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Orsunius gen.nov. from the Oriental region (Coleoptera: Staphylinidae: Paederinae: Medonina)

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A b s t r a c t : The medonine genus *Orsunius* nov.gen. (type species: *O. wunderlei* nov.sp.) is described and illustrated. The genus is distributed in the Oriental region and includes nine named species: *O. discipennis* (FAUVEL 1895), nov.comb. (Burma), *O. excisus* nov.sp. (Taiwan), *O. parvexcisus* nov.sp. (SW-India, Nepal), *O. immsi* (BERNHAUER 1914), nov.comb. (N-India, Malaysia), *O. pravus* nov.sp. (N-Thailand), *O. prolongatus* nov.sp. (Indonesia: Bali), *O. securifer* nov.sp. (Burma), *O. wunderlei* nov.sp. (N-Thailand), and *O. yunnanus* nov.sp. (China: Yunnan). Lectotypes are designated for *Medon discipennis* FAUVEL 1895 and *M. rubicundus* CAMERON 1918. All the species are described and illustrated. They were found in forest leaf litter, dead wood, and compost at altitudes of 100-1750 m. A key to species and a catalogue are provided.

K e y w o r d s: Coleoptera, Staphylinidae, Paederinae, Paederini, Medonina, *Orsunius*, *Sunius*, Oriental region, taxonomy, new genus, new species, new combination, lectotype designation, key to species, catalogue

Introduction

The paederine subtribe Medonina is represented in the Oriental region by relatively few described genera. A considerable proportion of the species are currently attributed to the genera *Medon* STEPHENS 1833 and *Sunius* STEPHENS 1829. Most of these species have not been subject to modern revisions and, with few exceptions, their male sexual characters are unknown. Recent studies on the *Sunius* and *Medon* species of the East Palaearctic, as well as as on some species of the Oriental region, however, suggest that both genera are essentially of Palaearctic affiliations and absent from the Oriental region, that the Oriental species currently attributed to these genera are represented by various phylogenetic lineages, and that they belong to a currently unknown number of other, mostly undescribed genera (ASSING 2011a-b, in prep). In the transitional region between the East Palaearctic and Oriental regions records of true *Sunius* and *Medon* species have been confirmed only from the Himalaya and China.

One of the species examined in the context of a study of the previously unrevised species of *Sunius* from the East Palaearctic region (ASSING 2011a) was *Sunius immsi* (BERNHAUER 1914). An examination of its morphological characters, including the mouthparts and the male sexual characters, revealed that it is distinguished from Palaearctic *Sunius* (and *Medon*) by numerous taxonomically significant characters, suggesting that it belongs to an undescribed genus. A subsequent study of other medonine

material from the Oriental region yielded ten additional, evidently congeneric species. Two of them are represented only by females and are consequently not named.

Material and methods

The material treated in this study is deposited in the following public institutions and private collections:

BMNH The Natural History Museum, London (R. G. Booth)
FMNHField Museum of Natural History, Chicago (Alfred Newton; via Lee H. Herman)
IRSNBInstitut royal des Sciences naturelles de Belgique, Bruxelles (Y. Gérard)
OÖLLOberösterreichisches Landesmuseum, Linz (F. Gusenleitner)
SMNSStaatliches Museum für Naturkunde, Stuttgart (W. Schawaller, K. Wolf-Schwenninger)
cAssauthor's private collection
cFelprivate collection Benedikt Feldmann, Münster
cPütprivate collection Andreas Pütz, Mönchengladbach
cSchprivate collection Michael Schülke, Berlin
cWunprivate collection Paul Wunderle, Mönchengladbach

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). For the photographs a digital camera (Nikon Coolpix 995) was used.

Head length was measured from the anterior margin of the frons to the posterior margin of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra; the length of the aedeagus was measured from the apex of the ventral process to the base of the capsule. The parameral side of the aedeagus (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

The limits of the zoogeographic regions are in accordance with those in LÖBL & SMETANA (2004).

Orsunius nov.gen.

T y p e s p e c i e s : Orsunius wunderlei nov.sp.; present designation.

E t y m o l o g y : The name is composed of the prefix Or- (from Oriental) and the generic name *Sunius*.

Description: Body of small to moderate size, 3.2-5.0 mm long. Coloration of forebody reddish-yellow to reddish-brown, rarely dark-brown. Forebody with variable punctation and dorsally without microsculpture; pubescence sparse, suberect to erect.

Head of subquadrate to transversely rectangular shape, with pronounced posterior angles, and with moderately large and distinctly convex eyes; laterally mostly with numerous long black setae; posterior margin of head truncate or more or less distinctly concave in the middle; neck approximately half as broad as head or nearly so. Ventral aspect of head with microsculpture; gular sutures variable, often curved, very narrowly (Fig. 34) to

moderately broadly separated, often more widely separated posteriorly than anteriorly. Antenna (Figs 4, 30) moderately short to slender, preapical antennomeres as wide as long or weakly transverse. Labrum strongly transverse; anterior margin with U-shaped incision (Figs 5, 31), without tooth-like projections on either side of this incision. Mandibles (Figs 12-13, 60-61) apically rather long, slender, and acute; both left and right mandible with three pronounced molar teeth. Maxillary palpus (Figs 6, 32, 62) slender, 4-jointed; preapical palpomere approximately 3 times as long as broad; apical palpomere needle-shaped and of variable length. Labial palpus (Figs 7, 63) 3-jointed; apical palpomere needle-shaped; ligula (Figs 8, 33, 64) membranous and bilobed, each lobe with a subapical seta.

Pronotum weakly to distinctly transverse, slightly wider to slightly narrower than head, with subparallel lateral margins or posteriorly narrowed; only posterior two thirds or posterior half of lateral margins visible from above, anterior third or anterior half concealed by a protruding fold, but visible in lateral view; midline narrowly (e.g., Fig. 22) to broadly (e.g., Fig. 9) impunctate, rarely without impunctate band (Fig. 35); margins mostly with some very long dark setae.

Elytra broader than pronotum and of variable length; lateral and posterior margins often with long dark setae. Hind wings present. Legs relatively short. Protarsi moderately to strongly dilated in both sexes and ventrally with dense setae. Metatarsus distinctly shorter than metatibia; metatarsomere I longer than II, but shorter than the combined length of II and III.

Abdomen widest at segments V/VI; tergal surfaces with dense fine punctation and with fine microsculpture composed of isodiametric and/or short transverse meshes (Fig. 23); tergite VIII with palisade fringe; tergite IX not divided in the middle (Fig. 40); tergite X very deeply incised posteriorly and with numerous long black setae (Fig. 40).

- δ : sternite VII usually without modified pubescence and with weakly concave posterior margin (Figs 38, 44); sternite VIII mostly with dense, rarely with sparser unmodified pubescence, posterior margin usually truncate or with very shallow, rarely with moderately deep posterior excision; sternite IX slender, approximately 2.5-3.5 times as long as broad and with concavely excised posterior margin (Fig. 46). Aedeagus slender, mostly with long, often more or less asymmetric, and sometimes laterally compressed ventral process; internal structures mostly weakly pronounced.
- ♀: sternite VII unmodified; posterior margin of sternite VIII convex.
- D i a g n o s i s: The genus is characterized and distinguished from other genera of Medonina resembling *Sunius* particularly by the shape and chaetotaxy of the labrum (similar to that of *Neosclerus* CAMERON), the presence of three molar teeth on both mandibles, the relatively large head with sharply marked posterior angles, the morphology of the pronotum (lateral margins visible only in posterior two thirds or in posterior half when viewed from above), the pale coloration, the dilated protarsomeres I-IV, the morphology of the abdominal tergite X, the morphology of the aedeagus (long, slender, and often more or less asymmetric ventral process), as well as by the usually very shallow posterior excision of the male sternite VIII.

D i v e r s i t y: The genus currently includes nine named species. However, it seems likely that the true diversity is considerably greater. Most of the species described below are known only from a single locality. *Orsunius immsi*, on the other hand, has been recorded from northern India and from Malaysia (if the types of *O. immsi* and *O. rubicundus* are indeed conspecific). Moreover, all the examined species have hind wings

and are apparently capable of dispersal by flight. These observations suggest that *Orsunius* species may be more or less widespread. Finally, two females representing two additional undescribed species were examined.

D i s t r i b u t i o n : The genus is apparently widespread in the Oriental region, its currently known distribution ranging from northern India (Uttaranchal) in the northwest to Indonesia and Malaysia in the southeast. According to LÖBL & SMETANA (2004), Uttaranchal and the Chinese province Yunnan are part of the East Palaearctic, but they are, in fact, situated in the transitional region between the East Palaearctic and the Oriental regions, where Oriental elements are predominant at low elevations.

N a t u r a l h i s t o r y: Rather little is known about the biology of the species. Based on the data indicated on the labels attached to the examined material, the species are found in leaf litter, compost, and in decaying wood at low to intermediate altitudes (100-1750 m).

Orsunius wunderlei nov.sp. (Figs 1-14)

Type material: <u>Holotype &</u>: "Thailand, Chiang Mai, Doi Inthanon, Doi Pui, 1100-1500 m, 10.XI.1995, P. Wunderle / Holotypus & *Orsunius wunderlei* sp.n. det. V. Assing 2011" (cAss). <u>Paratypes</u>: 43 exs.: same data as holotype (cWun, cAss, cFel, cSch, OÖLL).

D e s c r i p t i o n : Body length 4.0-5.0 mm. Habitus as in Fig. 1. Coloration: head and pronotum reddish; elytra reddish-yellow to reddish, with the anterior half often slightly and diffusely darker; abdomen reddish to dark-reddish, with the apical portions of segments VII and VIII yellowish; legs and antennae yellowish.

Head of transversely rectangular shape, 1.20-1.25 times as broad as long (Fig. 2); posterior margin distinctly concave in the middle; punctation coarse and dense (Fig. 3); posterior median portion of dorsal surface with small area without, or with sparse punctation; interstices glossy, in most of dorsal surface distinctly narrower than diameter of punctures, reduced to narrow ridges; sides with relatively few long dark-brown setae. Eyes large, slightly longer than postocular portion in dorsal view. Antennae slender (Fig. 4); preapical antennomeres approximately as wide as long. Ventral aspect of head with microsculpture; gular sutures anteriorly separated by a distance of approximately the width of antennomere III. Mouthparts as in Figs 5-8, 12-13.

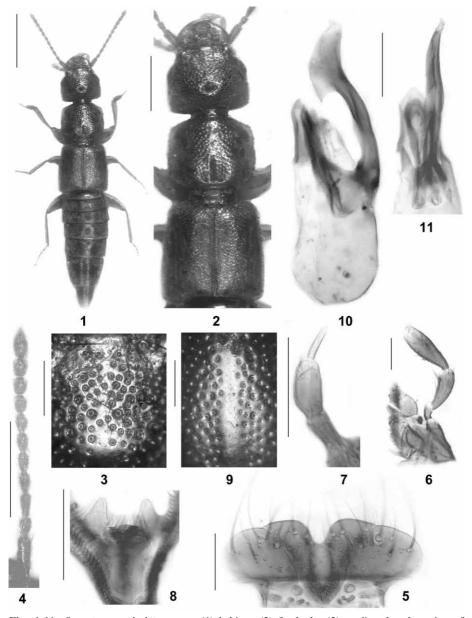
Pronotum approximately 1.2 times as wide as long and 1.05-1.10 times as broad as head (Fig. 2); posterior angles rounded, weakly marked; lateral margins visible only in posterior two thirds when viewed from above; lateral and anterior margins with rather few and not particularly long brownish setae; punctation slightly less coarse and less dense than that of head (Fig. 9); midline broadly impunctate.

Elytra approximately 1.1 times as long as pronotum (Fig. 2); punctation very dense and fine; interstices without microsculpture. Hind wings fully developed. Protarsomeres I-IV strongly dilated (Fig. 1). Metatarsomere I longer than II and slightly shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine and dense, slightly less dense on posterior tergites; interstices with distinct microsculpture composed of isodiametric and short transverse meshes; posterior margin of tergite VII with palisade fringe.

♂: sternite VII not distinctly modified; sternite VIII with truncate posterior margin (Fig.

14); aedeagus approximately 0.9 mm long; ventral process large, laterally compressed, somewhat asymmetric in ventral view, and with apex of distinctive shape (Figs 10-11).



Figs 1-11: Orsunius wunderlei nov.sp.: (1) habitus; (2) forebody; (3) median dorsal portion of head; (4) antenna; (5) labrum; (6) maxilla; (7) labial palpus; (8) ligula; (9) median dorsal portion of pronotum; (10) aedeagus in lateral view; (11) apical portion of aedeagus in ventral view. Scale bars: 1: 1.0 mm; 2, 4: 0.5 mm; 3, 9-11: 0.2 mm; 5-8: 0.1 mm.

C o m m e n t: The possibility that the absence of long black setae on the head, pronotum, and the elytra is an artefact resulting from post-mortem treatment of the material cannot be ruled out with certainty.

E t y m o l o g y: The species is named after my dear friend and colleague Paul Wunderle, who collected the types of this species, as well as those of *O. prolongatus*.

C o m p a r a t i v e n o t e s: This species is characterized particularly by the morphology of the aedeagus. For characters separating it from the similar and evidently closely related *O. yunnanus* see the following section.

D is tribution and natural history: The type locality is situated in the Doi Inthanon, approximately 50 km to the southwest of Chiang Mai, northern Thailand. The specimens were sifted from a ditch with deep and moist leaf litter mixed with dead wood at an altitude of 1100-1500 m in November (WUNDERLE pers. comm.).

Orsunius yunnanus nov.sp. (Figs 15-19)

T y p e m a t e r i a l : Holotype ♂: "China: N-Yunnan [C2005-15], Nujiang Lisu Aut. Pref., Gongshan Co., Gaoligong Shan, small creek valley 17 km N Gongshan / 27°54.41′N, 98°39.55′E, 1525-1600 m, along creek under stones, gravel, leaf litter, sifted, 20.VI.2005, M. Schülke [C2005-15] / Holotypus ♂ Orsunius yunnanus sp.n. det. V. Assing 2011" (cAss). Paratypes: 5 exs.: same data as holotype (cSch, cAss); 3 exs.: "China: Yunnan [CH07-18], Baoshan Pref., mountain range 22 km S Tengchon, 1750 m, 24°49′29″N, 98°29′27″E, second. forest, litter, dead wood sifted, 2.VI.2007, leg. A. Pütz" (cPüt, cAss); 1 ex.: "China: Yunnan [CH07-25], Nujiang Lisu Aut. Pref. Salween side valley 5 km S Fugong, road SS 228 km 223, under stones, moist embankment, 8.VI.2007, leg. A. Pütz" (cPüt).

Description: Body length 4.3-5.0 mm. Habitus as in Fig. 15. Coloration: head reddish-brown to dark-brown; pronotum reddish to reddish-brown; elytra dark-brown, with the anterior margins, the suture, and the posterior margins reddish, rarely uniformly reddish; abdomen reddish to reddish-brown, with the middle of tergite VII infuscate; legs and antennae reddish.

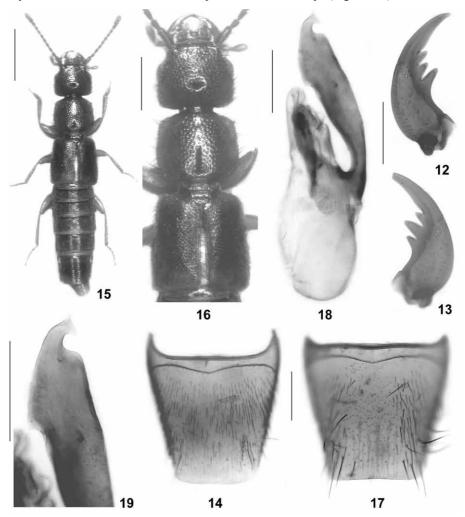
Head of transversely rectangular shape, approximately 1.2 times as broad as long (Fig. 16); punctation coarse and dense, posterior median portion of dorsal surface with small area without, or with sparse punctation; interstices glossy, in most of dorsal surface distinctly narrower than diameter of punctures; sides with numerous long blackish setae. Eyes large and bulging, slightly longer than postocular portion in dorsal view. Gular sutures separated by a distance greater than the width of antennomere III.

Pronotum approximately 1.2 times as wide as long and approximately 1.05 times as broad as head (Fig. 16); posterior angles rounded, weakly marked; lateral margins visible only in posterior two thirds when viewed from above; punctation similar to that of head or slightly less coarse; midline broadly impunctate; lateral and anterior margins with numerous long black setae.

Elytra approximately 1.1 times as long as pronotum (Fig. 16); punctation very dense and fine; interstices without microsculpture. Hind wings fully developed. Protarsomeres I-IV strongly dilated. Metatarsomere I longer than II and slightly shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine, dense on anterior tergites and somewhat sparser on posterior tergites; interstices with distinct microsculpture; posterior margin of tergite VII with palisade fringe.

3: sternite VII not distinctly modified; sternite VIII with truncate posterior margin (Fig. 17); aedeagus 0.90-0.95 mm long; ventral process large, laterally compressed, somewhat asymmetric in ventral view, and with apex of distinctive shape (Figs 18-19).



Figs 12-19: *Orsunius wunderlei* nov.sp. (**12-14**) and *O. yunnanus* nov.sp. (**15-19**): (**12**) left mandible; (**13**) right mandible; (**14, 17**) male sternite VIII; (**15**) habitus; (**16**) forebody; (**18**) aedeagus in lateral view; (**19**) apical portion of ventral process in lateral view. Scale bars: 15: 1.0 mm; 16: 0.5 mm; 12-14, 17-19: 0.2 mm.

 $E\ t\ y\ m\ o\ l\ o\ g\ y$: The specific epithet (adjective) is derived from the name of the Chinese province where the species was discovered.

C o m p a r a t i v e n o t e s: Based on the similarly derived morphology of the aedeagus, as well as on the similar external and male secondary sexual characters (relatively large size, punctation of forebody, strongly dilated protarsomeres I-IV, slender

antennae, posteriorly truncate male sternite VIII), *O. yunnanus* is closely related to the similar *O. wunderlei*, from which it is distinguished particularly by the darker coloration of the head and pronotum, the distinctly bicoloured elytra, the less transverse pronotum, the slightly less dense punctation of the abdomen, and especially by the differently shaped ventral process of the aedeagus.

D is tribution and natural history: Orsunius yunnanus is currently known from three localities in Yunnan, China. The specimens were collected by sifting leaf litter and dead wood in a secondary forest and near a stream, and from under stones near water at altitudes of 1525-1750 m in June.

Orsunius excisus nov.sp. (Figs 20-26)

T y p e m a t e r i a 1 : Holotype ♂: "Taiwan - Taitung Co., Rd. No. 20, bfr. Li-Tao (Lidau), km 174, 1000 m, compost, 8.IV.2007, leg. Vít [4] / Holotypus ♂ Orsunius excisus sp.n. det. V. Assing 2011" (cAss). Paratypes: 1 ♀: same data as holotype (cAss).

D e s c r i p t i o n : Body length 4.0-4.8 mm. Coloration: head and pronotum reddish; elytra reddish-yellow, anteriorly or laterally slightly and diffusely darker; abdomen reddish; legs yellowish; antennae reddish-yellow.

Head of transversely rectangular shape, approximately 1.15 times as broad as long (Fig. 20); posterior margin very feebly concave in the middle; punctation moderately coarse and very dense; interstices distinctly narrower than diameter of punctures, reduced to narrow ridges (Fig. 21); sides with numerous long black setae. Eyes large and bulging, slightly longer than postocular portion in dorsal view. Ventral aspect of head with microsculpture; gular sutures anteriorly separated by a distance of slightly less than the width of antennomere III. Antennae with weakly transverse preapical antennomeres.

Pronotum weakly transverse, approximately 1.1 times as wide as long and 1.05 times as broad as head (Fig. 20); posterior angles rounded, weakly marked; lateral margins visible only in posterior two thirds when viewed from above; lateral and anterior margins with numerous long black setae; punctation slightly less coarse and less dense than that of head; impunctate midline reduced, very narrow and reaching neither anterior nor posterior margins (Fig. 22).

Elytra approximately as long as pronotum (Fig. 20); punctation very dense and fine; interstices without microsculpture. Hind wings fully developed. Protarsomeres moderately dilated; metatarsomere I longer than II and slightly shorter than the combined length of II and III.

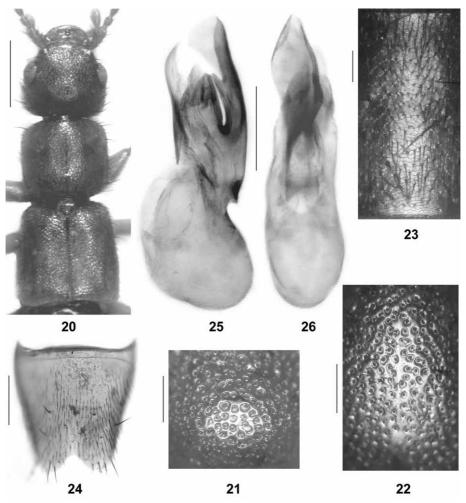
Abdomen almost as broad as elytra; punctation extremely fine and dense, slightly less dense on tergites VII and VIII; interstices with microsculpture composed of isodiametric and short transverse meshes (Fig. 23); posterior margin of tergite VII with palisade fringe.

 δ : sternite VII not distinctly modified; sternite VIII with distinctly excised posterior margin (Fig. 24); aedeagus approximately 0.7 mm long; ventral process large, somewhat asymmetric in ventral view, and with apex of distinctive shape (Figs 25-26).

E t y m o l o g y: The specific epithet (Latin, adjective) alludes to the distinctly excised posterior margin of the male sternite VIII, one of the characters distinguishing *O. excisus* from its congeners.

C o m p a r a t i v e n o t e s : This species is characterized particularly by the weakly transverse, extremely densely punctate, and rather matt head and pronotum, the shape of the male sternite VIII, as well as by the distinctive shape of the aedeagus.

D is tribution and natural history: The type locality is situated in southeastern Taiwan. The specimens were sifted from compost at an altitude of 1000 m in April.



Figs 20-26: *Orsunius excisus* nov.sp.: **(20)** forebody; **(21)** posterior median portion of head in dorsal view; **(22)** median dorsal portion of pronotum; **(23)** median portions of abdominal tergites VI and VII; **(24)** male sternite VIII; **(25-26)** aedeagus in lateral and in ventral view. Scale bars: 20: 0.5 mm; 24-26: 0.2 mm; 21-23: 0.1 mm.

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Orsunius immsi (BERNHAUER 1914), nov.comb. (Figs 27-40)

Medon immsi BERNHAUER 1914: 99 f. Medon rubicundus CAMERON 1918: 73 f. Sunius immsi: SMETANA (2004).

NHMus, M.Bernhauer Collection / Orsunius immsi (Bernhauer), det. V. Assing 2010" (FMNH). M. rubicundus: Lectotype & present designation: "Woodlands, Singapore, Cameron / M. rubicundus / Cotypus. don Cameron. / Chicago NHMus, M. Bernhauer Collection / Lectotypus & Medon rubicundus Cameron, desig. V. Assing 2010 / Orsunius immsi (Bernhauer), det. V. Assing 2010" (FMNH). Paralectotypes: 1 \(\rho :\) "Singapore, Cameron / rubicundus Cam / rubicundus Cameron. Cotypus / Cotype / Immsi Brnh, det. Bernhauer / Chicago NHMus, M. Bernhauer Collection / Paralectotypus \(\rightarrow \) Medon rubicundus Cameron, desig. V. Assing 2010 / Orsunius immsi (Bernhauer), det. V. Assing 2010" (FMNH); 1\(\rightarrow : \) "Woodlands, Singapore. Dr. Cameron. / Wood (rotten) / M. rubicundus Cam. Type / Type / M.Cameron Bequest B.M. 1955-147. / Type / Syntype / Paralectotypus \(\rightarrow \) Medon rubicundus Cameron, desig. V. Assing 2010 / Orsunius immsi (Bernhauer), det. V. Assing 2010" (BMNH); 18 [3 legs separated from body]: "Woodlands, Singapore. Dr. Cameron. / Wood (rotten) / Type / M. Cameron Bequest B.M. 1955-147. / Syntype / Paralectotypus & Medon rubicundus Cameron, desig. V. Assing 2010 / Orsunius immsi (Bernhauer), det. V. Assing 2010" (BMNH); 19: "Woodlands, Singapore. Dr. Cameron. / M. rubicundus Cam. (Cotype) / Immsi Brnh. / M.Cameron Bequest B.M. 1955-147. / Syntype / Paralectotypus o *Medon rubicundus* Cameron, desig. V. Assing 2010 / Orsunius immsi (Bernhauer), det. V. Assing 2010" (BMNH).

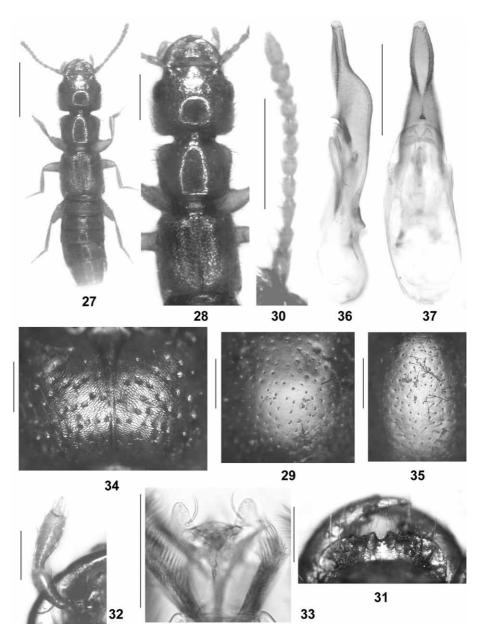
C o m m e n t: The original description of Medon immsi is based on an unspecified number of syntypes from the environs of "Dehra-Dun (Bankatti-Kheri) unter Baumrinden" collected by "A. D. Imms" in February 1912 (BERNHAUER 1914). Two syntypes were located in the Bernhauer collection. Since both of them are females and evidently conspecific, a lectotype is not designated.

Medon rubicundus was described in an article on the Staphylinidae of Singapore, based on an unspecified number of syntypes collected in "Woodlands, in rotten logs" (CAMERON 1918). Two syntypes, a male and a female, were found in the Bernhauer collection; one male (disassembled) and two females were located in the collections of the BMNH. The intact male from the Bernhauer collection is designated as the lectotype.

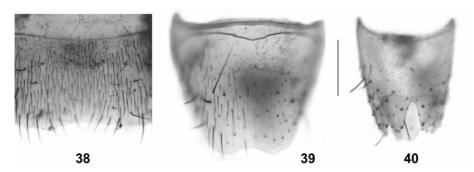
There is some doubt as to whether the previously established synonymy of M. rubicundus and M. immsi is correct. The type specimens of the former are somewhat larger, have a larger head, and the abdomen is of slightly different coloration. However, since no males from the environs of the type locality of M. immsi have become available, it is currently unclear if these differences are an expression of intra- or of interspecific variation. Therefore, the long-standing synonymy (CAMERON 1931) is maintained for the time being.

R e d e s c r i p t i o n : Small species; body length 3.2-4.3 mm. Habitus as in Fig. 27. Coloration: head and pronotum reddish; elytra yellowish with the anterior 1/4-1/2 diffusely reddish; abdomen reddish to reddish-brown, with the apex occasionally darker (syntypes of *M. immsi*); legs and antennae reddish yellow.

Head of transversely rectangular shape, 1.20-1.25 times as broad as long (Fig. 28); punctation very fine and sparse in median dorsal portion (Fig. 29), somewhat less fine and denser in remainder of dorsal surface; sides of head with long black setae. Eyes large and bulging, approximately as long as postocular portion in dorsal view (slightly longer in



Figs 27-37: Orsunius immsi (BERNHAUER) (lectotype of Medon rubicundus CAMERON): (27) habitus; (28) forebody; (29) median dorsal portion of head; (30) antenna; (31) labrum; (32) maxillary palpus; (33) ligula; (34) ventral aspect of head; (35) median dorsal portion of pronotum; (36-37) aedeagus in lateral and in ventral view. Scale bars: 27: 1.0 mm; 28, 30: 0.5 mm; 29, 31-32, 34-37: 0.2 mm; 33: 0.1 mm.



Figs 38-40: Orsunius immsi (BERNHAUER) (lectotype of Medon rubicundus CAMERON): (38) posterior median portion of male sternite VII; (39) male sternite VIII; (40) male abdominal segments IX-X in dorsal view. Scale bar: 0.2 mm.

syntypes of *M. immsi*, slightly shorter in syntypes of *M. rubicundus*). Antennae relatively short and with weakly transverse preapical antennomeres (Fig. 30). Labrum, maxillary palpus, and ligula as in Figs 31-33. Ventral aspect of head with pronounced microsculpture; gular sutures very narrowly separated (Fig. 34).

Pronotum approximately as broad as (syntypes of *M. immsi*), or slightly narrower than (syntypes of *M. rubicundus*) head, 1.20-1.25 times as broad as long, widest at anterior angles (Fig. 28); lateral margins in dorsal view visible only in posterior half, in anterior half concealed and visible only in lateral view; punctation similar to that of median dorsal portion of head; midline punctate (Fig. 35); lateral margins with long black setae.

Elytra 1.10-1.15 times as long as pronotum (Fig. 28); punctation denser and more distinct than that of pronotum. Hind wings fully developed. Tarsi short; protarsomeres I-IV moderately dilated; metatarsomere I longer than II, but shorter than the combined length of II and III.

Abdomen with fine, dense punctation and with distinct microsculpture; posterior margin of tergite VII with palisade fringe.

 δ : sternite VII strongly transverse and with dense, fine, dark pubescence in the middle, posterior margin weakly concave (Fig. 38); sternite VIII with sparse unmodified pubescence, posterior margin broadly and feebly concave (Fig. 39); tergites IX and X as in Fig. 40; aedeagus 0.60-0.65 mm long and with symmetric ventral process of distinctive shape (Figs 36-37).

C o m p a r a t i v e n o t e s: From all of its congeners, *O. immsi* is readily distinguished by the small pronotum (in relation to the head), the concealed anterior half of the pronotal lateral margins, the shape of the pronotum (widest at the anterior angles), the conspicuously fine and sparse punctation of the head and the pronotum, the very narrowly separated gular sutures, as well as by the male sexual characters.

D is tribution and natural history: This species has been recorded from northern India (Uttarranchal Pradesh) and Malaysia (type localities of *M. immsi* and *M. rubicundus*, suggesting that, if the type material of both names should be confirmed to be conspecific, *Orsunius immsi* is widespread in the Oriental and the southern East Palaearctic regions. The types of both *M. immsi* and *M. rubicundus* were found associated with dead wood.

Orsunius parvexcisus nov.sp. (Figs 41-49)

Type material: <u>Holotype &</u>: "India, Goa, Canacona distr., 100 m, Primärwald, 6.-10.I.1997, leg. Schulz & Vock / Holotypus & *Orsunius parvexcisus* sp.n. det. V. Assing 2011" (cAss). <u>Paratypes</u>: 1&: same data as holotype (cAss); 1&: "548 Nepal: Chitwan Distr., Chitwan N.P.: Sauraha, 150 m, 31.V.-1.VI.1997, leg. W. Schawaller" (SMNS).

D e s c r i p t i o n : Rather small species; body length 3.6-3.8 mm. Coloration: head, pronotum, and abdomen reddish; elytra reddish-yellow, in anterior two thirds weakly infuscate, this infuscate spot crossing suture, but not reaching lateral and anterior margins; legs yellowish; antennae reddish-yellow.

Head approximately 1.2 times as broad as long (Fig. 41); punctation rather fine, shallow, and dense (Fig. 42), posterior median portion of dorsal surface with small area with sparse punctation; interstices glossy; sides of head with numerous long black setae. Eyes large and bulging, of somewhat variable size, slightly shorter (holotype) to longer (paratypes) than postocular portion in dorsal view. Gular sutures somewhat curved, at narrowest point separated by a distance of approximately the width of antennomere III.

Pronotum moderately transverse, 1.15 times as wide as long and approximately 0.95 times as broad as head (Fig. 41); posterior angles rounded, weakly marked; lateral margins visible only in posterior two thirds when viewed from above; punctation similar to that of head; midline narrowly impunctate (Fig. 43); lateral margins with numerous long black setae.

Elytra approximately 1.1 times as long as pronotum (Fig. 41); punctation moderately dense, of similar size and depth as that of pronotum; interstices without microsculpture; lateral margins with long black setae. Hind wings fully developed. Tarsi short; protarsomeres rather weakly dilated; metatarsomere I longer than II and slightly shorter than the combined length of II and III.

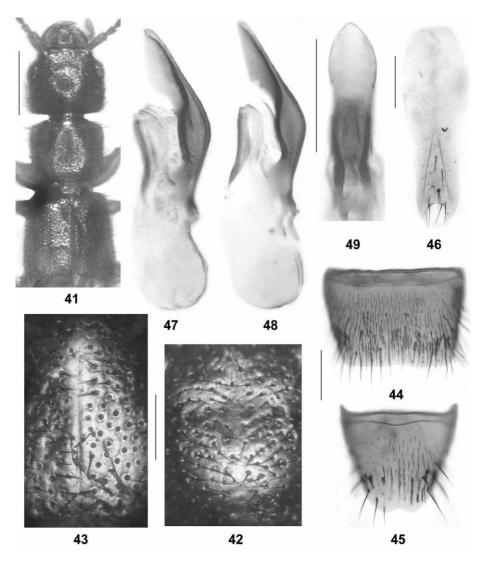
Abdomen narrower than elytra; punctation extremely fine and dense, slightly less dense on posterior tergites; interstices with pronounced microsculpture; posterior margin of tergite VII with palisade fringe.

♂: sternite VII with weakly concave posterior margin, otherwise unmodified (Fig. 44); sternite VIII short, broader than long, posterior margin weakly excised in the middle (Fig. 45); sternite IX as in Fig. 46; aedeagus approximately 0.5 mm long; ventral process large, symmetric, and of distinctive shape.

E t y m o l o g y: The specific epithet (adjective) is composed of the Latin adjectives parvus and excisus and refers to the small posterior excision of the male sternite VIII.

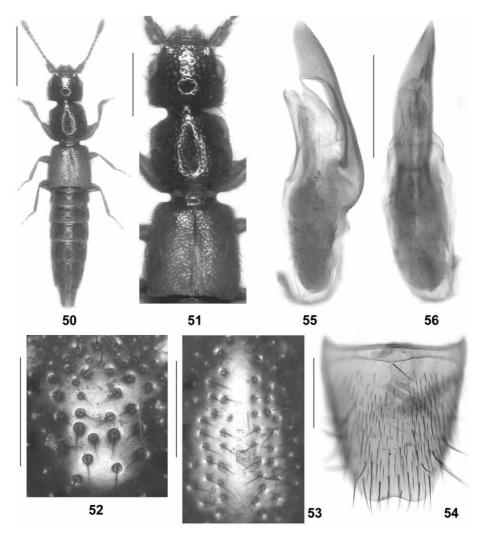
C o m p a r a t i v e n o t e s: This species is characterized particularly by the dense, fine, and shallow punctation of the head and pronotum, as well as by the shape of the male sternite VIII and the morphology of the aedeagus.

D is tribution and natural history: The species was found in Goa province, southwestern India, and in Chitwan District, southern central Nepal. The specimens from Goa were collected in a primary forest at an altitude of 100 m; the paratype from Nepal was discovered at an altitude of 150 m.



Figs 41-49: *Orsunius parvexcisus* nov.sp.: **(41)** forebody; **(42)** median dorsal portion of head; **(43)** median dorsal portion of pronotum; **(44)** male sternite VII; **(45)** male sternite VIII; **(46)** male sternite IX; **(47-48)** aedeagus in lateral view; **(49)** ventral process of aedeagus in ventral view. Scale bars: 41: 0.5 mm; 44-45, 47-49: 0.2 mm; 42-43, 46: 0.1 mm.

Head approximately 1.2 times as broad as long, weakly dilated posteriad (Fig. 51); posterior margin weakly concave in the middle; punctation coarse and sparse (Fig. 52); interstices glossy, in most of dorsal surface broader than diameter of punctures; sides of head with long black setae. Eyes large and bulging, approximately as long as postocular portion in dorsal view.



Figs 50-56: *Orsunius pravus* nov.sp.: (50) habitus; (51) forebody; (52) anterior median portion of head in dorsal view; (53) median portion of pronotum; (54) male sternite VIII; (55-56) aedeagus in lateral and in ventral view. Scale bars: 50: 1.0 mm; 51: 0.5 mm; 52-56: 0.2 mm.

Orsunius pravus nov.sp. (Figs 50-56)

T y p e m a t e r i a l : $\underline{\text{Holotype } \circlearrowleft}$: "Thailand - river near Ban Pong Din, 32 km ENE Chiang Mai, 27.XI.2004, leg. W. Rossi / $\underline{\text{Holotypus }}$ $\underline{\mathcal{S}}$ Orsunius pravus sp. n. det. V. Assing 2011" (cAss).

D e s c r i p t i o n : Body length 4.2 mm. Habitus as in Fig. 50. Coloration: head reddish-brown; pronotum reddish; elytra reddish-yellow; abdomen reddish-brown; legs and antennae reddish.

Head approximately 1.2 times as broad as long, weakly dilated posteriad (Fig. 51); posterior margin weakly concave in the middle; punctation coarse and sparse (Fig. 52);

interstices glossy, in most of dorsal surface broader than diameter of punctures; sides of head with long black setae. Eyes large and bulging, approximately as long as postocular portion in dorsal view.

Pronotum weakly transverse, 1.06 times as wide as long and approximately 1.05 times as broad as head (Fig. 51); posterior angles rounded, weakly marked; lateral margins visible only in posterior two thirds when viewed from above; punctation denser and less coarse than that of head; midline impunctate (Fig. 53); lateral margins without long black setae.

Elytra approximately 1.05 times as long as pronotum (Fig. 51); punctation very dense and moderately fine; interstices without microsculpture. Hind wings fully developed. Protarsomeres I-IV distinctly dilated; metatarsomere I longer than II and slightly shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine, dense on anterior tergites and slightly less dense on posterior tergites; interstices with distinct microsculpture; posterior margin of tergite VII with palisade fringe.

♂: sternite VII with weakly concave posterior margin, otherwise unmodified; sternite VIII oblong, posterior margin weakly concave (Fig. 54); aedeagus 0.55 mm long; ventral process large, laterally compressed, somewhat asymmetric in ventral view, and with apex of distinctive shape (Figs 55-56).

E t y m o l o g y: The specific epithet (Latin, adjective: twisted) alludes to the asymmetric ventral process of the aedeagus.

C o m p a r a t i v e n o t e s : This species is characterized particularly by the morphology of the aedeagus and distinguished from most congeners also by the sparse and coarse punctation of the head, and by the weakly transverse pronotum.

D is tribution and natural his tory: The type locality is situated in northwestern Thailand, where the holotype was apparently collected on a river bank.

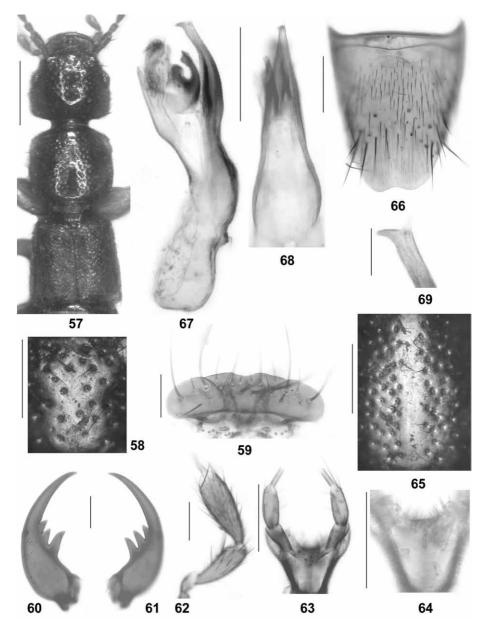
Orsunius prolongatus nov.sp. (Figs 57-69)

T y p e m a t e r i a l : <u>Holotype ♂</u>: "Indonesia, Bali, Batukaru, 700 m, Laub, 09.06.1994, P. Wunderle / Holotypus ♂ *Orsunius prolongatus* sp.n. det. V. Assing 2011" (cAss). <u>Paratypes</u>: 2 ♀ ♀: same data as holotype (cWun).

Description: Relatively small species; body length 3.7-4.3 mm. Coloration: forebody pale, dark-yellowish to reddish-yellow; abdomen reddish to pale reddish-brown, with the apical portions of segments VII and VIII yellowish; legs and antennae yellowish.

Head moderately transverse, 1.15-1.20 times as broad as long (Fig. 57); posterior margin almost truncate, very indistinctly concave in the middle; punctation coarse and sparse (Fig. 58); interstices glossy, in most of dorsal surface broader than diameter of punctures; sides with relatively few long dark-brown setae. Eyes relatively small, shorter than post-ocular portion in dorsal view. Antenna with preapical antennomeres very weakly transverse. Gular sutures separated by a distance greater than the width of antennomere III. Anterior margin of labrum weakly concave (Fig. 59) to distinctly incised in the middle; mandibles long and slender (Figs 60-61); apical maxillary palpomere long (Fig. 62); labium and ligula as in Figs 63-64.

Pronotum relatively weakly transverse, 1.05-1.10 times as wide as long and approximately 1.05 times as broad as head (Fig 57); posterior angles rounded, weakly marked;



Figs 57-69: Orsunius prolongatus nov.sp.: (57) forebody; (58) median dorsal portion of head; (59) labrum (paratype); (60-61) left and right mandible; (62) maxillary palpus; (63) labium; (64) ligula; (65) median dorsal portion of pronotum; (66) male sternite VIII; (67) aedeagus in lateral view; (68) apical portion of aedeagus in ventral view; (69) apex of ventral process in lateral view. Scale bars: 57: 0.5 mm; 58, 65-68: 0.2 mm; 59-64: 0.1 mm; 69: 0.05 mm.

lateral margins visible in posterior two thirds of lateral margin, in anterior third concealed when viewed from above; lateral margins with few long setae; punctation somewhat denser and slightly less coarse than that of head; midline broadly impunctate (Fig. 65).

Elytra short, 0.85-0.90 times as long as pronotum (Fig. 57); punctation very dense, shallow, fine and somewhat ill-defined; interstices without microsculpture. Hind wings present. Tarsi slender; protarsomeres I-IV strongly dilated; metatarsomere I longer than II and slightly shorter than the combined length of II and III.

Abdomen approximately as wide as elytra; punctation extremely fine and dense, slightly less dense on posterior tergites; interstices with distinct microsculpture; posterior margin of tergite VII with palisade fringe.

 δ : sternite VII unmodified; sternite VIII posteriorly elongated, much longer than broad, posterior portion without pubescence; posterior margin shallowly concave in the middle (Fig. 66); aedeagus 0.63 mm long, not distinctly asymmetric (Figs 67-68); ventral process slender and bent dorsad in lateral view, apically with two fine processes (Fig. 69); internal sac with apical sclerotized structures of characteristic shape.

C o m m e n t: In one of the paratypes, the labrum is only shallowly concave in the middle (Fig. 59). Since only three type specimens are available, it is difficult to say if this is a teratological malformation or an expression of normal intraspecific variation. In any case, it shows that the shape of the labrum, which has been attributed particular importance in the taxonomy of Paederinae and many other Staphylinidae, may be subject even to intraspecific variation.

E t y m o l o g y : The specific epithet (Latin, adjective) refers to the shape of the male sternite VIII.

C o m p a r a t i v e n o t e s : This species is characterized particularly by the sparse punctation of the head, the long apical maxillary palpomere, the long and slender mandibles, the small eyes, the weakly transverse pronotum, the short elytra, slender tarsi, strongly dilated protarsomeres I-IV, the strongly elongated and posteriorly non-pubescent male sternite VIII, as well as by the shape of the aedeagus (ventral process, apical internal structures). In external appearance, it is most similar to *O. pravus*, from which it is easily distinguished by the smaller eyes and the much more strongly dilated protarsomeres I-IV alone.

Distribution and natural history: The type locality is situated near lake Batukaru in Bali, Indonesia, where the specimens were sifted from forest leaf litter at an altitude of 700 m. One of the paratypes is apparently somewhat teneral.

Orsunius discipennis (FAUVEL 1895), nov.comb. (Figs 70-76)

Medon discipennis FAUVEL 1895: 230.

Medon (Hypomedon) discipennis: CAMERON (1931).

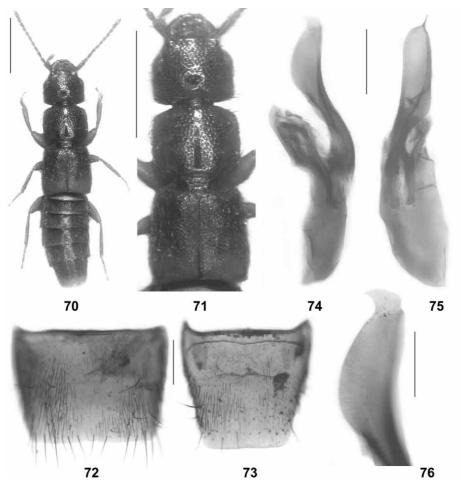
Type material examined: <u>Lectotype ♂, present designation</u>: "Carin, Asciuii Ghecù, 1400-1500 m, L. Fea. III-IV.88 / discipennis Fvl. / Ex-Typis / I. R. Sc. N. B. / Lectotypus ♂ *Medon discipennis* Fauvel, desig. V. Assing 2011 / Orsunius discipennis (Fauvel), det. V. Assing 2011" (IRSNB). <u>Paralectotype</u> ♀: same data as lectotype (IRSNB).

C o m m e n t: The original description is based on an unspecified number of syntypes from "Birmanie, Carin Asciuii Ghécu, 1400-1500 m" (FAUVEL 1895). Three syntypes, two males and a female, were located in the Fauvel collection at the IRSNB. They belong to two species. The male that is conspecific with the female is designated as the

lectotype. The male of the second species is designated as the holotype of the species described in the following section.

R e d e s c r i p t i o n : Body length 4.3-4.5 mm. Habitus as in Fig. 70. Coloration: head and pronotum reddish; elytra pale reddish, with the anterior two thirds infuscate, except for the suture and the humeral angles; abdomen dark-reddish; legs and antennae reddish.

Head approximately 1.25 times as broad as long (Fig. 71); punctation coarse and dense, somewhat sparser in posterior median portion of dorsal surface; interstices without microsculpture; lateral margins with numerous long black setae. Eyes large and bulging, slightly longer than postocular portion in dorsal view. Anterior margin of labrum with distinct median incision.



Figs 70-76: Orsunius discipennis (FAUVEL), lectotype: (**70**) habitus; (**71**) forebody; (**72**) male sternite VII; (**73**) male sternite VIII; (**74-75**) aedeagus in lateral and in ventral view; (**76**) apex of ventral process of aedeagus in lateral view. Scale bars: **70-71**: 1.0 mm; **72-75**: 0.2 mm; **76**: 0.1 mm.

Pronotum (Fig. 71) distinctly transverse, 1.20-1.25 times as broad as long and 1.05-1.10 times as wide as head; punctation similar to that of head; midline with rather broad, distinct, and complete impunctate band; margins with numerous long black setae.

Elytra approximately as long as pronotum (Fig. 71); punctation very fine and dense. Hind wings present and apparently fully developed. Tarsi moderately short; protarsomeres I-IV distinctly dilated; metatarsomere I slightly shorter than the combined length of II and III.

Abdomen with fine, moderately dense punctation and with moderately pronounced microsculpture; posterior margin of tergite VII with palisade fringe.

3: sternite VII transverse, pubescence not distinctly modified (Fig. 72); sternite VIII with truncate posterior margin (Fig. 73); aedeagus 0.83 mm long and with long asymmetric ventral process of distinctive shape (Figs 74-76).

C o m p a r a t i v e n o t e s: In external and the male sexual characters, O. discipennis is extremely similar to O. wunderlei, from which it is distinguished only by the less pronounced microsculpture and less dense punctation of the abdomen, as well as by the different shape of the ventral process of the aedeagus.

Distribution and natural history: This species has become known only from the type locality in Burma, where it was collected at an altitude of 1400-1500 m during the period from March through April.

Orsunius securifer nov.sp. (Figs 77-83)

Type material: Holotype &: "Carin, Asciuii Ghecù, 1400-1500 m, L. Fea. III-IV.88 / Ex-Typis / I. R. Sc. N. B. / Paralectotypus Medon discipennis Fauvel, desig. V. Assing 2011 / Holotypus & Medon securifer nov.sp., det. V. Assing 2011" (IRSNB).

C o m m e n t: The holotype belongs to the original type series of *Medon discipennis* FAUVEL.

Description: Body length 4.4 mm. Habitus as in Fig. 77. Coloration: head and pronotum bright reddish; elytra pale reddish, with the anterior two thirds infuscate, except for the suture and the humeral angles; abdomen reddish; legs and antennae yellowish-red.

Head nearly 1.2 times as broad as long (Fig. 78); punctation coarse and dense, somewhat sparser in posterior median portion of dorsal surface; interstices without microsculpture; lateral margins with numerous long black setae. Eyes large and bulging, slightly longer than postocular portion in dorsal view. Anterior margin of labrum with distinct median incision.

Pronotum (Fig. 78) transverse, 1.2 times as broad as long and nearly 1.1 times as wide as head; punctation similar to that of head; midline with rather broad, distinct, and complete impunctate band; margins with numerous long black setae.

Elytra slightly longer than pronotum (Fig. 78); punctation very fine and dense; interstices without microsculpture. Hind wings present and apparently fully developed. Tarsi moderately short; protarsomeres I-IV distinctly dilated; metatarsomere I slightly shorter than the combined length of II and III.

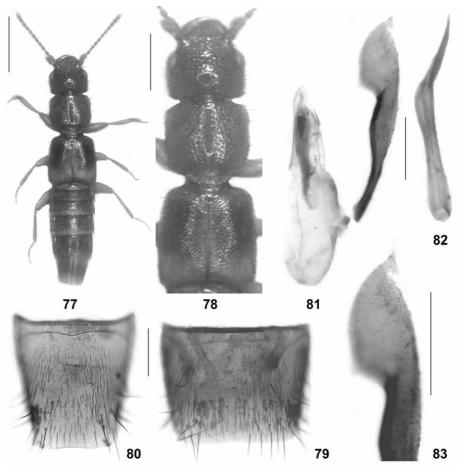
Abdomen with fine, dense punctation and with pronounced microsculpture; posterior margin of tergite VII with palisade fringe.

♂: sternite VII transverse, pubescence not distinctly modified (Fig. 79); sternite VIII distinctly oblong and with truncate posterior margin (Fig. 80); aedeagus with conspicuous long and large asymmetric ventral process of distinctive shape (Figs 81-83).

E t y m o l o g y : The specific epithet (Latin, adjective: carrying an axe) refers to the shape of the ventral process of the aedeagus.

C o m p a r a t i v e n o t e s: This species is distinguished from the similar and syntopic O. discipennis particularly by the brighter coloration, the more slender habitus, the slightly less dense punctation of the head and pronotum, by the distinctly oblong male sternite VIII, as well as by the different shape of the ventral process of the aedeagus.

Distribution and natural history: The type locality and other data are identical to those of O. discipennis.



Figs 77-83: Orsunius securifer nov.sp.: (77) habitus; (78) forebody; (79) male sternite VII; (80) male sternite VIII; (81) aedeagus in lateral view; (82) ventral process of aedeagus in ventral view; (83) apex of ventral process of aedeagus in lateral view. Scale bars: 77: 1.0 mm; 78: 0.5 mm; 79-83: 0.2 mm.

Orsunius sp. 1

M a t e r i a l e x a m i n e d : 1 \(\): "N-Thailand, Chiang Mai, Sandoeng, Flußufer, 350-550 m, Sand, Steine, 12.11.1995, P. Wunderle" (cAss).

C o m m e n t : Externally, the above female is similar to *O. wunderlei*, but distinguished by sparser and slightly coarser punctation of the head and pronotum, the smaller and less transverse pronotum, and the presence of numerous dark lateral setae on the head and pronotum.

Orsunius sp. 2

M a t e r i a l e x a m i n e d : 1 \oplus: "Taiwan - Taitung Co., Rd. No. 20, km 184, 600 m, decaying trunk with termites, 10.IV.2007, leg. Vit [9]" (cAss).

C o m m e n t: The above female is most similar to *O. pravus* and *O. prolongatus*, but distinguished particularly by the finer punctation of the head and pronotum.

Key to the species of Orsunius

Pronotum small in relation to head (Fig. 28), at most as broad as head. Punctation of Pronotum larger in relation to head. Punctation of head and pronotum coarser and/or denser. Lateral margins of pronotum visible in posterior two thirds of pronotum when viewed from above. Gular sutures more broadly separated. Male primary and Head with dense punctation (Figs 3, 21, 42). δ : sternite VIII not distinctly oblong, except in O. securifer 3 Head with sparse and rather coarse punctation (Figs 52, 58). ♂: sternite VIII distinctly Head and pronotum with fine punctation (Fig. 42-43). Pronotum narrowly impunctate in the middle (Fig. 43). &: male sternite VIII shallowly excised posteriorly (Fig. 45); aedeagus with symmetric ventral process (Figs 47-49). SW-India; Nepal. O. parvexcisus nov.sp. Head and pronotum with distinctly coarser punctation (Figs 3, 9, 21-22). 3: male sternite VIII either deeply excised or truncate posteriorly; aedeagus with distinctly Pronotum narrowly impunctate in the middle (Fig. 22). δ : sternite VIII with deep and Pronotum broadly impunctate in the middle (Fig. 9). δ : sternite VIII truncate Head and pronotum reddish to dark-brown; elytra dark-brown, with the anterior margins, the suture, and the posterior margins reddish, rarely uniformly reddish; abdomen reddish to reddish-brown, with the middle of tergite VII infuscate. 3: sternite VIII as in Fig. 17; aedeagus with ventral process of characteristic shape (Figs 18-19).

China: Yunnan O. yunnanus nov.sp.

Catalogue of the species of Orsunius

species	distribution
discipennis (FAUVEL 1895), nov.comb. (Medon)	Burma
excisus nov.sp.	SE-Taiwan
parvexcisus nov.sp.	SW-India; Nepal
immsi (BERNHAUER 1914), nov.comb. (Medon)	N-India; Malaysia
= rubicundus (CAMERON 1918) (Medon)	
pravus nov.sp.	NW-Thailand
prolongatus nov.sp.	Indonesia: Bali
securifer nov.sp.	Burma
wunderlei nov.sp.	N-Thailand: Doi Inthanon
yunnanus nov.sp.	China: Yunnan

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Thanks are extended to the colleagues listed in the materials section for the loan of material from their respective collections. In particular, I am grateful to Paul Wunderle and Michael Schülke for the generous gift of the holotypes of some of the species described in this paper. Benedikt Feldmann, Münster, proof-read the manuscript.

Zusammenfassung

Die Gattung *Orsunius* nov.gen. (Typusart: *O. wunderlei* nov.sp.) aus der Subtribus Medonina wird beschrieben und abgebildet. Die in der Orientalis verbreitete Gattung umfasst derzeit neun beschriebene Arten: *O. discipennis* (FAUVEL 1895), nov.comb. (Myanmar), *O. excisus* nov.sp. (Taiwan), *O. parvexcisus* nov.sp. (SW-Indien, Nepal), *O. immsi* (BERNHAUER 1914), nov.comb. (N-Indien, Malaysia), *O. pravus* nov.sp. (N-Thailand), *O. prolongatus* nov.sp. (Indonesien: Bali), *O. securifer* nov.sp. (Myanmar), *O. wunderlei* nov.sp. (N-Thailand) und *O. yunnanus* nov.sp.

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(China: Yunnan). Für *Medon discipennis* FAUVEL 1895 und *M. rubicundus* CAMERON 1918 werden Lectotypen designiert. Alle Arten werden beschrieben und abgebildet. Soweit bekannt, wurden sie in der Laubstreu von Wäldern, in Totholz und in Kompost in unteren bis mittleren Höhenlagen (100-1750 m) gefunden. Eine Bestimmungstabelle und ein Katalog der Arten werden erstellt.

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