

Taxonomic revision of the Oriental species of *Notoxus* (Coleoptera: Anthicidae)

Zbyněk KEJVAL

Muzeum Chodska, Chodské náměstí 96, CZ-344 01 Domažlice, Czech Republic; e-mail: anthicid@seznam.cz

Abstract. The Oriental *Notoxus* Geoffroy, 1762, comprising 27 species, are revised. Five species insufficiently described by Maurice Pic, *Notoxus donckieri* Pic, 1908, *N. inbasalis* Pic, 1926, *N. peguensis* Pic, 1914, *N. sinensis* Pic, 1907, and *N. suturalifer* Pic, 1932, are redescribed. Other known species are diagnosed more briefly. Eleven species are newly described: *Notoxus distortus* sp. nov. (India), *N. garuda* sp. nov. (Thailand), *N. hilaris* sp. nov. (Myanmar), *N. impavidus* sp. nov. (Laos), *N. inbasaliformis* sp. nov. (India, Nepal), *N. iuvenis* sp. nov. (Laos), *N. kathhapa* sp. nov. (Myanmar), *N. pachodemba* sp. nov. (Vietnam), *N. ravana* sp. nov. (Sri Lanka), *N. safraneki* sp. nov. (Laos), and *N. sodalis* sp. nov. (Laos). A new synonymy, *Notoxus noctivagus* Krekich-Strassoldo, 1913 = *N. peregrinus* Krekich-Strassoldo, 1914, syn. nov., is proposed. A neotype is designated for *Notoxus peguensis* Pic, 1914. The Oriental species are accommodated in three species-groups proposed in this paper: *N. indicus*, *N. noctivagus*, and *N. ravana* species-group, with isolated *N. psammophilus* Telnov, 2007 being left unplaced. A check-list of the Oriental *Notoxus* species and identification keys are provided.

Key words. Coleoptera, Anthicidae, *Notoxus*, taxonomy, faunistics, new species, new synonymy, neotype designation, Oriental Region, Palearctic Region

Introduction

Notoxus Geoffroy, 1762 is by far the largest and best known genus of horned anthicids of the subfamily Notoxinae Stephens, 1829, comprising more than 300 described species. It is nearly cosmopolitan, poorly presented in South America (northern regions only; see comments under *N. argentinus* Pic, 1912 by CHANDLER & NARDI (2004)) and absent in the Australian Region (Kejval, unpublished data). It can be easily distinguished from all related genera by combination of the following major characters: anterolateral sides of pronotum rounded; gula smooth, lacking any tubercles / rugules; setose pits situated near cervical angulations of pronotum present (Fig. 49); legs more robust, tarsi comparatively short, penultimate metatarsomere short, flattened and more or less bilobed apically (Fig. 3); basal sulcus of abdominal sterna laterally with distinct fovea, obscured by dense setation (most conspicuous in sternum III;

Figs. 68, 69). For complete genus characteristics and rather detailed accounts on its biology and relationships see CHANDLER (1978, 1982).

The present paper is the first attempt at revision of the Oriental fauna. A total of 27 species are recognized. Some East Palaearctic species, listed in the last catalogue by CHANDLER et al. (2008), are included with respect to their occurrence in the transitional zone between the Palaearctic and Oriental Regions (Pakistan, northern India, Nepal, and southern China). *Notoxus hirsutulus* Uhmann, 1980 is omitted, since it clearly belongs near the Palaearctic species *N. simulans* Heberdey, 1936 of the *Notoxus monoceros* species-group (HEBERDEY 1936, CHANDLER 1982), and its range appears to be restricted to high altitudes of northern Pakistan and India.

As for the present distribution, all the Oriental species are confined exclusively to the Asian mainland and none are found in the Malay Archipelago. Remarkably, there are only six species distributed southwards of the Indo-Gangetic plains on the Indian subcontinent; only one of them displays wider distribution (*N. noctivagus* Krekich-Strassoldo, 1913), and except for *Notoxus andrewesi* Krekich-Strassoldo, 1913 from Nilgiri Hills, they all exhibit clear similarities to the Afrotropical fauna of the genus.

Biology of the Oriental *Notoxus* is poorly known. It seems that most species are associated with riverside habitats and are probably psammophilous. Probably all specimens I received from my colleagues originated from light traps or sweeping / beating of vegetation and thus more detailed observations are lacking. I have myself collected three species in India by sweeping riverside vegetation or by rooting in sandy alluvia of streams with some vegetational debris. Based on label data, the type specimens of *Notoxus brinckianus* Bonadonna, 1986 were found by sweeping in dry forest or under logs at sandy place. The specimens of brachypterous *Notoxus sinensis* Pic, 1907 were found by sifting plant refuse at field edge (also L. Bocák, pers. comm.). Although many *Notoxus* species are attracted by the terpenoid cantharidin and dead meloid beetles (CHANDLER 1976, HEMP & DETTNER 2001), so far there are no records of canthariphily in the Oriental species.

The Oriental *Notoxus* are generally rather typical representatives of the genus, showing no extraordinary characters. Three informal species-groups are established below, based mainly on differences in general morphology of the aedeagus, to indicate possible closer relationships within the revised species. One species, *N. psammophilus* Telnov, 2007 from Vietnam, is placed in its own species-group, reflecting the peculiar shape of the median lobe of the aedeagus.

Material and methods

Specimens were examined with a Leica MZ 9.5 stereomicroscope; morphological measurements were taken with an ocular graticule (body length is measured from the apex of pronotal horn to elytral apices). Illustrations were made using a drawing tube, with some added details from examination using a compound microscope. Male genitalia were illustrated after being cleared in a hot 10% KOH solution.

Data from locality labels are cited verbatim for the type specimens only, and the author's comments are placed in square brackets. Separate labels are indicated by double slashes (/). The following abbreviations are used: [h] – handwritten; [p] – printed; env. – environs of; Prov. – province; Distr. – district; leg. – collected by. The terminology of body setation follows WERNER & CHANDLER (1995).

The identification keys allow secure identification of males; their usage for females is limited, and females of some species cannot be reliably identified.

The following acronyms of depositories are used:

BMNH	The Natural History Museum, London, United Kingdom;
DBET	Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland;
DCDC	Donald S. Chandler Collection, Durham, New Hampshire, U.S.A.;
HNHM	Hungarian Natural History Museum, Budapest, Hungary;
IRSN	Institut Royal des Sciences Naturelles, Bruxelles, Belgium;
MHNG	Muséum d'histoire naturelle, Genève, Switzerland;
MNHN	Museum national d'Histoire naturelle, Paris, France;
NHMB	Naturhistorisches Museum, Basel, Switzerland;
NHMW	Naturhistorisches Museum, Wien, Austria;
NKME	Naturkundemuseum, Erfurt, Germany;
NMPC	National Museum, Praha, Czech Republic;
UCRC	University of California, Riverside, U.S.A.;
USNM	National Museum of Natural History (Smithsonian Institution), Washington, D. C., U.S.A.;
ZILS	Universitets Zoologiska Institut, Lund, Sweden;
ZKDC	Zbyněk Kejval Collection, Domažlice, Czech Republic;
ZMHB	Museum für Naturkunde der Humboldt Universität, Berlin, Germany;
ZSMC	Zoologische Staatssammlung München, Germany (coll. G. Uhmann).

Results

A key to species-groups of the Oriental *Notoxus* Geoffroy, 1762

- 1(2) Latero-basal fovea of abdominal sternum III rather rounded, forming conspicuous, deep cavity (Fig. 69); pronotal disc usually with median longitudinal groove and small antebasal median bulge, moderately protruding in lateral view (Figs. 49, 52, marked by arrow; except *N. variabilis* Kreckich-Strassoldo, 1913); punctuation of elytra always rather fine, margins of punctures finely sculptured (not quite smooth); parameres of aedeagus setose (Figs. 44, 46, 48 and 51). ***N. ravana* species-group**
- 2(1) Latero-basal fovea of abdominal sternum III rather shallow, forming narrow impression along basal sulcus of sternum (Fig. 68); pronotal disc rather evenly convex, lacking longitudinal groove, antebasal bulge at most slightly indicated; punctuation of elytra mostly rather coarse, especially in basal half, and punctures dot-like with smooth margins; parameres of aedeagus bare.
- 3(4) Elytral apices in males simple, sometimes unevenly rounded, apical notch / tubercle (opening of gland) at most very slight; median lobe of aedeagus simple in middle part, always lacking a distinct dorsal plate. ***N. indicus* species-group**
- 4(3) Elytral apices in males clearly modified, unevenly rounded to subtruncate (Figs. 65–67), apical notch / tubercle distinct (exceptionally indistinct, but then median lobe of aedeagus with distinct dorsal plate as in Figs. 25, 26).
- 5(6) Median lobe of aedeagus asymmetrical (Fig. 1). Small species (2.4 mm), coloured pale reddish to yellowish (Fig. 76), with conspicuously large eyes, widely rounded head base (Fig. 60), wider, less elongate elytra with distinctly protruding humeri, rather fine punctuation and shorter setation. ***N. psammophilus*** Telnov, 2007

- 6(5) Median lobe of aedeagus symmetrical, its dorsal plate usually notched apically to bifurcate. Mostly larger, elongate species, showing combination of different characters; if small species with similar shape of head (*N. sinensis*), then body dark coloured, elytra ovoid, with less prominent humeri and hirsute setation (Fig. 89).
 *N. noctivagus* species-group

***Notoxus psammophilus* Telnov, 2007**

(Figs. 1, 2, 60, 66, 76)

Notoxus psammophilus Telnov, 2007: 50, Figs. 3, 4.

Type locality. South Vietnam, Ninh Thuan Province, 22 km northeast of Phan Thiet, Mui Ne (sand dunes), 10°55'N 108°10'E.

Type material. Not examined (see below).

Additional material examined. VIETNAM: KHANH HOA PROVINCE: 1 ♂, Cam Ranh Bay, under driftwood, 2.vi.1970, W. Tyson leg. (DCDC).

Diagnosis. Smaller species (2.4 mm); body rather robust, pale reddish to yellowish, elytra unicolorous, sometimes with vaguely outlined brownish markings (Fig. 76); head wide, with large eyes, its latero-basal outlines angled (Fig. 60); pronotal horn moderately long, very slender, with continuously fringed apex (Fig. 60) and a few lobules laterally on each side; horn crest slightly raised, evenly lowering towards horn apex, rather distinctly marked laterally by series of small, more or less densely spaced lobules / rugules; punctures in basal half of elytra shallow, densely spaced, their margins finely sculptured (not quite smooth).

Male characters (Cam Ranh Bay, DCDC). Elytra clearly modified apically, truncate, with distinct gland opening near protruding apical tubercle (Fig. 66); legs simple; abdominal sternum VII simple, nearly evenly rounded posteriorly; tergum VIII forming simple, evenly arched sclerite; aedeagus as figured (Figs. 1, 2).

Variation. The specimen from Cam Ranh Bay with rather distinct brown markings on elytra (Fig. 76); elytral apices always paler. Pronotal horn with 1–2 separate lobules laterally on each side.

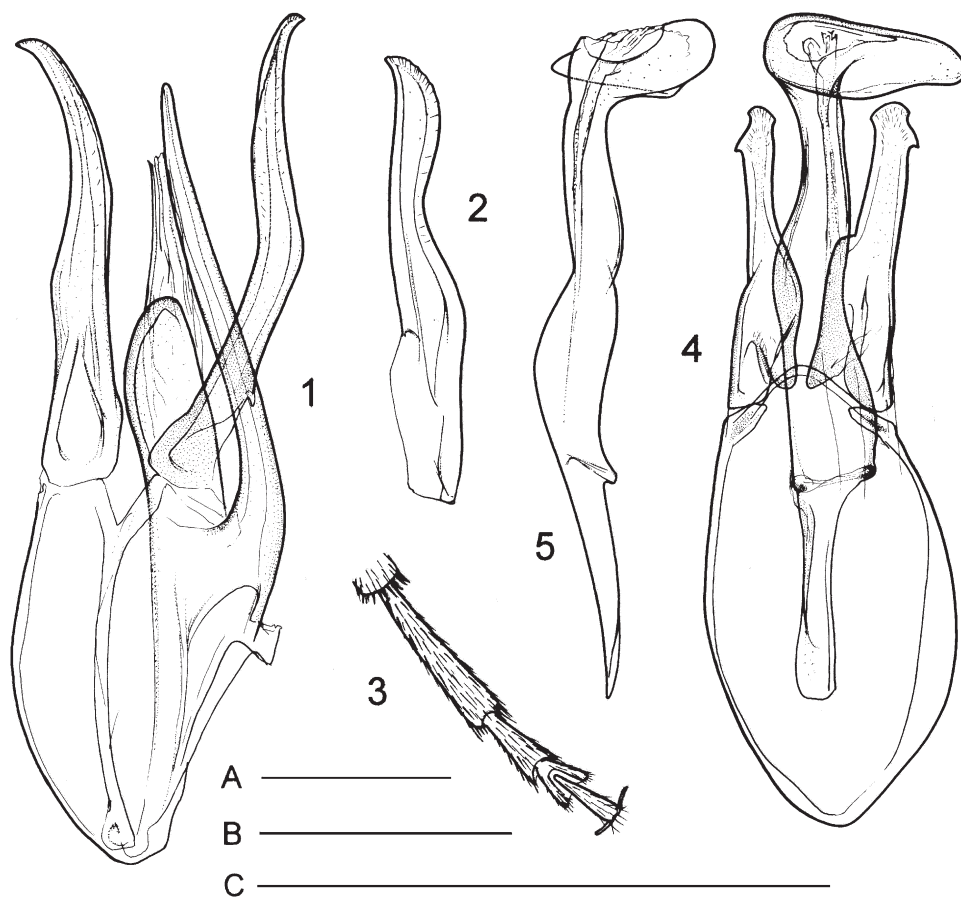
Distribution. Vietnam (TELNOV 2007).

Remarks. TELNOV (2007) described *Notoxus psammophilus* from single female specimen deposited in the private collection of Andreas Pütz (Eisenhüttenstadt, Germany). The additionally examined male specimen originates from an adjacent province and fully agrees with the original description, perhaps except for moderate differences in colouration which is undoubtedly variable (see above).

***Notoxus indicus* species-group**

Diagnosis. Elytral apices in males simple, lacking a distinct apical tubercle / notch; median lobe of aedeagus simple in middle part, mostly asymmetrical apically, lacking distinct dorsal plate; latero-basal fovea of abdominal sternum III rather shallow, forming narrow impression along basal sulcus of sternum.

Species included. *Notoxus assamensis* Krekich-Strassoldo, 1913, *N. bellus* Krekich-Strassoldo, 1928, *N. confluens* Krekich-Strassoldo, 1928, *N. distortus* sp. nov., *N. donckieri* Pic,



Figs. 1–5. 1–2 – *Notoxus psammophilus* Telnov, 2007 (Cam Ranh Bay): 1 – aedeagus; 2 – paramere in lateral view. 3–5 – *N. assamensis* Krekich-Strassoldo, 1913 (Renok): 3 – metatarsus; 4 – aedeagus; 5 – median lobe in lateral view. Scale (0.5 mm): A – Fig. 3; B – Figs. 4, 5; C – Figs. 1, 2.

1908, *N. hilaris* sp. nov., *N. indicus* Krekich-Strassoldo, 1914, *N. iuvenis* sp. nov., and *N. pachodemba* sp. nov.

Remarks. A well-known European species, *Notoxus trifasciatus* Rossi, 1792, and several related Palaearctic species, ranging eastwards as far as Kazakhstan (CHANDLER et al. 2008), share the simple male elytral apices of the *N. indicus* species-group, but differ by the more conspicuous, rather sharply raised crest of the pronotal horn and the male aedeagal characters: median lobe symmetrical, more or less deeply incised apically, and parameres with small latero-basal projection.

A key to species of the *N. indicus* species group

- 1(10) Larger species (3.1–6 mm); elytra with distinct dark markings and paler coloured base (at least around scutellum); male protibiae clearly modified (Figs. 74, 75).
- 2(3) Dark markings of elytra forming seven more or less isolated spots (Fig. 81); male protibiae on median side with longitudinal row of stiff, short spines; aedeagus as in Fig. 11. *N. hilaris* sp. nov.
- 3(2) Dark markings of elytra forming wide transverse band and subapical spots (Figs. 61, 78, 79); male protibiae uniformly finely setose.
- 4(5) Elytra dark coloured apically (Fig. 78); aedeagus as in Figs. 4 and 5.
..... *N. assamensis* Krekich-Strassoldo, 1913
- 5(4) Elytra with dark subapical spots and paler coloured apices (Figs. 77, 80).
- 6(7) Tegmen of aedeagus asymmetrical, both parameres of different shape (Fig. 9).
..... *N. distortus* sp. nov.
- 7(6) Tegmen of aedeagus symmetrical, both parameres of the same shape.
- 8(9) Body length 5–6 mm; aedeagus as in Fig. 6. *N. bellus* Krekich-Strassoldo, 1928
- 9(8) Body length 3.1–3.4 mm; aedeagus as in Fig. 10. *N. donckieri* Pic, 1908
- 10(1) Mostly smaller species (2.6–3.3 mm); elytra either with distinct markings, including dark coloured base, or generally paler coloured and markings inconspicuous; male protibiae straight or at most slightly sinuous.
- 11(12) Body reddish brown, elytra with inconspicuous, vaguely outlined paler markings (Fig. 79); pronotal horn and its crest somewhat wider; aedeagus as in Figs. 7 and 8; species occurring in the Himalaya. *N. confluens* Krekich-Strassoldo, 1928
- 12(11) Body dark brown to brown black, elytra with rather distinct, yellowish to pale reddish transverse bands (Fig. 82); pronotal horn and its crest narrower (Fig. 57); species occurring in southeast Asia.
- 13(14) Male protibiae moderately sinuous; aedeagus as in Fig. 15.
..... *N. pachodemba* sp. nov.
- 14(13) Male protibiae straight.
- 15(16) Aedeagus as in Fig. 12. *N. indicus* Krekich-Strassoldo, 1914
- 16(15) Aedeagus as in Figs. 13 and 14. *N. iuvenis* sp. nov.

***Notoxus assamensis* Krekich-Strassoldo, 1913**

(Figs. 3–5, 78)

Notoxus assamensis Krekich-Strassoldo, 1913: 129, Fig. 1.**Type locality.** India, Assam, Sudiya.

Type material examined. SYNTYPES: 1 ♂, ‘Assam Sudiya [h] // [male sex mark] // Doherty [h] // 606906 [h] // Fry Coll. 1905.100. [p] // TYPE [p; red label] // assamensis det. v. Krekich [h+p] // assamensis n.sp. Kreck. [h]’ (BMNH); 1 ♀, ‘Assam (Sudiga ?) [h] // [female sex mark] // TYPE [p; red label] // coll. Heberdey [p] // assamensis det. v. Krekich [p+h] // assamensis Kreck. [h; black frame, ochraceous label]’ (NHMW).

Additional material examined. INDIA: UTTARAKHAND: 4 ♂♂ 3 ♀♀, Gangani, 1250 m, 13.–20.vi.1981, M. Brancucci leg. (NHMB); 2 ♂♂ 2 ♀♀, Barkot, 1100–1200 m, 5.–12.vi.1981, M. Brancucci leg. (NHMB); 2 ♂♂, Kharidy, 1300 m, 17.vi.1981, M. Brancucci leg. (NHMB); 1 ♂, ca 13 km NW of Nainital, Khairna Bridge env., 900–1000 m, 13.–17.vii.2003, Z. Kejval & M. Trýzna leg. (ZKDC). WEST BENGAL: 1 ♂ 1 ♀, Darjeeling Distr., Renok,

7.–11.iv.1987, C. J. Rai leg. (NHMB). **ARUNACHAL PRADESH:** 1 ♀, Dirang env., 27°21–23'N 92°13–16'E, 1550±150 m, 1.–9.vi.2004, L. Dembický leg. (NHMB). **NEPAL: JANAHPUR ZONE:** 1 ♂, Tamba-Koshi-Khola, 900–1200 m, 5.–10.vi.1987, C. J. Rai leg. (NHMB); 1 ♂, Kabre to Tamba-Koshi-Khola, SE of Charikot, 1900–900 m, 15.vi.1987, Pashang leg. (ZKDC).

Diagnosis. Larger, elongate species; body reddish brown, elytra in apical two thirds black and with two narrow, transverse, pale reddish bands (Fig. 78, the anterior band only vaguely indicated between reddish base and black rest of elytra); head with conspicuously large eyes; tempora nearly evenly narrowing posteriorly; pronotal horn moderately long and wide, with wider apical and several smaller lateral lobules; horn crest distinctly raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; elytra more than twice as long as wide; punctation in basal half of elytra rather fine but distinct.

Male characters (Renok, NHMB). Elytral apices nearly simple, at most moderately angled apically near slight gland opening; protibiae modified, slightly sinuous and moderately angulately produced on inner side close behind mid-length; abdominal sternum VII slightly flattened postero-medially, nearly simple, its posterior margin somewhat widely rounded in ventral view; tergum VIII forming narrow, arched sclerite, evenly rounded and finely setose posteriorly; aedeagus as figured (Figs. 4, 5).

Variation. Body length (♂♀) 3.6–4.3 mm. Moderately variable in shape (width) of pronotal horn; its lateral margins with 3–6 lobules on each side, apical lobule simply, widely rounded to moderately emarginate.

Distribution. India: Assam, Arunachal Pradesh, Uttarakhand, West Bengal (Darjeeling Distr.); Nepal (KREKICH-STRASSOLDO 1913, TELNOV 2003, CHANDLER et al. 2008).

Remarks. KREKICH-STRASSOLDO (1913) described *Notoxus assamensis* from two specimens deposited in the NHMW and BMNH. It is reliably known only from northern India and Nepal. The record from Vietnam by TELNOV (2005) is based on single female specimen, bearing data 'Annam-Vinh 1910 // Indo Chine Coll. Dussault', and re-identified here as *N. donckieri* (see below).

Notoxus bellus Krekich-Strassoldo, 1928

(Figs. 6, 77)

Notoxus bellus Krekich-Strassoldo, 1928: 67, fig. 1.

Type locality. India, Uttarakhand, Garhwal Division, Siuni Gad, 1200 m a.s.l.

Type material examined. SYNTYPES: 1 ♂, 'SYN-TYPE [p; round label, bluish margin] // Siuni Gad, 4000ft Garhwal, U.P. June'20, H.G.C. [p] // 3487 [p] // 4800 Siuni G. Beaten [h] // [male sex mark] // TYPE [p; red label] // H. G. Champion Coll. B.M. 1953-156 [p] // *N. bellus* Kr. det. v. Krekich [p+h]' (BMNH); 1 ♀, 'Siuni Gad, 4000ft Garhwal, U.P. June'20, H.G.C. [p] // [female sex mark] // TYPE [p; red label] // coll. Heberdey [p] // *bellus* Kr. det.v.Krekich [p+h] // *bellus* Krek. [h; black frame, ochraceous label]' (NHMW).

Diagnosis. Identical with *N. assamensis* in most external characters (see above), differing by larger body size (5–6 mm), less extensive dark markings of elytra (Fig. 77; paired subapical spots rather vaguely outlined, apices and lateral margins reddish), and mainly by morphology of male aedeagus (Fig. 6).

Distribution. India: Uttarakhand (KREKICH-STRASSOLDO 1928).

Remarks. KREKICH-STRASSOLDO (1928) described *N. bellus* from three specimens provided by G. C. Champion. The only male syntype present in the BMNH is dissected, with the last abdominal sterna mounted on the same label, but lacking the aedeagus (label data containing no slide number).

***Notoxus confluens* Krekich-Strassoldo, 1928**

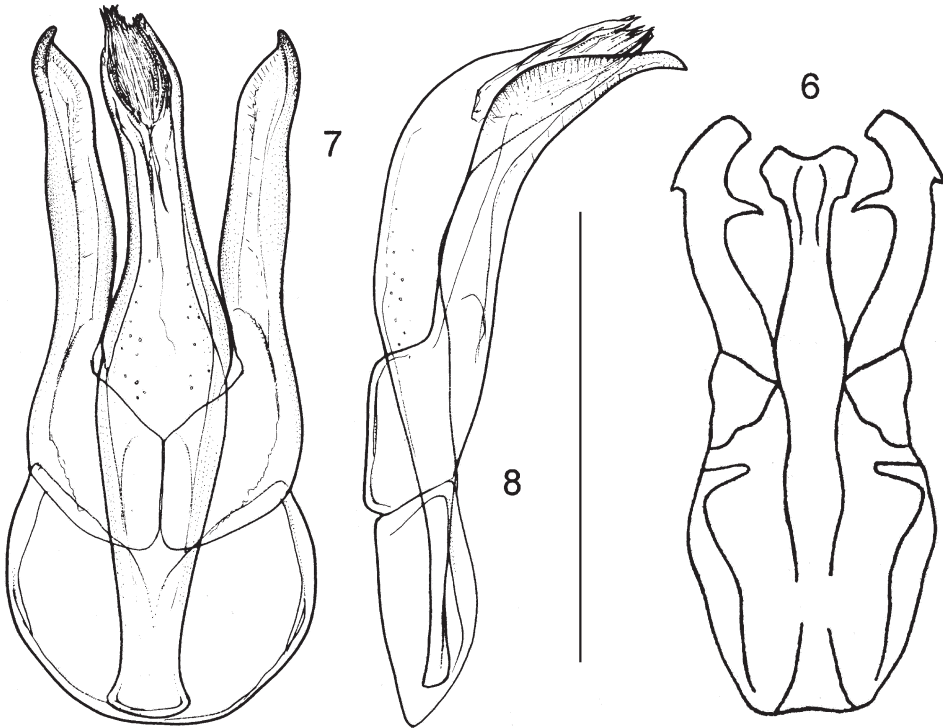
(Figs. 7, 8, 79)

Notoxus confluens Krekich-Strassoldo, 1928: 70, fig. 4B.

Type locality. India, Uttarakhand, Kumaon Division, West Almora.

Type material examined. SYNTYPES: 1 ♂, 'SYN-TYPE [p; round label, bluish margin] // W. Almora Divn Kumaon U.P. June 1919, H.G.C [p] // 2243 [h] // [male sex mark] // TYPE [p; red label] // H. G. Champion Coll. B.M. 1953-156 [p] // *N. confluens* Kr. det. V. Krekich [p+h]' (BMNH); 1 ♂, 'W. Almora Divn Kumaon U.P. June 1919, H.G.C [p] // TYPE [p; red label] // coll. Heberdey [p] // *N. confluens* Kr. det.v.Krekich [p+h] // *confluens* Krek. [h; black frame, ochraceous label]' (NHMW).

Diagnosis. Small species (2.8 mm); body reddish brown, with rather vague darker markings on elytra (Fig. 79); head with smaller eyes, its latero-basal outlines distinctly arcuate in dor-



Figs. 6–8. Aedeagus: 6 – *Notoxus bellus* Krekich-Strassoldo, 1928, after KREKICH-STRASSOLDO (1928); 7 – *N. confluens* Krekich-Strassoldo, 1928 (syntype), dorsal view; 8 – the same, lateral view. Scale (0.5 mm): Figs. 7, 8.

sal view; pronotal disc evenly convex, rather finely punctured; pronotal horn slender, with continuously fringed apex, 4–5 small lobules on lateral margins (on each side), horn crest moderately raised and very slightly marked laterally by several coarser, widely spaced rugules; punctures in basal half of elytra shallow, dense, their margins sculptured (not smooth).

Male characters (syntype, BMNH). Elytra simple apically, gland opening quite inconspicuous; abdominal sternum VII nearly simple, slightly unevenly rounded posteriorly; aedeagus as figured (Figs. 7, 8).

Distribution. India: Uttarakhand (KREKICH-STRASSOLDO 1928).

Remarks. KREKICH-STRASSOLDO (1928) described *Notoxus confluens* from two male specimens provided by H. C. Champion. The syntype deposited in Krekich-Strassoldo's collection (NHMW) is dissected and its aedeagus is mounted probably on a slide (not examined; see Remarks under *N. indicus*). This method of preparation would explain differences between the figure presented here and the original figure of the aedeagus (on a slide it may be strongly depressed and thus deformed).

Notoxus distortus sp. nov.

(Fig. 9)

Type locality. India, Meghalaya, West Garo Hills, Nokrek National Park, 25°29.6'N 90°19.5'E, about 1100 m a.s.l.

Type material. HOLOTYPE: ♂, 'NE-INDIA: Meghalaya W Garo Hills Nokrek NP; ca. 1100 m // 25°29.6'N 90°19.5'E 9.-17.5.1996 leg. Jendek & Sausa' (NHMW).

Description. Male (holotype). Body length 4.9 mm. Head and pronotum reddish brown. Elytra reddish, with slightly darker base and rather distinct brown black markings; subapical spots very vaguely connected along suture with transverse band. Legs and antennae reddish.

Body only moderately glossy, rather densely punctured. Punctuation of pronotum and head mostly rather fine, pronotum additionally with some scattered coarse punctures. Punctuation in basal half of elytra generally more distinct, coarser than that of head and pronotum. Body setation mostly appressed to subdecumbent; pronotum with some conspicuously long erect setae, especially laterally; elytra with numerous, moderately longer suberect setae. Antebasal setose band of pronotum conspicuous, widely interrupted medially.

Head with conspicuously large eyes. Antennae long, only moderately enlarged in terminal third. Pronotum 1.1 times as wide as head across eyes, globose in dorsal view; transverse sulcus / impression of posterior collar smooth dorsally. Pronotal horn moderately long, slender, largely subparallel, armed with 4–5 distinct lateral lobules on each side and wider, moderately emarginate apical lobule; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly separate lobules / rugules; dorsal surface rather evenly and densely covered by distinct rounded rugules. Elytra 2.1 times as long as wide; humeri distinctly protruding; omoplates and postbasal impression rather distinct; elytral apices indistinctly modified, at most unevenly rounded, with minute, inconspicuous gland opening near slightly angled margin. Protibiae slightly sinuous and moderately angulately produced on inner side close behind mid-length. Abdominal sternum VII simple, widely rounded posteriorly. Tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 9).

Female. Unknown.

Differential diagnosis. *Notoxus distortus* sp. nov. is undoubtedly very close to *N. bellus*, as suggested by overall similarity, including male characters. It differs from the latter species only in the detailed morphology of the parameres and the apical portion of the tegmen of the aedeagus.

Etymology. From the Latin word *distortus* (crinkly, twisted); named in reference to the peculiar morphology of the aedeagus.

Distribution. India: Meghalaya.

Notoxus donckieri Pic, 1908

(Figs. 10, 74, 80)

Notoxus donckieri Pic, 1908: 274.

Type locality. China, Yunnan.

Type material examined. SYNTYPES: 2 ♀♀ [originally mounted on single card, re-mounted], ‘Yunnan [p] // type [h] // TYPE [p; red label] // Bul. Fr. 1908 p. 274 [h] // Donckieri Pic [h]’ (coll. Pic, MNHN).

Additional material examined. CHINA: YUNNAN: 1 ♀, ‘Yunnan Sen [no date / collector]’ (coll. Pic, MNHN); 1 ♀, ‘Chine Yunnan [no date / collector]’ (NHMW). VIETNAM: 1 ♀, ‘Tonkin coll. Madon’ (coll. Pic, MNHN); 1 ♀, ‘Annam-Vinh 1910 // Indo Chine coll. Dussault’ (NHMB); 1 ♂, ‘Phuyen Binh II 1907 Fouquet’ (coll. Pic, MNHN).

Redescription. *Female* (syntype). Body length 3.3 mm. Head and pronotum reddish, elytra pale reddish, with slightly darker base (ommolates) and brown, vaguely outlined markings (Fig. 80): rather wide transverse band at / behind mid-length, vaguely connected on suture with subapical spot. Legs and antennae reddish.

Body moderately glossy, rather densely punctured. Punctuation of pronotum and head mostly rather fine. Punctuation in basal half of elytra generally more distinct, coarser than that of head and pronotum, uniform. Body setation mostly appressed to subdecumbent; pronotum with some conspicuously long erect setae, especially laterally, articulated near minute tubercles; elytra additionally with numerous longer suberect setae. Antebasal setose band of pronotum conspicuous, widely interrupted medially.

Head with rather large eyes; tempora nearly straightly narrowing posteriad. Antennae long, distinctly enlarged in terminal third. Pronotum about as wide as head across eyes, globose to slightly elongate in dorsal view. Pronotal horn moderately long, slender, with 4 distinct lateral lobules on each side and wider apical lobule; horn crest distinctly raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; dorsal surface covered by distinct rugules. Elytra strongly elongate, 2.1 times as long as wide; humeri distinctly protruding; omoplates and postbasal impression moderately indicated; elytral apices simple.

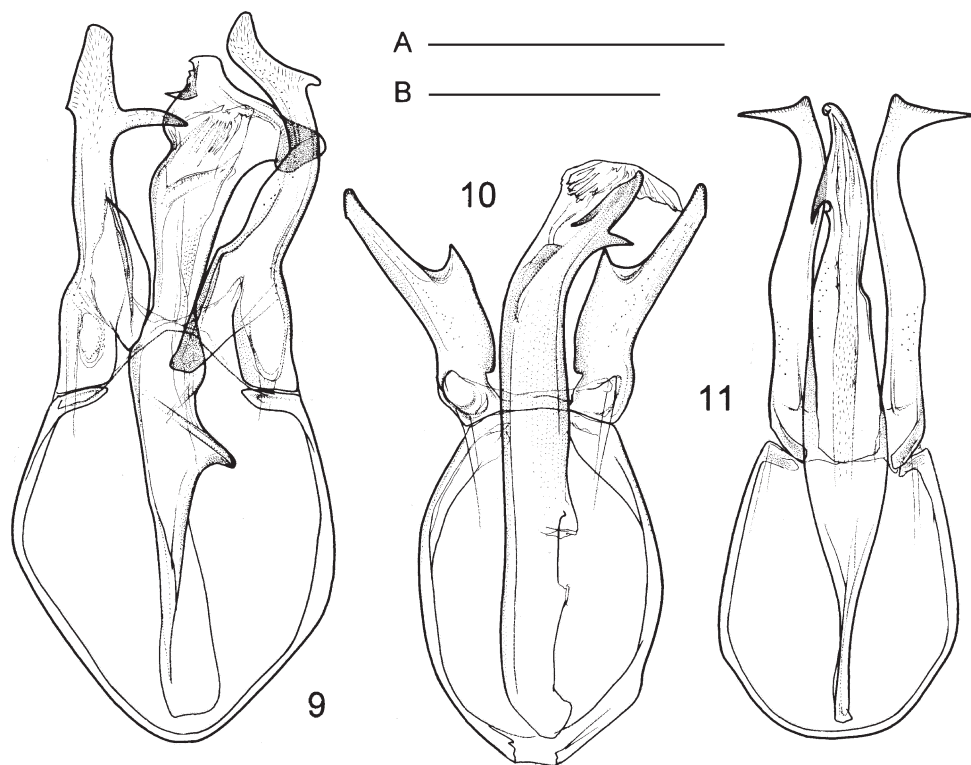
Male (Phuyen Binh, MNHN). Elytral apices unevenly rounded, with slight gland opening; protibiae slightly sinuous and with distinct angulately produced dilatation on inner side in distal half (Fig. 74); abdominal sternum VII unevenly rounded, with pair of slight postero-lateral angles, slightly impressed / flattened postero-medially; tergum VIII forming narrow, arched, widely rounded sclerite; aedeagus as figured (Fig. 10).

Variation. Body length (♂♀) 3.1–3.4 mm. The specimens from Vietnam darker coloured, with rather distinct markings on elytra.

Differential diagnosis. *Notoxus donckieri* is externally very similar to *N. assamensis*, *N. bellus* and *N. distortus* sp. nov., but differs clearly in the male characters (shape of the protibiae and aedeagus).

Distribution. China: Yunnan (Pic 1908); Vietnam.

Remarks. Pic (1908) described *Notoxus donckieri* from an unstated number of specimens collected by M. H. Donckier in Yunnan. All the examined specimens from Yunnan are females, and the only male originates from Vietnam (probably Phu Yen Province in its central part). It is identical with the female specimens from ‘Annam’ (former name for central Vietnam) bearing an identification label ‘*Notoxus assamensis*’ by D. Telnov (TELNOV 2005). These Vietnamese specimens show no distinct external differences from the types, except for darker colouration which is usually a rather variable character. Despite this fact, their identification should be taken as tentative until confirmed by examination of males from southern China.



Figs. 9–11. Aedeagus: 9 – *Notoxus distortus* sp. nov.; 10 – *N. donckieri* Pic, 1908 (Phuyen Binh); 11 – *N. hilaris* sp. nov. Scale (0.5 mm): A – Fig. 11; B – Figs. 9, 10.

***Notoxus hilaris* sp. nov.**

(Figs. 11, 75, 81)

Type locality. Myanmar, Kachin State, Myitkyina, about 350 m a.s.l.**Type material.** HOLOTYPE: ♂, 'MYANMAR: Kachin State, Myitkyina, Sumpura Hotel 26. - 27.5.1999, ca. 350 m, at light, leg. Schuh & Schilhammer (55)' (NHMW).**Description. Male** (holotype). Body length 3.4 mm. Head and pronotum reddish brown, pronotum largely darker. Elytra pale reddish to yellowish, with conspicuous brown black markings (Fig. 81); only humeral spots touching lateral margins. Legs and antennae reddish.

Body only moderately glossy, rather finely, densely and evenly punctured; pronotum with some scattered coarser punctures; margins of punctures on elytra not quite smooth, very finely sculptured. Body setation mostly appressed to subdecumbent; pronotum with some conspicuously long, suberect to erect setae antero-laterally; elytra with numerous, distinctly longer suberect setae. Antebasal setose band of pronotum conspicuous, widely interrupted medially. Protibiae in addition to fine setation with short, stiff setae forming dense fringe on median longitudinal edge.

Head with rather large eyes. Antennae long, only moderately enlarged in terminal third. Pronotum as wide as head across eyes, globose to moderately elongate in dorsal view. Pronotal horn moderately long and slender, largely subparallel, armed with 4–5 distinctly protruding lateral lobules on each side and simple wider apical lobule; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly separate lobules / rugules; dorsal surface rather evenly and densely covered by distinct rounded rugules. Elytra 2.2 times as long as wide; humeri distinctly protruding; omoplates and postbasal moderately indicated; elytral apices indistinctly modified, unevenly rounded to subtruncate, with rounded gland opening near rather rounded lateral angle. Protibiae distinctly modified, moderately sinuous, twice angulately produced and flatly impressed, with longitudinal edge on median side (Fig. 75). Abdominal sternum VII evenly rounded posteriorly. Tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 11).

Female. Unknown.**Differential diagnosis.** *Notoxus hilaris* sp. nov. can be easily distinguished from all members of the *N. indicus* species-group by rather distinctive colouration of the elytra, shape and modified setation of the male protibiae and by morphology of the aedeagus.**Etymology.** From Latin word *hilaris* (merry, hilarious); named in reference to the conspicuous markings of the elytra.**Distribution.** Myanmar.***Notoxus indicus* Krekich-Strassoldo, 1914**

(Figs. 12, 82)

Notoxus indicus Krekich-Strassoldo, 1914a: 108–109, Fig. 1.**Type locality.** Myanmar, Tanintharyi Division, Dawei [= Tavoy].**Type material examined.** SYNTYPES: 1 ♀, 'Tenasserim Tavoy [p+h] // Fry Coll. 1905.100. [p] // [female sex mark] // TYPE [p; red label] // coll. Heberdey [p] // indicus det. v.Krekich [p+h] // indicus Krek. [h; black frame, ochraceous label]' (NHMW); 1 ♂, 'Tenasserim Tavoy [p+h] // Fry Coll. 1905.100. [p] // Doherty [p] // coll. Heberdey [p] // indicus det. v.Krekich [p+h]' (NHMW).

Additional material examined. THAILAND: TAK PROVINCE: 1 ♂, Umphang river, 16°07'N 99°00'E, 1000 m, 28.iv.–6.v.1991, V. Kubáň leg. (ZKDC).

Diagnosis. Small, slender species; body largely brownish black, elytra with pale reddish apices and two narrow, transverse bands (Fig. 82); eyes rather medium-sized; tempora nearly evenly narrowing posteriad; pronotal horn moderately long, slender, with wider apical and smaller lateral lobules on margins; horn crest distinctly raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; punctures in basal half of elytra distinct, moderately dense, their margins smooth.

Male characters (Umphang, ZKDC). Elytra nearly simple apically, gland opening inconspicuous; legs simple; abdominal sternum VII moderately flattened postero-medially, nearly simple, its posterior margin slightly angled postero-laterally in ventral view; male tergum VIII forming narrow, arched sclerite, evenly rounded posteriorly, rather finely and sparsely setose; aedeagus as figured (Fig. 12).

Variation. Body length (♂♀) 2.7–2.9 mm. Pronotal horn with 3–5 lobules laterally on each side.

Distribution. Myanmar (KREKICH-STRASSOLDO 1914), Thailand.

Remarks. KREKICH-STRASSOLDO (1914) described *Notoxus indicus* from two specimens, and later (KREKICH-STRASSOLDO 1928) figured its male characters. The examined syntypes bear identical locality label with somewhat dilute handwritten data 'Tavoy' [currently Dawei; not Java, see comments by TELNOV (2007) in the differential diagnosis of *N. ales* Telnov, 2007], which is the capital of the Tanintharyi Region in southern Myanmar. The male syntype is dissected, probably by Kreckich-Strassoldo (see above), and the aedeagus is probably mounted in Canada balsam and stored separately in special wooden boxes for slides in the NHMW. However, it is difficult to find there, because the specimen lacks any slide number. The additionally examined specimen originates from southwestern Thailand and fully agrees with the type.

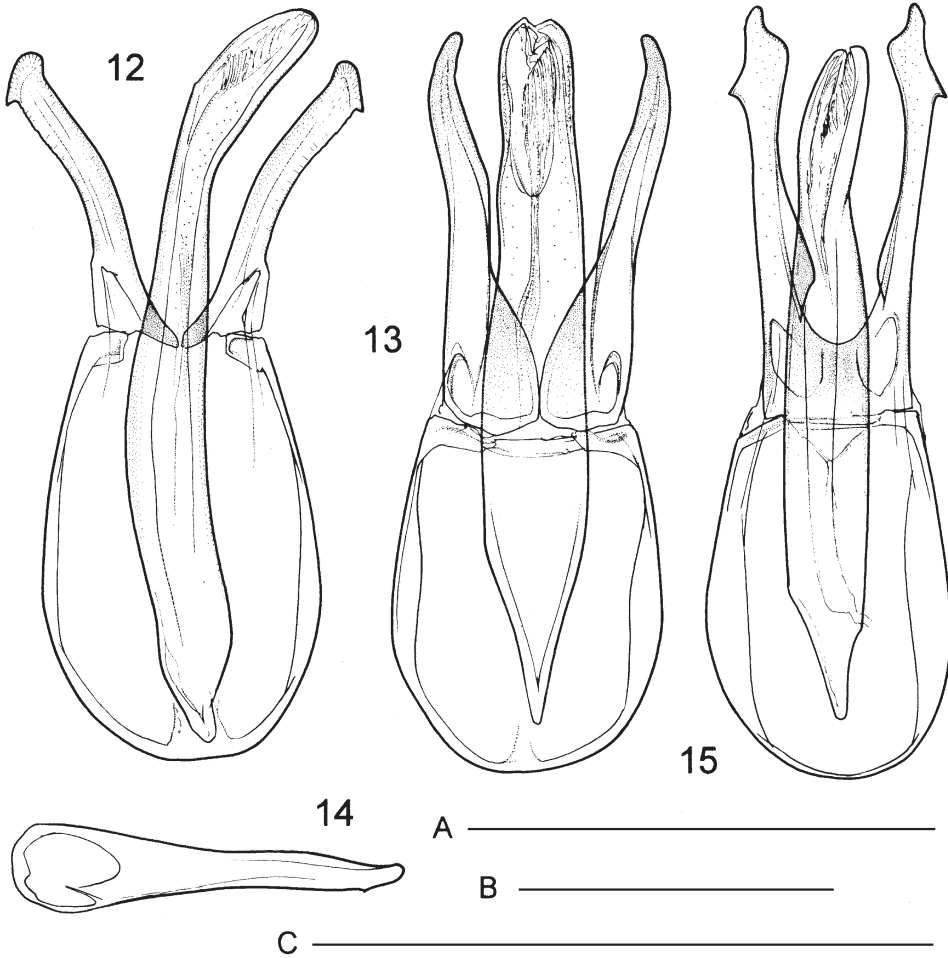
Notoxus iuvenis sp. nov.

(Figs. 13, 14)

Type locality. Laos, Vientiane Province, 55 km north of Vientiane, Ban Vangheua, Phou Khao Khouay National Park, 18°27'N 102°49'E.

Type material. HOLOTYPE: ♂, 'LAOS, Vientiane Prov., 55 km N of Vientiane, BAN VANGHEUA, 18°27'N 102°49'E // Phou Khao Khouay National park 4.–18.v.2005 P. Kresl leg.' (NMPC); 18 spec, same data as holotype (ZKDC, 1 spec. each in BMNH, DCDC, MHNG, MNHN, NHMB, NHMW, ZMHB, ZSMC); 1 spec., 'LAOS central, Saisombun zone PHOU KHAO KHOUAY Nat. Park, TAD LEUK, 18°23'N, 103°04'E 15.–21.V.2001, alt. 150–200 m E. Jendek & O. Šauša leg.' (ZKDC); 3 spec., 'LAOS centr., Bolikhamsai prov., BAN NAPE – Kaew Nua Pass, 18.4.–1.5.1998, alt. 600±100 m, N 18°22.3, E 105°09.1 (GPS), M. Štrba & R. Hergovits leg.' (ZKDC); 3 spec., same data, except: 'E. Jendek & O. Šauša leg.' (ZKDC); 1 spec., 'LAOS c., Bolikhamsai prov., BAN NAPE – Kaew Nua Pass, 18.4.–1.5.1998, alt. 600 m, N18°22.3' E105°09.1' GPS, E. Jendek, O. Šauša leg.' (ZKDC); 3 spec., 'LAOS, 24.–29.iv.2007, Khammouan Prov., 18°07'N 104°29'E, Ban Khoun Ngeun, ~ 200 m, , Vit Kubáň leg.' (ZKDC); 1 spec., 'LAOS centr., Khammouan pr., BAN KHOUN NGEUN vill. env., 17.v.–6.vi.2007, ~ 300 m, M. Štrba leg.' (ZKDC).

Description. Male (holotype). Body length 3.0 mm. Body largely brownish black, elytra with brownish apices, lateral margins and suture, and with two narrow, transverse pale



Figs. 12–15. 12 – *Notoxus indicus* Krekich-Strassoldo, 1914 (Umphang), aedeagus; 13 – *N. iuvenis* sp. nov., aedeagus; 14 – the same, paramere in lateral view; 15 – *N. pachodemba* sp. nov., aedeagus. Scale (0.5 mm): A – Fig. 13; B – Fig. 12; C – Figs. 13, 14.

reddish bands; legs and antennae reddish brown, antennae slightly darkened apically. Pronotum and elytra moderately glossy; pronotal disc rather distinctly, densely punctured; punctures in basal half of elytra coarser and somewhat sparser than those on pronotum, dot-like with rather smooth margins. Body setation appressed to subdecumbent; pronotum with some conspicuously long suberect to erect setae antero-laterally; elytra with numerous distinctly longer suberect setae. Antebasal setose band of pronotum conspicuous, widely interrupted medially.

Head with medium-sized eyes; tempora strongly and nearly evenly narrowing posteriad. Antennae long, moderately but distinctly enlarged in terminal third. Pronotum as wide as head across eyes, globose to slightly elongate in dorsal view. Pronotal horn moderately long, slender, armed with 3–4 small lobules laterally on each side and wider apical lobule; horn crest distinctly raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; dorsal surface densely covered by distinct rugules. Elytra elongate, nearly twice as long as wide; humeri distinctly protruding; omoplates and postbasal impression moderately indicated; elytral apices nearly simple (gland opening inconspicuous). Legs simple. Abdominal sternum VII simple, its posterior margin nearly evenly rounded in ventral view. Tergum VIII forming narrow, arched sclerite, evenly rounded posteriorly, rather finely and sparsely setose. Aedeagus as figured (Fig. 13, 14).

Female. Externally identical with male.

Variation. Body length (♂♀) 2.6–3.3 mm. Pronotal horn with 3–4 small lobules laterally on each side; apical lobule small to conspicuously wide and incised apically (nearly bilobed).

Differential diagnosis. *Notoxus iuvenis* sp. nov. is very similar and undoubtedly very close to *N. indicus* and *N. pachodemba* sp. nov. It differs from these species by simple protibiae in the males (modified in *N. pachodemba* sp. nov.), and mainly by shape of the parameres of the aedeagus (cf. Figs. 13, 14 versus 12, 15).

Etymology. From the Latin word *iuvenis* (youth, youngster); named in reference to the less developed, shorter and simple parameres of the aedeagus. Noun in apposition.

Distribution. Laos.

Notoxus pachodemba sp. nov.

(Figs. 15, 57)

Type locality. South Vietnam, Nam Cat Tien National Park.

Type material. HOLOTYPE: ♂, 'S VIETNAM, 1.–15.5.1994 Nam. Cat. Tien Nat. park P. Pacholátko & L. Dembický leg.' (NMPC). PARATYPES: 2 ♂♂ 1 ♀, same data as holotype (ZKDC).

Description. Male (holotype). Body length 2.7 mm. Identical with *N. iuvenis* sp. nov. in nearly all external and male characters (see above), differing only by somewhat finer and sparser punctuation of pronotal disc, by the protibiae moderately sinuous on the inner side in males, and by the aedeagus (Fig. 15).

Female. Externally identical with male, except for the simple protibiae.

Variation. Body length (♂♀) 2.6–2.7 mm.

Differential diagnosis. *Notoxus pachodemba* sp. nov. is very similar and undoubtedly very close to *N. indicus* and *N. iuvenis* sp. nov. It can be reliably distinguished from these species only by the slightly modified protibiae in the males, and by the shape of the parameres of the aedeagus (cf. Fig. 15 versus Figs. 12–14).

Etymology. Dedicated to the collectors Petr Pacholátko and Luboš Dembický (both from Brno, Czech Republic); composed from their surnames as a noun in apposition.

Distribution. Vietnam.

Notoxus noctivagus species-group

Diagnosis. Elytral apices in males mostly clearly modified, with distinct apical tubercle / notch, rarely simple (*N. katthapa* sp. nov.); median lobe of aedeagus symmetrical, with distinct dorsal plate; latero-basal fovea of abdominal sternum III rather shallow, forming narrow impression along basal sulcus of sternum (Fig. 68).

Species included. *Notoxus ales* Telnov, 2007, *N. andrewesi* Krekich-Strassoldo, 1913, *N. garuda* sp. nov., *N. katthapa* sp. nov., *N. impavidus* sp. nov., *N. inbasaliformis* sp. nov., *N. inbasalis* Pic, 1926, *N. noctivagus* Krekich-Strassoldo, 1913, *N. peguensis* Pic, 1914, *N. safraneki* sp. nov., *N. sinensis* Pic, 1907, *N. sodalis* sp. nov., and *N. suturalifer* Pic, 1932.

Remarks. Four species of this group have robust, dorsally coarsely and densely rugose pronotal horn with nearly indistinct crest, more or less emarginate male sternum VII, and rather uniform morphology of the aedeagus (Figs. 29, 33, 38 and 42). At least two Afrotropical species, distributed in northern Sub-Saharan part of Africa, appear to be very close to this subgroup; see Remarks under *N. peguensis* and description of *N. pericarti* Bonadonna, 1984 by BONADONNA (1984).

A key to species of the *N. noctivagus* species group

- 1(2) Head rather widely rounded posteriorly, its postero-lateral outlines (between eye margin and occipital condyle) arcuate in dorsal view; elytra nearly ovoid, with less protruding humeri, hind membranous wings reduced (brachypterous species); small, robust species, habitus and aedeagus as in Figs. 36 and 89.
 *N. sinensis* Pic, 1907
- 2(1) Head rather straightly narrowed posteriorly, its postero-lateral outlines (between eye margin and occipital condyle) nearly straight (Fig. 59), or at most moderately arcuate in dorsal view; mostly larger species with more elongate body, showing different colouration (markings of elytra) and distinctly protruding humeri.
- 3(16) Pronotal horn slender, parallel-sided in apical half as in Fig. 53; male sternum VII simple or at most slightly produced and / or emarginate apically (Fig. 23, 71).
- 4(5) Punctuation in basal half of elytra rather fine and dense (Fig. 73); apical margin of pronotal horn nearly completely fringed (appears like fusion of three apical lobules; Fig. 53); aedeagus as in Fig. 22. *N. impavidus* sp. nov.
- 5(4) Punctuation in basal half of elytra rather coarse and sparser (Fig. 72); apical margin of pronotal horn mostly with distinct, separate lobules.
- 6(7) Body colouration paler, elytra reddish brown with rather vague darker markings (Fig. 85); elytral apices in males simple, evenly rounded, lacking a distinct apical notch; aedeagus as in Figs. 25 and 26. *N. katthapa* sp. nov.
- 7(6) Body colouration darker, elytra mostly with rather distinct, paler transverse bands / spots (Figs. 83, 84, 86; sometimes reduced only in *N. andrewesi*). Elytral apices in males clearly modified, subtruncate, always with distinct apical notch.
- 8(11) Elytral apices dark coloured.
- 9(10) Posterior margin of male sternum VII slightly emarginate medially (not produced); aedeagus as in Fig. 18. *N. garuda* sp. nov.

- 10(9) Posterior margin of male sternum VII slightly produced and emarginate apically (Fig. 71); aedeagus as in Fig. 16. *N. ales* Telnov, 2007
- 11(8) Elytral apices light coloured.
- 12(13) Smaller species (2.8–3.1 mm); pronotal disc rather finely and sparsely punctured, punctures distinctly spaced; habitus and aedeagus as in Figs. 17 and 84.
..... *N. andrewesi* Krekich-Strassoldo, 1913
- 13(12) Larger species (3.8–4.6 mm); pronotal disc rather coarsely and very densely punctured, punctures mostly nearly contiguous.
- 14(15) Aedeagus as in Figs. 20 and 21. *N. inbasalis* Pic, 1926
- 15(14) Aedeagus as in Fig. 19. *N. imbasaliformis* sp. nov.
- 16(3) Pronotal horn distinctly narrowing towards apex as in Figs. 55 and 58; its dorsal side vaulted, rather coarsely and densely rugose, crest wide and nearly indistinct; male sternum more or less distinctly emarginate postero-medially (except *N. safraneki* sp. nov.).
- 17(18) Pronotal horn somewhat longer and more slender (Fig. 58); male sternum VII simple; aedeagus minute, less sclerotized, dorsal plate of median lobe bilobed apically and moderately exceeding parameres (Fig. 35). *N. safraneki* sp. nov.
- 18(17) Pronotal horn usually short and wide (Fig. 55; variability); male sternum VII more or less emarginate postero-medially; aedeagus larger and more robust, dorsal plate of median lobe rather narrowly incised apically and distinctly shorter than parameres.
- 19(22) Male sternum moderately emarginate postero-medially (Figs. 27, 31).
- 20(21) Male tergum VIII rather evenly rounded posteriorly and with sparse short setae (Fig. 28); aedeagus as in Figs. 29 and 30. *N. noctivagus* Krekich-Strassoldo, 1913
- 21(20) Male tergum VIII widely rounded and impressed postero-medially, with dense, long, somewhat tufted setae (Fig. 32); aedeagus as in Figs. 33 and 34.
..... *N. peguensis* Pic, 1914
- 22(19) Male sternum VII rather deeply emarginate posteriorly (Figs. 37, 40).
- 23(24) Male sternum VII simply flattened postero-laterally, lacking any submarginal edge; aedeagus as in Figs. 38 and 39. *N. suturalifer* Pic, 1932
- 24(23) Male sternum VII with sharp edge along postero-lateral margins (Fig. 40, marked by arrow); aedeagus as in Figs. 42 and 43. *N. sodalis* sp. nov.

Notoxus ales Telnov, 2007

(Figs. 16, 68, 71, 72, 83)

Notoxus ales Telnov, 2007: 47, Figs. 1, 2.

Type locality. Northeastern Thailand, Loei Province, Ban Na Haeo [ca. 17°28'40.86"N, 101°04'06.98"E].

Type material. Not examined (see below).

Additional material examined. **THAILAND:** NAN PROVINCE: 1 ♀, Mae Charim waterfall env., 7.–8.xi.2004, M. Földvári, A. Orosz & J. Papp leg. (HNHM). **LAOS:** BOLI KHAM XAI PROVINCE: 2 ♂♂, 8 km NE of Ban Nape, 19°21'N 105°08'E, ca. 680 m, 1.–18.v.2001, P. Pacholátko leg. (ZKDC); 42 ♂♂, Ban Nape, Kaew Nua Pass, 18°22.3'N 105°09.1'E, 600±100 m, 18.iv.–1.v.1998, E. Jendek & O. Šauša leg. (ZKDC); 67 ♂♂, same data, except: M. Štrba & R. Hergovits leg. (ZKDC, 2 spec. each in BMNH, DCDC, MHNG, MNHN, NHMB, NHMW, ZMHB, ZSMC). **KHAMMOUAN PROVINCE:** 7 ♂♂, Nam Theun env., 17°50.7'N 105°03.2'E, 2.–4.v.1997, M. Štrba & R. Hergovits leg. (ZKDC); 1 ♂, Nakai env., 17°43'N 105°09'E, 500–600 m, 22.v.–8.vi.2001, E. Jendek & O. Šauša leg. (ZKDC).

VIENTIANE PROVINCE: 6 ♂♂, 70 km NE of Vientiane, Ban Phabat env., 18°16.1'N 103°10.9'E, 150 m, 27.iv.–1.v.1997, M. Štrba & R. Hergovits leg. (ZKDC).

Diagnosis. Small to medium-sized species; elytra with conspicuous dark markings (Fig. 83); eyes medium-sized; tempora strongly and nearly evenly narrowing posteriorly in dorsal view; pronotal horn moderately long and slender, with few distinctly spaced lobules on margins; horn crest only moderately raised, feebly marked laterally by series of coarser rugules / lobules; punctures in basal half of elytra rather coarse, clearly dot-like, their margins quite smooth (Fig. 72).

Male characters (Ban Nape, ZKDC). Elytra clearly modified apically, subtruncate and with rounded gland opening near distinctly protruding lateral angle; legs simple; abdominal sternum VII moderately produced posteriorly, with slight apical emargination (Fig. 71); tergum VIII forming simple arched sclerite, its posterior margin moderately flatly produced and widely rounded; aedeagus as figured (Fig. 16).

Variation. Body length (♂♀) 2.8–3.6 mm. Base of elytra more or less distinctly darkened (always at least partly reddish). Pronotal horn moderately variable in shape (width), with 2–4 lobules laterally on each side; apical / subapical lobules may be nearly fused.

Distribution. Thailand (TELNOV 2007), Laos.

Remarks. TELNOV (2007) described *N. ales* from single female specimen collected in north-eastern Thailand, presently deposited in IRSN. The above listed specimens, originating from nearby provinces of Laos, agree very well with the original description. Nevertheless, their identification and above described male identity of *N. ales* should be confirmed by examination of males from the Loei province in Thailand.

Notoxus andrewesi Krekich-Strassoldo, 1913

(Figs. 17, 84)

Notoxus andrewesi Krekich-Strassoldo, 1913: 131, Fig. 2.

Type locality. South India, Nilgiri Hills.

Type material examined. SYNTYPES: 1 ♂, 'H.L.Andrewes Nilgiri Hills [p] // [male sex mark] // TYPE [p; red label] // coll. Heberdey [p] // Andrewesi det. v.Krekich [p+h] // Andrewesi Krek. [h; black frame, ochraceous label]' (NHMW); 1 ♀, same data, except female sex-mark, lacking the last label (NHMW); 1 ♂ 2 ♀♀, 'H.L.Andrewes Nilgiri Hills [p] // [male or female sex mark] // TYPE [p; red label] // Andrewesi det. v.Krekich [p+h] // Andrewes Bequest B.M.1922-221.' (BMNH).

Additional material examined. INDIA: TAMIL NADU: 27 ♂♂ 4 ♀♀ Nilgiri hills, Kotagiri env., Elk falls, 76°52'E 11°23'N, 16.xi.1993, Z. Kejval & D. Boukal leg. (ZKDC, ZSMC).

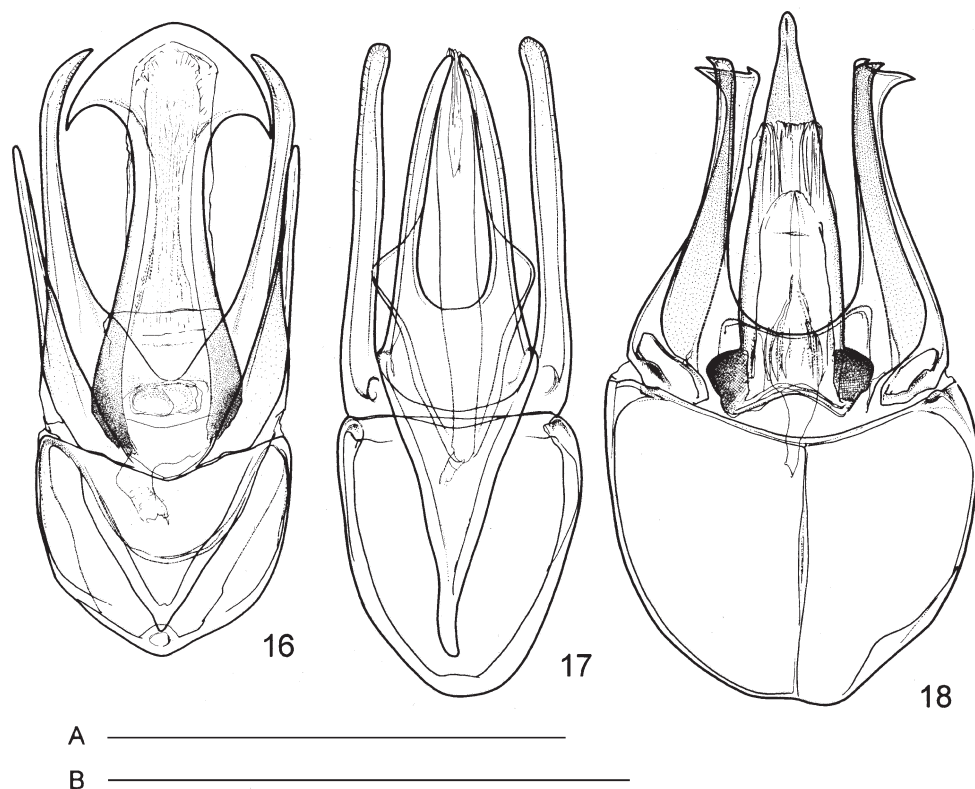
Diagnosis. Small, slender species; elytra mostly with distinct markings (Fig. 84); eyes rather large; pronotum globose to slightly transverse in dorsal view; pronotal disc evenly convex, smooth, rather glossy, finely punctured; pronotal horn rather long, conspicuously slender, moderately narrowing towards apex, armed with 3–4 distinctly protruding lateral lobules on each side and wider, bilobed apical lobule; horn crest moderately raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; punctures in basal half of elytra rather coarse, deep, dot-like, with smooth margins.

Male characters (Elk falls, ZKDC). Elytra clearly modified apically, subtruncate, with rounded gland opening near distinctly protruding lateral angle; legs simple; abdominal sternum VII nearly simple, slightly flattened postero-medially, its posterior margin somewhat unevenly rounded in ventral view; tergum VIII forming narrow, arched sclerite, evenly rounded posteriorly, rather finely and sparsely setose; aedeagus as figured (Fig. 17).

Variation. Body length (δ / σ) 2.8–3.1 mm. Rather strongly variable in extent of dark markings of elytra; some specimens with posterior transverse reddish band reduced to a pair of small, rounded spots, but elytral apices always paler coloured.

Distribution. India: Tamil Nadu (KREKICH-STRASSOLDO 1913).

Remarks. KREKICH-STRASSOLDO (1913) described *Notoxus andrewesi* from a series of specimens deposited in the collection of H. L. Andrewes and in the NHMW (number not stated). It is known reliably only from the Nilgiri Hills in southern India. The records from Nepal and northern India (UHMANN 1990, TELNOV 2003, CHANDLER et al. 2007) are based on misidentified specimens (see Remarks under *N. noctivagus* and *N. inbasaliformis* sp. nov.).



Figs. 16–18. Aedeagus: 16 – *Notoxus ales* Telnov, 2007 (Ban Nape); 17 – *N. andrewesi* Kreckich-Strassoldo, 1913 (Kotagiri); 18 – *N. garuda* sp. nov. Scale (0.5 mm): A – Fig. 16; B – Figs. 17, 18.

Notoxus garuda sp. nov.

(Fig. 18)

Type locality. Thailand, Nakhon Ratchasima Province, Pak Chong.

Type material. HOLOTYPE: ♂, 'THAILAND, Khorat, Pakchong, Musi, Vil. 9, Khlong Yai VII-15-69; u.v. light G. Ballmer // UCRC // *Notoxus inbasalis* Pic det. G. Uhmman 1984' (USNM).

Description. Male (holotype). Body length 3.3 mm. Body largely brown, pronotal horn and posterior collar partly reddish; elytra with distinct paler markings: two rather wide transverse bands, narrowly interrupted on suture, vaguely touching lateral margins; elytral apices dark coloured. Legs and antennae dark brown, at places with reddish tinge. Pronotal disc rather distinctly, evenly punctured. Elytra moderately glossy; punctures in basal half mostly rather coarse, moderately larger than those on pronotum, distinctly spaced, dot-like with smooth margins. Body setation conspicuous, mostly subdecumbent, with numerous longer, suberect to erect setae, conspicuously long on pronotum antero-laterally. Antebasal setose band of pronotum widely interrupted dorso-medially.

Head with medium-sized eyes; tempora nearly straightly narrowing posteriad. Antennae moderately long, moderately enlarged in terminal third. Pronotum nearly 1.2 times as wide as head across eyes, rather globose in dorsal view. Pronotal horn moderately long and slender, slightly narrowing towards apex, armed with 3 distinct separate lobules laterally on each side, its wider apical and subapical lobules nearly fused; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins very feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; dorsal surface evenly and rather densely covered by distinct rounded rugules. Elytra twice as long as wide; humeri distinctly protruding; omoplates and postbasal impression moderately indicated; elytral apices modified, subtruncate, with rounded gland opening near distinctly protruding lateral angle. Abdominal sternum VII nearly simple, its posterior margin slightly emarginate medially in ventral view. Legs simple. Tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 18).

Female. Unknown.

Differential diagnosis. *Notoxus garuda* sp. nov. is externally similar to *N. ales* (Fig. 83), but differs by somewhat more slender body and darker colouration (no reddish tinge on elytral base and pronotum). It can be easily recognized by the morphology of the aedeagus (cf. Figs. 18 *versus* 16).

Etymology. Named after the Garuda, a bird-like creature from both Hindu and Buddhist mythology, featured as the national symbol of Thailand. Noun in apposition.

Distribution. Thailand.

Notoxus inbasaliformis sp. nov.

(Figs. 19, 59)

Type locality. India, Assam, North Cachar Hills District, Mount Borail, Jatinga riverside, 25°07'12" N, 93°02'06" E, 650 m a.s.l.

Type material. HOLOTYPE: ♂, 'INDIA: Assam, North #11e Cachar Hills dist. Mt Borail Jatinga River trail 650 m, 22.x.2005, 25°07'12" N; 93°02'06" E // under stones #11e on river bank leg. G. Cuccodoro & A. Marleta' (MHNG). PARATYPES: 1 ♂ 3 ♀♀, same data as holotype (MHNG, ZKDC).

Additional material examined. NEPAL: KOSI ZONE: 1 ♀, Sankhua Sabha Distr., Arun valley bottom between Hedangna and Num, 950–100 m, 6–8.vi.1988, J. Martens & W. Schawaller leg. (SMNS).

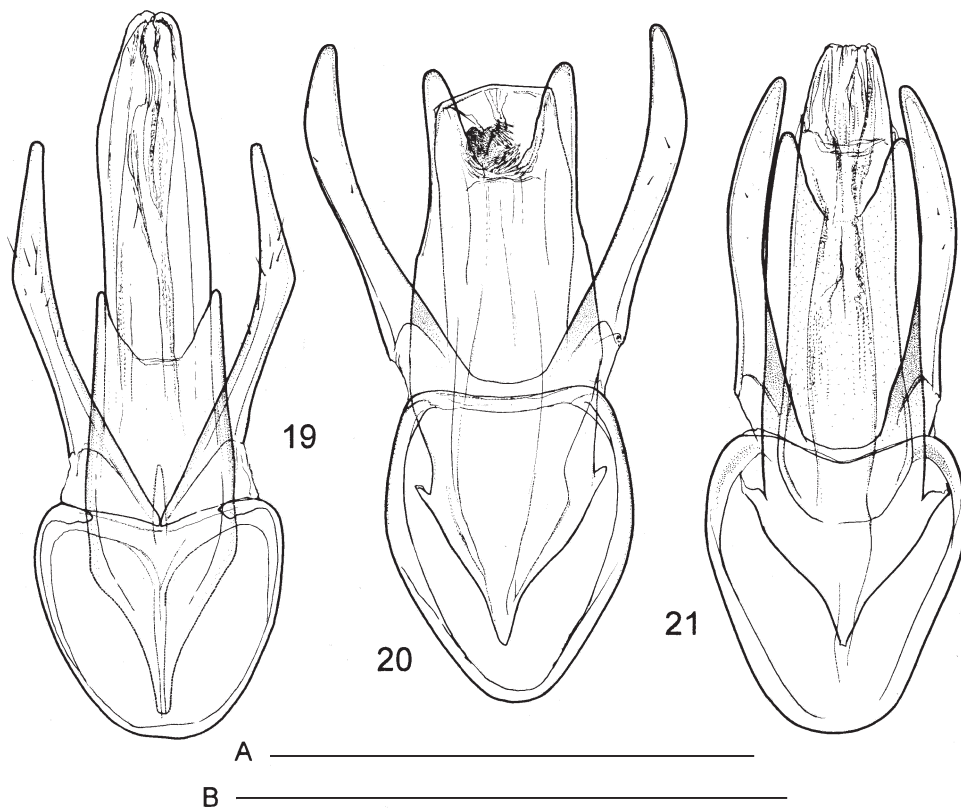
Description. Male (holotype). Body length 3.9 mm. In external characters identical with *N. inbasalis* (see below). Aedeagus as figured (Fig. 19).

Female. Differing from male by simply rounded elytral apices.

Variation. Body length (♂♀) 3.9–4.6 mm. Pronotal horn with 3–4 distinct lobules laterally on each side; apical lobule bilobed to widely unevenly rounded.

Differential diagnosis. *Notoxus inbasaliformis* sp. nov. is undoubtedly very close to *N. inbasalis*. It can be distinguished from the latter species only by longer median lobe of the aedeagus, with apex distinctly exceeding dorsal plate, and laterally moderately angled parameres (cf. Figs. 19 versus 20, 21). It may externally slightly resemble *N. andrewesi* from southern India, but differs by its larger size, more robust body, much denser and coarser punctation of the pronotal disc and elytra, and by the morphology of the male aedeagus.

Etymology. Composed from *inbasalis* and suffix *-formis* (having the shape of); named in reference to the overall similarity with *N. inbasalis*.



Figs. 19–21. Aedeagus: 19 – *Notoxus inbasaliformis* sp. nov.; 20–21 – *N. inbasalis* Pic, 1926: 20 – syntype; 21 – specimen from Soppong. Scale (0.5 mm): A – Fig. 19; B – Fig. 20, 21.

Distribution. India: Assam; Nepal.

Remarks. An additionally examined female specimen from Nepal bears an identification label '*Notoxus andrewesi*' by G. Uhmann (UHMANN 1990).

***Notoxus inbasalis* Pic, 1926**

(Figs. 20, 21, 86)

Notoxus inbasalis Pic, 1926: 14.

Type locality. Northern Vietnam, Hoa Binh [province and city, southwest of Hanoi].

Type material examined. SYNTYPES: 1 ♂, 'Hoa Binh Tonkin de Cooman [p, handwritten 64 on bottom side] // n sp [h] // inbasalis nsp [h] 13 [p]' (MNHN); 1 ♂, the same locality label (including handwritten data), in addition: '64 [h] // [plain label]' (MNHN).

Additional material examined. LAOS: 2 ♀♀, Luang Prabang Prov., 5 km W of Ban Song Cha, 20°33–4'N 102°14'E, 24.–30.iv.1999, V. Kubáň leg. (NHMB). THAILAND: MAE HONG SON PROVINCE: 1 ♂, Soppong, 19°29'N 98°18'E, 13.v.1993, L. Bocák leg. (ZSMC).

Redescription. *Male* (syntype). Body length 4.2 mm. Head and pronotum largely brown black, pronotal horn and posterior collar with reddish tinge; elytra dark reddish, with black markings as in Fig. 86: wider transverse spots / bands at mid-length and subapically, vaguely connected along suture. Legs and antennae reddish.

Body only moderately glossy; pronotal disc rather coarsely and very densely, evenly punctured, dorso-lateral punctures nearly contiguous; punctures in basal half of elytra conspicuous, distinctly larger / coarser than those on pronotum, simple, dot-like, with smooth margins, rather densely spaced. Body setation conspicuous, mostly subdecumbent; pronotum with numerous conspicuously long, erect setae, especially antero-laterally; elytra with numerous, moderately longer suberect to erect setae; tibiae with long, raised setae on outer side. Antebasal setose band of pronotum conspicuous, widely interrupted medially.

Head wide, with medium-sized eyes. Antennae only moderately enlarged in terminal third. Pronotum 1.1 times as wide as head across eyes, globose in dorsal view. Pronotal horn rather short, slender, slightly narrowing towards apex, with 3–4 lateral lobules on each side and wider, distinctly bilobed apical lobule; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins marked by series of coarser separate lobules; dorsal surface rather evenly and densely covered by distinct rounded rugules. Elytra 1.8 times as long as wide; humeri distinctly protruding; omoplates and postbasal impression moderately indicated; elytral apices distinctly modified, subtruncate, with rounded gland opening and notch on / near distinctly produced, lateral angle. Legs simple. Abdominal sternum VII simple, its posterior margin evenly rounded. Tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 20).

Female. Externally differing from male by simply rounded elytral apices.

Variation. Body length (♂♀) 3.8–4.2 mm. Base of elytra sometimes moderately darkened. The specimen from Thailand differs in the pronotal horn characters as follows: lobules of horn margins smaller, 3–5 on each side, subapical and apical lobules nearly fused; lobules of horn crest margins distinctly coarser, resembling rather longitudinal rugules.

Differential diagnosis. *Notoxus inbasalis* is characterized by a robust body, and by the very densely and coarsely punctured elytra (basal half) and pronotum (punctures nearly contiguous,

especially dorso-laterally). It shares these characters with *N. inbasaliformis* sp. nov., but differs in the detailed morphology of the aedeagus (cf. Figs. 20, 21 *versus* 19).

Distribution. Vietnam (Pic 1926), Laos, Thailand.

Remarks. Pic (1926) described *Notoxus inbasalis* from an unstated number of specimens collected in northern Vietnam ('Tonkin'). The apex of the median lobe of the dissected syntype is retracted and thus strongly deformed (cf. Figs. 20 *versus* 21).

***Notoxus impavidus* sp. nov.**

(Figs. 22, 53, 73)

Type locality. Laos, Vientiane Province, Phou Khao Khouay National Park, Tad Leuk, 18°23'N, 103°04'E, 150–200 m a.s.l.

Type material. HOLOTYPE: ♂, 'LAOS central, Saisombun zone PHOU KHAO KHOUAY Nat. Park TAD LEUK 18°23'N, 103°04'E 15.–21.V.2001, alt. 150–200 m E. Jendek & O. Šauša leg.' (NMPC). PARATYPES: 16 ♂♂ 3 ♀♀, same data as holotype (ZKDC, 1 spec. each in BMNH, DCDC, MHNG, MNHN, NHMB, ZMHB); 1 ♂, 'LAOS centr., Khammouan pr., BAN KHOUN NGEUN vill. env., 17.v.–6.vi.2007, ~ 300 m, M. Štrba leg.' (ZKDC); 8 ♂♂, 'C-LAOS: Prov. Viangchan Phou Khao Khouay NP Nam Leuk env. Tad Leuk Waterf. // 1.-8.6.1996, 200m at light leg. Schillhammer (15a) // *Notoxus inbasalis* Pic det. G. Uhmman 1998' (NHMW, ZSMC).

Description. Male (holotype). Body length 3.5 mm. Head and pronotum reddish brown. Elytra brown, with reddish tinge basally, with indication of two vaguely outlined, transverse, pale reddish bands. Legs and antennae reddish.

Body only moderately glossy, rather finely, densely and evenly punctured; pronotum with some scattered coarser punctures; punctures of elytra rather fine but distinct (Fig. 73), slightly coarser than those on pronotum, simple, with smooth margins. Body setation mostly subdecumbent; pronotum with numerous conspicuously long, erect setae, especially antero-laterally; elytra with numerous, moderately longer suberect to erect setae. Antebasal setose band of pronotum conspicuous, widely interrupted medially.

Head with rather large eyes. Antennae long, only moderately enlarged in terminal third. Pronotum 1.1 times as wide as head across eyes, globose in dorsal view. Pronotal horn moderately long, slender, largely subparallel, with continuously fringed apical margins and 3 lateral lobules on each side, becoming distinctly smaller towards horn base; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly separate lobules / rugules; dorsal surface rather evenly and densely covered with distinct rounded rugules. Elytra 1.9 times as long as wide; humeri distinctly protruding; omoplates and postbasal moderately indicated; elytral apices distinctly modified, subtruncate, with rounded gland opening near distinctly produced lateral angle. Legs simple. Abdominal sternum VII moderately impressed postero-medially, its posterior margin somewhat unevenly rounded. Tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 22).

Female. Externally differing from male by simply rounded elytral apices.

Variation. Body length (♂♀) 3.2–3.6 mm. Moderately variable in width of pronotal horn; its lateral margins with 2–4 distinct lobules on each side.

Differential diagnosis. *Notoxus impavidus* sp. nov. shares long bifurcate dorsal plate of the tegmen of the aedeagus with *N. ales* and *N. garuda* sp. nov., but differs by somewhat paler

body colouration (dark markings of elytra less distinct, vaguely outlined), rather fine and dense punctation of the elytra (Fig. 73), and by the morphology of the aedeagus.

Etymology. From the Latin, *impavidus* (fearless, intrepid); named in reference to the location of the type locality in the former Saisomboun special zone, administered by military forces.

Distribution. Laos.

Notoxus kathapa sp. nov.

(Figs. 23–26, 85)

Type locality. Myanmar, Sagaing Division, Alaungdaw Katthapa National Park, 22°19.113'N 94°28.518'E, about 350 m a.s.l.

Type material. HOLOTYPE: ♂, 'MYANMAR: Sagaing Division Alaungdaw Katthapa NP 22°19.113'N 94°28.518'E 3.-13.5.2003, ca. 350 m, light, leg. Boukal & Schillhammer (101)' (NHMW).

Description. Male (holotype). Body length 3.1 mm. Head and pronotum reddish brown. Elytra somewhat paler, with rather vague brownish markings (Fig. 85); triangular basal spot, paired subapical spots and transverse band at about mid-length, vaguely connected along suture and forming cross-shaped marking. Legs and antennae reddish.

Head finely, pronotum rather coarsely, evenly punctured. Elytra rather glossy; basal half punctation similar to that on pronotum dorsally, punctures very coarse, distinctly spaced. Body setation rather long and conspicuous, mostly subdecumbent to decumbent; pronotum with numerous conspicuously long, suberect to erect setae, especially antero-laterally; setation of elytra generally somewhat more raised, decumbent, with numerous, moderately longer, suberect setae. Head vertex, except of long erect setae, with a paired row of short, thick spines articulated along lateral carinae. Antebasal setose band of pronotum sparse and inconspicuous.

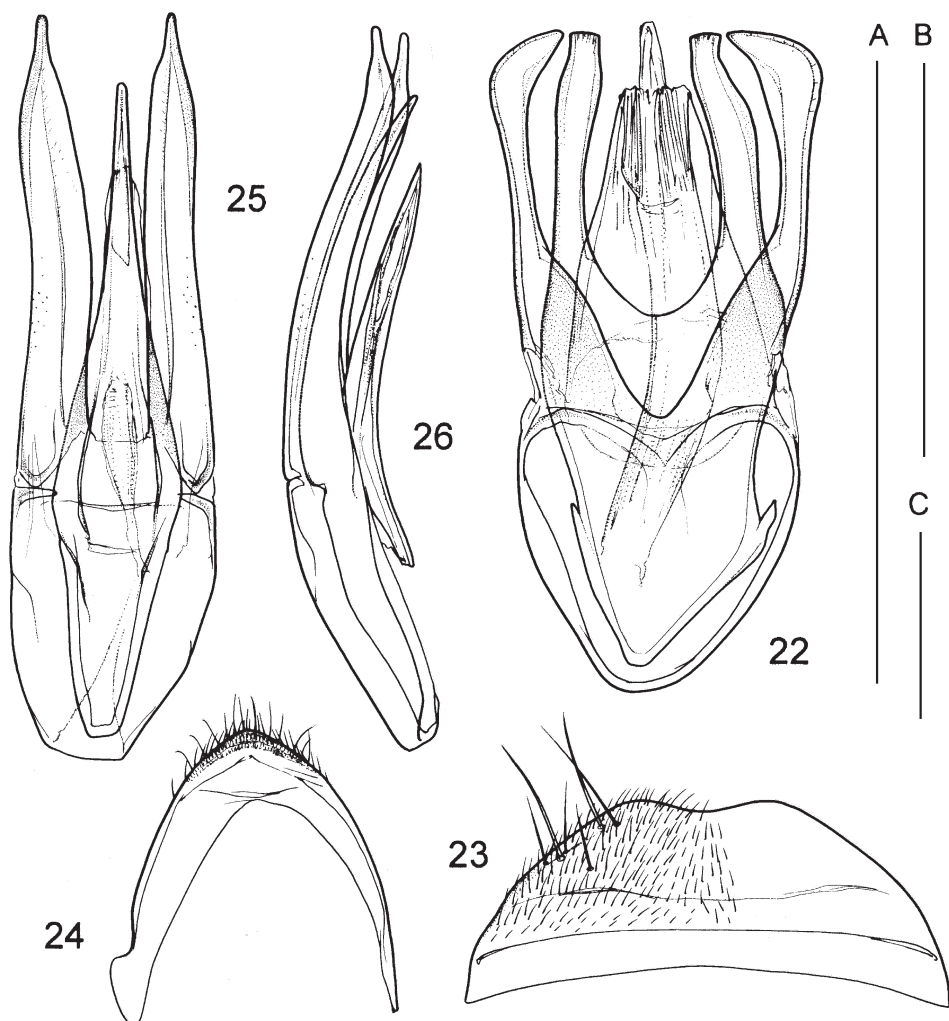
Head with rather medium-sized eyes. Antennae moderately long, only moderately enlarged in terminal third. Pronotum nearly as wide as head across eyes, rather globose in dorsal view; transverse sulcus / impression of posterior collar shortly wrinkled. Pronotal horn moderately long and slender, largely subparallel, armed with 3–4 distinctly protruding lateral lobules on each side and simple, moderately wider apical lobule; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins rather distinctly marked by series of somewhat coarser, contiguous to fused lobules / rugules (forming short, crenulate fringe); dorsal surface evenly and rather densely covered with distinct rounded rugules. Elytra 2.1 times as long as wide; humeri distinctly protruding; omoplates moderately indicated and postbasal impression nearly indistinct; elytral apices simple. Legs simple. Abdominal sternum VII moderately emarginate postero-medially (Fig. 23). Tergum VIII slightly angulately produced apically (Fig. 24). Aedeagus as figured (Fig. 25, 26).

Female. Unknown.

Differential diagnosis. *Notoxus kathapa* sp. nov. is well-characterized by the simple elytral apices in males, vague markings of elytra, narrow pronotal horn with conspicuous lobules on margins, and coarse punctation of both the elytra and pronotal disc.

Etymology. Named after the type locality. Noun in apposition.

Distribution. Myanmar.



Figs. 22–26. 22 – *Notoxus impavidus* sp. nov., aedeagus. 23–26 – *N. katthapa* sp. nov.: 23 – sternum VII; 24 – tergum VIII; 25 – aedeagus in dorsal view; 26 – the same, lateral view. Scale (0.5 mm): A – Figs. 22, 23; B – Figs. 25, 26; C – Fig. 24.

Notoxus noctivagus Krekich-Strassoldo, 1913

(Figs. 27–30, 61, 62)

Notoxus noctivagus Krekich-Strassoldo, 1913: 133, Fig. 4.

Notoxus peregrinus Krekich-Strassoldo, 1914b: 215, Fig. 1, **syn. nov.**

Type localities. *Notoxus noctivagus*: ‘Bengalen’ and ‘Ganges-Delta’ [= Bangladesh + India: West Bengal]. *Notoxus peregrinus*: India: West Bengal, Calcutta.

Type material examined. SYNTYPE: *Notoxus noctivagus*: 1 ♀, 'Bengalen [h] // TYPE [p; red label] // coll. Heberdey [p] // noctivagus det.v.Krekich [p+h] // noctivagus Krek. [h; black frame, ochraceous label]' (NHMW).

Additional material examined. BANGLADESH: 8 ♂♂ 4 ♀♀, Dinajpur, viii.1969, Barbe leg. (coll. Bonadona, MNHN). **INDIA: UTTARAKHAND:** 3 ♂♂, Haldwani Distr., Kumaon [no date], H. G. Champion leg. (NHMW); 3 ♂♂ 1 ♀, Rishikesh, viii.1988, Werner leg. (ZKDC); 1 ♂, same data, except, vii.1992 (ZKDC); 1 ♂, same data, except: 2.–4.vii.1989, A. Riedel leg. (SMNS); 6 ♂♂, same data, except: 6.viii.1989, A. Riedel leg. (ZKDC, ZSMC); 2 ♂♂ 1 ♀, same data, except: at light, 350 m, 5.–7.viii.1989, Hiermeier leg. (ZKDC, ZSMC). **MAHARASHTRA:** 1 ♂, ca 30 km W of Karad, Patan env., 17°22'N 73°54'E, 570 m, swept near river bank, 12.vi.2006, Z. Kejval leg. (ZKDC). **KARNATAKA:** 10 ♂♂ 17 ♀♀, Shimoga [distr. / city; no date / collector] (MNHN). **NEPAL: BHERI ZONE:** 4 ♂♂ 6 ♀♀, Nepalgunj, Batika Hotel, 28°02.59'N 81°36.56'E, 230 m, lux, 18.vi.1999, M. Hartmann leg. (NKME); 2 ♂♂ 2 ♀♀, same locality data, 200 m, 30.v.1997 (NKME); 2 ♂♂, Bake, Nepalganj, 28°05'51"N 81°41'13"E, 140 m, riverside, 14.vi.2007, M. Hartmann leg. (NKME). **Gandaki Zone:** 1 ♂, Kaski district, Bagnas lake, 780 m, at light, 11.x.1994, G. Csorba & L. Ronkay leg. (HNHM). **KOSI ZONE:** 1 ♂, Arun valley, Dholikhorka-Mongmaya, 1250–400 m, 1.vi.1988, J. Probst leg. (ZKDC). **MAHAKALI ZONE:** 13 ♂♂ 14 ♀♀, Kanchanpur Mahendranagar, 28°58'13"N 80°11'01"E, 210 m, 2.vii.2009, M. Hartmann leg. (NKME). **NARAYANI ZONE:** 1 ♂ 1 ♀, Suaraha, Rapti riverside, 27°34'80"N 84°29'49"E, 180 m, 18.iv.2000, A. Weigel leg. (NKME); 2 ♂♂, same locality data, 27°34'29"N 84°29'55"E, 150 m, 16.–18.vi.2007, M. Hartmann leg. (NKME); 1 ♂, Rapti river valley, Jhawani, 200 m, v.1967, Dierl, Forster & Schacht leg. (ZSMC); 14 ♂♂ 2 ♀♀, Chitwan Distr., Chitwan National Park, Sauraha, 150 m, 31.v.–4.vi.1997, W. Schawaller [or M. Hauser] leg. (SMNS, ZSMC); 2 ♂♂ 1 ♀, Chitwan Distr., Chitwan National Park, Sauraha-Thati-Bagh Mara, 200–500 m, 17.–21.v.1996, P. Čechovský leg. (ZKDC); 1 ♀, Chitwan National Park, Sauraha village, 27°35'N 84°30'E, 160 m, at light, 21.–27.vii.2000, J. Schneider leg. (ZKDC); 1 ♀, same data, J. Farkač leg. (NHMB). **PAKISTAN: PUNJAB:** 2 ♂♂, 70 km S of Lahore, Changa Manga forest, 18.–22.viii.1988, L. Čížek leg. (ZKDC).

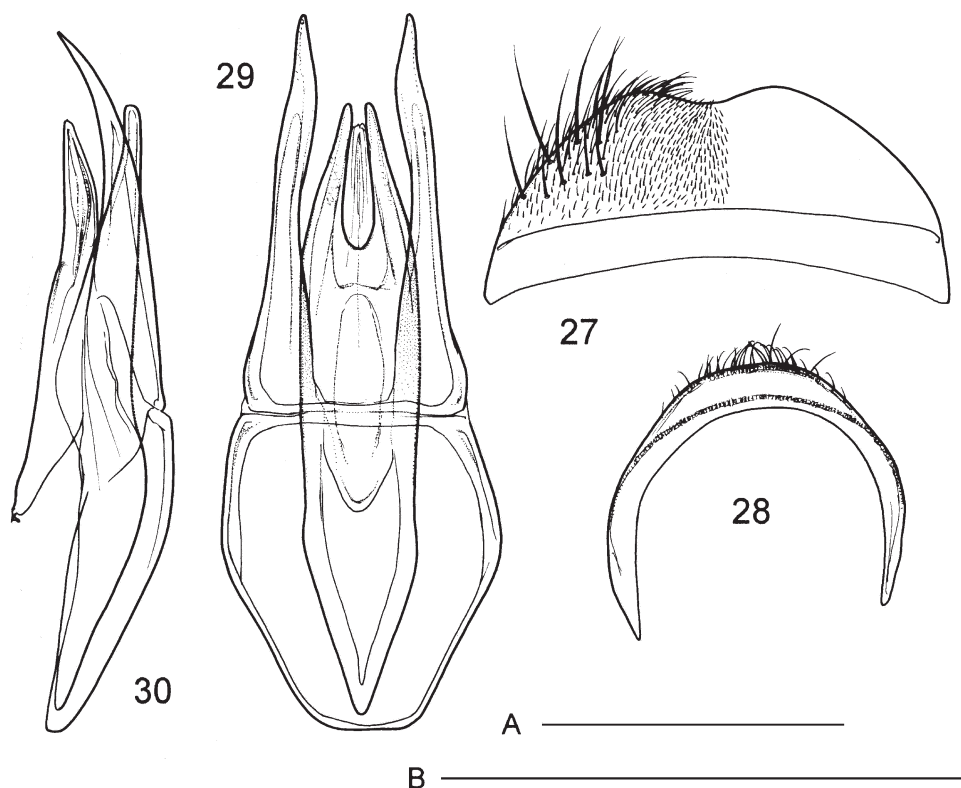
Diagnosis. Small to medium-sized, moderately elongate species; body reddish to reddish brown, usually with distinct dark markings on elytra (see Variation below); head wide, with large eyes; tempora strongly and nearly evenly narrowing posteriad; pronotal disc evenly convex, distinctly punctured; pronotal horn moderately long, mostly rather robust / wide (variation) with wider apical and smaller lateral lobules on margins; horn crest at most very slightly indicated, dorsal surface of horn rather evenly vaulted and densely covered with distinct rugules; punctuation in basal half of elytra rather distinct, punctures dot-like, simple, with smooth margins.

Male characters (Dinajpur, MNHN). Elytra clearly modified apically, slightly subtruncate in dorso-caudal view, with distinct gland opening near rather moderately indicated lateral angle; legs simple; abdominal sternum VII moderately emarginate postero-medially (Fig. 27); tergum VIII forming simple arched sclerite (Fig. 28); aedeagus as figured (Figs. 29, 30).

Variation. Body length (♂♀) 2.9–3.9 mm. Rather variable in prominence of dark markings of elytra (cf. Figs. 61 versus 62); basal / humeral, lateral and subapical spots may be interconnected, forming conspicuous cruciform marking, or separate and reduced, with subapical spot completely absent. Rather variable in proportions of pronotal horn, its lateral margins with 3–5 lobules; apical lobule may be narrow, evenly shaped or wide, asymmetrical and partly fused with one of subapical lobules.

Distribution. Bangladesh (BONADONA 1978), India: West Bengal, Uttarakhand, Uttar Pradesh, Himachal Pradesh, Maharashtra; Nepal (UHMANN 1983; KREKICH-STRASSOLDO 1913, 1928; TELNOV 2003; mostly as *N. peregrinus*); Pakistan.

Remarks. KREKICH-STRASSOLDO (1913) described *N. noctivagus* from two female syntypes, originating from different localities and collections: 'Bengalen' (NHMW), 'Ganges-Delta' (Indian Museum in Calcutta). Its species identity is fixed herein by description of the male



Figs. 27–30. *Notoxus noctivagus* Krekich-Strassoldo, 1913 (Dinajpur): 27 – sternum VII; 28 – tergum VIII; 29 – aedeagus in dorsal view; 30 – the same, lateral view. Scale (0.5 mm): A – Figs. 27, 28; B – Figs. 29, 30.

characters. The relevant male specimen, originating from a longer series collected in Bangladesh (BONADONA 1978), agrees perfectly with the examined syntype.

As stated by KREKICH-STRASSOLDO (1914), *N. peregrinus* was described from a single male specimen collected at light in Calcutta and deposited in the Indian Museum in Calcutta. One of the above listed three specimens from northern India (Uttarkhand, Kumaon), deposited in Krekich-Strassoldo's collection in the NHMW, bears a red type label. It is surely not a type, but probably additional specimen used by KREKICH-STRASSOLDO (1928) for subsequent description of the male characters and variability in colouration.

I have not attempted at examination of the holotype of *N. peregrinus*. The newly proposed synonymy is based on examination of male specimens from various localities and regions. They were found to be identical with the figures provided by KREKICH-STRASSOLDO (1914b, 1928).

The specimen collected by A. Riedel in Rishikesh (SMNS) bears an identification label '*Notoxus andrewesi*' by G. Uhmman.

***Notoxus peguensis* Pic, 1914**

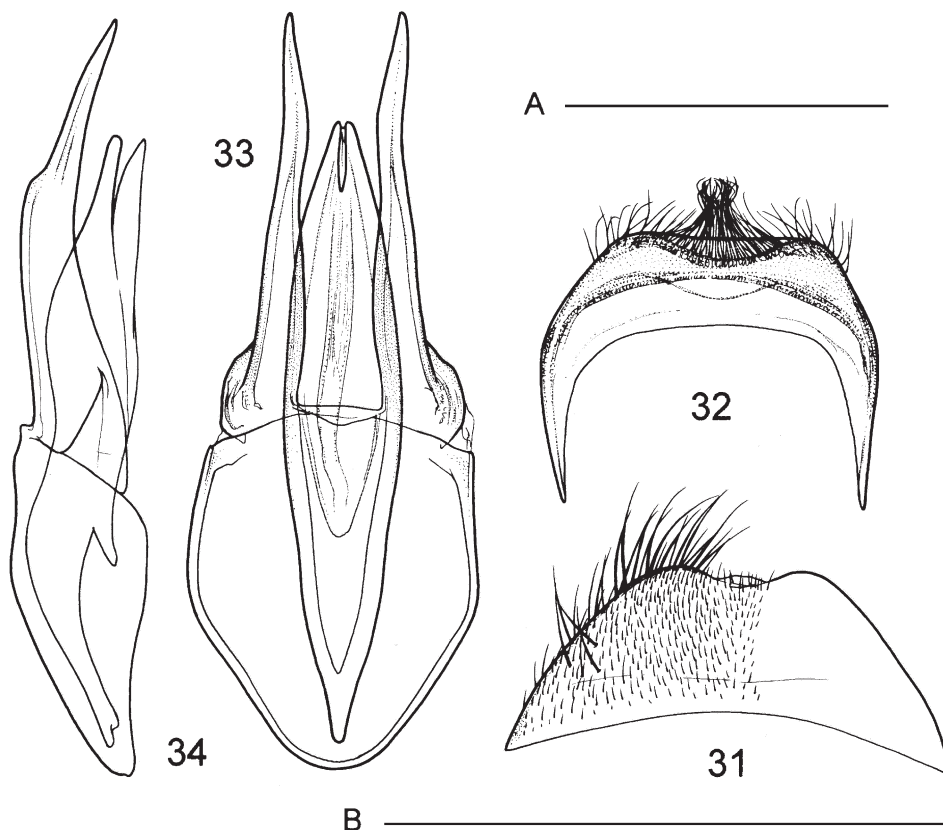
(Figs. 31–34, 65)

Notoxus peguensis Pic, 1914: 19.**Type locality.** Myanmar, Bago Division, Bago (see below).**Type material.** NEOTYPE, ♂ [torso, lacking head and pronotum], ‘Pegu [p] // *Notoxus distigma* ? Fairm [h] // distigma [h; partly illegible] // *Notoxus peguensis* Pic, 1914 NEOTYPE Z. Kejval des. 2011 [p; red label]’ (coll. Pic, MNHN).**Additional material examined.** MYANMAR: BAGO DIVISION: 1 ♀, ‘Pegu [p] // *distigma* Fairm [h]’ (MNHN). KACHIN STATE: 3 ♂♂ 1 ♀, Myitkyina, Sumpra Hotel, at light, 26.–27.v.1999, R. Schuh & H. Schillhammer leg. (NHMW, ZKDC).**Redescription.** *Female* (Bago, MNHN). Body length 3.6 mm. Head and pronotum reddish; elytra pale reddish, somewhat darker on suture and with paired, vaguely outlined dark brown spot dorso-laterally close behind mid-length. Legs and antennae reddish.

Head and pronotum rather densely punctured. Elytra moderately glossy, punctures in basal half somewhat coarser and distinctly sparser than those on pronotum, dot-like, with smooth margins. Body setation mostly moderately long, subdecumbent to decumbent; pronotum with numerous, distinctly longer erect setae; setation of elytra generally somewhat more raised, decumbent in basal half, with numerous, longer, more raised setae, especially posteriorly. Antebasal setose band of pronotum widely interrupted dorso-medially.

Head wide, with large eyes; tempora strongly and nearly evenly narrowing posteriad; pronotal disc evenly convex; pronotal horn moderately long, rather robust / wide, with wider apical and 3–4 distinctly spaced lateral lobules laterally on each side; horn crest at most very slightly indicated posteriorly, dorsal surface of horn rather evenly vaulted and densely covered by distinct rugules. Elytra conspicuously elongate, 2.2 times as long as wide; humeri distinctly protruding; omoplates and postbasal impression indistinct; elytral apices simply rounded.

Male (neotype). Elytral apices clearly modified, truncate, gland opening quite distinct, situated near protruding apical tubercle as in Fig. 65. Legs simple. Abdominal sternum VII moderately emarginate postero-medially; tergum VIII widely rounded in dorsal view, its posterior side impressed and conspicuously setose (Fig. 32); aedeagus as figured (Figs. 33, 34).**Variation.** Body length (♂♀) 3.1–3.3 mm.**Differential diagnosis.** *Notoxus peguensis* is undoubtedly very close to *N. noctivagus*, *N. suturalifer* and *N. sodalis* sp. nov., as suggested by similarity of male characters. It resembles especially *N. noctivagus* by rather moderately emarginate male sternum VII (cf. Figs. 31 versus 27) and apically strongly and evenly narrowed parameres (cf. Figs. 33 versus 29), but differs by less deep apical incision of tegmen and mainly by more robust, rather widely rounded, subapically impressed and conspicuously setose male tergum VIII (cf. Figs. 32 versus 28).**Distribution.** Myanmar (Pic 1914).**Remarks.** Pic (1914) described *N. peguensis* from an unstated number of specimens collected in or near Bago (formerly Pegu), which is the capital of the Bago Division in southern Myanmar. The only syntype found in Pic’s collection in MNHN bears the data: ‘Pegu Indes [h] // type [h] // TYPE [p; red label] // *peguensis* Pic [h]’. However, the specimen has been completely destroyed by pests (only small fragments of thoracic sternum and legs remain), and provides no useful identification characters.



Figs. 31–34. *Notoxus peguensis* Pic, 1913 (Bago): 31 – sternum VII; 32 – tergum VIII; 33 – aedeagus in dorsal view; 34 – the same, lateral view. Scale (0.5 mm): A – Figs. 31, 32; B – Figs. 33, 34.

Notoxus peguensis was described as follows (freely translated from French): ‘Rather elongate, setation longer and raised, yellowish brown with grey eyes, elytra with piceous black spots behind middle and before apex, suture vaguely brownish. Pronotum globose, pronotal horn rather robust, distinctly denticulate, granulose dorsally, horn crest indistinct, not raised; elytra not very long, subparallel, not truncate apically. Body length 4 mm. Close to *N. assamensis* Krek., less elongate and with different markings of elytra’ (Pic 1914). Pic’s description of the body colouration and the morphology of the pronotal horn (robust, granulose dorsally, with indistinct crest) support placement of *N. peguensis* near *N. suturalifer* and *N. noctivagus*. This is further confirmed by (i) fragments of the pronotum and elytra found in beetle debris gathered in the box corners, belonging most likely to the type, (ii) identity of another two male and female specimens from ‘Pegu’ pinned in the same box (these two specimens bear otherwise quite different labels and do not seem to belong to the type series).

There is no evidence of existence of other syntypes of *N. peguensis*. Moreover, since, members of the relevant species-group are rather uniform and difficult to recognize by external

characters, a neotype is designated from one of the above mentioned specimens from Pegu in order to stabilize the nomenclature of this genus according to Article 75.3.1 of the Code (ICZN 1999). These two specimens fully agree with the original description and bear the same locality data.

The neotype of *N. peguensis* bears a '*Notoxus distigma*' identification label. This Afrotropical species was described by FAIRMAIRE (1893) from an unstated number of specimens originating from Kayes in southwestern Mali of today. Searching Fairmaire's collection in MNHN, I was able to find only two female specimens mounted on quite identical cards (bold line near base), and labelled: '*Notoxus Distigma* Fairm Senegal [h]' or '*Notoxus distigma* Fairm. Badoumbe. [h].' Despite differences in the locality data, these specimens may represent syntypes of *N. distigma*, since FAIRMAIRE (1893) described some species also from Badoumbe which is located in the same region as Kayes. Having compared the type specimens of *N. distigma* and *N. peguensis*, I surprisingly failed to find any substantial external differences and had initial doubts about the origin of the specimens of the former species. However, *N. distigma* is surely native to western Africa, based on the presence of a closely related species, *N. pericarti* Bonadona, 1984 from Tchad ('Farcha, dans le Bas-Chari'). It may even be identical with this species, because the distinguishing characters given by BONADONA (1984), i.e. larger body-size, absence of humeral and apical dark spots on the elytra, are undoubtedly variable and useless for species identification; however, this question is beyond the scope of the present paper. Nevertheless, it seems that *N. noctivagus* species-group comprises both Oriental and Afrotropical species and displays a disjunct distribution.

Notoxus safraneki sp. nov.

(Figs. 35, 58, 87)

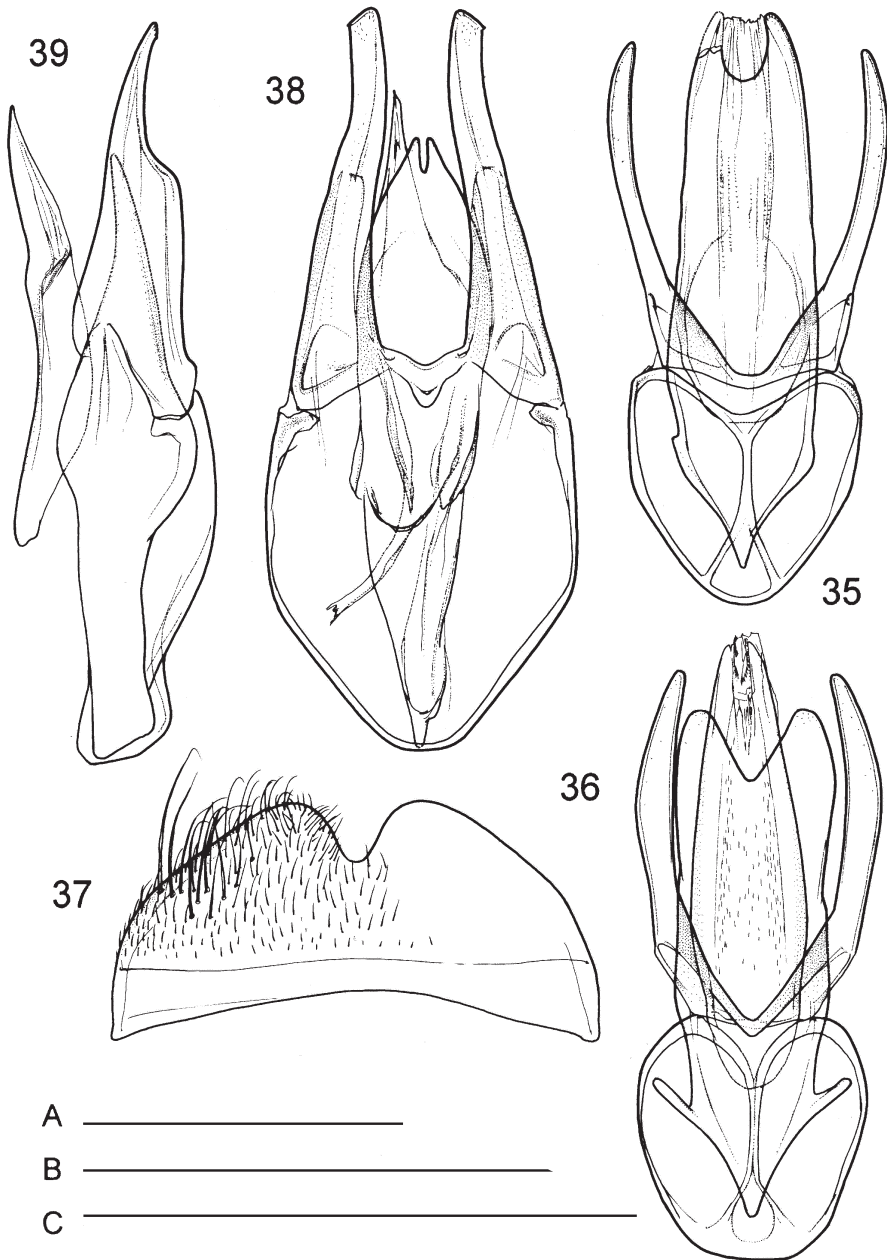
Type locality. Laos, Borikhan Province, 20 km north of Muang Pakxan, environs of Borikhan.

Type material. HOLOTYPE: ♂, 'LAOS – Borikhan prov., BORIKHAN env., 20 km N of Muang Pakxan, 16.–20.v.2003. O. Šafránek leg.' (NMPC). PARATYPES: 3 ♂♂, same data as holotype (ZKDC).

Description. *Male* (holotype). Body length 3.1 mm. Head and pronotum dark brown to brown black, pronotal horn somewhat paler, with reddish tinge. Elytra reddish, with distinct black markings (Fig. 87); subapical spots vaguely indicated, connected along suture with humeral spots; large lateral spots connected along lateral margins with humeral spots. Legs and antennae reddish.

Head and pronotum densely punctured, less glossy than elytra. Pronotum coarsely rugose antero-laterally, its punctation uneven, distinctly coarser and nearly contiguous dorso-medially, sparser and finer dorso-laterally. Elytra rather glossy; basal half punctures mostly very coarse, distinctly spaced. Body setation rather long and conspicuous, mostly subdecumbent to decumbent; pronotum with numerous conspicuously long, suberect to erect setae, especially antero-laterally; setation of elytra generally somewhat more raised, decumbent, with numerous, moderately longer, suberect setae. Antebasal setose band of pronotum widely interrupted dorso-medially.

Head with rather large and conspicuous eyes. Antennae moderately long, distinctly enlarged in terminal third. Pronotum slightly wider than head across eyes, rather globose in dorsal view. Pronotal horn moderately long and slender, narrowing towards apex, armed with 3–4



Figs. 35–39. 35 – *Notoxus safraneki* sp. nov., aedeagus. 36 – *N. sinensis* Pic, 1907 (Xishan), aedeagus. 37–39 – *N. sodalis* sp. nov.: 37 – sternum VII; 38 – aedeagus in dorsal view; 39 – the same, lateral view. Scale (0.5 mm): A – Fig. 37; B – Figs. 38, 39; C – Figs. 35, 36.

distinctly protruding lateral lobules on each side and simply rounded apical lobule (Fig. 58); horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins very feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; dorsal surface evenly and rather densely covered by distinct rounded rugules. Elytra 1.8 times as long as wide; humeri distinctly protruding; omoplates moderately indicated and postbasal impression nearly indistinct; elytral apices modified, subtruncate, with rounded opening of gland near distinctly protruding lateral angle. Legs simple. Abdominal sternum VII simple, evenly rounded posteriorly in ventral view. Tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 35; dorsal plate of tegmen partly abrupt apically).

Female. Unknown.

Variation. Body length (♂♀) 2.6–3.1 mm. Rather variable in prominence of dark markings on elytra. The markings may be rather vague, except for distinct lateral spots, or conspicuous, with lateral spots distinctly connected with median strip, forming cross-shaped marking.

Differential diagnosis. *Notoxus safraneki* sp. nov. can be easily recognized within the *N. noctivagus* species-group by the rather narrow pronotal horn with conspicuous lobules on the margins (Fig. 58), less elongate elytra with a distinct dark markings (Fig. 87), coarsely and densely punctured median strip of the pronotal disc, simple male sternum VII, and by detailed morphology of the aedeagus.

Etymology. Dedicated to its collector, Ondřej Šafránek (Jiřetín pod Jedlovou, Czech Republic), well-known Czech traveller and entomologist.

Distribution. Laos.

Notoxus sinensis Pic, 1907

(Figs. 36, 56, 89)

Notoxus sinensis Pic, 1907: 190.

Type locality. China, Yunnan.

Type material examined. SYNTYPES: 1 spec., ‘Yunnan [h] // type [h] // TYPE [p; red label] // *Notoxus sinensis* Pic [h]’ (MNHN); 1 ♀, ‘Yunnan Chine [h] // type [h] // *sinensis* Pic [h] Heberdey vidit 1930 [h]’ (MNHN).

Additional material examined. CHINA: YUNNAN: 5 ♂♂ 6 ♀♀, Yulongshan Mts., 27°00'N 100°12'E, 3200–2700 m, 24.vi.1993, V. Kubáň leg. (ZKDC); 2 spec. in ZSMC, NHMB); 1 ♀, Dali Bai Auton. Pref., 22 km NNE Dali, 25°53'02"N, 100°12'45"E, NE bank of Er Hai, 2010 m, ruderal field edge, plant refuse sifted, 12.vi.2007, M. Schülke leg. (ZMHB); 2 ♂♂ 11 ♀♀, Jizu Mts., 2300 m, 18.–20.vii.1995, Bolm leg. (NHMB); 1 ♂ 3 ♀♀, Xishan Mts., 24°57'N, 102°38'E, 2300 m, 19.v.1993, Bolm leg. (NHMB); 32 ♂♂ 34 ♀♀, Xishan, 2400 m, 30.vii.1995, Bolm leg. (NHMB); 2 ♂♂ 4 ♀♀, Yipinglang, 25°05'N, 101°53'E, 1800 m, 8.–10.vi.1993, Bolm leg. (NHMB).

Redescription. Male (Xishan, ZKDC). Body length 2.6 mm. Head and pronotum largely dark brown with reddish tinge, pronotal base paler. Elytra reddish with conspicuous brown black markings on elytra (Fig. 89); elytral apices reddish, posthumeral spot / band distinctly, posterior band vaguely touching lateral margins. Legs and antennae reddish.

Body moderately glossy; head and pronotum rather finely and densely punctured, elytra more coarsely punctured; punctures in basal half of elytra simple, dot-like, with smooth margins, distinctly spaced. Body setation very conspicuous, generally more raised, hirsute, mostly subdecumbent to decumbent, with numerous distinctly longer erect setae. Antebasal setose band of pronotum conspicuous, distinctly interrupted dorso-medially.

Body rather robust, less elongate. Head wide, with smaller eyes, its latero-basal outlines rounded in dorsal view. Antennae moderately long, rather robust, moderately enlarged in terminal third. Pronotum robust, globose, slightly wider than head across eyes. Pronotal horn moderately long, rather slender, slightly narrowing towards apex, armed with 4 small to distinct lateral lobules on each side and wider apical lobule (Fig. 56); horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; dorsal surface covered with distinct rounded rugules, especially anteriorly. Elytra rather oval in shape, 1.6 times as long as wide, clearly modified, slightly bulging subapically and subtruncate apically in dorso-caudal view, with rounded gland opening near distinctly protruding lateral apical angle; humeri somewhat rounded and less distinct / protruding, hind membranous wings reduced (brachypterous); omoplates and postbasal impression absent. Legs simple. Abdominal sternum VII evenly rounded posteriorly; tergum VIII forming simple, evenly arched sclerite. Aedeagus as figured (Fig. 36).

Female. Externally differing from male by simply rounded elytral apices.

Variation. Body length (♂♀) 2.4–3.0 mm. Moderately variable in colouration, such as prominence of markings on elytra.

Differential diagnosis. *Notoxus sinensis* can be easily separated from all Oriental species by its smaller size, robust body (wide head with smaller eyes, ovoid elytra with less prominent humeri), rather distinctive markings of the elytra, hirsute body setation, very slender pronotal horn, as well as by the male characters.

Distribution. China: Yunnan (PIC 1907, TELNOV 2005).

Remarks. PIC (1907) described *Notoxus sinensis* from an unstated number of specimens deposited in his collection. The additional specimens examined fully agree with the types.

Notoxus sodalis sp. nov.

(Figs. 37–39)

Type locality. Laos, Udomxay Province, Pak Beng, 19°53'37"N, 101°07'51"E, 450 m a.s.l.

Type material. HOLOTYPE: ♂, 'LAOS: S-UDOMXAI PROV. PAK BENG, 450 m N 19°53'37", E 101°07'51" 18–27.v.2001 Jiří KOLIBÁČ leg.' (NHMB). PARATYPES: 3 ♂♂, same data as holotype (NHMB, ZKDC); 1 ♂, 'Laos, Oudom Xay prov., MUANG PAKBENG env. 4.-8.v.2003 O. Šafránek lgt.' (ZKDC); 1 ♂, 'LAOS central, Saisombun zone PHOU KHAO KHOUAY Nat. Park TAD LEUK 18°23'N, 103°04'E 15.–21.V.2001, alt. 150–200 m E. Jendek & O. Šauša leg.' (ZKDC).

Additional material examined. LAOS: UDOMXAY PROVINCE: 6 ♀♀, Pak Beng, 19°53'37"N, 101°07'51"E, 450 m, 18.–27.v.2001, J. Kolibáč leg. (NHMB, ZKDC).

Description. Male (holotype). Body length 3.3 mm. Identical with *N. suturalifer* in most external and male characters (see below), differing only by detailed morphology of sternum VII (Fig. 37) and aedeagus (Figs. 38, 39).

Female (see Remarks). Externally differing from male by simply rounded elytral apices.

Variation. Body length (♂♀) 3.1–3.3 mm.

Differential diagnosis. *Notoxus sodalis* sp. nov. is undoubtedly very close to *N. suturalifer*, as suggested by the similarity of the male characters. It differs from the latter species as follows: postero-lateral sides of male sternum VII simple (lacking distinct submarginal edges;

cf. Figs. 37 *versus* 40), parameres of aedeagus with rather rounded apex and slight subapical lateral denticle in dorsal view, wider in basal half and rather rounded (not produced) at place of dorsal narrowing in lateral view (cf. Figs. 38, 39 *versus* 42, 43).

Etymology. From the Latin *sodalis* (companion, associate); named in reference to the overall similarity with the sympatric *Notoxus suturalifer*. Noun in apposition.

Distribution. Laos.

Remarks. The specimens of *N. sodalis* sp. nov. were collected in Pak Beng together with numerous specimens of *N. suturalifer* (see above). As I failed to find any substantial differences between females taken at this locality (including shape of styli), only males of *N. sodalis* sp. nov. were included in the type series. The six females listed above under additional material are tentatively associated with this species by their smaller size, and more extensive dark markings of the elytra.

Notoxus suturalifer Pic, 1932

(Figs. 40–43, 88)

Notoxus suturalifer Pic, 1932: 16.

Type locality. Northern Vietnam, northwest of Hanoi, Vietri, 21°18'07"N, 105°25'51"E.

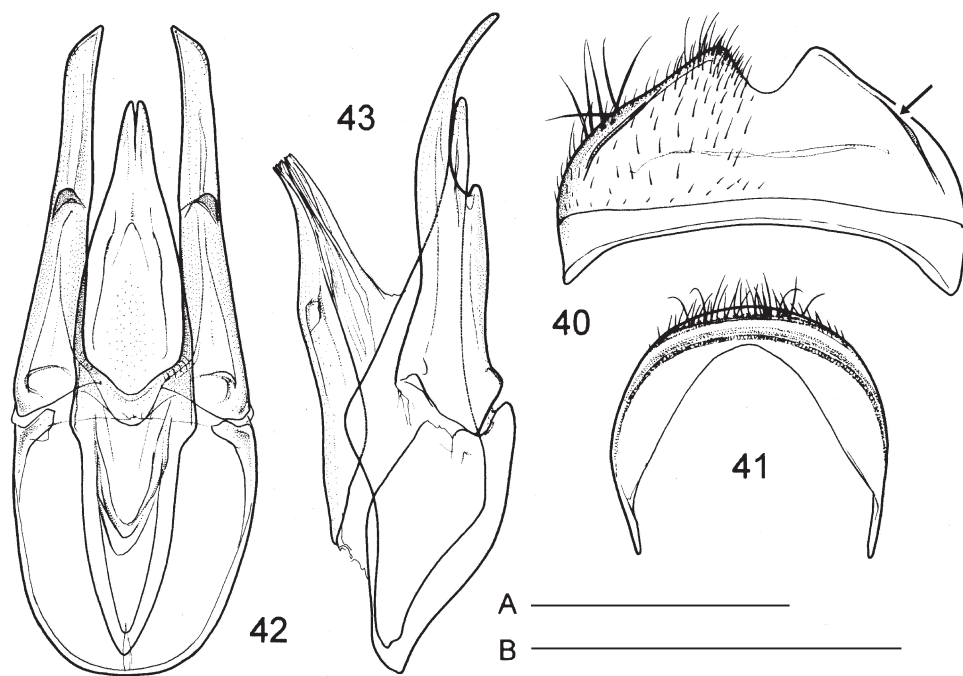
Type material examined. SYNTYPE: 1 ♀, 'Dr. Nodier Vietri [h; black frame] // Anthic. 27. [h] // suturalifer n sp. [h] // [plain label]' (coll. Pic, MNHN).

Additional material examined. **THAILAND: CHIANG MAI PROVINCE:** 1 ♂, Palong, 19°55'N 99°06'E, 750 m, 26.–28.v.1991, V. Kubán leg. (ZKDC); 1 ♂, 60 km W of Chiang Rai, Tha Ton env., 28.–30.iv.2003, O. Šafránek leg. (ZKDC); 1 ♀, Chiang Mai, 250 m, 24.–25.i.1989, Trautner & Geigenmüller leg. (SMNS). **CHUMPHON PROVINCE:** 3 ♂♂, Pha To env., 9°48'N 98°47'E, 27.iii.–14.iv.1996, K. Majer leg. (ZKDC); 2 ♂♂, 1 ♀, the same data, except: P. Průdek leg. (ZKDC). **MAE HONG SON PROVINCE:** 1 ♀, Mae Hong Son, Mae Nam cottage, along Pai river, 19°19'59"N 97°57'13"E, light trap, 21.xii.1997, W. Ullrich leg. (NHMB). **LAOS: LUANG PRABANG PROVINCE:** 1 ♂, Luang Prabang, light trap, 300 m, 4.–5.vi.1960, S. & L. Quate leg. (UCRC). **UDOMXAY PROVINCE:** 12 ♂♂ 2 ♀♀, Muang Pakbeng env., 4.–8.v.2003, O. Šafránek leg. (ZKDC); 59 ♂♂ 19 ♀♀, Pak Beng, 19°53'37"N 101°07'51"E, 18.–27.v.2001, J. Kolibáč leg. (NHMB, 5 spec. ZKDC). **VIENTIANE PROVINCE:** 1 ♂, Vientiane city, Mekong riverside, 17°57'N 102°36'E, 160 m, 4.v.2009, M. Geiser leg. (NHMB); 1 ♂, Saisombun zone, Phou Khao Khouay National Park, Tad Leuk, 18°23'N 103°04'E, 150–200 m, 15.–21.v.2001, E. Jendek & O. Šauša leg. (ZKDC). **MYANMAR: SAGAING DIVISION:** 6 ♂♂ 3 ♀♀, Alaungdaw Katthapa National Park, 22°19.113'N 94°28.518'E, ca. 350 m, light, 3.–13.v.2003, D. Boukal and H. Schillhammer leg. (NHMW, ZKDC); 1 ♂, Chatthin Wildlife Sanctuary, 23°32'05"N 95°38'53"E, ca. 200 m, at light, 5.–17.x.1998, Schillhammer leg. (NHMW). **VIETNAM:** 2 ♂♂ 4 ♀♀, Hanoi, Red river bank, 26.ix.1980, F. Hieke leg. (ZMHB, ZSMC, ZKDC).

Redescription. Male (Hanoi, ZKDC). Body length 4.1 mm. Body reddish, elytra slightly paler, with brown black markings: small paired spot on humeri and narrow, brownish median strip on suture as in Fig. 88. Legs and antennae reddish.

Head and pronotum densely punctured. Elytra rather glossy, punctures in basal half somewhat coarser and distinctly sparser than those on pronotum, dot-like, with smooth margins. Body setation mostly moderately long, subdecumbent to decumbent; pronotum with numerous, distinctly longer erect setae; setation of elytra generally somewhat more raised, decumbent in basal half, with numerous, longer suberect setae, especially posteriorly. Antebasal setose band of pronotum widely interrupted dorso-medially.

Head wide, with large eyes; tempora strongly and nearly evenly narrowing posteriorly; pronotal disc evenly convex; pronotal horn moderately long, rather robust / wide, with wi-



Figs. 40–43. *Notoxus suturalifer* Pic, 1932 (Hanoi): 40 – sternum VII; 41 – tergum VIII; 42 – aedeagus in dorsal view; 43 – the same, lateral view. Scale (0.5 mm): A – Figs. 40, 41; B – Figs. 42, 43.

der, distinctly bilobed apical lobule and 4 distinctly spaced lobules laterally on each side; horn crest at most slightly indicated posteriorly, dorsal surface of horn rather evenly vaulted and densely covered by distinct rugules. Elytra conspicuously elongate, 2.2 times as long as wide; humeri distinctly protruding; omoplates and postbasal impression nearly indistinct; elytral apices clearly modified, truncate, apical margin slightly concave, gland opening quite distinct, situated near slightly produced lateral angle. Legs simple. Abdominal sternum VII deeply emarginate postero-medially, its postero-lateral sides with distinct submarginal edge (Fig. 40, marked by arrow); tergum VIII forming simple, evenly arched sclerite; aedeagus as figured (Fig. 42, 43).

Female. Externally differing from male by simply rounded elytral apices.

Variation. Body length (σ° / ρ°) 2.9–4.5 mm. Rather variable in markings of elytra; darker specimens with additional conspicuous, paired lateral spot at about mid-length, vaguely connected along lateral margins with humeral spot and median strip, which may be (rarely) extended in apical third; elytra in paler specimens nearly unicoloured. Pronotal horn moderately variable in proportions (length, width), with 3–5 lobules laterally on each side, apical lobule may be somewhat asymmetrical or simple, evenly rounded.

Differential diagnosis. *Notoxus suturalifer* differs from the sympatric, externally very similar *N. sodalis* sp. nov. in the following male characters: postero-lateral sides of male sternum VII with sharp submarginal edges (cf. Figs. 40 *versus* 37), parameres of aedeagus with rather pointed simple apex (lacking subapical lateral denticle in dorsal view), narrower in basal half and with distinct process at place of dorsal narrowing in lateral view (cf. Figs. 42, 43 *versus* 38, 39).

Distribution. Vietnam (Pic 1932), Laos, Myanmar, Thailand.

Remarks. PIC (1932) described *Notoxus suturalifer* from an unstated number of specimens from Vietri in northern Vietnam. The redescription is based on a male specimen collected in the same region, externally identical with the examined female syntype.

Notoxus ravana species-group

Diagnosis. Elytral apices in males clearly modified; median lobe of aedeagus symmetrical, lacking distinct dorsal plate; parameres of aedeagus setose; latero-basal fovea of abdominal sternum III rather rounded, forming conspicuous, deep cavity.

Species included. *Notoxus brinckianus* Bonadona, 1986, *N. brunneorufus* Bonadona, 1989, *N. ravana* sp. nov., and *N. variabilis* Krekich-Strassoldo, 1913.

Remarks. The range of this group is confined to the Indian subcontinent (India, Sri Lanka) so far, and its members exhibit clear similarities (deep latero-basal fovea of abdominal sternum III, general morphology of aedeagus) with the Afrotropical fauna of the genus.

A key to species of the *N. ravana* species group

- 1(2) Pronotal disc evenly convex, lacking longitudinal groove and antebasal bulge; aedeagus as in Fig. 48. *N. variabilis* Krekich-Strassoldo, 1913
- 2(1) Pronotal disc with more or less distinct / long, median longitudinal groove (Fig. 52) and small antebasal median bulge, moderately protruding in lateral view (Fig. 49, marked by arrow).
- 3(4) Pronotal horn and its crest rather wide; horn margins largely continuously fringed, with a few inconspicuous lobules posteriorly on each side (Fig. 52); habitus and aedeagus as in Figs. 91, 46 and 47. *N. brunneorufus* Bonadona, 1989
- 4(3) Pronotal horn and its crest narrow; horn margins bearing distinct lobules.
- 5(6) Elytra dark with more or less extensive reddish markings (Fig. 90); elytra subtruncate apically, with large gland opening near distinctly produced apical tubercle; membranous part of male tergum VIII at most with microspines; aedeagus as in Figs. 44 and 45. *N. brinckianus* Bonadona, 1986
- 6(5) Elytra all dark; elytra in males somewhat flattened laterally in apical third and tapering, their lateral subapical margin slightly angled and with rounded gland opening at angle (Fig. 70); membranous part of male tergum VIII with patch of conspicuous spines (Fig. 50); aedeagus as in Fig. 51. *N. ravana* sp. nov.

***Notoxus brinckianus* Bonadona, 1986**

(Figs. 44, 45, 90)

Notoxus brinckianus Bonadona, 1986: 58, Figs. 3, 7, 9.**Type locality.** Sri Lanka, Eastern Province, 32 km northwest of Trincomalee, Kuchchaveli.**Type material examined.** PARATYPES: 2 specimens, 'Ceylon, E. Prov. Kuchchaveli 20 mls NW Trincomalee 9–10.II.62. Loc.60 [p] // swept along road in dry forest [p] // Lund University Ceylon Expedition 1962 Brinck-Andersson-Cederholm [p] // PARATYPE [p, red label] // *Notoxus brincki* s. sp P. Bonadona dét' [p+h; see Remarks]; 3 spec., the same data, except: 'under logs \ sandy ground'; 3 spec., the same data, except: 'under logs \ semi desert' (all in coll. Bonadona, MNHN). **Additional material examined.** SRI LANKA: 1 spec., Eastern Prov., Arugam Bay, 6.–9.i.1995, O. Mehl leg. (ZKDC); 1 spec., same data, except: 4.–11.vii.2003 (ZKDC); 1 spec., Pottuvil, 1.–12.vii.1983, O. Mehl leg. (ZKDC); 2 spec., Southern Prov., Hambantota area, 25.–29.xii.1994, O. Mehl leg. (ZKDC). INDIA: KERALA: 1 ♂, Alleppey, 8.–9.x.1991, R. Schuh leg. (ZSMC). TAMIL NADU: 1 ♀, Alagar Hills, 21 km N of Madurai, 28.ix.1985, C.W. & B. O'Brien leg. (ZSMC). KARNATAKA: 1 ♀, Bangalore, Chikkangalur, 1900, Tabourel [leg.] (MNHN).**Diagnosis.** Small, robust species; body dark coloured, elytra with more or less distinct paler markings (Fig. 90); pronotal disc with longitudinal median wrinkle, distinctly bulging postero-medially just before transverse antebasal sulcus; pronotal horn moderately long, slender, continuously fringed apically (three fused lobules), and with about 3 distinct, separate lobules laterally on each side; punctures in basal half of elytra rather fine and shallow, their margins finely sculptured (not quite smooth).

Male characters (Pottuvil, ZKDC). Elytra clearly modified apically, subtruncate, with large gland opening near distinctly produced lateral angle; legs simple; abdominal sternum VII simple; tergum VIII forming simple, evenly arched sclerite; aedeagus as figured (Fig. 44, 45), apex of median lobe with conspicuous tooth-like subapical process dorsally.

Variation. Body length (♂♀) 2.5–3.6 mm. Moderately variable in prominence of paler markings on elytra and shape (width) of pronotal horn; horn margins with 3–4 lobules laterally on each side. An extremely small male specimen from Arugambay (ZKDC) with partly reduced longitudinal wrinkle of pronotal disc (distinct only in posterior half) and extremely narrow pronotal horn with rather reduced dorsal rugules.**Distribution.** Sri Lanka (BONADONA 1986), India: Tamil Nadu, Kerala, Karnataka (UHMANN 1994 as *N. variabilis*).**Remark.** According to BONADONA (1986), the holotype (male) and 19 paratypes of *N. brinckianus* are deposited in ZILS (not examined). NARDI (2005) commented on the usage of different names, *N. brinckianus* and *N. brincki*, in the original description by BONADONA (1986), and fixed the former as the correct original spelling.***Notoxus brunneorufus* Bonadona, 1989**

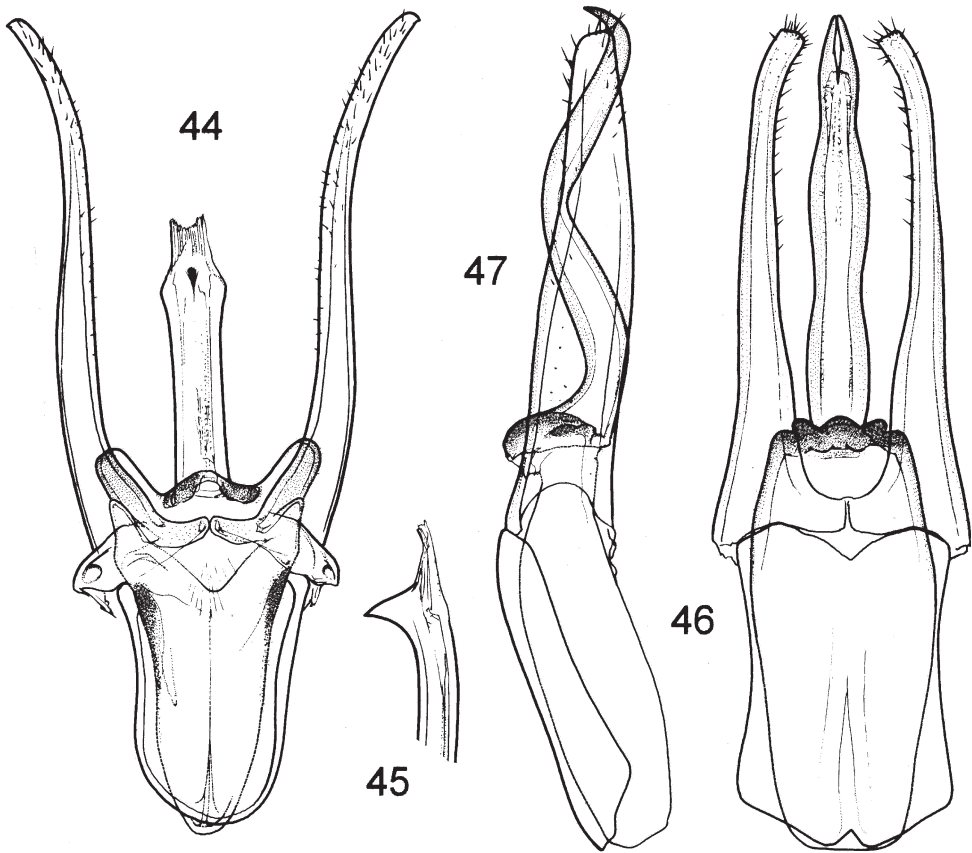
(Figs. 46, 47, 52, 91)

Notoxus brunneorufus Bonadona, 1989: 254, Figs. 1, 8.**Type locality.** India, Madhya Pradesh, Pachmarhi.**Type material examined** (also see below). PARATYPES: 7 ♂♂, 'INDE CENTRALE Satpura Hills Pachmarhi x.1970 Nathan leg. [h] PARATYPE [p, red label] // *Notoxus brunneorufus* n. sp P. Bonadona dét. [p+h]' (coll. Bonadona, MNHN; 1 spec. in ZKDC).

Additional material examined. INDIA: MADHYA PRADESH: 5 ♂♂, Pachmarhi, ix.1970, T. R. Nathan leg. (DCDC, ZKDC). RAJASTHAN: 1 ♂, Sariska National Park, 15.viii.1989, A. Riedel leg. (SMNS).

Diagnosis. Body reddish brown, elytra unicolorous; pronotal disc shallowly impressed at horn base, distinctly bulging postero-medially closely before transverse antebasal sulcus, and with longitudinal median groove; pronotal horn conspicuously robust, wide, its lateral margins nearly completely, continuously fringed, evenly convex, with single small lobule postero-laterally on each side; horn crest conspicuously wide, only slightly raised, but clearly marked laterally by series of contiguous rugules (Fig. 52); punctures in basal half of elytra rather fine, their margins finely sculptured (not quite smooth).

Male characters (Pachmarhi, ZKDC). Elytra clearly modified apically, subtruncate, with large gland opening near distinctly produced lateral angle; legs simple; abdominal sternum



Figs. 44–47. 44–45 – *Notoxus brinckianus* Bonadona, 1986 (Pottuvil): 44 – aedeagus in dorsal view, 45 – the same, apex of median lobe in lateral view. 46–47 – *N. brunneorufus* Bonadona, 1989 (Pachmarhi): 46 – aedeagus in dorsal view, 47 – the same, lateral view. Scale (0.5 mm): A – Figs. 46, 47; B – Figs. 44, 45.

VII simple; tergum VIII forming simple, evenly arched sclerite; aedeagus as figured (Figs. 46, 47), median lobe sinuous, with deeply incised apex.

Variation. Body length (σ° / ρ°) 2.8–3.6 mm. Median longitudinal wrinkle of pronotal disc may be partly reduced and less conspicuous.

Distribution. India: Madhya Pradesh, Rajasthan (BONADONA 1989).

Remarks. According to BONADONA (1989), the type series of *N. brunneorufus* is comprised of the holotype and 8 paratypes. Surprisingly, there is a holotype and an additional 13 paratypes in MHNG (G. Cuccodorro, pers. comm.). All of these specimens originate from the same locality, and the paratypes examined are conspecific and perfectly agree with the original description.

Notoxus ravana sp. nov.

(Figs. 49–51, 69, 70)

Type locality. Sri Lanka, environs of Anuradhapura.

Type material. HOLOTYPE: σ° , 'Ceylon Umg. Anuradhapura G. Frey III.53 // *Notoxus brinckianus* Bonadona det. G. Uhmann 2006' (ZSMC). PARATYPES: 1 ρ° , 'S Sri Lanka, 13.III. KATARAGAMA – bank of Menik Ganga river 100 km NE of Matara Z. Kejval lgt. 1994' (ZKDC).

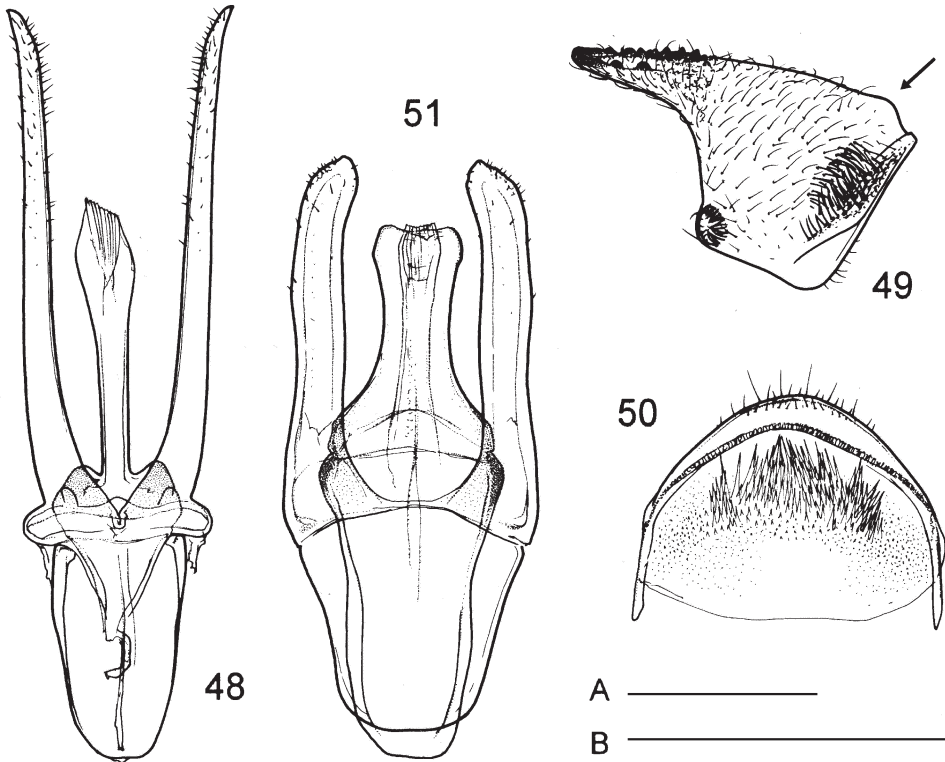
Description. Male (holotype). Body length 2.6 mm. Body dark brown, at places with reddish tinge. Legs and antennae reddish; femora and distal half of antennae moderately darker.

Head and pronotum and elytra rather glossy, finely, moderately densely punctured. Pronotal disc with distinct longitudinal median wrinkle. Punctures of elytra rather fine, shallow, their margins with fine sculpture (not smooth). Body setation rather distinct, mostly subdecumbent; pronotum with numerous conspicuously long, suberect to erect setae, especially antero-laterally; setation of elytra subdecumbent, with numerous, moderately longer, suberect setae. Antebasal setose band of pronotum conspicuous, widely interrupted dorso-medially.

Head with medium-sized eyes. Antennae moderately long, distinctly enlarged in terminal third. Pronotum slightly wider than head across eyes, rather globose in dorsal view; pronotal disc distinctly bulging posteriorly just before antebasal transverse sulcus. Pronotal horn moderately long, very slender, subparallel, with continuously fringed apical margin and 2 small lateral lobules on each side; horn crest only moderately raised, evenly lowering towards horn apex, its lateral margins very feebly marked by series of somewhat coarser, distinctly spaced lobules / rugules; dorsal surface evenly and rather densely covered with distinct rounded rugules. Elytra 1.8 times as long as wide; humeri distinctly protruding; omoplates and postbasal impression moderately indicated; elytra somewhat flattened laterally in apical third and more tapered apically, their lateral subapical margin slightly angled and with rounded gland opening at angle (rather distant from apex; Fig. 70, marked by arrow). Legs simple. Abdominal sternum VII simple, evenly rounded posteriorly. Tergum VIII forming simple, evenly arched sclerite, its membranous part mesally with patch of fine spines (Fig. 50). Aedeagus as figured (Fig. 51).

Female. Externally nearly identical with male, differing only by the even lateral subapical margin of elytra (lacking opening of gland).

Variation. Body length (σ° / ρ°) 2.5–2.6 mm.



Figs. 48–51. 48 – *Notoxus variabilis* Krekich-Strassoldo, 1913 (Mulshi), aedeagus. 49–51 – *N. ravana* sp. nov.: 49 – pronotum in lateral view, 50 – male tergum VIII, 51 – aedeagus. Scale (0.5 mm).

Differential diagnosis. *Notoxus ravana* sp. nov. is undoubtedly very close to *N. brinckianus*, as suggested by the shared pronotal characters (narrow horn, median longitudinal wrinkle, posteriorly bulging disc). It differs clearly from the latter species in the male characters.

Etymology. Named after Ravana, the demon king of Lanka and one of the major figures in the classic Hindu legend Ramayana. Noun in apposition.

Distribution. Sri Lanka.

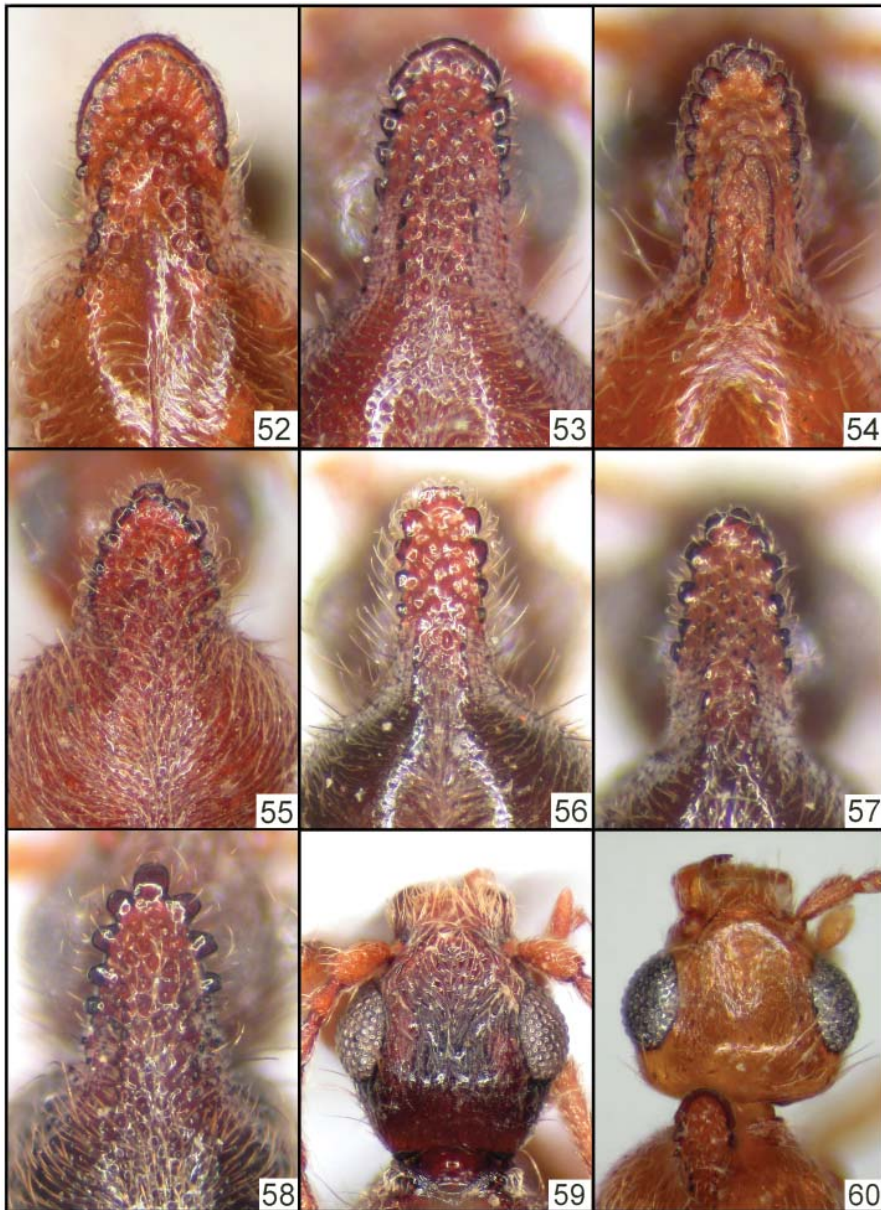
Notoxus variabilis Krekich-Strassoldo, 1913

(Figs. 48, 54, 63, 64, 67)

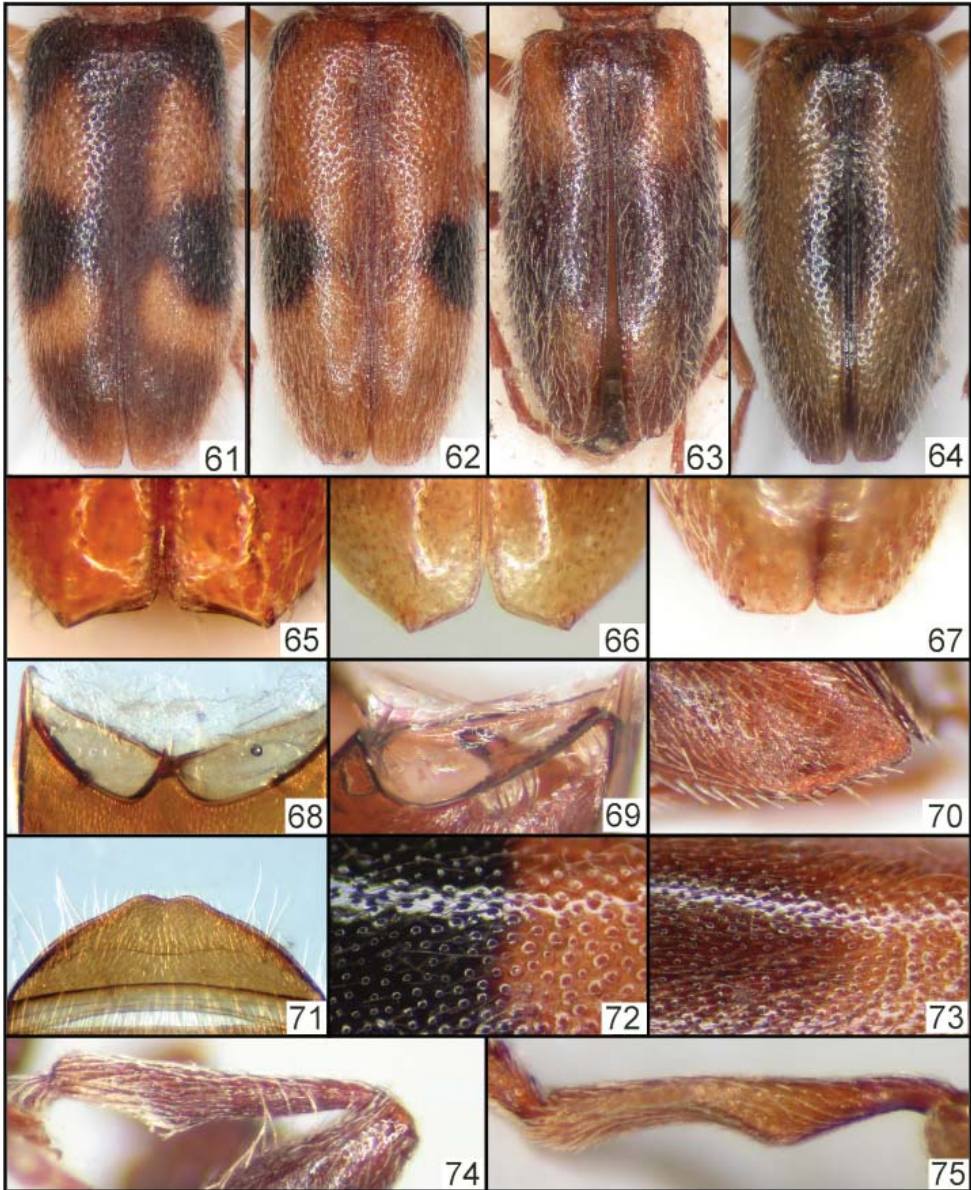
Notoxus variabilis Krekich-Strassoldo, 1913: 132, Fig. 3.

Type locality. South India, Nilgiri hills.

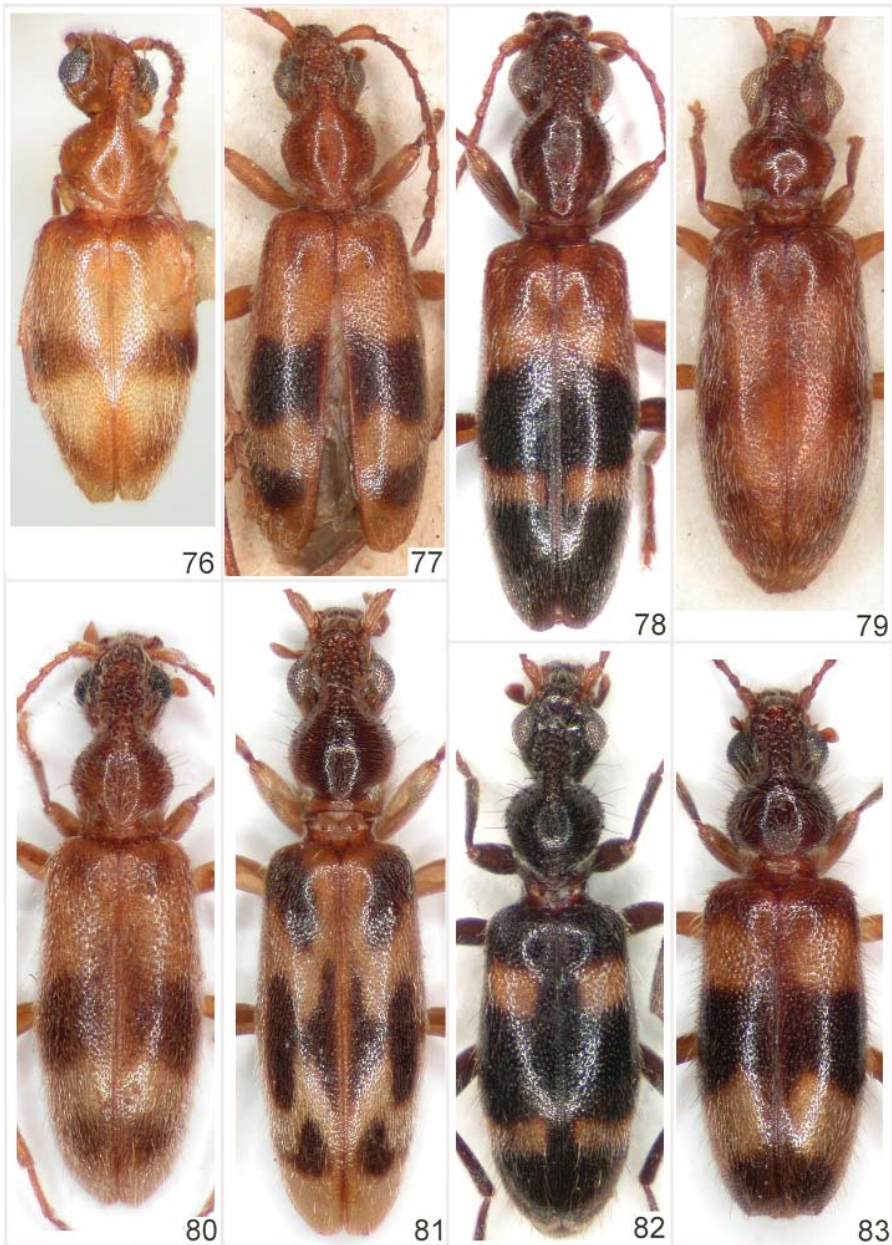
Type material examined. SYNTYPES: 5 ♂♂, 'Nilgiri Hills [h] // TYPE [p; red label] // coll. Heberdey [p] // variabilis det. v.Krekich [p+h]' (NHMW); 5 ♂♂, same data, but lacking the 3rd label, and in addition: 'Andrewes Bequest B.M.1922-221.' (BMNH).



Figs. 52–60. 52–58 – pronotal horn in dorsal view: 52 – *Notoxus brunneorufus* Bonadona, 1989 (Pachmarhi); 53 – *N. impavidus* sp. nov.; 54 – *N. variabilis* Krekich-Strassoldo, 1913 (Mulshi); 55 – *N. noctivagus* Krekich-Strassoldo, 1913 (Punjab); 56 – *N. sinensis* Pic, 1907 (Xishan); 57 – *N. pachodemba* sp. nov.; 58 – *N. safraneki* sp. nov.; 59 – *N. inbasaliformis* sp. nov., head in dorsal view; 60 – *N. psammophilus* Telnov, 2007 (Cam Ranh Bay), the same.



Figs. 61–75. 61–64 – elytra: 61–62 – *Notoxus noctivagus* Krekich-Strassoldo, 1916 (61 – Karadj, 62 – Punjab); 63–64 – *N. variabilis* Krekich-Strassoldo, 1913 (63 – syntype, 64 – Mulshi). 65–67 – elytral apices: 65 – *N. peguensis* Pic, 1914 (Myitkyina); 66 – *N. psammophilus* Telnov, 2007 (Cam Ranh Bay); 67 – *N. variabilis* (Mulshi). 68 – *N. ales* Telnov, 2007 (Ban Nape), laterobasal fovea of sternum III; 69–70 – *N. ravana* sp. nov.: 69 – laterobasal fovea of sternum III; 70 – apex of elytron. 71–72 – *N. ales* (Ban Nape): 71 – male sternum VII; 72 – punctation of elytra (basal half). 73 – *N. impavidus* sp. nov., the same. 74 – *N. donckieri* Pic, 1908 (Phuyen Binh), male protibia. 75 – *N. hilaris* sp. nov., the same.



Figs. 76–83. Body in dorsal view: 76 – *N. psammophilus* Telnov, 2007 (Cam Ranh Bay); 77 – *N. bellus* Krekich-Strassoldo, 1928 (syntype, BMNH); 78 – *N. assamensis* Krekich-Strassoldo, 1913 (Renok); 79 – *N. confluens* Krekich-Strassoldo, 1928 (syntype); 80 – *N. donckieri* Pic, 1908 (syntype); 81 – *N. hilaris* sp. nov.; 82 – *N. indicus* Krekich-Strassoldo, 1914 (Umphang); 83 – *N. ales* Telnov, 2007 (Ban Nape).



Figs. 84–91. Body in dorsal view: 84 – *N. andrewesi* Krekich-Strassoldo, 1913 (Kotagiri); 85 – *N. katthapa* sp. nov.; 86 – *N. inbasalis* Pic, 1926 (Soppong); 87 – *N. safraneki* sp. nov.; 88 – *N. suturalifer* Pic, 1932; 89 – *N. sinensis* Pic, 1907 (Xishan); 90 – *N. brinckianus* Bonadona, 1986 (Pottuvil); 91 – *N. brunneorufus* Bonadona, 1989 (Pachmarhi).

Additional material examined. INDIA: MAHARASHTRA: 2 ♂♂, 40 km W of Pune, Mulshi env., 12.–15.x.2005, J. Bezděk leg. (ZKDC); 4 ♂♂, same data, except: 9.–11.x.2005, L. Borowiec leg. (ZKDC, DBET); 1 ♂, 6 km NE of Mahabaleshwar, Kate's Point, 19.x.1985, C. W. & L. B. O'Brien leg. (DCDC).

Diagnosis. Small, slender species, rather variable in colouration; head with small eyes, its latero-basal outlines moderately rounded in dorsal view; pronotal disc evenly convex (not produced posteriorly), unwrinkled, rather glossy, finely and sparsely punctured; pronotal horn moderately long and slender, with small, densely spaced lobules on margins; horn crest only moderately raised, but well-marked laterally by series of rather densely spaced lobules (Fig. 54); punctures of elytra rather shallow, moderately dense, their margins finely sculptured (not quite smooth).

Male characters (Maharashtra, Mulshi). Elytra clearly modified apically, subtruncate, with distinct gland opening near moderately angled margin (Fig. 67); legs simple; abdominal sternum VII simple; aedeagus as figured (Fig. 48).

Variation. Body length (♂♀) 2.6–3.4 mm. Elytra largely brownish, with paired, more or less distinct posthumeral and subapical spots (Fig. 63; most syntypes, Kate's Point), or largely pale reddish to yellowish, darkened on suture and lateral margins, with indication of scutellar and rounded median spot at mid-length (Mulshi; Fig. 64), rarely solid brown. Pronotal horn with 4–7 lobules laterally on each side; subapical and apical lobules may be nearly fused.

Distribution. India: Rajasthan, Karnataka, Maharashtra (UHMANN 1993, TELNOV 1999).

Remarks. KREKICH-STRASSOLDI (1913) described *Notoxus variabilis* from an unstated number of specimens deposited in the collection of H. L. Andrewes and in the NHMW. Male characters were described and figured by KREKICH-STRASSOLDI (1928). The records from Rajasthan and Kerala by UHMANN (1993, 1994) are based on the misidentified specimens of *N. brunneorufus* and *N. brinckianus* (listed above, deposited in SMNS, ZSMC).

Check-list of the Oriental *Notoxus*

<i>N. ales</i> Telnov, 2007	Laos, Thailand
<i>N. andrewesi</i> Krekich-Strassoldo, 1913	India (Tamil Nadu)
<i>N. assamensis</i> Krekich-Strassoldo, 1913	India (Arunachal Pradesh, Assam, Uttarakhand, West Bengal), Nepal
<i>N. bellus</i> Krekich-Strassoldo, 1928	India (Uttarakhand)
<i>N. brinckianus</i> Bonadona, 1986	India (Tamil Nadu, Kerala, Karnataka), Sri Lanka
<i>N. brunneorufus</i> Bonadona, 1989	India (Madhya Pradesh, Rajasthan)
<i>N. confluens</i> Krekich-Strassoldo, 1928	India (Uttarakhand)
<i>N. distortus</i> sp. nov.	India (Meghalaya)
<i>N. donckieri</i> Pic, 1908	China (Yunnan), Vietnam
<i>N. garuda</i> sp. nov.	Thailand
<i>N. hilaris</i> sp. nov.	Myanmar
<i>N. impavidus</i> sp. nov.	Laos
<i>N. inbasaliformis</i> sp. nov.	India (Assam), Nepal

<i>N. inbasalis</i> Pic, 1926	Thailand, Vietnam
<i>N. indicus</i> Krekich-Strassoldo, 1914	Myanmar, Thailand
<i>N. iuvenis</i> sp. nov.	Laos
<i>N. katthapa</i> sp. nov.	Myanmar
<i>N. noctivagus</i> Krekich-Strassoldo, 1913 = <i>N. peregrinus</i> Krekich-Strassoldo, 1914, syn. nov.	Bangladesh, India (Himachal Pradesh, Maharashtra, Uttarakhand, Uttar Pradesh, West Bengal), Nepal, Pakistan
<i>N. pachodemba</i> sp. nov.	Vietnam
<i>N. peguensis</i> Pic, 1914	Myanmar
<i>N. psammophilus</i> Telnov, 2007	Vietnam
<i>N. ravana</i> sp. nov.	Sri Lanka
<i>N. safraneki</i> sp. nov.	Laos
<i>N. sinensis</i> Pic, 1907	China (Yunnan)
<i>N. sodalis</i> sp. nov.	Laos
<i>N. suturalifer</i> Pic, 1932	Laos, Thailand, Vietnam
<i>N. variabilis</i> Krekich, Strassoldo, 1913	India (Rajasthan, Karnataka, Maharashtra)

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