Notes on the Coprophagous Scarab-beetles
(Coleoptera: Scarabaeidae) from Southeast Asia (X)
— Four New Species of the Genus Onthophagus (Onthophagus) from Borneo —

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Abstract Four new species of Onthophagus (Onthophagus) are described from Borneo under the names of O. (O.) robertopogii sp. nov., O. (O.) cupreopastillatus sp. nov., O. (O.) sabahensis sp. nov. and O. (O.) magnioculus sp. nov.

In the course of our recent studies on a large series of specimens of the genus Onthophagus collected by T. KIKUTA, Sabah (OCHI and KON, 2005 a; b; c), we found four additional new species of the subgenus Onthophagus that will be described in this paper.

Onthophagus (Onthophagus) robertopogii sp. nov.
(Figs. 1, 5–8)

Length: 9.0–13.0 mm; width: 4.8–6.5 mm (n = 29).

Male. Body somewhat large-sized, oval, strongly convex dorsally; dorsal side almost opaque, entirely glabrous; ventral side slightly shining, partly clothed with yellowish hairs. Color uniformly black, without metallic luster; mouth organs and palpi dark reddish brown; antennae with foot-stalks reddish brown, club segments a little paler; legs more or less reddish.

Head distinctly transverse; clypeal margin almost parabolic, not strongly produced forward, broadly bordered and a little reflexed, with median portion briefly truncated or rounded, sides gently rounded; clypeal suture strongly carinate and almost straight or weakly curved at frontal section, weakly carinate at genal sections; gena strongly produced laterad, obtusely angulate at the middle though rounded apicad; posterior portion of head armed with a pair of vertically erected slender horns between eyes, the horn almost straight though very slightly curved outward in apical third; the interspace between the two horns are smooth, not connected to each other by the carina or lamina though the two horns connected by the sharp carina in a little smaller males; in minor males, the horns reduced to a pair of short tubercles; surface weakly micro-granulose, sparsely and rather finely punctate in the middle, the punctures becoming a little coarser and denser on genae, transversely and weakly wrinkled on clypeus.
Pronotum strongly convex dorsally, 1.44–1.58 times as wide as long (n = 3), with a weak longitudinal impression along midline in basal two-thirds; anterior margin weakly sinuate, distinctly bordered, the marginal border becoming rather wider in middle; lateral margins gently rounded in front, distinctly sinuate behind, finely bordered; anterior angles well produced forward and rounded at apex; posterior angles obtuse; base obtusely angulate in the middle, not distinctly bordered; disc steeply declivous just behind anterior margin, with upper edge of the declivity slightly produced as an obtusely angulate prominence at the middle; surface slightly micro-granulose, somewhat sparsely and finely punctate, the punctures becoming denser and coarser toward sides.

Elytra strongly convex, 1.33–1.43 times as wide as long (n = 3), with eight striae one along epipleural margin; striae rather widely and strongly to deeply impressed, finely ridged on both sides throughout; 7th stria not curved near base, almost parallel to 6th; striae distinct, each diameter slightly wider than stria width; intervals clearly convex, distinctly micro-granulose, a little densely and finely punctate, the punctures mostly not distinctly defined.

Pygidium carinate basally, feebly shining and slightly micro-granulose, rather densely covered with small shallow transverse punctures. Protibiae rather stout, with four external teeth; terminal spur spatulate.

Aedeagus somewhat robust. Pahllobase about 2.0–2.2 mm in length (n = 3), about 0.9–1.0 mm in apical width (n = 3). Parameres rather elongate, about 1.3–1.4 mm in length (n = 3), with each apex a little expanded outward as a rounded tooth.

Female. Head almost the same as in the male, though clypeus a little strongly wrinkled and a pair of vertexal horns reduced to short subconical pointed tubercles which are connected by a fine carina. Pronotum with anterior declivity narrower than in male, the median prominence more obtuse. Protibiae with four external teeth stronger and terminal spurs slightly longer.


Type depository. The holotype is deposited in the collection of the Institute for Tropical Biology and Conservation, University Malaysia Sabah.

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. This species is named in honor of Dr. Roberto POGGI, Museo Civico di Storia Naturale di Genova (Giacomo Doria), who has been giving the first author invaluable help for his researches.

Notes. The present new species is closely related to Onthophagus (Onthophagus) borneensis HAROLD from Sarawak, Borneo, but can be distinguished from the latter by the following characters: 1) dorsal side distinctly mat, with pronotum and elytra strongly micro-granulose, whereas in O. borneensis, the dorsal side is shining, with the pronotum and elytra weakly micro-granulose; 2) intervals of elytra slightly convex and sparsely covered with small but distinct punctures, whereas in O. borneensis, those are fairly strongly convex and sparsely covered with very fine and indefinite punctures; 3) in the male, frontal section of clypeal suture more weakly curved instead of being clearly curved; 4) in the male genitalia, parameres a little broader in dorsal view, with each apex distinctly rounded and more strongly produced laterad than in O. borneensis.
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*Onthophagus (Onthophagus) cupreopastillatus* sp. nov.
(Figs. 2, 9–12)

Length: 7.5–8.0 mm: width: 3.6–4.2 mm (n = 4).

*Male*. Body moderate-sized, elongate-oval, fairly strongly convex dorsally. Dorsal side almost opaque; head sparsely clothed with short erect yellowish-white hairs; pronotum and elytra rather densely clothed with yellowish-white suberect long hairs, the hairs on the former becoming clearly longer and reflexed near posterior angles; pygidium densely clothed with similar hairs as those on elytra, though a little longer. Ventral side a little shining, somewhat densely clothed with yellowish-white hairs. Color black to brownish black; head and pronotum tinged with weak cupreous luster; elytra black, each with four yellow to yellowish-brown patches, the basal patch extending from the 2nd to 5th intervals, the latero-basal round one at the 6th to 7th intervals, the lateral one at the 7th interval a little behind shoulder, the internal median round one at the 2nd to 3rd intervals a little behind the middle; ventral side almost black, with slight cupreous luster; mouth organs and palpi reddish brown; antennae reddish brown.

Head almost flat and simple, without ornaments, a little reflexed at marginal portion; clypeal margin strongly prolonged forward with apex upturned as a rounded lobe at the middle, sides clearly bordered and a little sinuous; clypeal suture completely effaced at frontal section, finely defined at genal sections, not carinate; genae slightly produced laterad, with margins rounded at posterior third; vertex entirely flat; surface obviously micro-granulose, sparsely and finely punctate in the middle, the punctures becoming sparser and coarser toward vertex, genae, and each side of clypeus.

Pronotum fairly strongly convex, 1.37–1.43 times as wide as long (n = 2), with an obtuse longitudinal impression along midline which is interrupted a little behind the middle by the median protrusion; anterior margin emarginate, clearly borderd; lateral margins widely and strongly sinuous in front, weakly so behind, and finely bordered; anterior angle very strongly
produced forward, with apices sharp, and a little directed outward; posterior angles obtuse; basal margin obliquely angulate at the middle, not distinctly bordered; disc rather steeply declivous in anterior two-thirds, the declivity forming a deplanate longitudinal surface, the upper edge of the declivity produced dorsally into a strong tubercle in the middle; surface distinctly micro-granulose, moderately densely and coarsely punctate, the punctures becoming very fine and sparse on the anterior declivity and near posterior angles.

Elytra 1.29–1.39 times as wide as long (n = 2), with eight striae, of which one is along epipleural margin; striae shallowly and rather widely impressed, and ridged on both sides throughout; stria punctures sparse and distinct though shallow, each diameter clearly wider than strial width; 7th stria clearly curved near base; intervals strongly micro-granulose, moderately densely covered with strong asperate punctures.

Pygidium carinate at base, a little closely and strongly punctate. Prothorax with anterior angles ordinary on the ventral side. Protibiae strongly prolonged apicalad, clearly curved inward, with four well separated external teeth in apical half; terminal spur simple and stout and well decurved.

Aedeagus robust. Phallobase about 1.1 mm in length (n = 1), about 0.5 mm in apical width (n = 1). Parameres about 0.7 mm in length (n = 1), each with one apical tooth.

Female. Head less produced forward, with clypeal margin truncate or weakly emarginate at the middle; clypeal suture with frontal section strongly and rather briefly carinate, the carina well curved, genal section not carinate; vertex with an opened V-shaped carina, which is distinctly raised on each side and almost interrupted at the middle; surface weakly micro-granulose, densely and fairly coarsely punctate, and transversely wrinkled on clypeus. Pronotum simple, with a slightly raised longitudinal costa along midline in anterior half, the costa with a small tubercle a little before the middle. Protibiae shorter than in male, with four stronger external teeth; terminal spur longer.


Type depository. The holotype is deposited in the collection of the National Science Museum (Natural History), Tokyo.

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The specific name means that the present species looks like copper-colored Onthophagus (Onthophagus) pastillatus BOUCOMONT.

Notes. The present new species is closely related to Onthophagus (Onthophagus) pastillatus BOUCOMONT from Sabah, Borneo, but can be distinguished from the latter by the following characters: 1) intervals of elytra strongly micro-granulose and opaque, while in O. pastillatus, they are very slightly micro-granulose and shining; 2) intervals of elytra more strongly and a little coarsely punctate; 3) head and pronotum tinged with cupreous luster, while in O. pastillatus, they are tinged with greenish luster; 4) in the male, clypeus less produced forward with apex more broadly rounded at the middle; 5) in the female, clypeus more coarsely and more strongly rugosely punctate; 6) male genitalia clearly different in shape.
Onthophagus (Onthophagus) sabahensis sp. nov.  
(Figs. 3, 13–16)

Length: 6.3–8.5 mm; width: 4.0–4.6 mm (n = 37).

**Male.** Body moderate-sized, oval, strongly convex dorsally; dorsal side less shining, with pronotum and elytra densely clothed with yellowish-brown semi-recumbent long hairs, the hairs changing into a little broad scale-like ones on each median portion, head sparsely clothed with short erect hairs; ventral side slightly shining, rather densely clothed with yellowish-brown hairs. Color black to brownish black; head and pronotum tinged with faint greenish to cupreous luster; elytra yellowish brown, often with a large brownish vague marking on the postero-median part; ventral side almost brownish black, with slight greenish to cupreous luster; mouth organs, palpi reddish brown; antennae with foot-stalks reddish brown, club segments clearly paler.

Head suboctagonal, a little wider than long; clypeal margin narrowly subtrapezoidal in outline, distinctly bordered, with median portion strongly upturned and rounded, sides a little sinuous; clypeal suture completely effaced though very obtusely raised in the middle; genae strongly produced laterad, obtusely and roundly angulate at the middle; posterior portion of head produced backward as a flat subtriangular lamina, the lamina inclined backward with a slender horn at the middle; in minor males, the lamina reduced to a short point; surface weakly micro-granulose, transversely wrinkled on marginal portion of clypeus, rather densely and strongly punctate, intermixed with smaller punctures.

Pronotum strongly convex, 1.29–1.39 times as wide as long (n = 3), almost simple, with a slight depression behind anterior margin and a pair of small smooth depressions near posterior angles; a median longitudinal line strongly impressed along midline in basal third; anterior margin emarginate, distinctly bordered; lateral margins almost straight in front, clearly sinuate behind, finely bordered; anterior angles strongly produced forward, rather sharply angulate at apex; posterior angles obtuse; base almost rounded, not distinctly boreredered; surface weakly micro-granulose, very densely covered with strong setiferous punctures except for near posterior angles where the surface is impunctate, the punctures becoming coarser and a little sparser toward sides, each puncture bearing a fairly long hair, the hair sometimes changing into scale-like one at the middle and also becoming conspicuously long and reflexed along the smooth depression of posterior angle.

Elytra 1.29–1.34 times as wide as long (n = 3), with eight striae, of which one is along epipleural margin; striae a little finely and strongly impressed, finely ridged on both sides throughout; 7th stria weakly but clearly curved near base; strial punctures weak and shallow, each diameter slightly wider than striaal width; intervals a little shining, almost flat, very densely to partly confluently covered with rather strong setiferous punctures, the confluent punctures mostly forming longitudinal irregular wrinkles.

Pygidium shining, carinate at base, densely and strongly covered with round ocellate punctures. Protibiae rather slender and well curved, with four external teeth; terminal spur short, sublanceolate.

Aedeagus short and robust. Pahllobase about 1.3–1.5 mm in length (n = 3), about 0.7–0.8 mm in apical width (n = 3). Parameres rather short, about 0.7–0.8 mm in length (n = 3), with each apical tooth simply pointed outward in lateral view.

**Female.** Head with clypeal margin somewhat parabolical in outline, rounded at apex, dis-
tinctly sinuate on both sides; clypeal suture with frontal section strongly carinate, the carina well curved, genal section finely defined though not carinate; vertex with a straight transverse carina between eyes, the carina long, slightly curved backward, a little stronger than the frontal one; surface more densely punctate than in male, with clypeus transversely and weakly wrinkled. Pronotum with anterior portion more narrowly depressed behind anterior margin. Protibiae with terminal spur simple, a little longer than those in male.

Type series. Holotype: ♂, Headquarter, Kinabalu Park, 1,500 m, Sabah State, Malaysia, 24.V. 1995, T. KIKUTA leg. Paratypes: 3 ♂, 3 ♀, the same locality as the holotype, 3. IV. 1995; 1 ♀, ditto, 1,700 m; 3 ♂, 4 ♀, ditto, 1,550 m; 1 ♂, ditto, 2. V. 1995; 1 ♀, ditto, 1,600 m; 1 ♂, 1 ♀, ditto, 2. II. 1995; 6 ♂, 2 ♀, ditto, 1,459 m; 1 ♂, ditto, 28. II. 1995; 1 ♂, Liwagu, 1,450 m, Sabah State, Malaysia, 25. III. 1995, T. KIKUTA leg.; 1 ♂, 1 ♀, Sayap, 1,200 m, Sabah State, Malaysia, 25. III. 1995, T. KIKUTA leg.; 2 ♂, 4 ♀, ditto, 1,300 m, 12. V. 1995.

Type depository. The holotype is deposited in the collection of the Institute for Tropical Biology and Conservation, University Malaysia Sabah.

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. This species is named after the place name, Sabah.

Notes. The present new species is closely related to Onthophagus (Onthophagus) ochromerus Harold from Sarawak, Borneo, but can be distinguished from the latter by the following characters: 1) intervals of elytra very densely and partly confluenty covered with strong punctures, and the confluent punctures mostly form longitudinal irregular wrinkles, whereas in O. ochromerus, they are densely and not confluently punctate; 2) head and pronotum weakly micro-granulose and more strongly punctate instead of being shining and less strongly punctate; 3) in the male, head less produced forward, with vertical lamina bearing a horn more robust, whereas in O. ochromerus, it is more strongly produced forward with the vertical lamina bearing a slender horn; 4) clypeal margin of head distinctly sinuous on both sides and vertical carina curved backward, whereas in O. ochromerus, the former is weakly sinuous on both sides and the latter is almost straight; 5) pronotum and legs uniformly brownish black, whereas in O. ochromerus, the former is yellowish brown on each lateral margin and the latter is yellowish brown on femora; 6) in the male genitalia, parameres clearly longer in dorsal view.

Onthophagus (Onthophagus) magniocus sp. nov.
(Figs. 4, 17-18)

Length: 7.0–7.1 mm; width: 3.7 mm (n = 2).

Male. Body rather small-sized, elongate-oval, well convex above; dorsal side a little shining though very slightly micro-granulose, entirely glabrous; ventral side also slightly shining, partly clothed with yellowish hairs. Color black, tinged with very weak purplish luster on elytra and pygidium; mouth organs blackish brown, palpi reddish brown, antennae reddish brown, legs somewhat paler.

Head almost simple though a little transversely depressed between eyes in posterior portion; clypeal margin subtrapezoidal in outline, broadly bordered and reflexed, with median portion narrowly and distinctly emarginate; clypeo-frontal suture completely effaced; clypeo-genal suture finely defined and not distinctly carinate though a little raised; genae well produced laterad, obtusely angulate at the middle; surface very weakly micro-granulose, sparsely and fairly
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Fig. 4. *Onthophagus* (*Onthophagus*) *magniculus* sp. nov., male, head and pronotum, dorsal view. Scale 1 mm.

Finely punctate in the middle, slightly wrinkled along clypeal margin, the punctures becoming a little larger on the posterior depression. Eyes large, interspace between them about 3.2 times as the width of eye (n = 1).

Pronotum simple, a little weakly and evenly convex, 1.50 times as wide as long (n = 1), without a longitudinal impression along midline; anterior margin emarginate, distinctly bordered; lateral margins weakly rounded in front, clearly sinuate behind, finely bordered, the marginal border a little widened near posterior angle; anterior angles well produced forward, rounded at apex; posterior angles obtuse; base obtusely angulate at the middle, not distinctly bordered; surface weakly shining, though a little micro-granulose and sparsely and finely punctate, the interspace between punctures punctulate.

Elytra rather convex, 1.18 times as wide as long (n = 1), with eight striae, of which one is along epipleural margin; striae shallowly and rather finely impressed, finely ridged on both sides throughout; 7th stria not curved near base, almost parallel to 6th; strial punctures weak, partly ill-defined, each diameter very slightly wider than strial width; intervals almost flat, weakly micro-granulose, sparsely and very finely punctate.

Pygidium carinate at base, slightly micro-granulose though feebly shining, sparsely covered with ill-defined fine punctures. Prothorax with anterior angles ordinary, not distinctly hollowed on the ventral side. Abdomen with 6 exposed visible sternites; 1st sternite transversely arranged with strong and not so deep punctures, and transversely and shallowly grooved along anterior margin on each side; 2nd to 4th transversely arranged with coarse and a little deep punctures, and transversely and deeply grooved along anterior margin in outer half to two-thirds on each side; 5th and 6th transversely arranged with fairly coarse and deep punctures throughout, and transversely and deeply grooved along anterior margin on each side. Protibiae gently curved inward, with four external teeth; terminal spur decurved at apex.

Aedeagus rather slender. Phallobase about 1.3 mm in length (n = 1), about 0.6 mm in apical width (n = 1). Parameres about 0.8 mm in length (n = 1), each with ventro-apical tooth at
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Female. Body a little wider. Head with the posterior depression shallower, surface a little widely and transversely wrinkled on clypeus. Pronotum with lateral margins more strongly rounded in front. Protibiae with each terminal spur clearly longer than in the male.

Type depository. The holotype is deposited in the collection of the Institute for Tropical Biology and Conservation, University Malaysia Sabah.

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The specific name means that the present species has large eyes.

Type series. Holotype: ♂, Sayap, 1,100 m, 25. III. 1995, T. Kikuta leg. Paratype: ♀, same data as the holotype.

Notes. The present new species is somewhat similar to Onthophagus (Onthophagus) collinsi Krikken et Huijbrechts from Sarawak, Borneo, but can be distinguished from the latter by the following characters: 1) clypeal margin is more narrowly and more distinctly emarginate at apex instead of being very slightly and rather widely emarginate at apex; 2) intervals of elytra are almost flat, whereas in O. collinsi, it is distinctly convex; 3) each stria of elytra is shallowly and rather finely impressed, whereas in O. collinsi, it is deeply and a little widely impressed; 4) strial punctures of elytra are very weak and partly ill-defined, whereas in O. collinsi, those are strong and distinct; 5) elytra are tinged with weak cupreous luster instead of being uniformly black.

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要 約

越智 輝雄・近 雅博：東南アジア産コガネムシ科甲虫（第10報）—ボルネオ産エンマコガネ族の4新種—. —— ボルネオ産コガネムシ科甲虫として、エンマコガネ属の1亜属Onthophagus亜属の4新種、Onthophagus (Onthophagus) roBERTOPOGGII sp. nov., O. (O.) cupreopastiLLatus sp. nov., O. (O.) sABAHEnSIS sp. nov., O. (O.) magNIoCULUS sp. nov. を記載した。

References


Ochi T., and M. Kon, 1994. Dung beetles (Coleoptera, Scarabaeoidea) collected from Sabah, Borneo (1).


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