

Two New *Onthophagus* Species (Coleoptera, Scarabaeidae) from Taiwan

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Abstract Two new *Onthophagus* species are described from Taiwan: *Onthophagus (Indachorius) yaoi* sp. nov. and *O. (Micronthophagus) liui* sp. nov.

In our on-going research concerning the dung beetle fauna of Taiwan, we have had an opportunity of examining the collection of the third author. After careful examination, we found two new species of *Onthophagus* from Taiwan.

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The abbreviations for the type depositories of new species designated in the present study are TARI=Taiwan Agriculture Research Institute, Wufeng, NMNST=National Museum of Natural Science, Taichung, and NSMT=National Museum of Nature and Science, Tsukuba, Japan.

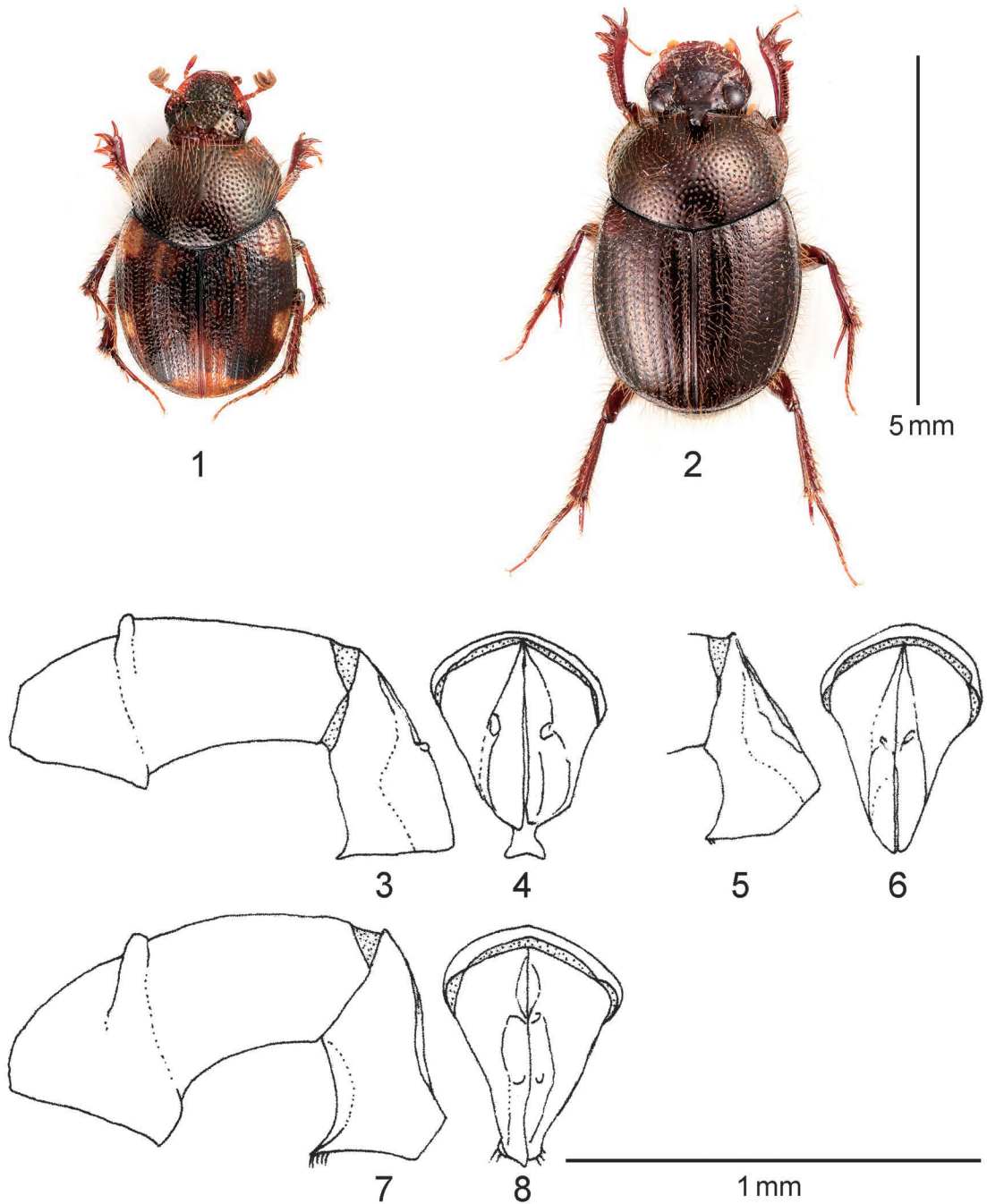
Onthophagus (Indachorius) yaoi sp. nov.

(Figs. 1, 3–6)

Body subovate, moderately convex but rather distinctly, widely flattened. Black with feeble brownish tinge, anterior margin of head, exterior parts of protibiae and tarsi dark reddish brown, elytra with yellowish patches at humeral portions, 3rd to 4th intervals close to base, apical 2/5 close to lateral margins, and apical portions, hairs on surfaces mostly pale yellow; head, elytra and ventral surface weakly, somewhat sericeously shining, pronotum and legs rather strongly shining; dorsal surface rather densely clothed with suberect hairs (particularly pronotum noticeably so), ventral surface moderately clothed with fine hairs, legs clothed with setaceous hairs.

M a l e. Head subhexagonal, though the basal portion is concealed under pronotum, flattened, microsculptured, weakly reflexed along exterior margins; clypeus noticeably produced anteriorly, truncate or very weakly bilobed in front, somewhat transversely ruguloso-punctulate; fronto-clypeal border finely ridged, the ridge evenly curved anteriorly; genae weakly, roundly produced laterad, scattered with small punctures, depressed in areas before eyes, borders of clypeus finely ridged, the ridges extending to the posterior parts of frons; frons somewhat obtapezoidal, major anterior part flattened, weakly raised posteriorly, closely scattered with coarse punctures, with a pair of small tubercles at the border of vertex. Eyes oblique, narrowly crescent-shaped, with distance between them about 4.5 times the eye width.

Pronotum wider than long (10 : 7), widest at apical 1/3, roundly narrowed apically and posteriorly; apex widely emarginate, weakly produced widely in middle, finely rimmed; front angles slightly acutely produced anteriorly, hind angles indistinct; base nearly rounded, bordered by a row of punc-



Figs. 1-2. Habitus of *Onthophagus* spp., dorsal view.—1, *O. (Indachorius) yaoi* sp. nov.; 2, *O. (Micronthophagus) liui* sp. nov.

Figs. 3-8. Male genitalia of *Onthophagus* spp.—3, 5, 7, Lateral view; 4, 6, 8, dorsal view of parameres.—3-4, *O. (Indachorius) yaoi* sp. nov.; 5-6, *O. (I.) koshunensis* BALTHASAR; 7-8, *O. (Micronthophagus) liui* sp. nov.

tures; sides gently declined to lateral margins, which are roundly produced latero-ventrad, and finely rimmed, the rims easily visible from above; disc gently convex, scattered with small long-haired punctures, which become larger in basal and antero-lateral portions, the hairs becoming bolder and longer in postero-lateral portions.

Elytra punctato-striate, the striae slightly margined by fine ridges, the punctures in striae notching intervals; intervals weakly convex, microsculptured, granulo-punctate, each puncture with a suberect fine hair.

Pygidium gently convex, rather closely punctate, the punctures somewhat umbilicate and each with a fine, rather long hair.

Legs moderate in shape; protibia with three exterior teeth and also with a very small one; terminal spur noticeable, curved ventrad, with acute apex; length ratios of spur of metatibia and metatarsal segments: 0.49; 0.74, 0.24, 0.14, 0.10, 0.23.

Aedeagus. Phallobase 0.75 mm in length in lateral view ($n = 1$), 0.38 mm in apical width in dorsal view. Parameres noticeably large comparing with phallobase, 0.51 mm in length in lateral view, with apices distinctly produced laterad as a tooth in dorsal view, each of which is produced ventrad and fairly sharp in lateral view.

F e m a l e. Body slightly robust; protibiae less slenderer; abdominal sternites not shortened in apical portions.

Body length: 4.7–5.0 mm.

Type series. Holotype: ♂, "Taiwan: Kaoshiang (T07) / Shihshan logging trail (石山林道) / 21. VII. 2007, leg. C.-T. Yao" (TARI). Paratypes: 1 ♂, "Aowanda / alt. 1400 m, Renai / Nantou, TAIWAN, 2-IV-2014 / M. Kiuchi leg." (NSMT); 1 ♀, "Mingchih / alt. 1200 m / Datong Township / Yilan County / TAIWAN // 29-30. III. 2014 / T.-C. Wang, K.-H. Chuang, M. Kiuchi & K. Masumoto leg." (NMNST).

Notes. This new species somewhat resembles *Onthophagus (Indachorius) koshunensis* BALTHASAR, 1941, from Koshun (=Hengchun), the southernmost part of Taiwan (BALTHASAR, 1941), but can be distinguished from the latter by the less convex body in darkened color, the head narrower with genae more strongly produced laterad and exterior margins more strongly rounded, the pronotum with front angles more acutely produced anteriorly, the elytra with finely margined striae, and 2nd to 6th intervals bearing a pair of longitudinal rows more densely punctulate and much more rugose, the anterior tibiae slenderer, and the apices of parameres distinctly produced laterad as a small tooth in dorsal view instead of being simply formed in *O. koshunensis*.

Etymology. The specific name is given in honor of Mr. C.-T. YAO who collected the holotype.

Onthophagus (Micronthophagus) liui sp. nov.

(Figs. 2, 7–8)

Body subovate, moderately convex, weakly flattened in posterior portion of pronotum and major antero-medial portions of elytra. Major portion of head, pronotum and elytra almost piceous, apical and lateral portions of head, ventral side and legs blackish brown, elytra with vague, reddish patches in humeral portions; head and elytra moderately, somewhat sericeously shining, pronotum strongly, somewhat vitreously shining, ventral side weakly shining, legs moderately shining; head sparsely clothed with decumbent hairs, pronotum and elytra rather densely clothed with long suberect hairs, legs partly clothed with setiferous hairs.

M a l e. Head rather large, flattened, weakly microsculptured; clypeus moderately narrowed apicad and truncate at apex, punctate and transversely wrinkled, with exterior margin weakly reflexed;

genae depressed in area before eyes, sparsely punctate, with exterior margin round, clypeo-genal borders weakly ridged; frons somewhat triangular and surrounded by low ridges, gradually raised towards vertex, sparsely scattered with larger and smaller punctures; vertex with an inclined horn, whose basal part is subquadrate and flat, medial part abruptly becoming narrower, and apical part acute like a finger. Eyes noticeably large, with distance between them about 2.5 times the width of eye diameter.

Pronotum wider than long (4 : 3); apex very widely emarginate, wholly finely rimmed; base widely rounded, finely rimmed; front angles acutely produced anteriorly, hind angles rounded; disc moderately convex, weakly concave in area opposite to vertexal horn, rather closely punctate, each puncture with a suberect hair, hairs in posterior portion becoming bolder and setiferous.

Elytra finely punctato-striate, the striae margined by fine and low rims, the punctures in striae small; intervals weakly convex, weakly rugulose, finely granulo-punctate, each puncture with a long, setiferous hair.

Pygidium weakly convex, closely, shallowly punctate, each puncture with a suberect setiferous hair.

Protibia widened apicad and weakly curved anteriorly, with three exterior teeth in right tibia and three and a small tooth in left tibia in holotype, length ratios of spur of metatibia and metatarsal segments: 0.60; 0.76, 0.19, 0.11, 0.09, 0.22.

Aedeagus. Phallobase 0.91 mm in length in lateral view, 0.38 mm in apical width in dorsal view. Parameres obviously large, subtriangular in outline and strongly attenuate apicad in dorsal view; apices only slightly produced laterad in dorsal view and clothed with two or three fine hairs.

F e m a l e. Unknown.

Body length: 5.2 mm.

Type series. Holotype: ♂, "Taiwan, Taitung / Lichia trail (利嘉林道) / 02.IX.2011. leg. T.-Y. Liu" (TARI).

Notes. The present new species is closely related to *Onthophagus (Micronthophagus) wangi* MASUMOTO, CHEN et OCHI, 2004, from Taiwan (MASUMOTO, CHEN & OCHI, 2004), but can be distinguished from the latter by the conspicuously large eyes with the diatone (=interspace between eyes) about 2.5 times as wide as an eye (rather small and diatone about 2.7–2.8 times as wide as an eye in *O. wangi*), the head emarginate at apex (clearly truncate in *O. wangi*) and 2nd to 5th elytral intervals with median longitudinal portion distinctly convex (almost flat in *O. wangi*).

The present new species of *Micronthophagus* exhibits a remarkable character state, the parameres with fine hairs at the apices, which is shared by many of the subgenus *Indachorius* (KABAKOV, 1994; OCHI *et al.*, 2014). In addition, the subgenus *Micronthophagus* has been known to share some other unique character states with the subgenus *Indachorius* (OCHI *et al.*, 2014). These facts may indicate that *Micronthophagus* is closely related to *Indachorius*.

Etymology. The specific name is given in honor of Mr. T.-Y. LIU who collected the holotype.

要 約

益本仁雄・越智輝雄・李 奇峰：台湾産エンマコガネ属の2新種(鞘翅目コガネムシ科)。——台湾から食糞コガネムシの2種を新種と認め、*Onthophagus (Indachorius) yaoi* sp. nov. および *O. (Micronthophagus) liui* sp. nov. と命名記載した。

Onthophagus yaoi は台湾南端部の恒春から記載された *O. (Indachorius) koshunensis* BALTHASAR, 1941 に似ているが、体格が比較的平たく、色彩も暗色で(肩部、中央後方などに暗黄色の紋がある)、頭部はより狭く頬

はより外側に張り出し、前胸背前角は前方により鋭く突出し、上翅の条溝は細く縁どられ、間室は強く点刻されて皺状になり、前脛節はより細いなどの点で区別できる。

他方、*Onthophagus (Micronthophagus) liui* sp. nov. は、*Micronthophagus* 亜属の種は複眼が大きいことが主要な特徴であるが、この新種では複眼が極めて大きく、複眼間の距離の0.4倍に達している点で同亜属の他の種、たとえば *O. (M.) wangi* MASUMOTO, CHEN et OCHI, 2004 と容易に区別ができる。この種は、パラメラの先端に微毛をそなえるが、この特徴は *Indachorius* 亜属の多くの種と共有する。今回、本種で初めてこの特徴をもつ *Micronthophagus* 亜属の種を発見したが、このことは両亜属が近縁な関係にあるという考え方を支持するものである。

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