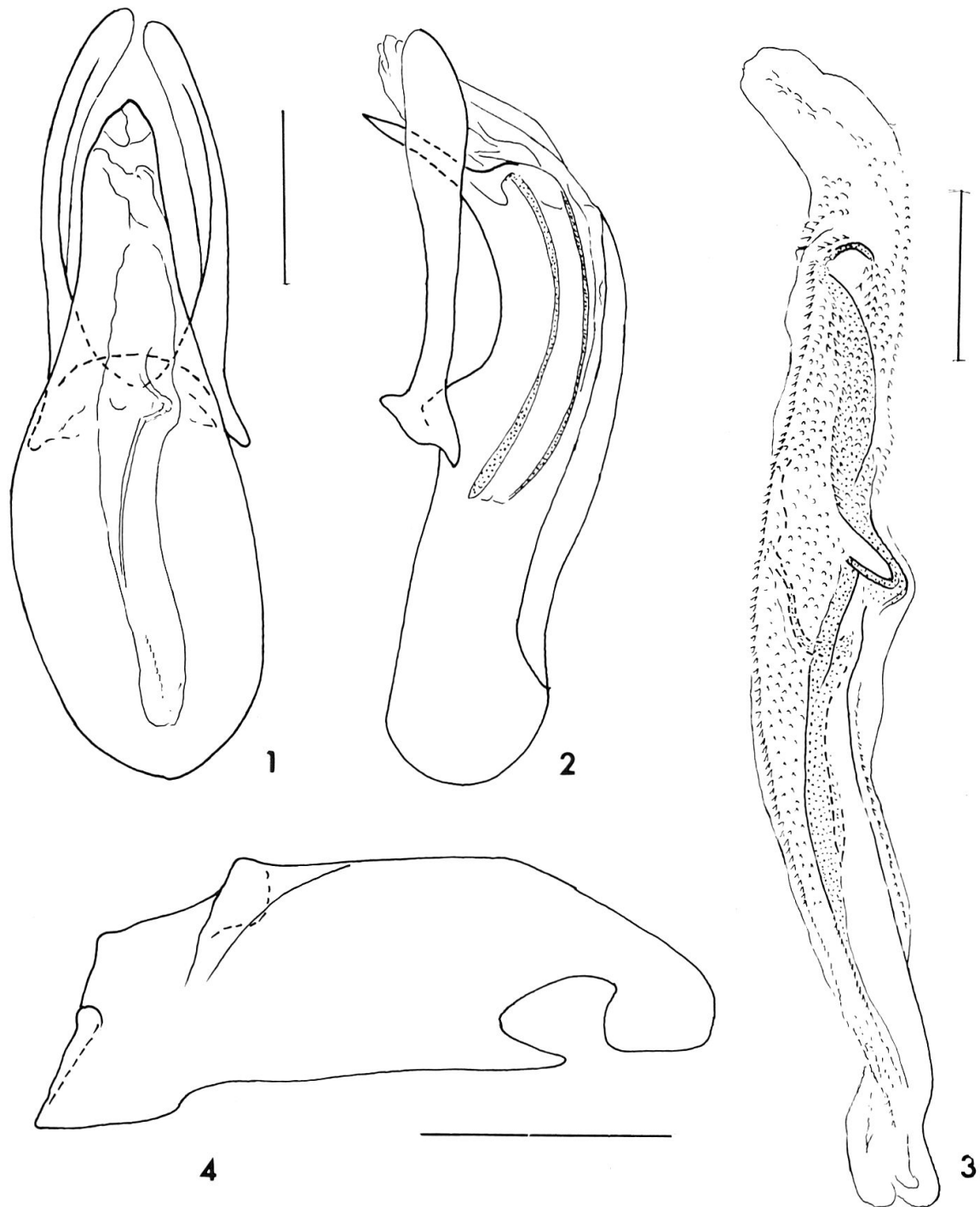
The body length is measured from anterior pronotal margin to inner apical angle of the elytra. The length ration of the antennal segments is as seen on dry specimens. The abdominal sternites are counted beginning from the first exposed sternite. The aedeagi are mounted in Canada balsam. The material is deposited in the Naturhistorisches Museum, Vienna (NHMW) and Muséum d'histoire naturelle, Geneva (MHNG).

SYSTEMATICS

Scaphisoma rubripenne sp. n.

Holotype ♂: Nepal centr., Godawari, 14-17.5.1992, Ivo Jenis leg. (MHMW).
Paratypes: same data as holotype, 2♂ (NHMW, MHNG).

Description. Length 2.25 – 2.40 mm. Body broad, convex. Frons reddish-brown to black. Pronotum black, with rufous basal and anterior margins. Remain-



Figs 1-3. *Scaphisoma rubripenne* sp. n., aedeagus in dorsal and lateral views (1, 2), internal sac in detail (3). Fig. 4. *Scaphisoma diversicorne* sp. n., parameres in ventral view. Scale bar = 0.1 mm (Figs 1, 2), and = 0.2 mm (Figs 3, 4).

der of body rufous. Appendages slightly lighter than elytra. Length ration of antennal segments as: III 5: IV 6: V 9: VI 24: VII 25: VIII 18: IX 23: X 22: XI 30 (holotype). Antennal segment III short, triangular, slightly longer than wide, segment IV asetose, small, parallel-sided, about 1.5 times as long as wide, segment V small, widened apically, slightly wider than segment IV, about twice as long as wide, segment VI large, much wider than segment V, about 4 times as long as wide, segment

VII much wider than segment VI, about 3 times as long as wide; segment VIII about as wide as segment VI, 3 times as long as wide, segment XI widest posterior middle, about 3.3 times as long as wide. Pronotum and elytra lacking microsculpture. Pronotum strongly narrowed anteriorly, with lateral margins strongly arcuate and lateral margin striae and carinae not visible at dorsal view, discal punctation fairly dense and fine, visible at low (16 times) magnification, consisting of shallow punctures not well delimited and much smaller than puncture intervals. Tip of scutellum exposed. Elytra almost evenly arcuate laterally, moderately narrowed apically, with lateral margin striae and carinae not visible in dorsal view. Elytral apices truncate, very finely denticulate, inner apical angle in same level as outer apical angles, sutural margin raised, except anteriorly, adsutural areas almost flat, each with single row of very fine punctures, sutural striae parallel, curved anteriorly along base to form basal striae joined to lateral striae. Elytral punctation dense, irregular, fine and shallow, similar to pronotal punctation. Hypomera impunctate, lacking microsculpture. Mesepisterna lacking distinct punctation. Mesepimeral ridges as long as intervals to mesocoxae. Metasternum slightly convex in middle, flattened medio-apically, lacking microsculpture, with small, oval tubercle in centre. Metasternal punctation scattered and very fine on lateral areas and most of middle area. Punctation on medio-apical part of metasternum dense and fairly coarse. Submesocoxal lines arcuate and punctate. Submesocoxal area 0.05-0.06 mm long. Metepisterna impressed below plan of metasternal sides, strongly narrowed anteriorly, with suture slightly sinuate. Abdominal sternite 1 lacking microsculpture, brick-wall microsculpture on intercoxal process excepted. Punctures sparse and fairly coarse on median part of sternite 1 and along submetacoxal lines, very fine on remainder of exposed abdominal sternites. Submetacoxal lines weakly arcuate, submetacoxal areas 0.05-0.06 mm long. Sternites 2 and 3 with brick-wall microsculpture near base, punctulate microsculpture on remaining surface. Exposed parts of sternites 4 to 6 only with punctulate microsculpture. Tibiae straight.

Male characters. Segments 1 to 3 of protarsi rather strongly widened, narrower than apex of protibia. Apical lobe of sternite 6 subtriangular, about 0.06 mm long. Aedeagus (Figs 1 to 3) 0.87-0.90 mm long, fairly strongly sclerotized. Median lobe weakly asymmetrical, with comparatively narrow basal bulb, articular process well developed, not prominent apically, apical process shorter than basal lobe, curved ventrally, acute at tip, ventral side arcuate (lateral view), valves short. Parameres symmetrical, weakly sclerotized ventrally, almost evenly curved in dorsal view, gradually widened toward apical part in lateral view. Inner sac with long, arcuate rod abruptly narrowed subapically, membranes covering rod bearing very fine scale-like and spine-like structures.

Comments. This species resembles *S. kaszabianum* Löbl by its general appearance, in particular by the comparatively large body size and colour pattern, but is conspicuous and well characterized by several features. It is unique in having an oval metasternal tubercle. It may be easily distinguished from its congeners by the colour pattern in combination with the presence of entire basal striae of the elytra and by the sixth antennal segment about as long as the segments III to V combined. In the key to the Himalayan species of *Scaphisoma* (Löbl 1992) *S. rubripenne* falls under the couplet 7, to *S. aurorae* Löbl, *S. notatum* Löbl, and *S. jado* Löbl. These three species may be easily separated from *S. rubripenne*, in addition to their maculate elytra, by the much longer antennal segments IV and V. The aedeagal characters of *S. rubripenne* indicate possible relationships to *S. adjacens* Löbl but the parameres are much narrower and the shape of the rod of the internal sac is distinctive in the latter species.

The type locality of *S. rubripenne*, Godawari, is south east of Kathmandu, at the foot of Phulcoki. It is one of the more easily accessible forested sites of Nepal and was visited many times by entomologists, including the author of the present paper. It is noteworthy that in spite of previous field work new species may be discovered at that place.

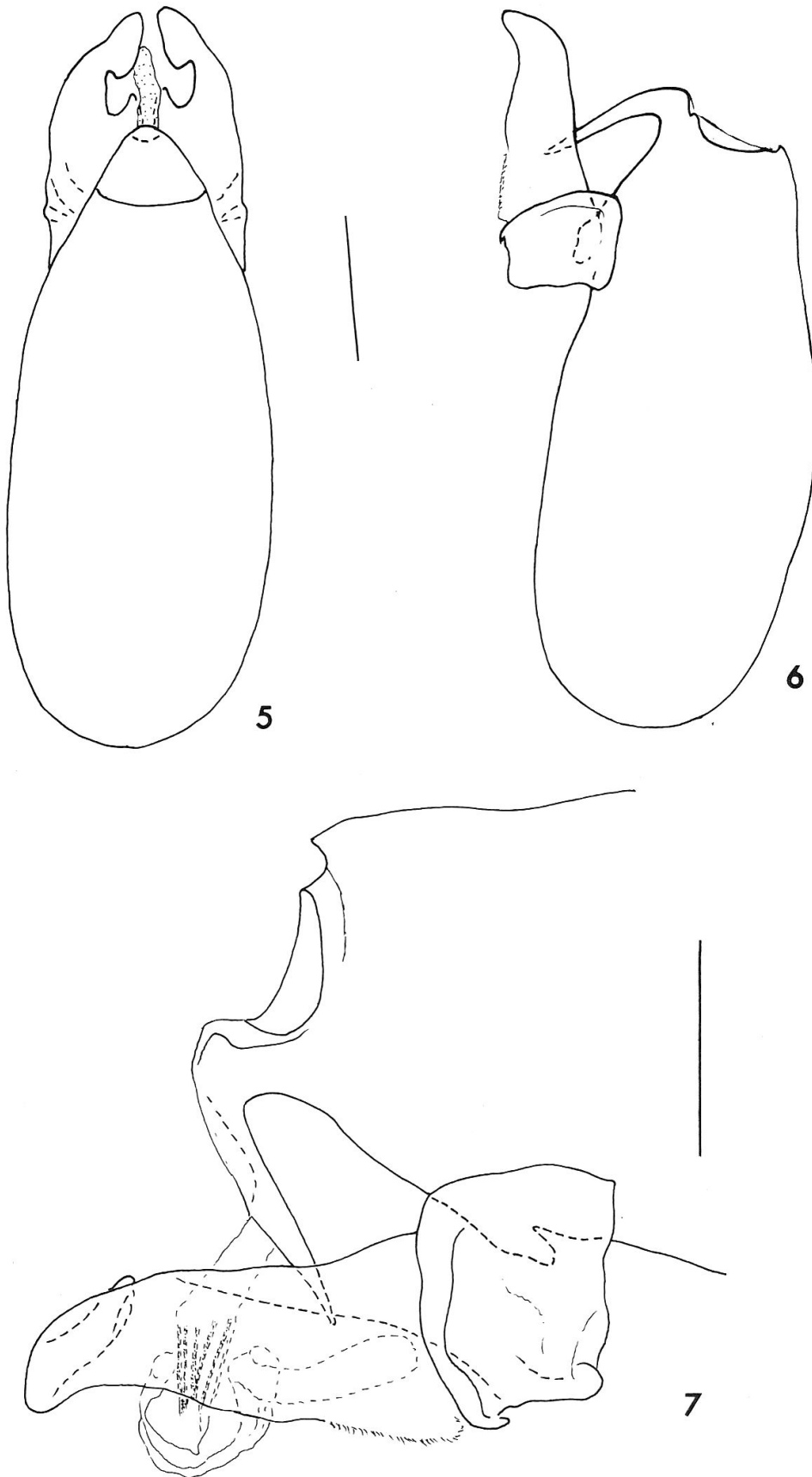
Scaphisoma diversicorne sp. n.

Holotype ♂: NE India, Meghalaya, W. Garo Hills, Nokrek NP, 1100m, 25°29'6''N 90°5'E 9-17.5.1996, leg. Jendek & Sausa (NHMW).

Paratypes: same data as holotype 1 ♂ and 1 ♀ (NHMW, MHNG).

Description. Length 2.4 - 2.5 mm. Body convex, broad, uniformly black, except for slightly lighter apical margin of elytra. Appendages ochreous. Length ratio of antennal segments as: III 6: IV 15: V 12: VI 25: VII 22: VIII 17: IX 24: X: 23: XI 29 (holotype). Antennal segment III short, triangular, slightly longer than wide, segment IV setose, comparatively wide, almost parallel-sided, about 4 times as long as wide, segment V slightly wider than segment IV, about 3 times as long as wide, segment VI about as wide as segment V, about 4 times as long as wide, segments VII and VIII each about 3 times as long as wide, segment XI about 3.5 times as long as wide. Pronotum and elytra lacking microsculpture. Pronotum moderately narrowed anteriorly, with lateral margins almost evenly arcuate and lateral striae and carinae exposed in dorsal view, except at basal angles. Pronotal punctation dense and fine, consisting of shallow, not well delimited punctures; puncture intervals as large as puncture diameters to twice as large as puncture diameters. Tip of scutellum exposed. Elytra strongly narrowed apically, with lateral margins arcuate, lateral margin striae visible in basal third (dorsal view), apical margins weakly rounded, very finely denticulate, inner apical angles situated posterior level of outer apical angles, sutural margin not raised, adsutural areas flat, each with single puncture row, sutural striae parallel, curved anteriorly to form basal striae. Basal striae extended laterally to humeral areas, not joined to lateral striae. Elytral punctation dense and fairly coarse, with punctures well delimited, puncture intervals usually 2 to 4 times as large as puncture diameters. Hypomera smooth, appearing impunctate. Mesepisterna distinctly punctate. Mesepimeral ridge as long as interval to mesocoxa. Metasternum flattened in middle, lacking impressions, not microsculptured, entirely coarsely and densely punctate. Submesocoxal lines arcuate, finely punctate. Submesocoxal areas 0.10-0.11 mm long. Metepisterna below plan of metasternum, moderately narrowed anteriorly, with suture straight, except near rounded angles. Exposed abdominal segments with distinct microsculpture consisting of transverse striae. Punctation sparse and fairly coarse on middle part of first sternite, very sparse and very fine on lateral parts of first sternite and on following sternites. Submetacoxal lines arcuate and coarsely punctate, submetacoxal areas 0.13 mm long. Tibiae straight.

Male characters. Segments 1 to 3 of protarsi strongly widened, bearing tenant setae, segment 1 distinctly narrower than apex of protibia. Segments 1 and 2 of mesotarsi distinctly widened. Lobe of abdominal sternite 6 about 0.05 mm long, triangular. Aedeagus (Figs 4 to 7) 1.49 mm long, symmetrical. Median lobe unusually strongly sclerotized, with basal bulb sub-cylindrical. Compression plate small, apical. Articular process well developed, not prominent apically. Apical process short, narrow, abruptly curved and overlapped by basal bulb in dorsal view. Parameres very wide, weakly narrowed apically, notched subapically, notch form-



Figs 5-6. *Scaphisoma diversicorne* sp. n., aedeagus in dorsal and lateral views (5, 6), apical part of median lobe with parameres in lateral view (7). Scale bars = 0.3 mm (5, 6) and = 0.2 mm (7).

ing large tooth at inner margin. Antebasal inner margin of parameres weakly sclerotized and very finely fringed. Internal sac simple, with several very narrow rods.

Comments. The aedeagal characters suggest close relationships of *S. diversicornis* and *S. binotatum* Achard. Both species possess large, suboval basal bulb with compression plate situated apically. In addition, they have the apical process of the median lobe short, the parameres wide and the internal sac simple, bearing narrow rods. They share the fourth antennomeres comparatively wide, setose and longer than the fifth antennomere. This feature is unusual in *Scaphisoma*. In *S. binotatum* is the apical process of the median lobe wide, very short and only weakly curved, and the parameres are curved and lack a subapical notch. These two species may be very easily distinguished by their colour pattern (*S. binotatum* has maculate elytra). *S. diversicornis* would fall in my key to the Himalayan/North Indian species of *Scaphisoma* (Löbl 1992) under the couplet 10, but may be readily separated from the four involved species (*S. pseudorufum* Löbl, *S. assimile* Erichson, *S. tonkineum* Pic, and *S. pulchellum* Löbl) by the length ration of the antennal segments.

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