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Notes on *Smetanabatrus* from Southeast Asia (Coleoptera: Staphylinidae: Pselaphinae)

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Abstract: A new species of *Smetanabatrus* Yin & Li, *S. loebli* Yin & Cuccodoro sp. nov., is described and illustrated from West Malaysia, representing the third known member of the genus. Additionally, *Smetanabatrus ghecu* Yin & Li, originally described from Myanmar, is recorded from a new locality in Thailand. A key to and a distributional map of the three *Smetanabatrus* species are provided.

Keywords: Batrisini - taxonomy - new taxon - new collecting data - Indomalayan region.

INTRODUCTION

The oriental pselaphine genus *Smetanabatrus* Yin & Li (Batrisitae: Batrisini) has until now included only two species in Southeast Asia: *S. kinabalu* Yin & Li (type species) from Borneo, and *S. ghecu* Yin & Li from central Myanmar (Yin & Li, 2013, 2015). Males of this genus, as far as is known, possess a sexually modified visible sternite 3 (morphologically sternite V) which bears a prominent median projection. Other male dimorphic characters can often be found on the head, various parts of the legs, and tergites. A few notable features, *i.e.*, the presence of ocular canthi, strongly broadened/lobed fourth maxillary palpomeres, and a markedly large and transverse aedeagal basal capsule, are shared by both known species. These characters may provide a reliable means to separate *Smetanabatrus* from related batrisine genera.

When sorting unidentified pselaphine material housed in the Muséum d'histoire naturelle de Genève, we recognized three more *Smetanabatrus* specimens. The finding included a new species from West Malaysia, and a new country record for *S. ghecu* in Thailand.

MATERIAL AND METHODS

The material treated here is deposited in the Muséum d'histoire naturelle de Genève, Switzerland (MHNG). The label data of the material are quoted verbatim. Dissected parts are preserved in Euparal on plastic slides that are placed on the same pin with the specimen. The

habitus images (Fig. 1A) were taken using a Canon 5D Mark III camera in conjunction with a Canon MP-E 65mm f/2.8 1-5X Macro Lens, and a Canon MT-24EX Macro Twin Lite Flash was used as light source. Images of other morphological details (Fig. 1B-I) were produced using a Leica DFC425 Camera attached to a Leica M205C stereomicroscope, using reflected light. Zerene Stacker (version 1.04) was used for image stacking. All images were modified and grouped into plates in Adobe Photoshop CS5 Extended. The base map was obtained from <http://www.simplemapp.net>, an on-line tool for creating maps that can be freely used for publications and presentations (Shorthouse, 2010).

Following Chandler (2001), the abdominal tergites and sternites are numbered in Arabic for the visible segments, and in Roman to indicate their morphological position. The visible abdominal segments begin with tergite 1 (IV) and sternite 1 (III).

TAXONOMY

Smetanabatrus loebli sp. nov.

Figs 1-2

Type locality: Genting Highlands, Pahang, Peninsular Malaysia.

Type material (2 ex.): Holotype, MHNG-ENTO-00013301; ♂; W. Malaysia # 28, Pahang, Genting Highlands, Awana, 950 m; 4.iv.93; coll. Löbl; veg. debris; "HOLOTYPE (red, printed), *Smetanabatrus loebli* Yin & Cuccodoro 2018". – Paratype:

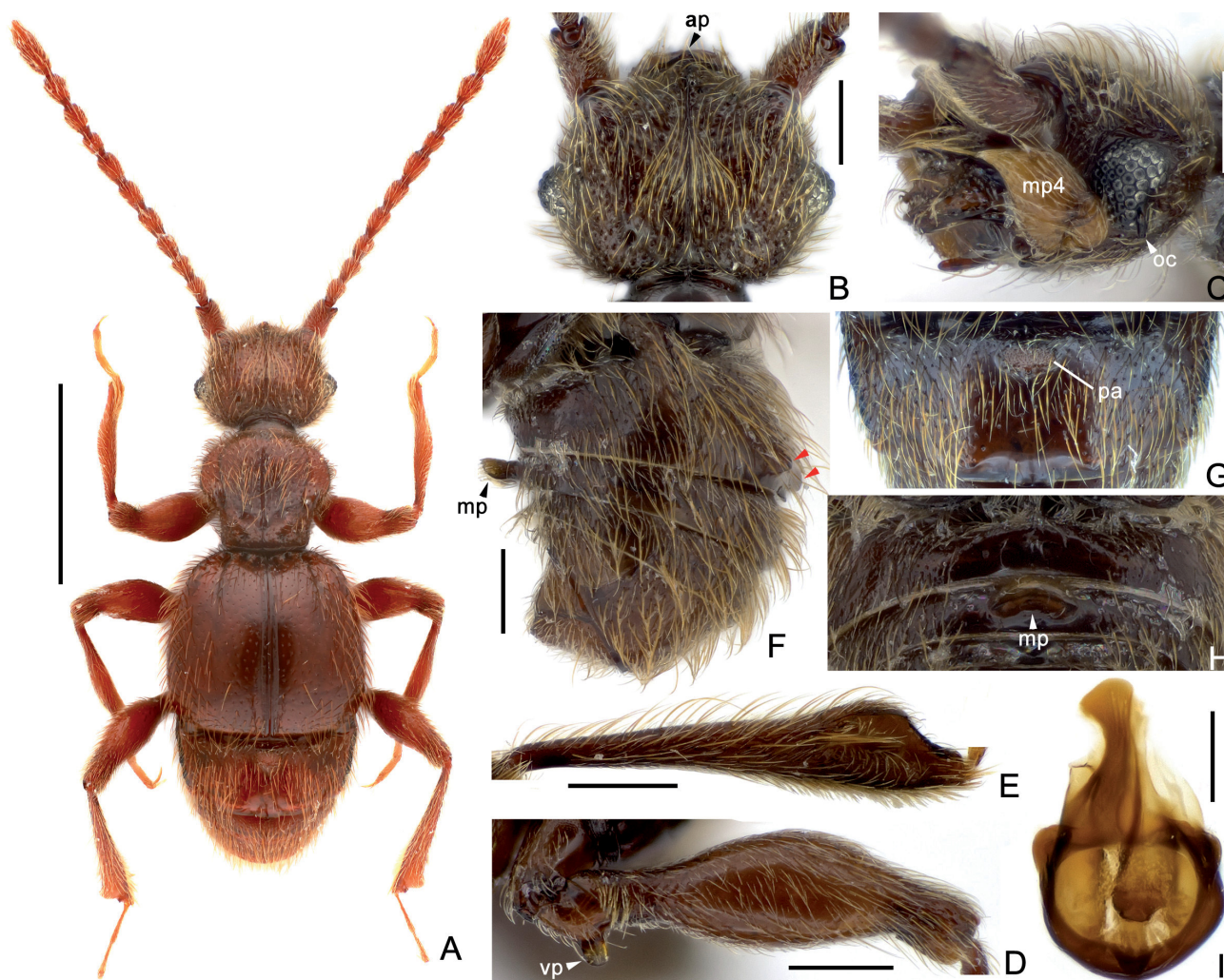


Fig. 1. *Smetanabatrus loebli* male. (A) Dorsal habitus. (B) Head dorsum. (C) Anterolateral view of head, showing form of maxillary palpomere IV and ocular canthus. (D) Protrochanter and profemur. (E) Metatibia. (F) Lateral view of abdomen, showing projections on tergite 1 (IV) and sternite 3 (V). (G) Tergite 1. (H) Median projection of sternite 3, in ventral view. (I) Aedeagus, in ventral view. Scale bars: 1 mm in A; 0.2 mm in B-H, 0.1 mm in I. Abbreviations: ap – apical protuberance, mp – median projection, mp4 – maxillary palpomere IV, oc – ocular canthus, pa – patch, vp – ventral projection.

MHNG-ENTO-00013318; ♀; Malaysia, Malaya, Fraser's Hill, 1500 m; 11.iii.(19)90; coll. Rougemont; "PARATYPE (yellow, printed), *Smetanabatrus loebli* Yin & Cuccodoro 2018".

Diagnosis: Body medium-sized, length 2.66-2.79 mm. Head and pronotum regularly punctate, anterior margin of clypeus angularly projecting anteriorly at middle. Pronotum with thin discal carinae, with distinct median and lateral sulci. Maxillary palpomere IV greatly lobed at inner margin. Distinct ocular canthus present. Males have abdominal tergite 1 (IV), and sternite 3 (V) modified; protrochanter protuberant at ventral margin, metatibia strongly dilated at apical portion; aedeagus with large and transverse basal capsule, median lobe slightly asymmetric.

Description: Male (Fig. 1A). Body length (combined length of head, pronotum, elytra, and abdomen) 2.66 mm. Body reddish brown, tarsi and mouthparts lighter in color. Head distinctly transverse, length from clypeal anterior margin to head base 0.55 mm, width across eyes 0.71 mm; surface regularly punctate; vertex convex, foveae far below level of posterior margins of eyes, lacking reverse U-shaped sulcus connecting foveae, thin median carina present from base toward apex of frons, anterior margin of clypeus angularly protuberant (Fig. 1B; ap) at middle; eyes moderately prominent, longitudinal length 0.15 mm, each eye composed of about 45 facets; with short ocular canthus (Fig. 1C; oc); maxillary palpus with palpomere IV greatly lobed on inner margin (Fig. 1C; mp4); length of antenna 1.85 mm; antennomeres each elongate,

club indistinct (Fig. 1A). Pronotum nearly cordiform, about as long as wide, length along midline 0.60 mm, maximum width 0.64 mm, regularly punctate; with triangular antebasal spines, deep median and thinner lateral sulci, and slightly curved discal carinae on disc; lateral margins rounded on apical half, straight and nearly parallel from middle toward base. Elytra slightly wider than long, length along suture 0.88 mm, maximum width 1.00 mm; surface finely punctate; with three large, deep basal foveae, thin and shallow discal sulcus extending just past half elytral length. Legs moderately elongate; prothrochanter with large flattened projection (Fig. 1D; *vp*) on ventral margin, protibia (Fig. 1A) with lateral margin slightly expanded near middle; metatibia (Fig. 1E) greatly dilated laterally on apical third, expansion broadly concaved on ventral surface. Abdomen much wider than long, length of dorsally visible part along midline 0.63 mm, maximum width 0.90 mm; tergite 1 (IV) longest, at basal half with transverse oval patch (Fig. 1G; *pa*) slightly raised, maximum diameter of patch 0.14 mm, area lateral to midline moderately raised (Fig. 1F; indicated by red arrows); tergites 2-4 (V-VII) unmodified, with tergite 4 longer than tergites 2 and 3; sternite 3 (V) with reniform (in ventral view) median protuberance (Fig. 1F, 1H; *mp*) strongly projecting ventrally. Aedeagus (Fig. 1I) slightly asymmetric, length 0.33 mm; basal bulb transverse, with large foramen; ventral lobe elongate, broad at base, narrowing at middle, and then roundly expanded toward apex.

Female. Similar to male in external morphology, except having unmodified legs and abdominal segments, slightly shorter antennae, and smaller eyes each composed of about 25 facets. Measurements (as for male): Body length 2.79 mm; head length 0.55 mm, width 0.68 mm; length of eye 0.14 mm; length of antenna 1.59 mm; length of pronotum 0.59 mm, width 0.66 mm; length of elytra 0.80 mm, width 0.95 mm; length of abdomen 0.85 mm, width 0.89 mm.

Comments: Several shared features, *i.e.*, the slightly expanded outer margin of the protibia, modified male tergite 1 (IV), and strongly dilated male metatibia suggest that the new species may be more closely related to *S. kinabalu* from Borneo than to *S. ghecu* from Myanmar. Males of the latter species have the protibia slightly broadened on inner margin, and have unmodified tergite 1 (IV) and metatibia. Separation of the males of these three species may be accomplished by using the key presented below.

Biology: According to unpublished MHNG field notes, #28 on the label of the holotype indicates that the individual was sifted from an accumulation of branches and bamboo leaves in a rather dry forest

Distribution: West Malaysia (Pahang; Fig. 2).



Fig. 2. Distribution of *Smetanabatrus* species. 1 – *S. kinabalu*, 2 – *S. ghecu*, 3 – *S. loebli* sp. nov. Circles are published records, squares represent new data.

Etymology: The new species is named after Ivan Löbl (Geneva, Switzerland), who collected the single male.

Smetanabatrus ghecu Yin & Li, 2015

Smetanabatrus ghecu Yin & Li, 2015: 377.

Type locality: Carin Asciiui Ghecù, southern Shan State, central Myanmar.

Material examined: MHNG-ENTO-00013302; ♀; Thailand, Chiang Mai, Doi Suthep; 3. 87; coll. de Rougemont; “*Smetanabatrus ghecu* Yin & Li 2015, Det. Yin 2018”.

Distribution: Myanmar (southern Shan State); Thailand (Chiang Mai), **new country record** (Fig. 2).

Comments: Given the similar body size (3.38 mm) and proportions, roundly broadened inner and outer margins of the maxillary palpomere IV, presence of a reversed ‘U’-shaped sulcus on the vertex, and coarsely punctate head and pronotum, the present specimen can be readily identified as conspecific with the population from central Myanmar. The present record expands the distributional range of this species some 220 km to the southeast from the type locality.

Key to males

- 1 Vertex lacking reversed 'U'-shaped sulcus connecting foveae (Fig. 1B); maxillary palpomere IV distinctly lobed on inner margin (Fig. 1C; Yin & Li, 2013: fig. 2A); protibia slightly broadened on outer margin (Fig. 1A; Yin & Li, 2013: fig. 1A), metatibia strongly dilated laterally on apical portion (Fig. 1A, 1E; Yin & Li, 2013: figs 1A, 2C) ...
.....2
- Vertex with distinct reversed 'U'-shaped sulcus connecting foveae (Yin & Li, 2015: fig. 1); maxillary palpomere IV with both outer and inner margins roundly expanded (Yin & Li, 2015: fig. 2E); protibia slightly expanded on inner margin (Yin & Li, 2015: figs 1A, 2D), metatibia unmodified. Distribution: Myanmar, Thailand (Fig. 2).....
..... ***S. ghecu***
- 2 Protochanter simple, profemur with large ventral spine (Yin & Li, 2013: fig. 2B); tergite 1 (IV) with large lateral expansions and broad, deep median cavity, tergites 2-3 (V-VI) strongly raised at middle (Yin & Li, 2013: figs 1A, 2D-E). Distribution: East Malaysia (Fig. 2)***S. kinabalu***
- Protochanter with large, flat protuberance on ventral margin, profemur simple (Fig. 1D); tergite 1 (IV) with median patch at basal half, submedial area moderately raised, tergites 2-3 (V-VI) unmodified (Fig. 1F-G). Distribution: West Malaysia (Fig. 2)..... ***S. loebli* sp. nov.**

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REFERENCES

- Chandler D.S. 2001. Biology, morphology, and systematics of the ant-like litter beetle genera of Australia (Coleoptera: Staphylinidae: Pselaphinae). *Memoirs on Entomology, International* 15: i-viii + 1-560.
- Shorthouse D.P. 2010. SimpleMappr, an online tool to produce publication-quality point maps. [Retrieved from <http://www.simplemappr.net>. Accessed May 1, 2018]
- Yin Z.-W., Li L.-Z. 2013. *Smetanabatrus kinabalu* (Staphylinidae: Pselaphinae: Batrisitae), a new genus and new species from Sabah, Borneo. *Zootaxa* 3718(5): 477-482.
- Yin Z.-W., Li L.-Z. 2015. A second species of *Smetanabatrus* (Coleoptera: Staphylinidae: Pselaphinae). *Revue suisse de Zoologie* 122(2): 377-380.