

***Stenhomalus tomiichii* sp. nov. (Coleoptera, Cerambycidae)
Providing Highly Specialized Male Genital Organs
from the Malay Peninsula**

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Abstract A new species of the obriine genus *Stenhomalus* is described from the Malay Peninsula under the name *S. tomiichii* sp. nov. The morphological peculiarity of the male genitalia of the genus *Stenhomalus*, as well as the one of *S. tomiichii* sp. nov. are discussed.

Introduction

Only one member of the genus *Stenhomalus* has so far been known from the Malay Peninsula, albeit that a large number of entomologists have visited there repeatedly since the mid-1800s. That species is *S. suturalis* HAYASHI, which was described based on the single male specimen collected at Gap of Fraser's Hill, Pahang, West Malaysia (HAYASHI, 1977). In this paper, a new species of this genus from the Malay Peninsula is introduced into science.

The new species has almost simple colour body and somewhat is similar in facies to *S. unicolor* NIISATO et HUA from East China. However, it is distinguished from it by the different coloration of antennae, more widely separated eyes and strongly dilated apical part of the pronotum. The most notable point of the new species is its highly specialized male genital organs. The median lobe has a harpoon-shaped apical part with a pair of acute hooks at sides.

I dedicated this paper to the memory of the late Mr. Tomiichi NISSATO, who is my uncle, as well as my first entomological mentor since my elementary school. He passed away at the age of 84 on November 13, 2012. Without the favored relationship with him, I would not conduct entomological study.

***Stenhomalus (Stenhomalus) tomiichii* sp. nov.**

(Figs. 1–8)

Male. Body length: 4.7 mm (from apical margin of clypeus to elytral apices); width: 1.2 mm (across elytral humeri).

Small and slender species of brownish body, with bicolored antennae. Colour almost uniformly brown, partly light yellowish brown, shiny in general; head reddish brown, light yellowish brown in maxilla and labium except for terminal segments of palpi which are more infuscate, eyes black; antennae dark yellowish brown in basal three segments, light yellowish brown in apical eight segments which have brownish apical parts in segments 4–9; pronotum and elytra dark reddish brown; elytra dull dark yellowish brown, light yellowish brown near humeri and apical fourth; ventral surface dark yellowish brown, slightly more yellowish in apical two sternites of abdomen.

Head long and moderately large, 1.4 times as wide as the apical width or of pronotum, somewhat rugosely punctured, sparsely clothed with pale yellow long hairs; frons transverse quadrate though slightly narrowed apicad, gently arcuate at apical margin, with broad median groove, densely with

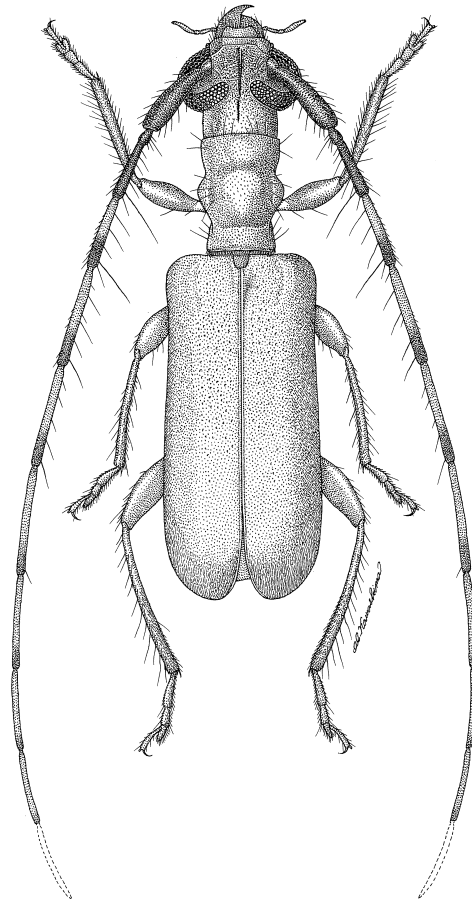


Fig. 1. *Stenhomalus (Stenhomalus) tomiichii* sp. nov., holotype male, from the Malay Peninsula.

pale yellow pubescence; mandibles long and stout; eyes very deeply emarginate, coarsely faceted, separated one from another in half the width of each lobe. Antennae medium in length, moderately stout, surpassing elytral apices at base of segment 8, clothed with pale yellow pubescence, and with sparse rows of long pale brown hairs along undersides of basal five segments; scape weakly clavate, 1.5 times as long as segment 3, finely and coarsely punctured, segments 3 and 4 weakly thickened at each apex, the former $\frac{3}{4}$ the length of the latter, segment 6 the longest, 1.8 times as long as segment 3 (apical two segments are missing in the holotype).

Pronotum short, 1.2 times as long as the apical width, distinctly divergent to apex which is 1.45 times as wide as base; sides strongly constricted at apical and basal third, with prominent large lateral tubercles near middle; disc weakly raised from basal third to apex, though transversely depressed in apical and basal third, provided with a pair of oblique oblong swellings near apical $\frac{2}{3}$, finely closely punctured, scattered with pale yellow hairs, clothed with recumbent silvery white pubescence at sides and on basal third. Scutellum trapezoidal with rounded apex, clothed with a few pale yellow hairs.

Elytra relatively short and broad, 2.4 times as long as the humeral width; sides rounded quadrate at humeri, almost parallel-sided though gently dilated from middle to apices which are widely rounded; disc raised near suture behind scutellum and near apical $\frac{2}{3}$, longitudinally depressed near middle,

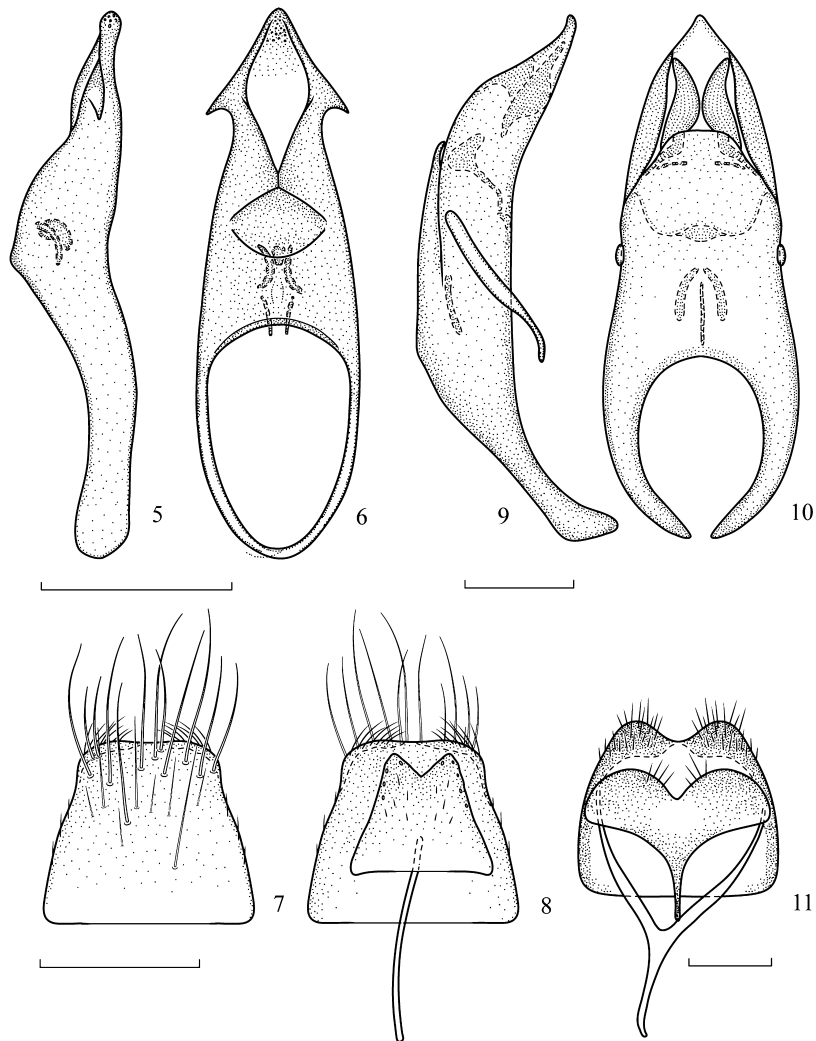


Figs. 2–4. *Stenhomalus (Stenhomalus) tomiichii* sp. nov., holotype male, from the Malay Peninsula. — 2, Whole habitus; 3, fore body, dorsal view; 4, ditto, dorso-lateral view.

finely closely punctured, provided with large punctures at area between basal ninth and just behind middle, densely clothed with pale yellow pubescence, though sparsely so on basal eighth, and very sparsely with long to medium-sized pale yellow hairs.

Venter of thoraces entirely micro-sculptured, intermixed with fine punctures, clothed with short pale yellow hairs; prosternal process markedly compressed near middle between coxal cavities, with triangularly dilated apical part; mesosternal process relatively narrow, subparallel-sided, weakly emarginate at apical margin. Abdomen short and broad, scattered with fine punctures, clothed with short pale yellow hairs, subparallel-sided in 3rd sternite, narrowed apicad in arcuate line in 4th to 7th sternites.

Legs medium in length, moderately stout; hind femur weakly clavate from basal fourth to apical



Figs. 5–11. Male genital organs of *Stenhomalus (Stenhomalus)* spp. — 5–8, *S. (S.) tomiichii* sp. nov., holotype, from the Malay Peninsula; 9–11, *S. (S.) japonicus* (PIC, 1904), from Sado Is. off eastern Honshu, Japan; 5, 9, median lobe, lateral view; 6, 10, ditto, dorsal view; 8, 11, 8th abdominal tergite and 8th–9th abdominal sternites, ventral view; 7, 8th tergite, dorsal view. Scale: 0.2 mm.

third, more or less compressed; hind tarsus with first segment 0.85 times as long as the following two segments combined.

Median lobe spindle-shaped with harpoon-shaped apical part; apical lobe in lateral view, depressed in apical third then moderately raised towards base, in dorsal view, very weakly narrowed to basal half then more strongly so to apical third, with a harpoon-shaped apical third, bluntly pointed at apical end and provided with a pair of acute hooks at sides, triangularly dehiscent at a level between apical third to middle; median struts a half the length of median lobe, broad and sinuate in lateral view, completely connected in apical part. Tegmen absent. Eighth tergite nearly trapezoidal, nearly truncate at apical margin, provided with very long setae along apical margin and on dorsum, densely

with short setae on ventral side of apical margin. Eighth sternite triangularly concave at apical margin.

Type specimen. Holotype ♂, Habu Power Station, 1,400 m in alt., Cameron Highlands, Pahang, West Malaysia, 16–IV–1981, M. ITO leg. The holotype is preserved in the department of Zoology, National Museum of Nature and Science, Tsukuba.

Distribution. West Malaysia (Malay Peninsula).

Etymology. The new specific name is dedicated to the memory of the late Mr. Tomiichi NISSATO.

Notes. *Stenhomalus tomiichii* sp. nov. is allied to *S. unicolor* NISSATO et HUA from East China (NISSATO & HUA, 1998), but easily distinguished from the Chinese species by the infuscate basal three segments (basal two in *S. unicolor*) and the bicolored middle segments (unicolored in *S. unicolor*) of antenna, hardly approximate eyes which are separated one from another by half the width of each lobe (1/4 in *S. unicolor*), and strongly dilated apical part of pronotum. It may be similar in general appearance to *S. kubani* HOLZSCHUH from North Vietnam (HOLZSCHUH, 1989) and *S. nanellus* HOLZSCHUH from Northeast Laos (HOLZSCHUH, 2010), but clearly distinguished from these two species by the longer elytra compared with the length of pronotum, which is triple the length of pronotum rather than being less than twice in the latter two.

The holotype was collected at Cameron Highlands of the Malay Peninsula about thirty years ago. To my best knowledge, there is no news of any additional specimen since the first discovery, albeit that many entomologists have visited repeatedly to the type locality. Therefore, the ecology of this new species is almost uncertain. The holotype male was collected occasionally by sweeping tree leaves according to the collector.

Discussion

The male genital organ of the genus *Stenhomalus* was first described and illustrated by MIRESHNIKOV (1990) based on *S. lighti* GRESSITT (= *S. japonicus* (PIC) in present sense). The Russian author also established a monotypic new tribe Stenomalini for the genus based on the genitalic peculiarity. NISSATO (1998) and, NISSATO and KINOSITA (2009) carefully described and illustrated the male genital organs of *S. fenestratus* WHITE (type species) and *S. japonicus*. The morphological characteristics of male genital organs of the genus are summarized as follows: median lobe usually spindle-shaped, with median orifice opened at dorsal side, ventral plate at sides extended to dorsal side and formed lateral walls, dorsal plate strongly reduced and largely exposing the apical half of ventral plate (Figs. 5, 6, 9 & 10); tegmen recognized only Y-shaped ring part, without parameres (Figs. 5 & 6); endophallus armed with sclerotized copulatory pieces. The male genital organs of *Stenhomalus* show the most significant modification among those of the tribe Obriini.

The median lobe of *S. tomiichii* sp. nov. may look extremely strange even in such specialized structure in *Stenhomalus*. The apical part of median lobe is a flattened harpoon-form providing with a pair of acute lateral hooks (Fig. 6), and the tegmen is completely disappeared (Figs. 5 & 6). It is highly probable that the hooks possess a useful function to prevent the falling off near the orifice in coxite of female. The flattened apical part of median lobe may be easily inserted to the coxite. What kind of influence does the absence of tegmen exert on the function? It is a subtle idea that the 8th abdominal segment substitutes the function of tegmen, since there is no specialized structure recognized on its tergite and sternite. Additionally, the copulatory piece of endophallus is weakly developed, and seems to have no special function. However, it is difficult to explain that the peculiar structure of the apical part of median lobe can complement all the other functions, such as the absence of tegmen. It is expected that an intermediate species between the usual type and *S. tomiichii* sp. nov. will be found, and resolve the structure and function of this highly specialized male genital organs.

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要 約

新里達也：マレー半島から発見された特異な雄交尾器をもつメダカカミキリ属の1新種(鞘翅目カミキリムシ科)。—— マレー半島のメダカカミキリ属は *Stenhomalus suturalis* HAYASHI の唯一種だけが従来知られていたが、このたびキャメロンハイランズより得られた標本をもとに新種 *S. tomiichii* sp. nov. を命名記載した。本新種は中国東部から知られる *S. unicolor* NIISATO et HUA にやや似ているが、触角中間節の先端部が暗色になることやより広く離れる複眼間、前方に大きく広がる前胸背板などから区別は容易である。本種の雄交尾器は非常に特異な形態を示し、中央片は先端部が鉤状となって両側に返しをそなえ、側片は退化して完全に失われている。メダカカミキリ属の構成種は高度に特殊化した雄交尾器をもつが、本種はそのなかでもとりわけ特殊化の進んだ構造をそなえている。

新名の *tomiichii* は、2012年11月13日に享年84歳で逝去した、私の叔父であり、昆虫採集の師匠であった故・新里富一に因む。幼少の頃に、叔父との熱い交流がなければ、昆虫学の研究を志すことはなかったであろう。

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