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Notes on the Coprophagous Scarab-beetles (Coleoptera, Scarabaeidae) from Southeast Asia

XXX. A New *Onthophagus* Species from Borneo

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Abstract A new species of the genus *Onthophagus* is described from East Kalimantan, Indonesian Borneo: *O*. (*Micronthophagus*) *fukuyamai* sp. nov.

In East Kalimantan, Indonesian Borneo, collaborating with the Research Center for Biology, Indonesian Institute of Science, the last author has studied dung beetles as a bio-indicator to elucidate the effects of afforestation in relation to CDM (Clean Development Mechanism) (Ueda *et al*., 2015). In the course of our study, about 60 species of Scarabaeinae were collected (Ueda *et al*., 2017). In the present paper, we describe a new *Onthophagus* species from Borneo based on two specimens collected during the period of the present research project.

For the terminology of prothorax, we follow Ochi and Kon (2017). The abbreviations for measurements (in mm) are as follows: Pl — pronotal length along midline; Pw — pronotal width at the widest place; El — elytral length from the middle of posterior margin of pronotum to the apices of elytra; Ew — elytral width at the widest place; Phl — phallobase length in dorsal view; Phw — phallobase width at the distal end in dorsal view; Prl — parameres length in dorsal view. Internal sac of male genitalia was mounted with the Euparal mounting medium on the small glass plates and observed.

Onthophagus* (*Micronthophagus*) *fukuyamai sp. nov.

(Figs. 1−4)

Description of holotype. Length: 5.1 mm.

M a l e. Body small-sized for this genus, oblong-oval, strongly convex dorsally. Dorsal side strongly shining, sparsely clothed with noticeably long erect hairs; ventral side weakly shining to subopaque and distinctly clothed with similar hairs as those on dorsum. Color uniformly dark brown, without metallic luster; mouth parts and palpi blackish brown; legs pale brown; antennae with footstalks pale brown, club segments yellowish brown.

Head large, sub-pentagonal in outline; clypeus strongly produced forward and trapezoidal, with margin weakly reflexed and finely bordered, apex briefly truncated; frontoclypeal suture straight, weakly carinate throughout; genal sutures finely defined and not carinate; genae weakly produced laterad, with genal corner obtusely angled at basal 1/3, and then straight apicad, marginal line fine; vertex with a pair of vague rounded tubercles which are not continuous to each other; surface with clypeus sparsely and finely punctate at middle, sparsely and coarsely so on marginal portions, genae scattered with several coarse punctures, frons sparsely and finely punctate in front, the punctures becoming coarser posteriad.

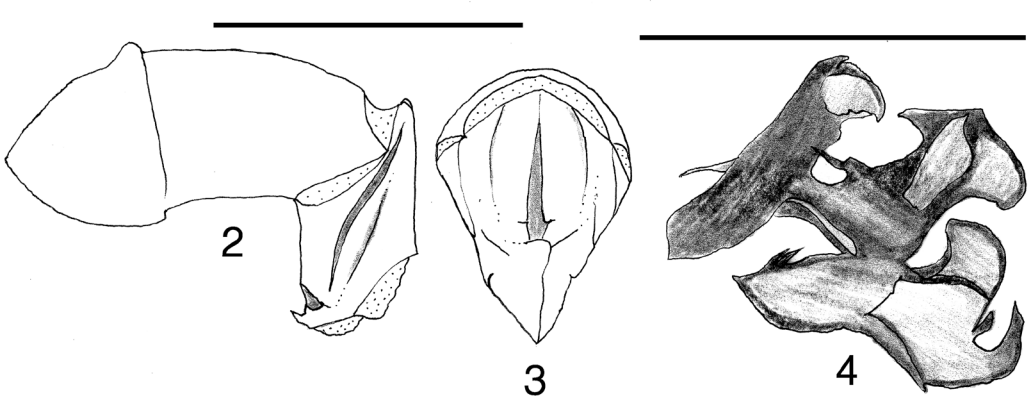
Fig. 1. *Onthophagus* (*Micronthophagus*) *fukuyamai* sp. nov., male (holotype), habitus, in dorsal view. Scale: 5 mm.

Pronotum simply formed, strongly convex above, ca. 1.4 times as wide as long (Pl : Pw = 1.8 : 2.5); median longitudinal groove completely effaced; anterior margin emarginate, distinctly bordered; lateral margins rounded a little before the middle, almost straight in front and scarcely sinuate behind in dorsal view, the sinus slightly visible in lateral view, with marginal line distinct; base gently rounded, with marginal line fairly finely bordered; anterior angles moderately produced forward, with apex somewhat sharp, posterior ones very obtuse; surface rather sparsely and evenly covered with ocellate punctures, each of which bears a long hair, and impunctate along midline.

Elytra moderately convex, ca. 1.3 times as wide as long (El : Ew = 2.2 : 2.8), slightly wider than pronotum, and widest at basal 2/5; striae obviously and a little shallowly grooved throughout, with strial punctures sparse, weak, scarcely notching either margin of intervals; intervals almost flat, with suture arranged with a single longitudinal row of fine asperate setriferous granules, 2nd to 7th intervals arranged with a pair of similar longitudinal rows as those on suture, 8th also longitudinally arranged with three, partly four, longitudinal similar rows of granules.

Pygidium strongly convex in middle, carinate at base, weakly shining, rather sparsely punctate. Prothoracic fovea rather shallowly but obviously excavated for receiving antennae, with external suture carinate throughout. Metaventrite shining, sparsely covered with setiferous asperate granules or punctures. Protibiae slender and weakly incurved, with three distinct external teeth; interspaces between three teeth and the remaining external margin evenly denticulate; terminal spurs strong, slightly de-curved and finger-like. Meso- and metatibiae slender; 1st segment of mesotibia elongate, ca. 3.0 times as long as 2nd; 1st segment of metatibia fairly elongate, ca. 3.7 times as long as 2nd.

Aedeagus noticeably large-sized. Phallobase stout in lateral view, ca. 1.2 mm in length in dorsal view, ca. 0.6 mm in apical width in dorsal view. Parameres short, beak-like shaped and ca. 0.8 mm in dorsal view; in lateral view, each paramere long and quadrate in outline, with ventral distal end produced downward as sharp tooth which is invisible in dorsal view. Internal sac with a very intricately formed lamella, seemingly branched into two lobes, one larger lobe separated into four parts with



Figs. 2–4. *Onthophagus* (*Micronthophagus*) *fukuyamai* sp. nov., male (holotype). —— 2, Male genitalia (parameres and phallobase, left lateral view; 3, parameres, dorsal view; 4, copulatory lamella of internal sac. Scale: 1 mm for figs. 2 & 3; 0.5 mm for fig. 4.

three notches, another lobe transverse.

Variation. Length: 5.1–5.3 mm. The male paratype has the body entirely pale brown, probably because it is teneral. Protibiae with three external teeth more distinctly sharp. No additional variation is perceptible in the paratype specimen.

Type series. Holotype: ♂, Indonesia, East Kalimantan, north of Balikpapan, 9–14.XII.2016. Paratype: 1 ♂, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Zoology Division, Research Center for Biology, LIPI, Bogor, Indonesia.

Etymology. The present new species is dedicated to Dr. Kenji FUKUYAMA, who was one of the coworkers of the last author.

Distribution. Borneo (East Kalimantan).

Notes. The present new species is closely related to *Onthophagus* (*Micronthophagus*) *hystrix* Boucomont, 1914, from India and Sri Lanka, but can be distinguished from the latter by the following characteristics in male: 1) head with clypeus truncated at apex, whereas in *O*. *hystrix*, it is distinctly emarginate at apex; 2) head with a pair of vague rounded tubercles on vertex, whereas in *O*. *hystrix*, they are usually not vague nor rounded; 3) head with frontoclypeal suture straight, weakly carinate, whereas in *O*. *hystrix*, it is distinctly procurved; 4) clypeal surface of head sparsely and finely punctate at the middle, whereas in *O*. *hystrix*, it is coarsely and rugosely punctate.

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要　　約

越智輝雄・近　雅博・上田明良：ボルネオ産エンマコガネ属 *Onthophagus*（鞘翅目コガネムシ科）1新種の記載．———— エンマコガネ属の1新種をボルネオの東カリマンタンから記載し，*Onthophagus* (*Microntho-phagus*) *fukuyamai* sp. nov. と名付けた．

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