

**Two new *Gilletianus* species (Coleoptera: Scarabaeidae: Aphodiinae: Aphodiini)
from Sulawesi, Indonesia**

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Abstract. Based on material from Sulawesi, Indonesia, two new species of the genus *Gilletianus* Balthasar, 1933 are described. *Gilletianus aganocrossoides* sp. nov. from Northern Sulawesi exhibits unique characters among known *Gilletianus* species: considerably long, erect elytral macrosetation and presence of elytral humeral teeth. *G. bolm* sp. nov. from Central Sulawesi belongs to a species complex possessing narrow, parallel-sided protibiae. The following 17 new combinations are proposed: *Gilletianus atsushii* (Ochi, 1986), *G. assamensis* (Petrovitz, 1976), *G. comatus* (A. Schmidt, 1920), *G. commatooides* (Balthasar, 1961), *G. fukiensis* (Balthasar, 1953), *G. kazirangensis* (Stebnicka, 1981), *G. kratochvili* (Balthasar, 1941), *G. lomsakensis* (Stebnicka, 1992), *G. nigrovirgatus* (A. Schmidt, 1911), *G. pseudoreichei* (Stebnicka, 1998), *G. rajawatorum* (Král et Šipek, 2013), *G. rangoonensis* (Petrovitz, 1970), *G. segmentarius* (Harold, 1879), *G. segmentaroides* (A. Schmidt, 1909), *G. seguyi* (Paulian, 1945), *G. therondi* (Balthasar, 1963) and *G. tonkinensis* (Paulian, 1933). A checklist of Asian and New-Guinean *Gilletianus* species is presented.

INTRODUCTION

Most species formerly considered within the genus *Aphodius* Hellwig, 1798, subgenus *Trichaphodius* Schmidt, 1913 (see for example Schmidt (1922) or Balthasar (1964)) should be currently placed in the genera *Trichaphodius* (certain Asian and Afrotropical species) and *Gilletianus* Balthasar, 1933 (the remaining Asian and New Guinean species) or *Trichaphodioides* Paulian, 1942 (certain Afrotropical species) as defined by Dellacasa et al. (2001) who raised particular subgenera to the level of genera. In the Catalogue of Palearctic Coleoptera, Dellacasa & Dellacasa (2006) listed ten species and five species of the genus *Trichaphodius* and *Gilletianus*, respectively. Our study of more than 25 Asian species of the groups quoted above (the first author (DK) has seen type specimens of most of them) suggested us that some characters formerly used to differentiate *Trichaphodius* and *Gilletianus* from each other (like for example non-bordered and bordered pronotum base, respectively) are weak and exert continuous transition, thus offering no dividing line between the two genera. On the other hand, the presence of the whole dorsal surface macrosetation, as used by Dellacasa et al. (2001) in the description of the genus *Trichaphodius* (on page

291: "... quite pubescent ...") and in the Key to Genera (on page 55, thesis 151: "Head and pronotum quite pubescent ... pronotum disc coarsely densely punctured ...") may be successfully employed to differentiate *Trichaphodius* from the remaining three above-mentioned related genera. In other words, we believe that within the currently existing concept of genera, the true *Trichaphodius* species are only those having macrosetaceous not only elytra, but also head and pronotum and densely punctate pronotal disc, which were formerly also referred to as species of the well-defined *Aphodius* (*Trichaphodius*) *humilis* Roth, 1851 group (see for example Bordat 1989). Due to this, for the purpose of the present work, all the Asian species having bare head or pronotum and only scattered punctuation on the pronotal disc are considered to belong to the genus *Gilletianus*. We have not studied detailed relationships between the genera *Gilletianus* and *Trichaphodioides*. The later one is a solely Afrotropical genus and thus, this study would be beyond the scope of the work presented here. Future studies by other authors, particularly revisions of all the African species of the genera currently considered within *Trichaphodius* and *Trichaphodioides* are needed to check actual relationships between all the above mentioned related genera on the world basis.

In the course of our study of numerous recently collected aphodiin specimens kept in IRSNB and in the collection of the first author (DK), we found two species of the genus *Gilletianus* distinctively different from any still described ones, coming from the isle Sulawesi. As a result of this work, we wrote their description including their comparison with other species and appropriate illustrations and compiled a preliminary checklist of the genus as presented below.

MATERIAL AND METHODS

Specimens were examined with Olympus SZ61, MBS-10 and SZP 1120-T stereomicroscopes. Measurements were taken with an ocular grid. The photographs published here were taken by using a Meopta laboratory microscope and CMOS 5 digital camera with the Helicon Focus 3.20.2 Pro software.

Male genitalia (aedeagi) were treated by boiling with a 10% sodium hydroxide solution.

Specimens of the newly described species are provided with printed red labels: "name of the taxon sp. nov., HOLOTYPE ♂ [or] ALLOTYPUS ♀ [or] PARATYPUS, ♂ [or] ♀, David Král, Miloslav Rakovič & Ladislav Mencl det. 2013" and with pale green labels specifying numbers related to a photo-documentation system by the third author (LM). Exact label data are cited for the material examined. Individual lines within each label are separated by slashes "/". Information in quotation marks indicates the original spelling. Our remarks and additional comments are found in brackets. Morphological terminology concerning the epipharyngeal structures was adopted from Dellacasa et al. (2001).

The following acronyms identify the collections housing the material examined (curators names are in parentheses):

DKCP David Král collection (deposited in NMPC);

IRSNB Institut royal des Sciences naturelles de Belgique, Brussels, Belgium (Alain Drumont);

LMCT Ladislav Mencl private collection, Týnec nad Labem, Czech Republic;

MRCD Miloslav Rakovič private collection, Dobřichovice, Czech Republic;

NMPC National Museum, Prague, Czech Republic (Jiří Hájek).

TAXONOMY

Gilletianus aganocrossoides sp. nov. (Figs 1-13)

Type locality. Indonesia, [Northern] Sulawesi, Utara, Dumonga-Bone National Park, subcamp Edwards, Station 049, 1140 m.

Type material. Indonesia: Sulawesi: Holotype (♂), allotype (♀) (both IRSNB) and paratypes: 3 ♀♀ (IRSNB), 1 ♂ (DKCP), 1 ♂ (LMCT) and 1 ♂ (MRCD), “Coll. I.R.Sc.N.B. [Collection de l’Institut royal des Sciences naturelles de Belgique] / Sulawesi, Utara / Dumonga-Bone Nat[ional]. / Park; subcamp / Edwards (1140m), / Station 049 / X.1985 / Leg. J. Van Stalle [printed, orange label]”.

Description of holotype (♂). Dorsum (Fig. 1). Total body length 5.8 mm. Body elongate oval, moderately convex, dorsal surface shining; colour light brown, occiput, translucent endocarina of fronto-clypeal suture, pronotal disc and elytron striae darker to blackish, praecapital dark spots of elytron faintly marked (Figs 1, 5).

Head (Fig. 12) semicircular. Clypeus broadly trapezoidal, anterior margin almost straight, distinctly upturned, anterior angles round, sides almost straight, diverging toward small, right-angled genae, distinctly exceeding relatively large eyes; fronto-clypeal suture slightly impressed, visible as narrow, sinuate, blackish line (translucent endocarina); surface punctuation simple, punctures fine, superficial, evenly distributed, separated by more than two diameters.

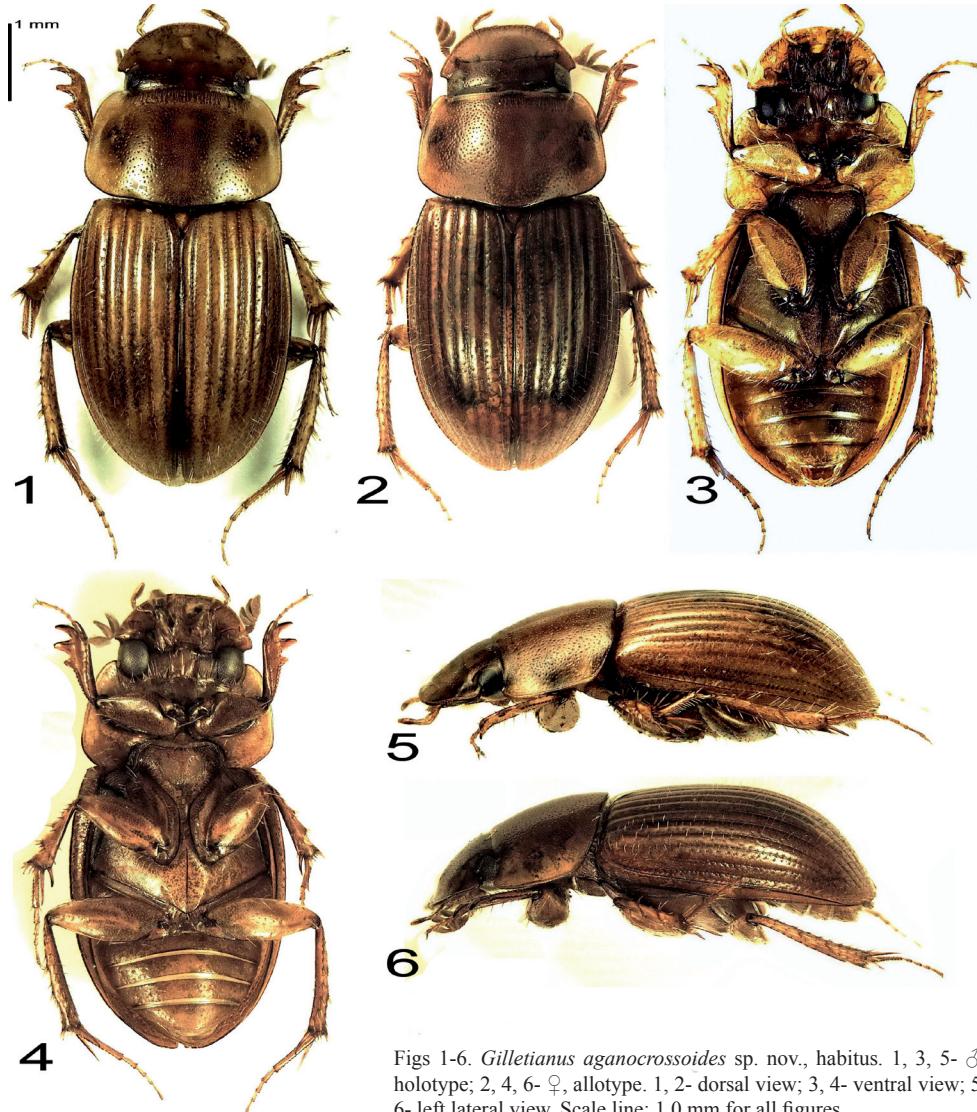
Epipharynx (Fig. 7). Anterior margin shallowly sinuate medially, regularly round anterolaterally; epitorma broadly triangular, regularly widened posteriad; corypha not reaching anterior margin, with two long, stout spinules; acropariae with dense, long macrosetation, prophobae considerably densely macrosetaceous; chaetoparia slender, densely macrosetaceous; tormae short.

Pronotum (Fig. 1) more or less rectangular; anterior margin bisinuate, not bordered; anterior angles round, sides broadly regularly round, distinctly bordered; posterior angles obtuse, base without border; surface punctuation almost simple, punctures more distinctly impressed and coarser than those on head, evenly distributed, separated by about two diameters, several (irregularly spaced) punctures coarser, punctuation becoming somewhat sparser and finer laterally and on discal longitudinal strip.

Scutellar plate narrowly triangular, impunctate.

Elytra (Figs 1, 5) suboval, slightly widened toward apex, widest about at middle, with ten striae and ten intervals and conspicuously protruding humeral teeth; distinctly, sparsely macrosetaceous laterally (intervals 6–10) and in approximately apical half, macrosetation becoming denser laterally and apically; macrosetae considerably long, erect, arranged in irregular longitudinal rows (one row in each interval); striae distinctly impressed, somewhat darkened and punctate, punctures separated by about one diameter; interval margins slightly crenate; intervals moderately convex in basal half, becoming rather flat toward apex, sutural interval blackish, somewhat narrower than other ones, surface with macrosetigerous punctures but otherwise almost glabrous.

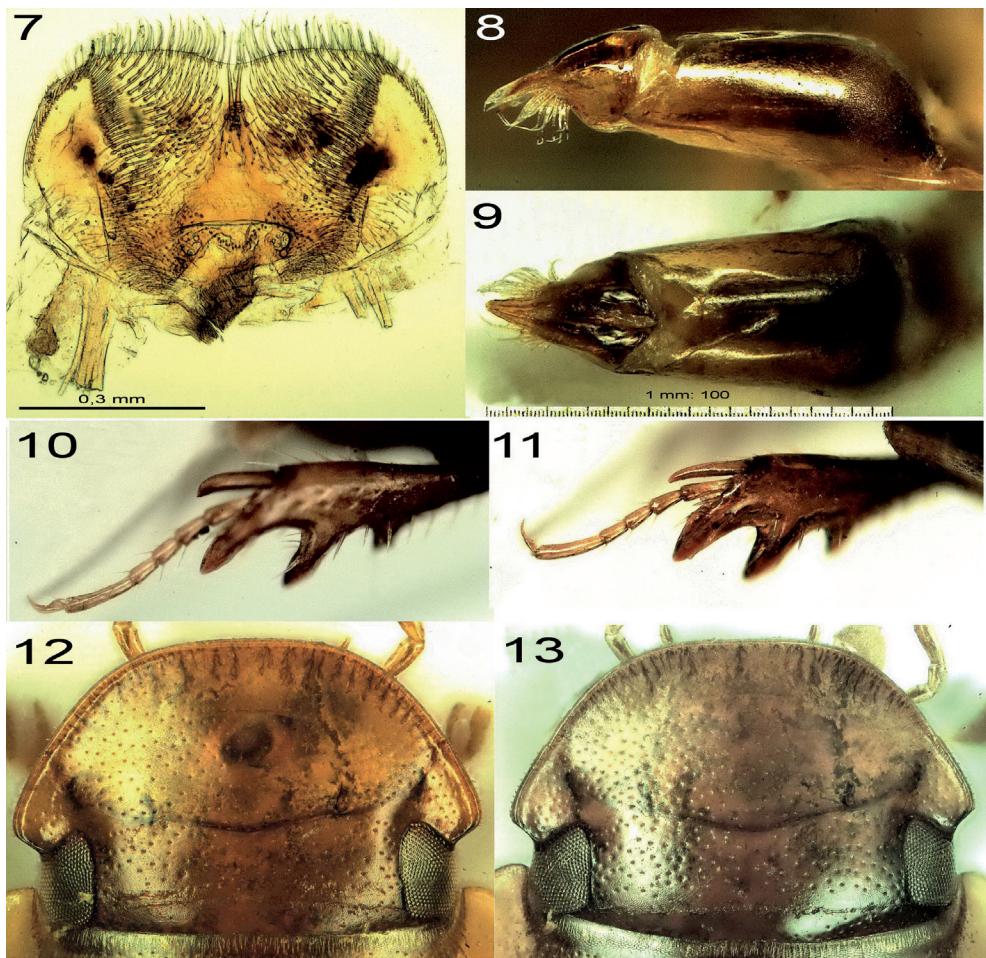
Macropterous.



Figs 1-6. *Gilletianus aganocrossoides* sp. nov., habitus. 1, 3, 5- ♂, holotype; 2, 4, 6- ♀, allotype. 1, 2- dorsal view; 3, 4- ventral view; 5, 6- left lateral view. Scale line: 1.0 mm for all figures.

Meso-metaventral plate (Fig. 3) slightly concave, strongly shiny, glabrous, with distinctly impressed longitudinal line.

Legs. Femora shining, irregularly coarsely and finely punctate, sparsely macrosetaceous, macroseae erect, becoming longer laterally (Fig. 3). Protibiae regularly widened anteriad, with three triangular teeth externally (Fig. 10), external edge finely serrulate from basal external tooth to base, dorsal surface irregularly, shallowly punctate, ventral edge unarmed, terminal spur considerably long, thickened from base to apex, apex round, not strongly bent downward (Fig. 10). External carinae and terminal edge of meso- and metatibiae fimbriate



Figs 7-13. *Gilletianus aganocrossoides* sp. nov. 7- epipharynx; 8, 9- aedeagus; 10- left ♂ protibia; 11- left ♀ protibia; 12- ♂ head 13- ♀ head. 7-9, 10, 12- ♂, holotype. 11, 13- ♀, allotype. 10-13- dorsal view, 9- lateral view. Scale lines: 0.3 mm for Fig. 7; 1.0 mm for Figs 8, 9.

with spinules strongly unequal in length. Tarsi long and thin; basimesotarsite hardly longer than superior terminal spur of mesotibia, basimetatarsite approximately one sixth longer than superior terminal spur of metatibia and little longer than following tarsites combined (Figs 1, 3). Claws fine, feebly arcuate.

Pygidium moderately shiny, surface covered with fine, semierect, regularly spaced macrosetae, apex with tuft of long, fine macrosetae. Abdominal ventrites shining, irregularly sparsely macrosetaceous, macrosetae semierect, shorter than those on femora (Fig. 3).

Aedeagus (Figs 8, 9). Parameres beaked, considerably (about twice) shorter than phallobasis, narrowed distally, regularly round ventrad in about distal half, with tuft of long, fine and dense macrosetae in distal part ventrally, almost acute apically.

Sexual dimorphism. Female (Figs 2, 4, 6, 11, 13). In female, the protibial terminal spur is slender, continuously narrowed and moderately bent outward (Fig. 11), whereas in male, it is rather stout, wider, straight and bent outward at the tip only.

Variability. The body length is of 5.7-6.1 (allotype 5.7 mm) within the whole type series.

Differential diagnosis. The newly described species is clearly recognizable among hitherto known *Gilletianus* representatives mostly by two unique characters: considerably long, erect and sparsely distributed macrosetation on distal and lateral parts of elytra (Figs 1-6) (somewhat reminiscent of the macrosetation present in the *Aganocrossus* Reitter, 1895 species) and the presence of conspicuously protruding humeral teeth (Figs 1, 2, 5). The only additional *Gilletianus* species so far known from Sulawesi is a morphologically completely different *G. bolm* sp. nov. described below.

Distribution. Indonesia: Northern Sulawesi.

Name derivation. Based on erect elytral macrosetation reminding of that present in members of the genus *Aganocrossus*.

***Gilletianus bolm* sp. nov.**

(Figs 14-23)

Type locality. Indonesia, Central Sulawesi, 20 km SE Tambarana, Camp Mauro, [01°12'S, 120°27'E], 650 m.

Type material. Indonesia: Sulawesi: Holotype (♂) (DKCP), “C. Sulawesi, 20 km SE / Tambarana, 650 m / Camp Mauro, 11.-16.Jul. / Bolm lgt., 1999 [printed]”.

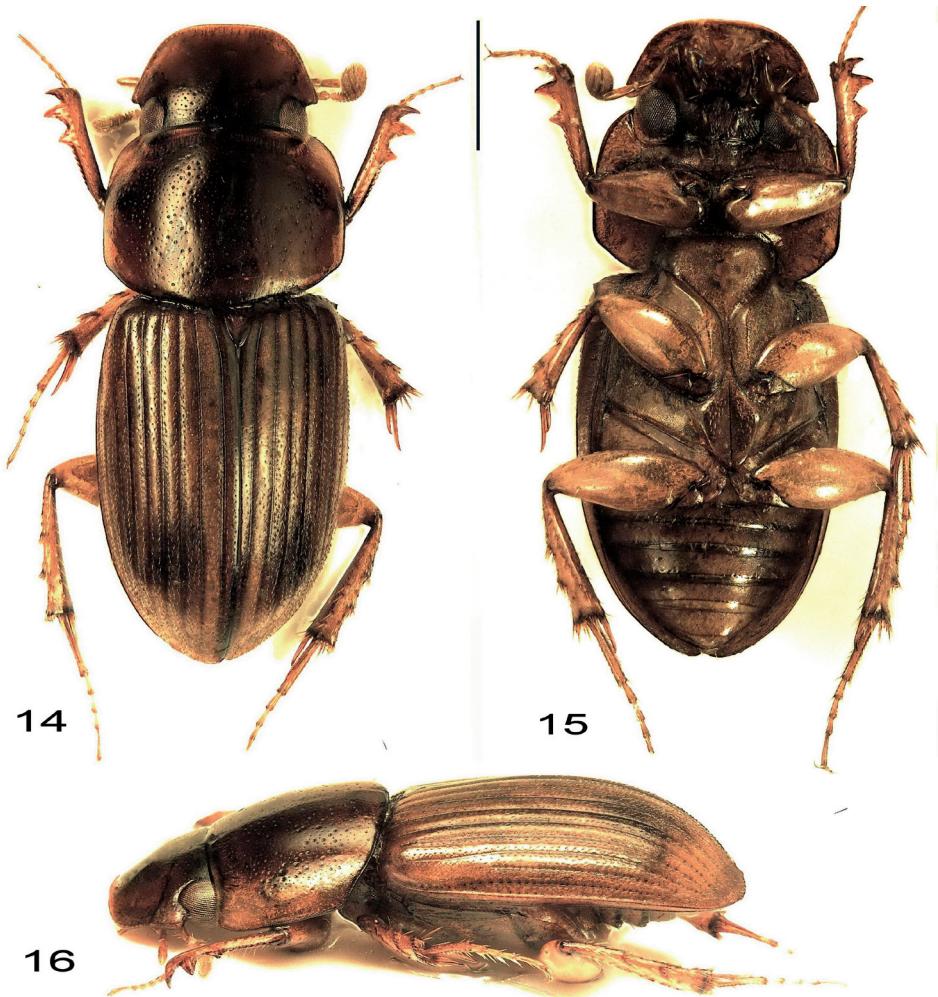
Description of holotype (♂). Dorsum (Fig. 14). Total body length 4.6 mm. Body elongate oval, moderately convex, dorsal surface shining; colour brown, anterior and lateral parts of head, sides of pronotum, apical elytron declivity, and ventral surface lighter; preapical darker spots of elytron faintly marked (Figs 14, 16).

Head (Figs 14, 22) large, semicircular. Clypeus broadly trapezoidal, anterior margin almost straight, distinctly upturned, anterior angles round, sides almost straight, weakly diverging toward small, right-angled genae, distinctly exceeding relatively large eyes; fronto-clypeal suture slightly impressed, visible as narrow, sinuate, blackish line; surface punctation double, fine punctures a superficial, evenly distributed, separated by more than two diameters, coarse punctures about twice as large as small ones.

Epipharynx (Fig. 17). Anterior margin shallowly sinuate medially, obtuse anterolaterally; epitorma narrowly conical, regularly widened posteriad; corypha not reaching anterior margin, with two long, stout spinules; acropariae with dense, long macrosetation, prophobae densely macrosetaceous with several stouter antero-lateral spinules; chaetoparia slender, densely macrosetaceous; tormae short.

Pronotum (Fig. 14) more or less rectangular; anterior margin bisinuate, not bordered; anterior angles round, sides broadly regularly round, distinctly bordered; posterior angles obtuse, base without border; surface punctation double, punctures more distinctly impressed than those on head, evenly distributed, separated by about two diameters, coarse punctures relatively sparsely distributed, punctuation concentrated laterobasally.

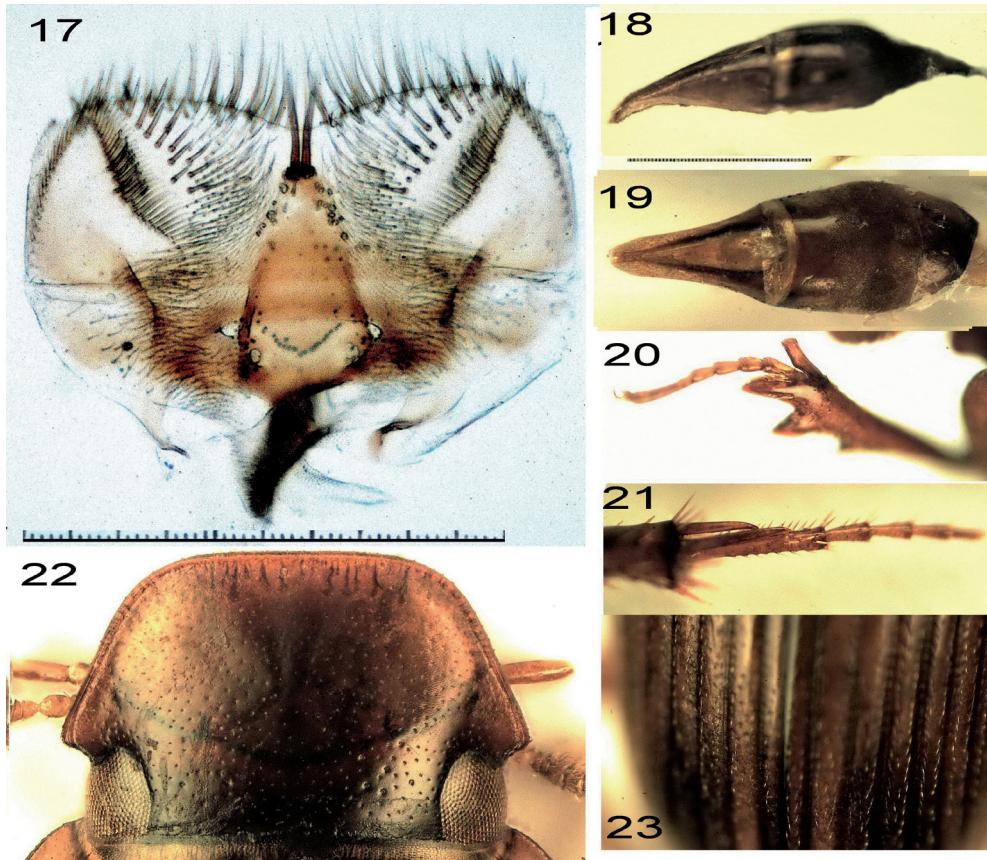
Scutellar plate narrowly triangular, impunctate.



Figs 14-16. *Gilletianus bolm* sp. nov., habitus, ♂, holotype. 14- dorsal view; 15- ventral view; 16- left lateral view. Scale line: 1.0 mm for all figures.

Elytra (Fig. 14) suboval, slightly widened toward apex, with ten striae and ten intervals, humeral teeth absent; distinctly, densely macrosetaceous laterally (intervals 8–10) and in approximately apical third; macrosetae short, semierect, arranged in irregular longitudinal rows (two rows in each interval) (Fig. 23); striae distinctly impressed and punctate, punctures separated by about one diameter, interval margins slightly crenate; intervals moderately convex in basal half, toward apex becoming rather flat, sutural interval blackish, almost flat from base to apex, surface punctuation superficial, fine and sparse, arranged in two irregular rows in each interval.

Macropterous.



Figs 17-23. *Gilletianus bolm* sp. nov., ♂, holotype. 17- epipharynx; 18, 19- aedeagus; 20- left protibia; 21- left metatibia; 22- head; 23- elytral macrosetation. 18- lateral view, 19-23- dorsal view. Scale line: 0.5 mm for Figs 17-19.

Meso-metaventral plate (Fig. 15) shiny, flat, with several macrosetae anterolaterally, longitudinal line distinctly impressed.

Legs. Femora shining, glabrous (Fig. 15). Protibia considerably narrow, almost parallel-sided, with three triangular teeth externally, external edge finely serrulate from basal tooth to base (Figs 14, 15, 20), dorsal surface irregularly, shallowly punctate, ventral edge unarmed, terminal spur considerably thickened, truncate apically, not strongly bent downward (Fig. 20). External carinae and terminal edge of meso- and metatibiae fimbriate with spinules strongly unequal in length. Tarsi long and thin; basimesotarsite hardly longer than superior terminal spur of mesotibiae, basimetatarsite approximately one quarter longer than superior terminal spur of metatibia and equal in length to next three tarsites combined (Fig. 21). Claws fine, feebly arcuate.

Pygidium moderately shiny, with several fine, long semierect macrosetae laterally. Abdominal ventrites shining, impunctate, covered with only few long erect macrosetae (Fig. 15).

Aedeagus (Figs 18, 19). Parameres simple, as long as phallobasis, regularly bent ventrad in apical third, acute apically.

Female. Unknown.

Differential diagnosis. The newly described species belongs to a complex of probably closely related *Gilletianus* species, all having distinctly narrow, almost parallel protibiae, only very weakly widened in distal part (see Figs 14, 15, 20 and figs 3A-D in Král & Šípek (2013), for details). The following six so far described species can be included in the following complex: *Gilletianus atsushii* (Ochi, 1986) comb. nov., *G. fukiensis* (Balthasar, 1953) comb. nov., *G. rajawatorum* (Král et Šípek, 2013) comb. nov., *G. segmentaroides* (A. Schmidt, 1909) comb. nov., *G. takeshii* Ochi, Kon et Kawahara, 2010 and *G. therondi* (Balthasar, 1963) comb. nov. In these species, only *G. bolm* sp. nov. and *G. rajawatorum* exhibit an almost semicircular clypeus outline, with sides only slightly converging anteriad and anterior margin considerably weakly sinuate. In other species, the clypeus outline is much more trapezoidal, with sides almost straight and distinctly converging anteriad, except for *G. segmentaroides* with the anterior margin more or less distinctly sinuate (cf. also figs 3A-D in Král & Šípek 2013). From *G. rajawatorum*, the new species is clearly different by having protibiae simply narrow and parallel, while in *G. rajawatorum* the protibiae are narrowed (seemed a little pinched) basally. All the *Gilletianus* species characterized by narrow protibiae are so far known from continental Asia only with exceptions of *G. atsushii* inhabiting the Ryukyu Islands, *G. takeshii*, known from the Philippines and *G. bolm* sp. nov., described here from Sulawesi.

Distribution. Indonesia: Central Sulawesi.

Name derivation. Patronymic; named in honour of our colleagues and friends, spouses Ladislav Bocák and Milada Bocáková, excellent specialists in Lycidae and Lampyridae, and collectors of the holotype.

PRELIMINARY CHECKLIST OF ASIAN AND NEW-GUINEAN SPECIES OF THE GENUS *GILLETIANUS* BALTHASAR, 1933

In certain species, particularly in those marked by the asterisk [*], wide distribution has been reported by authors of monographs and/or faunistic works (cf. Balthasar 1943, 1964; Dellacasa & Dellacasa 2006b; Paulian 1945; Schmidt 1922; Stebnicka 1980, 1981a, 1986, 1989, 1991, 1992), but some data may be due to unreliable identification. Thus, in the item "Distribution" of the Checklist presented here, only the situation of the type localities was specified and the additional distributional data were omitted.

genus *Gilletianus* Balthasar, 1933

Aphodius (Gilletianus) Balthasar, 1933: 139. Type species *Aphodius proclivis* Balthasar, 1933 (by monotypy).

Gilletianus: Dellacasa et al. 2001: 153, figs 538, 550 (generic status).

***Gilletianus aganocrossoides* sp. nov.**

Gilletianus aganocrossoides sp. nov. Type locality: Indonesia, [Northern] Sulawesi, Utara, Dumonga-Bone National Park, subcamp Edwards, Station 049, 1140 m.

Distribution. Indonesia: Northern Sulawesi.

***Gilletianus assamensis* (Petrovitz, 1976) comb. nov.**

Aphodius (Trichaphodius) assamensis Petrovitz, 1976: 8. Type locality: "Assam, Patkai Mts.".

Distribution. India: Assam / Arunachal Pradesh.

***Gilletianus atsushii* (Ochi, 1986) comb. nov.**

Aphodius (Trichaphodius) atsushii Ochi, 1986: 55, figs 1-3. Type locality: "Chuo Rindo, Amami-Oshima Is., Japan".

Distribution. Japan: Ryukyu.

***Gilletianus bolm* sp. nov.**

Gilletianus bolm sp. nov. Indonesia, Central Sulawesi, 20 km SE Tambarana, Camp Mauro, [01°12'S, 120°27'E], 650 m.

Distribution. Indonesia: Central Sulawesi.

***Gilletianus comatus* (A. Schmidt, 1920) comb. nov.**

Aphodius (Trichaphodius) comatus Schmidt, 1920: 140. Type locality: "Seish (Korea), Tsushima (Japan)".

Aphodius (Gilletianus) comatus: Dellacasa & Dellacasa 2006b: 127.

= *Aphodius (Pharaphodius) chokaiensis* Nomura et Nakane, 1951: 40. Type locality: "Mt. Chokai, Uzen, Honshu". Synonymized by Kim (1987: 72).

Distribution. Japan: Honshu, Tsushima; "Seish (Korea)".

****Gilletianus commatooides* (Balthasar, 1961) comb. nov.**

Aphodius (Trichaphodius) commatooides Balthasar, 1961: 371. Type locality: "China, Prov. Fukien, Shaowu".

Aphodius (Gilletianus) commatooides: Dellacasa & Dellacasa 2006b: 127.

Distribution. China: Fujian.

***Gilletianus fukiensis* (Balthasar, 1953) comb. nov.**

Aphodius (Trichaphodius) fukiensis Balthasar, 1953: 234. Type locality: "China: Fukien prov.: Kuatun".

Aphodius (Gilletianus) fukiensis: Král & Šípek 2013: 640, fig. 3A.

Distribution. China: Fujian.

***Gilletianus kazirangensis* (Stebnicka, 1981) comb. nov.**

Aphodius (Trichaphodius) kazirangensis Stebnicka, 1981a: 321, figs 1-4. Type locality: "India: Assam, Kaziranga".

Distribution. India: Assam.

***Gilletianus kratochvili* (Balthasar, 1941) comb. nov.**

Aphodius (Trichaphodius) kratochvili Balthasar, 1941: 86. Type locality: “China, Szetschwan: Tatsien-lu”.

Distribution. China: Sichuan.

***Gilletianus lomsakensis* (Stebnicka, 1992) comb. nov.**

Aphodius (Trichaphodius) lomsakensis Stebnicka, 1992: 9, figs 21-23. Type locality: “N Thailand, Lom Sak, 40 km N Phetchabun, 120 m”.

Distribution. Thailand: Phetchabun.

***Gilletianus matotomensis* Ochi, Kon et Kawahara, 2010**

Gilletianus matotomensis Ochi, Kon et Kawahara, 2010: 7, figs 3, 9-10. Type locality: “Mt. Matotom, Mindanao Is., the Philippines”.

Distribution. The Philippines: Mindanao.

****Gilletianus miksici* (Balthasar, 1960)**

Aphodius (Trichaphodius) mikšiči Balthasar, 1960: 7. Type locality: “Java merid., Palabuan”.

Gilletianus miksici: Ochi et al. 2010: 10.

Distribution. Indonesia: West Java.

***Gilletianus mindorensis* Ochi, Kon et Kawahara, 2010**

Gilletianus mindorensis Ochi, Kon et Kawahara, 2010: 9, figs 4, 11-12. Type locality: “Mt. Halcon, Mindro [= Mindoro] Is., the Philippines”.

Distribution. The Philippines: Mindoro.

****Gilletianus nigrovirgatus* (A. Schmidt, 1911) comb. nov.**

Aphodius nigrovirgatus Schmidt, 1911: 49 [replaced name].

Aphodius (Trichaphodius) nigrovirgatus: Schmidt 1913: 136.

Aphodius (Gilletianus) nigrovirgatus: Dellacasa & Dellacasa 2006b: 127.

= *Aphodius nigrosulcatus* Schmidt, 1909b: 189 [homonym]. Type locality: “Yünnan”.

Trichaphodius nigrovirgatus: Paulian 1945: 167.

Distribution. China: Yunnan.

***Gilletianus proclivis* (Balthasar, 1933)**

Aphodius (Gilletianus) proclivis Balthasar, 1933: 139. Type locality: “China. Yunan-Sen”.

Aphodius (Trichaphodius) proclivis: Stebnicka 1980: 235.

Gilletianus proclivis: Dellacasa et al. 2001: 153, figs 538, 550.

Distribution. China: Yunnan.

***Gilletianus pseudoreichei* (Stebnicka, 1998) comb. nov.**

Aphodius pseudoreichei Stebnicka, 1998: 837, figs 1-2. Type locality: “Papua New Guinea, Western Highlands Province, Baiyer R., 1150 m”.

Distribution. Papua New Guinea: Western Highlands.

***Gilletianus rajawatorum* (Král et Šípek, 2013) comb. nov.**

Aphodius (Gilletianus) rajawatorum Král & Šípek, 2013: 639, figs 2A-D, 3B. Type locality: “NW India, Rajasthan province, 50 km W of Agra, Bharatpur env., 27°12.42'N 77°30.48'E, 220 m a.s.l.”.

Distribution. India: Rajasthan.

***Gilletianus rangoonensis* (Petrovitz, 1970) comb. nov.**

Aphodius (Trichaphodius) rangoonensis Petrovitz, 1970: 20. Type locality. “Birma, Rangoon”.
Aphodius (Gilletianus) rangoonensis: Král & Šípek 2013: 643.
= *Aphodius (Trichaphodius) pokharensis* Stebnicka, 1981b: 535, figs 16–18. Type locality. “Nepal, Pokhara (820 m)”. Synonymized by Stebnicka (1986: 31).

Distribution. Myanmar; Nepal; Western Nepal.

****Gilletianus reichei* (Harold, 1859)**

Aphodius Reichei Harold, 1859: 210. Type locality. “Java”.
Aphodius (Trichaphodius) Reichei: Schmidt 1913: 136.
Aphodius (Gilletianus) reichei: Dellacasa & Dellacasa 2006b: 127.
Trichaphodius Reichei: Paulian 1945: 167.
Gilletianus reichei: Dellacasa & Dellacasa 2006a: 27 (neotype designation).
= ? *Strongylohorax carinipennis* Motschulsky, 1858: 56. Type locality. “India or., Birma” [nomen inquirendum; see Dellacasa et al. (2001)].

Distribution. Indonesia: “Java”.

***Gilletianus segmentarius* (Harold, 1879) comb. nov.**

Aphodius segmentarius Harold, 1879: 227. Type locality: “Birmá”.
Aphodius (Trichaphodius) segmentarius: Schmidt 1913: 136.

Distribution. Myanmar.

****Gilletianus segmentaroides* (A. Schmidt, 1909) comb. nov.**

Aphodius segmentaroides Schmidt, 1909a: 11. Type locality: “Vorderindien”
Aphodius (Trichaphodius) segmentaroides: Schmidt 1913: 136.
Trichaphodius segmentaroides: Paulian 1945: 166.

Distribution. “Vorderindien”.

***Gilletianus seguyi* (Paulian, 1945) comb. nov.**

Trichaphodius Séguyi Paulian, 1945: 167. Type locality: “Laos: Xieng Khouang”.
Aphodius (Trichaphodius) séguyi: Balthasar 1964: 167.

Distribution. Laos: Xieng Khouang.

***Gilletianus superreichei* Ochi, Kon et Kawahara, 2010**

Gilletianus superreichei Ochi, Kon et Kawahara, 2010: 5, figs 1, 5–6. Type locality. “Gunung Gede, Java, Indonesia”.

Distribution. Indonesia: West Java.

***Gilletianus takeshii* Ochi, Kon et Kawahara, 2010**

Gilletianus takeshii Ochi, Kon et Kawahara, 2010: 6, figs. 2, 7–8. Type locality: “Kinabuhayan, Luzon, the Philippines”.

Distribution. The Philippines: Luzon.

***Gilletianus therondi* (Balthasar, 1963) comb. nov.**

Aphodius (Trichaphodius) thérondi Balthasar, 1963: 281. Type locality: Nord Vietnam (Tonkin): Tam Bao [= Tam Dao, incorrect spelling].
Aphodius (Gilletianus) therondi: Král & Šípek 2013: 640, fig. 3D.

Distribution. Vietnam: Vinh Phuc.

***Gilletianus tonkineus* (Paulian, 1933) comb. nov.**

Aphodius (Trichaphodius) tonkineus Paulian, 1933: 206. Type locality. "Hoa Binh, Tonkin".

Trichaphodius tonkineus: Paulian 1945: 166.

Distribution. Vietnam: Hoa Binh.

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REFERENCES

- BALTHASAR V. 1933: Neue *Aphodius*-Arten aus dem paläarktischen Asien. Mit Uebersichten der Untergattungen *Volinus* und *Calamosternus*. *Koleopterologische Rundschau* 19: 139-146.
- BALTHASAR V. 1941: Eine Reihe von neuen coprophagen Scarabaeiden. *Entomologische Blätter* 37: 84-93.
- BALTHASAR V. 1943: Revision der Gattung *Aphodius*, Untergattung *Trichaphodius* A. Schm. *Mitteilungen der Münchner Entomologischen Gesellschaft* 33: 108-136.
- BALTHASAR V. 1953: Coprophagní Scarabaeidae čínské provincie Fukien (II. díl). Die Coprophagen der chinesischen Provinz Fukien (II. Teil) (87. Beitrag zur Kenntnis der Scarabaeiden. (Col.). *Sborník Entomologického Oddělení Národního Muzea v Praze* 28(1952): 223-236.
- BALTHASAR V. 1960: Neue laparostiche Scarabaeiden aus der syrischen Wüste, aus Westpakistan und aus Java. *Opuscula Entomologica* 44: 1-8.
- BALTHASAR V. 1961: Neue Arten der Gattung *Aphodius* III. aus der palaearktischen Region. *Sborník Entomologického Oddělení Národního Muzea v Praze* 34: 359-381.
- BALTHASAR V. 1963: Eine neue Gattung, Untergattung und neue Arten der Familie Aphodiidae. *Reichenbachia* 1: 277-290.
- BALTHASAR V. 1964: *Monographie der Scarabaeidae der palaearktischen und orientalischen Region*. Bd. 3. Prag: Verl. Tschechoslowak. Akad. Wiss., 652 pp.
- BORDAT P. 1989: Révision des *Aphodius* sous-genre *Trichaphodius* du groupe *humilis* Roth de la Région Afrotropicale (Col.: Scarabaeoidea: Aphodiidae). *Annales de la Société Entomologique de France (Nouvelle Série)* 25: 295-314.
- DELLACASA G., BORDAT P. & DELLACASA M. 2001: A revisional essay of world-genus group of Aphodiinae (Coleoptera Aphodiidae). *Memorie della Società Entomologica Italiana* 79(2000): 1-482.
- DELLACASA M. 1988: Contribution to a world-wide catalogue of Aegialiidae, Aphodiidae, Aulonocnemidae, Termitotrogidae (Coleoptera: Scarabaeoidea). *Memorie della Società Entomologica Italiana* 66(1987): 1-455.
- DELLACASA M. & DELLACASA G. 2006a: *Aphodius reichei* Harold, 1859: neotype designation and placement in the genus *Gilletianus* Balthasar, 1933. *Kogane* 7: 27-30.
- DELLACASA M. & DELLACASA G. 2006b: Subfamily Aphodiinae Latreille, 1802. Pp. 105-142. In: LÖBL I. & SMETANA A. (eds): *Catalogue of Palaearctic Coleoptera*, Vol. 3. *Scarabaeoidea - Scirtoidea - Dasciloidea - Buprestoidea - Byrrhoidea*. Stenstrup: Apollo Books, 690 pp.
- HAROLD E. von 1859: Beiträge zur Kenntniß einiger coprophagen Lamellicornien (Erstes Stück). *Berliner Entomologische Zeitschrift* 3: 193-224.
- HAROLD E. von 1879: II. Diagnosen neuer Arten. *Coleopterologische Hefte* 16: 225-232.
- KIM J.-I. 1987: Taxonomic study on the Korean Laparosticti (Scarabaeoidea) VI. Aphodiidae (Aphodiini 2). *The Korean Journal of Entomology* 17: 69-74.
- KRÁL D. & ŠÍPEK P. 2013: Aphodiinae (Coleoptera: Scarabaeidae) of the Goa, Maharashtra and Rajasthan (India) with description of *Aphodius (Gilletianus) rajawatorum* sp. nov. *Acta Entomologica Musei Nationalis Pragae* 53: 633-648.
- MOTSCHULSKY V. de 1858: Entomologie spéciale. Insectes des Indes orientales. I: ière Série. *Études Entomologiques* 7: 20-122, 1 pl.
- NOMURA S. & NAKANE T. 1951: On some new and remarkable species of Aphodiinae from Japan and Formosa. *Kontyū* 19: 35-47.
- OCHI T. 1986: A new scarabaeid species of the genus *Aphodius* from Amami-Ohshima, Japan. *Entomological Review of Japan* 41: 55-57.

- OCHI T., KON M. & KAWAHARA M. 2010: Four new species of the genus *Gilletianus* from Southeast Asia (Coleoptera, Scarabaeidae). *Kogane* 11: 111-120.
- PAULIAN R. 1933: Coprophages asiatiques nouveaux ou peu connus (Col.). *Bulletin de la Société Entomologique de France* 38: 205-208.
- PAULIAN R. 1945: *Coléoptères Scarabéides de l'Indochine. Première partie. Faune de l'Empire Français. III.* Paris: Librairie Larose, 225+[3] pp., 1 map.
- PETROVITZ R. 1970: Scarabaeidae aus Indien und Nepal (Coleoptera). *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen* 22: 17-21.
- PETROVITZ R. 1976: Neue *Aphodius*-Arten aus der Orientalischen Region. *Entomologische Blätter* 72: 1-9.
- SCHMIDT A. 1909a: Eine Serie neuer Aphodiinen und eine neue Gattung. (Fortsetzung II). *Societas Entomologica 23*: 10-12.
- SCHMIDT A. 1909b: Eine Serie neuer Aphodiinen und eine neue Gattung. (Fortsetzung). *Societas Entomologica 23*: 188-189.
- SCHMIDT A. 1911: Eine Serie neuer Aphodiinen. *Stettiner Entomologische Zeitung* 72: 1-51.
- SCHMIDT A. 1913: Erster Versuch einer Einteilung der exotischen Aphodiiden in Subgenera und als Anhang einige Neubeschreibungen. *Archiv für Naturgeschichte* (A) 79: 117-178.
- SCHMIDT A. 1920: Beitrag zur Kenntnis der Gattungen *Canthon* Hffsg., *Sybax* Boh., *Aphodius* Ill., *Simogonius* Har., *Ataenius* Har. *Archiv für Naturgeschichte* (A) 86: 114-147.
- SCHMIDT A. 1922: *Coleoptera Aphodiinae. Das Tierreich. Vol. 45.* Berlin & Leipzig: W. de Gruyter and Co., 614 pp.
- STEBNICKA Z. 1980: Scarabaeoidea (Coleoptera) of the Democratic People's Republic of Korea. *Acta Zoologica Cracoviensis* 24: 191-298.
- STEBNICKA Z. 1981a: Aphodiinae from the Himalayas, Assam and Sri Lanka. *Entomologica Basiliensis* 6: 319-327.
- STEBNICKA Z. 1981b: Three new species of *Aphodius* Illig. *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences Biologiques* 28: 531-537.
- STEBNICKA Z. 1986: Revision of the Aphodiinae of the Nepal-Himalayas (Coleoptera, Scarabaeidae). *Stuttgarter Beiträge zur Naturkunde Serie A (Biologie)* 397: 1-51.
- STEBNICKA Z. 1989: Revision of the Aphodiinae of the Western Himalayas. *Stuttgarter Beiträge zur Naturkunde Serie A (Biologie)* 441: 1-29.
- STEBNICKA Z. 1991: Aphodiinae from Sabah (Coleoptera: Scarabaeidae). *Revue Suisse de Zoologie* 98: 3-7.
- STEBNICKA Z. 1992: Aphodiinae of Thailand (Coleoptera: Scarabaeidae). *Stuttgarter Beiträge zur Naturkunde. Serie A (Biologie)* 481: 1-16.
- STEBNICKA Z. 1998: The Aphodiinae of New Guinea, the Bismarck Archipelago and the Solomon Islands (Coleoptera: Scarabaeoidea). *Invertebrate Taxonomy* 12: 833-895.

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