



## A review of the Neotropical dung beetle genera *Deltorhinum* Harold, 1869, and *Lobidion* gen. nov. (Coleoptera: Scarabaeidae: Scarabaeinae)

FRANÇOIS GÉNIER

401 – 60 rue du Minervois, Gatineau, Québec, J9H 7M1, Canada. E-mail: f.genier@videotron.ca

### Abstract

The taxonomy of the genera *Deltorhinum* Bates and *Lobidion* gen. nov. is reviewed. A genus and seven species are described as new (*Lobidion* gen. nov., *Deltorhinum armatum* sp. nov., *D. bilobatum* sp. nov., *D. guyanensis* sp. nov., *D. kempffmercadoi* sp. nov., *D. robustum* sp. nov., *D. vazdemelloi* sp. nov., *Lobidion punctatissimum* sp. nov.). Illustrations of diagnostic characters and an identification key are provided.

**Key words:** *Deltorhinum*, *Lobidion*, Ateuchini, myrmecophily, new genus, new species, Scarabaeinae

### Résumé

On revoit la taxonomie des genres *Deltorhinum* Bates et *Lobidion* gen. nov. Un genre nouveaux et sept espèces sont décrits (*Lobidion* gen. nov., *Deltorhinum armatum* sp. nov., *D. bilobatum* sp. nov., *D. guyanensis* sp. nov., *D. kempffmercadoi* sp. nov., *D. robustum* sp. nov., *D. vazdemelloi* sp. nov., *Lobidion punctatissimum* sp. nov.). On présente des illustrations pour les caractères morphologiques diagnostiques et une clé de détermination.

### Introduction

The somewhat enigmatic genus *Deltorhinum* Harold was created in 1869 for a species represented by a single specimen collected by Henry W. Bates at Ega (now Tefé) in the Amazon. Despite several years of searching in various collections, I could only locate 29 additional specimens belonging to this genus. Interestingly, these 29 specimens include seven new species and a single specimen tentatively attributed to the nominal taxon in addition to a new genus with one species represented by one specimen. This scarcity in collections might be a collecting artifact or the results of its peculiar habits. All specimens with natural history data were collected using flight interception traps and a single specimen was collected in a pitfall trap with no or unspecified bait suggesting that dung or carrion are not used by these beetles.

All of the species in *Deltorhinum* and *Lobidion* gen. nov. are well characterized and hopefully additional specimens will be discovered with the descriptions herein of these new taxa. The genus *Lobidion* is here described to accommodate a specimen that, despite being closely related to species of *Deltorhinum*, substantially differs from this genus and all other Ateuchina genera. These genera are currently included in the subtribe Ateuchina, tribe Ateuchini as defined by Vaz-de-Mello (2008).

Over 65 species currently included in the genus *Ateuchus* Weber were examined in order to find a likely candidate for the closest relationships. Some of the main characteristics of the genus, its modified anterior pronotal portion and the presence of a well-defined clypeofrontal carina were only found in *A. mutilatus* Harold, *A. rispolii* Martínez and *A. hypocrita* (Balthasar). However, other characteristics such as the configuration of the clypeal edge, suggests that this might be convergence. The anterior portion of the pronotum of *A. mutilatus* and *A. rispolii* have two weakly indicated but distinct concavities on each side of the midline, which is somewhat similar to the females of *D. robustum* sp. nov. *Ateuchus hypocrita* has a median

anterior transverse projection and a narrow clypeofrontal carina. Two species, *Ateuchus cereus* (Harold) and *A. pauki* Balthasar, have clypeofrontal carina but none of the other diagnostic characters of the genus *Deltorhinum*. Three species of *Ateuchus*: *A. striatulus* (Preudhomme de Borre), *A. subquadratus* (Harold) and *A. sulcicollis*, have the clypeofrontal suture narrowly carinate. All other *Ateuchus* species lack clypeofrontal carina or tubercles. At this time it is difficult to say where *Deltorhinum* and *Lobidion* should be placed within the Ateuchina.

## Material and methods

Specimens were gathered from or will be deposited in the following collections. The name of the curator(s) in charge is in brackets:

BMNH	The Natural History Museum, London, U.K. (Max Barclay, Martin Brendell, Malcolm Kerley)
CEMT	Setor de Entomologia da Coleção Zoológica da Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil (Fernando Vaz-de-Mello)
CMNC	Canadian Museum of Nature, Ottawa, ON, Canada
GHC	Gonzalo Halffter, personal collection, Xalapa, Mexico
MHNG	Muséum d'histoire naturelle de la Ville de Genève, Geneva, Switzerland (Giulo Cuccodoro, Bernard Landry)
MNHN	Muséum national d'Histoire naturelle, Paris, France (Olivier Montreuil)
MZSP	Museu de Zoologia da Universidade de São Paulo, SP, Brazil (Sonia Casari, Carlos José Einicker Lamas, Carlos Campaner)

All specimens were studied following standard procedures and, when available, male aedeagus and its internal sac extracted and embedded in Dimethyl Hydantoin Formaldehyde Resin (DMHF) on a white card. Data were compiled using the Mantis database from which citations, measurements and distributional data have been extracted. Primary type label data are presented *verbatim*, with a slash separating text from different labels. If not otherwise stated the text is printed on white paper or cardstock. Photographs were prepared with a Zarbeco ZDM Digital Video Microscope equipped with a 2-megapixel camera and images stacked with CombinedZM software. Measurements are rounded to the nearest 0.5 mm.

## Systematics

### *Deltorhinum* Harold, 1867

- Harold 1867: 96 [original description]
- Harold 1869: 1003 [catalogue]
- Gillet 1911: 54 [catalogue]
- Luederwaldt 1931: 366 [identification key to genus]
- Paulian 1938: 234 [identification key to genus]
- Blackwelder 1944: 205 [checklist]
- Vulcano & Pereira 1967: 533–603 [identification key to genus]
- Vaz-de-Mello 2000: 192 [checklist]
- Medina et al. 2001: 134 [checklist]
- Vaz-de-Mello 2008: 12 [systematic position]
- Almeida & Mise 2009: 237 [mention]

**Redescription.** Small to moderate in size (6.5–14.0 mm). Body oval to elongate-oval. Color light brown in teneral specimens to black, with distinct metallic sheen only in *D. robustum*. Clypeus regularly tapering toward apex, which is moderately to strongly upturned; apex at most broadly emarginate, never with two

distinct teeth. Clypeofrontal suture always distinctly carinate. Pronotal anterior portion modified, produced into a single broad or two narrow lobate projections and additional modifications; simple only in *D. robustum*, which has a somewhat triangular impression on each side of midline. Pronotal disc with a deep and well defined longitudinal sulcus along most of midline. Elytra strongly convex, with 7 striae on disc, stria 8 distinct from stria 9 only at apex. Elytral pseudopleura concealed in dorsal view. Pygidium narrowly sulcate basally, sulcus broadly arcuate or slightly bisinuous in distal view. Protibia obliquely truncate anteriorly; protarsi atrophied and usually broken off in non teneral individuals. Mesotibiae and metatibiae very wide at apex in ventral view; tarsi reduced in length, first tarsomere at most 1.5 X longer than wide at apex, usually as wide at apex as long. Sternite 8 unmodified medially. Aedeagus unmodified, parameres simply tapering toward apex, lacking denticles, hooks or rough surface. Internal sac with variously shaped sclerites, usually with a large apical sclerite seemingly forming a guide for the flagellum.

### ***Deltorhinum batesi* species group**

**Diagnosis.** Size small (6.5–9.5 mm), pronotum modified anteriomedially, profemur completely carinate on anterior edge ventrally to anterior setal row.

### ***Deltorhinum armatum* sp. nov.**

(Figs. 1–2, 18–20)

**Diagnosis.** Differ from all other species in the genus by the bilobate pronotal anterior edge combined with the strong oblique bulges on each side of midline anteriorly.

**Description.** Holotype male: Body and legs black. Clypeus moderately upturned medially; median projection feebly emarginate medially; marginal bead unmodified, weakly defined laterally. Gena bluntly angular laterally. Frontal carina distinctly arcuate in dorsal view, median portion higher than lateral portions. Vertex minutely punctate. Pronotal surface minutely punctate, punctures large in depressions; pronotal median longitudinal sulcus wide and deeply impressed throughout. Pronotal anterior edge bilobate medially; lobate portion preceded by a large, transverse, v-shaped depression and a blunt, oblique, transverse bulge on each side of midline, with a small depressed area on each side of midline. Pronotal basal surface smooth on most of width along posterior edge, a few weakly defined larger punctures on median fifth. Elytral surface minutely punctate; striae fine and sharply defined, more deeply impressed on apical declivity, punctures transverse and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia with punctures more or less set on a single oblique row on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere slightly longer than width at apex. Pygidial surface finely punctate throughout, basal sulcus narrowly rugose, apical marginal bead sharply defined internally.

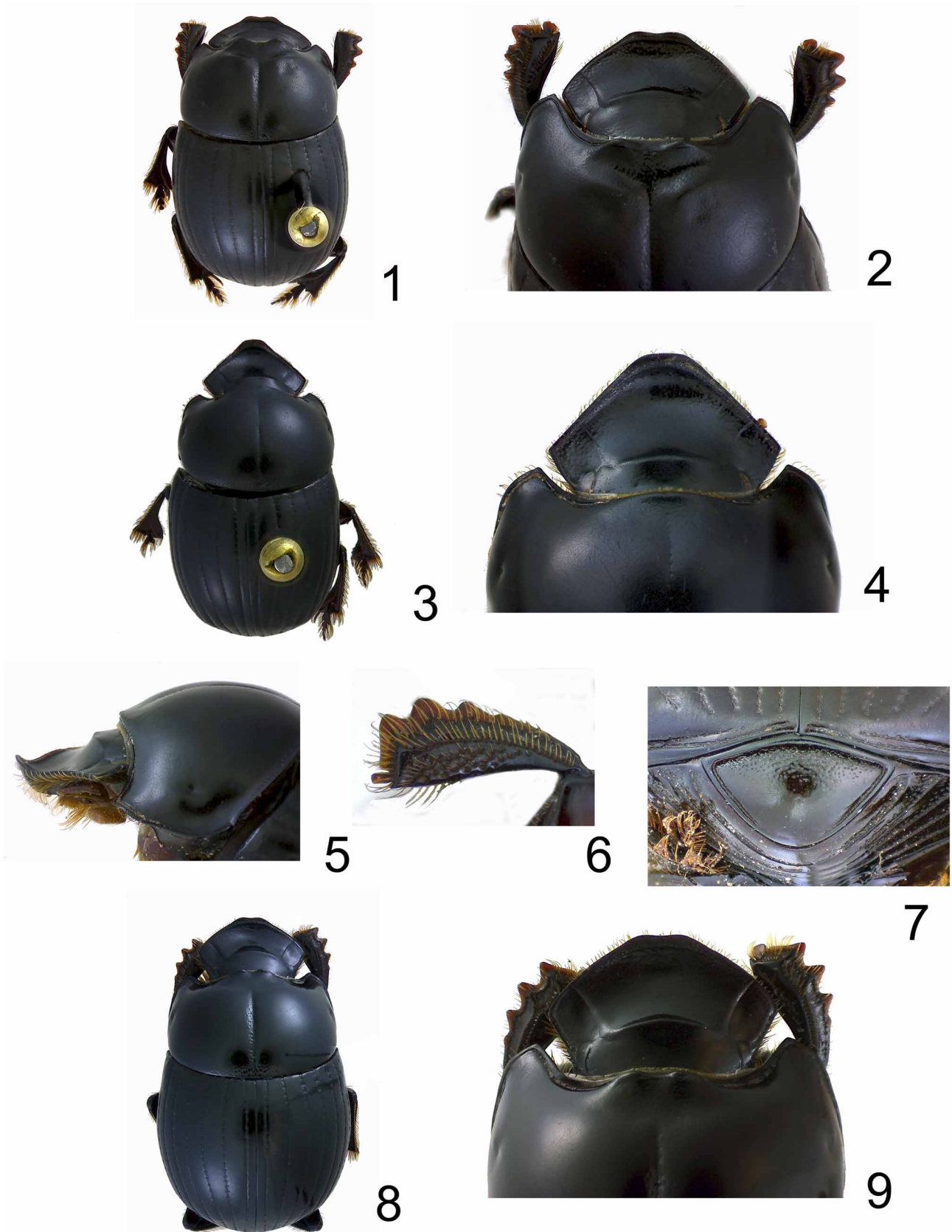
Measurements (4 specimens): body length: 8.0–9.5 mm.

Holotype ♂ (CMNC): Chapada [dos Guimarães], Brazil, Acc. No. 2966 / Nov. / H. & A. HOWDEN COLLECTION, ex. A Martinez coll. / WOLRD SCARAB. DATABASE, WSD00008015 / Holotype ♂, *Deltorhinum armatum* sp. nov. F. Génier, 2010. Aedeagus and internal sac extracted.

**Material examined** (3 ♂♂, 1 ♀). **BRAZIL:** MATO GROSSO, Chapada dos Guimarães, (15°26'54"S, 55°45'49"W), xi.1963, coll. Alvarenga & Werner - 1 ♀ (paratype) (CMNC); same locality, xi, coll. [anonymous] - 2 ♂♂ (holotype, 1 paratype) (CMNC, GHC); same locality, 25.i.1961, coll. J. & B. Bechyné - 1 ♂ (paratype) (BDGC).

**Etymology.** *Armatum*, a Latin adjective in apposition referring to the convoluted anterior pronotal development in this species.

**Natural history.** Unknown.



**PLATE 1.** Figs. 1–2, *Deltorhinum armatum* sp. nov. (holotype, male); Figs. 3–7, *D. batesi* Harold (holotype, male); Figs. 8–9, *D. bilobatum* sp. nov. (holotype, male). Figs. 1, 3, 8, habitus; Figs. 2, 4, 9, head and pronotum, dorsal view; Fig. 5, head and pronotum, lateral view; Fig. 6, protibia, dorsal view; Fig. 7, pygidium.

**Variation.** Little variation except for size and the more coarsely punctate pronotum in the only known female specimen.

***Deltorhinum batesi* Harold, 1867**

(Figs. 3–7)

Harold 1867: 96 [original description; combination: *Deltorhinum Batesi*]

Harold 1869: 1003 [catalogue; combination: *Deltorrhinum Batesi*]

Gillet 1911: 54 [catalogue; combination: *Deltorrhinum Batesi*]

Luederwaldt 1931: 366 [mention; combination: *Deltorrhinum Batesi*]

Paulian 1938: 234 [mention; combination: *Deltorrhinum Batesi*]

Blackwelder 1944: 205 [checklist; combination: *Deltorrhinum batesi*]

Vulcano & Pereira 1967: 533–603 [distribution; combination: *Deltorhinum batesi*]

Vaz-de-Mello 2000: 192 [checklist; combination: *Deltorhinum batesi*]

**Diagnosis.** Differs from all other species in the genus by the simple, anteriorly lobate pronotum combined with the pygidium coarsely punctate basally.

**Description.** Holotype female: Body and legs reddish black to black. Clypeus strongly upturned medially; median projection narrow and truncate anteriorly; marginal bead concave and minutely microsculptured throughout. Gena sharply angular laterally. Frontal carina feebly bisinuous in dorsal view, median portion slightly lower than lateral portions. Vertex minutely punctate. Pronotal surface minutely punctate, punctures slightly larger on a small surface anteromedially, median longitudinal sulcus narrow and feebly impressed posteriorly, weakly defined anteriorly; anterior portion feebly lobate medially, lobate portion preceded by a small flattened area. Pronotal basal surface coarsely punctate on most of width along posterior edge, punctate area wider on median fifth. Elytral surface minutely punctate; striae fine and sharply defined, more deeply impressed on apical declivity, punctures transversal and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia with punctures scattered on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere as long as width at apex. Pygidial surface finely punctate apically, becoming larger and coarser on basal third; basal sulcus with some coarse umbilicate punctures; apical marginal bead weakly defined internally.

Measurements (2 specimens): body length: 9.0 mm.

Holotype ♀ (MNHN): Ega (Bates handwriting) / Ex. Musæo, E. Harold (printed) / Muséum Paris, ex. Coll., R. Oberthür, 1952 / WOLRD SCARAB. DATABASE, WSD00008007 / Holotype ♀, *Deltorhinum batesi*, Harold, 1867, *vid.* F. Génier, 2008.

**Material examined** (1♂, 1♀). **BRAZIL:** AMAZONAS, Ega [=Tefé], (3°22'S, 64°42'W), [no date], coll. [anonymous] - 1♀ (holotype) (MNHN); RONDÔNIA, Ji-Paraná, Pimenta Bueno, (10°53'S, 61°56'W), ix.1938, coll. Vellard - 1♂ (CEMT).

**Natural history.** Unknown.

**Remark.** I have studied a specimen, from Ji-Paraná (Rondonia), which I am tentatively assigning to this species. It is a very teneral male and it differs in having the abdominal segments basal surface less coarsely and widely punctate and in lacking the pygidial coarse basal puncture, somehow similar to *D. guyanensis* but the frontal carina is definitely as in *D. batesi*. This male specimen was dissected to extract the aedeagus. Unfortunately, it was too teneral and the aedeagus was all shriveled and could not be illustrated.

***Deltorhinum bilobatum* sp. nov.**

(Figs. 8–9, 21–22)

**Diagnosis.** Differs from all other species in the genus by the bilobate pronotal anterior edge combined with the simply convex surface behind anterior depression on each side of midline.

**Description.** Holotype male: Body and legs black. Clypeus moderately upturned medially; median projection feebly emarginate medially; marginal bead unmodified, weakly defined laterally. Gena bluntly angular laterally. Frontal carina distinctly arcuate in dorsal view, median portion higher than lateral portions. Vertex minutely punctate. Pronotal surface minutely punctate, puncture large and weakly defined on anterior transverse depression and along longitudinal sulcus; median longitudinal sulcus wide and deeply impressed throughout; pronotal anterior edge bilobate medially, lobate portion preceded by a transverse leveled surface, surface gradually rounded behind depression, lacking small depressed area on each side of midline. Pronotal basal surface smooth on most of width along posterior edge, a few weakly defined larger punctures on median fifth. Elytral surface minutely punctate; striae fine and sharply defined, more deeply impressed on apical declivity, punctures transversal and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia with punctures more or less set on a single oblique row on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere slightly longer than width at apex. Pygidial surface finely punctate throughout; basal sulcus narrowly rugose; apical marginal bead sharply defined internally.

Measurements (3 specimens): body length: 9.0–9.5 mm.

Holotype ♂ (CMNC): [BRAZIL] Utiariti, Rio Papagaio, Mt, 22–31.X.1966, Lenko & Pereira / COLLECTION François GÉNIER, P.Q., CANADA / WOLRD SCARAB. DATABASE, WSD00008018 / Holotype ♂, *Deltorhinum bilobatum* sp. nov. F. Génier, 2010. Aedeagus extracted.

**Material examined** (1♂, 2♀♀): **BRAZIL:** MATO GROSSO, Uirapuru, (14°0'56"S, 59°22'4"W), ii.2003, coll. A. Foucart - 1♀ (paratype) (CEMT); Utiariti, Rio Papagaio, (13°1'51"S, 58°17'3"W), 22–31.x.1966, coll. Lenko & Pereira - 1♂ (holotype) (CMNC); MATO GROSSO DO SUL, UNESP Farm [=Fazenda Experimental da Universidade Estadual Paulista, câmpus de Ilha Solteira], Selvíria, (20°22'55.41"S, 51°24'39.3"W), 14.xi.1992, coll. S.R. Rodrigues - 1♀ (paratype) (CEMT).

**Etymology.** *Bilobatum*, a Latin adjective in apposition referring to the pronotal bilobate anterior edge.

**Natural history.** Unknown.

**Variation.** As for *D. armatum*, the only variation resides in size and the female having coarser pronotal punctures.

**Remark.** The holotype was killed in formalin and the internal sac could not be extracted and prepared for illustration. This is the only known male specimen.

### *Deltorhinum guyanensis* sp. nov.

(Figs. 10–11, 23–25)

**Diagnosis.** Differs from all other species by its strongly upturned clypeus combined with a anterior pronotal margin medially lobate and pygidium minutely punctate.

**Description.** Holotype male: Body and legs black. Clypeus strongly upturned medially; median projection narrow and arcuate anteriorly; marginal bead concave and more or less glossy throughout. Gena sharply angular laterally. Frontal carina straight in dorsal view, median portion as high as lateral portions. Vertex finely punctate. Pronotal surface minutely punctate, with some weakly defined larger punctures on a small surface anteromedially; median longitudinal sulcus narrow and feebly impressed posteriorly, weakly defined anteriorly; anterior portion bluntly lobate medially, lobate portion preceded by a small flattened area. Pronotal basal surface with weakly defined larger punctures set on one row on most of width along posterior edge, punctate area wider on median fifth. Elytral surface finely punctate; striae fine and sharply defined, more deeply impressed on apical declivity, punctures rounded and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia with punctures scattered on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere as long as width at apex. Pygidial surface minutely punctate throughout; basal sulcus finely rugose; apical marginal bead weakly defined internally.

Measurements (9 specimens): body length: 6.5–8.5 mm.



**PLATE 2.** Figs. 10–11, *Deltorhinum guyanensis* **sp. nov.** (paratype, female); Figs. 12–13, *D. kempffmercadoi* **sp. nov.** (holotype, female); Figs. 14–15, *D. vazdemelloi* **sp. nov.** (holotype, male); Figs. 16–17, *D. robustum* **sp. nov.** (holotype, female); Figs. 10, 12, 14, 16, habitus; Figs. 11, 13, 15, 17, head and pronotum, dorsal view.

Holotype ♂ (CMNC): FRENCH GUIANA, Matoury (41.5 km SSW), 50 m, 4°37'22"N, 52°22'35"W, 26–28.V.1997, J. Ashe & R. Brooks, FG1AB97, #060, ex: flight interc. trap / COLLECTION F. GÉNIER, P.Q. CANADA / WOLRD SCARAB. DATABASE, WSD00008009 / Holotype ♂, *Deltorhinum guyanensis* **sp. nov.** F. Génier, 2010. Aedeagus extracted.

**Material examined** (4♂♂, 5♀♀): **BRAZIL**: AMAZONAS, Reserva Ducke, 26 km NE Manaus, iii.1995, M.G.V. Barbosa, plot A, FIT 2 - 1♂ (paratype) (BMNH). **GUYANA**: Essequibo R., Moraballi Creek, 15.viii.1929. Oxf. Univ. Expedn. B.M. 1929-485, dark forest - 1♂ (paratype) (BMNH). **FRENCH GUIANA**: CAYENNE, 18.4 km SSE Roura, elev. 240 m (4°36'38"N, 52°13'25"W), 29.v.–10.vi.1997, coll. J. Ashe & R. Brooks (1997-180) - 1♀ (paratype) (CMNC); 20 km SW Cayenne, elev. 30 m (4°48'18"N, 52°28'41"W), 26–28.v.1997, coll. J. Ashe & R. Brooks (1997-59) - 1♀ (paratype) (CMNC); same locality, 29.v.–9.vi.1997, coll. J. Ashe & R. Brooks (1997-171) - 1♂ (paratype) (CMNC); 41.5 km SSW Matoury, elev. 50 m (4°37'22"N, 52°22'35"W), 26–28.v.1997, coll. J. Ashe & R. Brooks (1997-60) - 1♂ (holotype) (CMNC); SAINT-LAURENT-DU-MARONI, along Rue de Belizon trail, 1 km NW Les Eaux Claires, 7 km N Saül, elev. 280 m (3°39'46"N, 53°13'19"W), 4–8.vi.1997, coll. J. Ashe & R. Brooks (1997-167) - 1♀ (paratype) (CMNC); along Rue de Belizon trail, 2.9 km NW Les Eaux Claires, 7 km N Saül, elev. 220–240 m (3°39'46"N, 53°13'19"W), 31.v.–3.vi.1997, coll. Ashe & Brooks (122) - 1♀ (paratype) (CMNC); Mont Galbao, Saül, elev. 740 m (3°37'18"N, 53°16'42"W), 5–7.vi.1997, coll. J. Ashe & R. Brooks (1997-154) - 1♂ (paratype) (CMNC).

**Etymology.** *Guyanensis*, a Latin adjective that refers to the area where most of the specimens have been collected.

**Natural history.** Unknown.

**Variation.** No variation noted except for size and coarseness of punctures on pronotal anteromedian depression.

### *Deltorhinum kempffmercadoi* **sp. nov.**

(Figs. 12–13)

**Diagnosis.** Differs from all other species by its moderately upturned clypeus, which is emarginate medially combined with the anterior pronotal margin medially lobate.

**Description.** Holotype: Body and legs dark reddish brown to black. Clypeus moderately upturned medially; median projection distinctly emarginate medially; marginal bead unmodified, weakly defined on gena only. Gena bluntly angular laterally. Frontal carina distinctly arcuate in dorsal view, median portion higher than lateral portions. Vertex minutely punctate anteriorly, punctures becoming fine posteriorly. Pronotal surface minutely punctate, punctures larger on each side of midline, large, irregular in shape and confluent on anterior median depression; pronotal median longitudinal sulcus wide and deeply impressed throughout; pronotal anterior edge lobate medially, lobate portion preceded by a moderate transverse oval-shaped depression and a blunt oblique transverse bulge on each side of midline, lacking small depressed area on each side of midline. Pronotal basal surface smooth on most of width along posterior edge, with several larger punctures on median fifth. Elytral surface minutely punctate; striae fine and sharply defined, wider and more deeply impressed on apical declivity, punctures transversals and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia with punctures set on a single oblique row on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere approximately as long as wide at apex. Pygidial surface finely punctate throughout; basal sulcus with few transverse punctures; apical marginal bead weakly defined internally.

Measurements (1 specimen): body length: 7.5 mm.

Holotype ♀ (CNC): BOLIVIA: Santa Cruz, PNNKM, Lago Caiman, 13°36'S, 60°54.9'W 13–20.I.1997, S. Spector & S. Ayazama / WOLRD SCARAB. DATABASE, WSD00017749 / Holotype ♂, *Deltorhinum kempffmercadoi* **sp. nov.** F. Génier, 2010.



**Material examined** (1♀). **BOLIVIA:** SANTA CRUZ, Lago Caiman, Parque Nacional Noel Kempff Mercado, (13°36'S, 60°54.9'W), 13–20.i.1997, coll. S. Spector & S. Ayazama - 1♀ (holotype) (CNC).

**Etymology.** *Kempffmercadoi* a patronymic in honor of the late Dr. Noel Kempff Mercado, for his research and discoveries in the National Park that bear his name.

**Natural history.** Unknown.

***Deltorhinum vazdemelloi* sp. nov.**

(Figs. 14–15, 26–28)

**Diagnosis.** Differs from all other species in the genus by its lobate anterior pronotal margin, which is preceded by a small median transverse bulge.

**Description.** Holotype male. Body and legs black. Clypeus moderately upturned medially; median projection feebly emarginate medially; marginal bead unmodified, weakly defined laterally. Gena bluntly angular laterally. Frontal carina straight in dorsal view, median portion noticeably lower than lateral portions. Vertex minutely punctate throughout. Pronotal surface minutely punctate; a few weakly defined, large, and irregular in shape confluent punctures on anterior median depression; pronotal median longitudinal sulcus reduced to a few depressions anteriorly, fine and shallow on posterior half; pronotal anterior edge simply lobate medially, lobate portion preceded by flat area set with a small median transverse swelling, lacking small depressed area on each side of midline. Pronotal basal surface smooth on most of width along posterior edge, with few larger weakly defined punctures on median fifth. Elytral surface finely punctate; striae fine and sharply defined, slightly wider and more deeply impressed on apical declivity, punctures rounded and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia with punctures set on 2–3 irregular oblique rows on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere slightly longer than wide at apex. Pygidial surface minutely punctate throughout; basal sulcus lacking punctures, glossy; apical marginal bead rather widely interrupted internally.

Measurements (7 specimens): body length: 7.5–9.0 mm.

Holotype ♂ (MZSP): BRAZIL: PA, Municipio Redenção, 07°46'S 51°58'W, FIT, XI.1998, P&T Scheffler / WOLRD SCARAB. DATABASE, WSD00008024 / Holotype ♂, *Deltorhinum vazdemelloi* sp. nov. F. Génier, 2010. Aedeagus and internal sac extracted.

**Material examined** (1♂, 6♀♀). **BRAZIL:** PARÁ, Estação de pesquisas Pinkaití, Area Indígena Kayapo, Redenção, (7°46'S, 51°58'W), x.1999, coll. P.Y. Scheffler - 2♀♀ (2 paratypes) (CEMT); Municipio Redenção, (7°46'S, 51°58'W), xi.1998, coll. P. & T. Scheffler - 3♀♀, 1♂ (holotype, paratypes) (CEMT, MZSP); same locality, xii.1998, coll. P. & T. Scheffler - 1♀ (paratype) (CEMT).

**Etymology.** *Vazdemelloi* is a patronymic in honor of Fernando Z. Vaz-de-Mello my colleague and friend who provided me with all known specimens of this species.

**Natural history.** All known specimens were collected using flight interception traps set in forest.

**Variation.** Little variation is noted besides the size and shape of the median transverse pronotal bulge, which is impressed medially in line with the median longitudinal sulcus in two specimens.

***Deltorhinum robustum* species group.**

**Diagnosis.** Size moderate (13.5–14.0 mm), anterior pronotal margin unmodified medially, profemur lacking carina on anterior edge ventrally to anterior setal row.

**Remark.** For the moment, the only known species of this group is included in the genus *Deltorhinum*. This status will have to be reevaluated when males become available and additional morphological characters can be investigated. Its morphology suggest that it might belong to a different genus as some other species currently included in *Ateuchus*.

***Deltorhinum robustum* sp. nov.**

(Figs. 16–17)

**Diagnosis.** Differs from all others species in the genus by its large size (more than 13.5 mm) and its unmodified anterior pronotal margin.

**Description.** Holotype female. Body and legs reddish brown. Clypeus moderately upturned medially; median projection distinctly emarginate medially; marginal bead unmodified, weakly defined laterally. Gena acutely angular laterally. Frontal carina angulate in dorsal view, median portion noticeably lower than lateral portions. Vertex finely punctate throughout. Pronotal surface minutely punctate on disc, punctures fine on anterior and lateral declivities; pronotal median longitudinal sulcus weakly defined and shallow, present on basal two-thirds; pronotal anterior edge unmodified; pronotal anterior declivity with two triangular depressions in line with the eyes. Pronotal basal surface with larger weakly defined punctures on median half. Elytral surface finely punctate; striae fine and simple, similar on disc and apical declivity, punctures rounded and encroaching on interstriae. Elytral epipleuron unmodified, hidden in dorsal view. Protibia smooth on dorsal surface. Profemur evenly rounded anteriorly, lacking sharply defined carina on basal three-fourths. Mesofemora and metafemora simply convex ventrally. Mesotarsi and metatarsi with first tarsomere 2.5 times longer than wide at apex. Pygidial surface finely punctate throughout; basal sulcus with fine transverse microsculpture; apical marginal bead widely interrupted internally, margin distinct on basal third only.

Measurements (3 females) body length: 13.5–14.0 mm.

Holotype ♀ (MNHN): Brasil, Parz [or Para!]. (barely legible handwriting) / sans nom (barely legible handwriting) / Ex. Musaeo, E. Harold / Muséum Paris, ex Coll., R. Oberthür, 1952 / WOLRD SCARAB. DATABASE, WSD00008021 / Holotype ♂, *Deltorhinum robustum* sp. nov. F. Génier, 2010.

**Material examined** (3♀♀): BRAZIL: [unspecified locality], [nodate], coll. [anonymous] - 3♀♀ (holotype, 2 paratypes) (MHNG, MNHN).

**Etymology.** *Robustum*, a Latin adjective referring to the relative large size of this species.

**Natural history.** Unknown.

**Variation.** The holotype is teneral, therefore lighter in color. The two other known specimens are dark brown to black with faint but distinct greenish or coppery reflections on most of the body.

***Lobidion* gen. nov.**

Type species: *Lobidion punctatissimum* sp. nov. here designated.

**Diagnosis.** The lobate clypeofrontal carina, strongly convex and finely punctate pronotum combined with the explanate pseudepipleuron will separate this genus from all other closely related Ateuchina genera.

**Description** (based on female). Closely related to *Deltorhinum*. Small in size (7.5 mm). Body elongate-oval. Color, dark brown to black, lacking distinct metallic sheen. Clypeus regularly tapering toward apex, which is slightly upturned; apex with two blunt teeth. Clypeofrontal suture strongly raised into a flat lobate projection. Pronotal anterior portion unmodified, convex. Pronotal disc with a shallow weakly defined sulcus on posterior third. Elytra strongly and evenly convex, with 7 striae on disc, stria 8 distinct from stria 9 only at apex. Elytral pseudepipleura explanate, visible in dorsal view. Pygidium narrowly and shallowly sulcate basally, sulcus broadly arcuate in distal view. Protibia obliquely truncate anteriorly; protarsi slightly atrophied. Mesotibiae and metatibiae moderately wide apically in ventral view; tarsi longer than apical tarsal edge, first tarsomere unmodified, longer than wide at apex. Sternite 8 modified medially (most likely a secondary sexual character in female). Male genitalia unknown.

**Etymology.** From the Greek *lobos*, a rounded projection, and the diminutive *idion* referring to the cephalic projection in the only known species of this genus (gender neutral).

**Remark.** Interestingly, the cephalic ornamentation of this genus is nearly identical to the species of the genus *Ontherus* (*Ontherus brevipennis* group), which was collected in the same microhabitat.



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**PLATE 3.** Figs. 18–20, *Deltorhinum armatum* **sp. nov.**; Figs. 21–22, *D. bilobatum* **sp. nov.**; Figs. 23–25, *D. guyanensis* **sp. nov.**; Figs. 26–28, *D. vazdemelloi* **sp. nov.**. Figs. 18, 21, 23, 26, parameres, dorsal view; Figs. 19, 22, 24, 27, paramere, lateral view; Figs. 20, 25, 28, internal sac.

*Lobidion punctatissimum* sp. nov.

(Figs. 29–31)

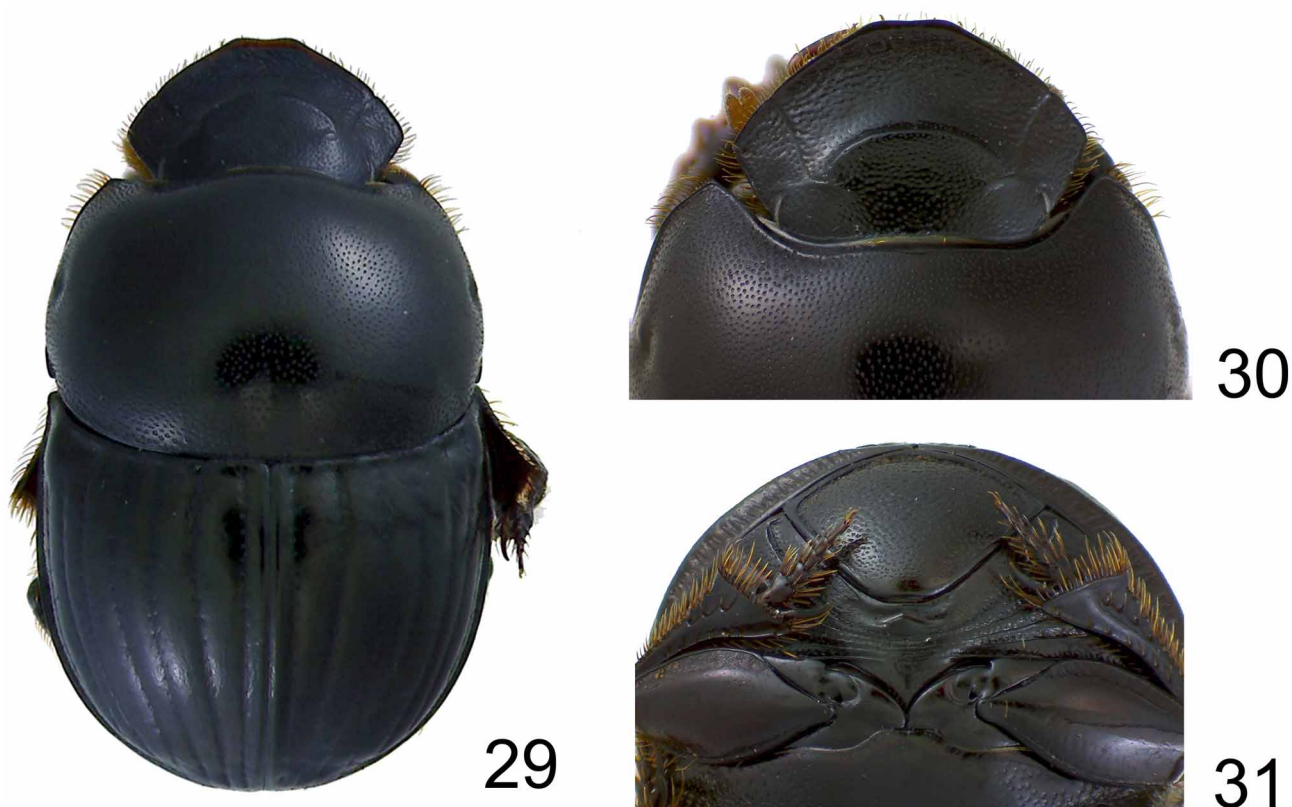
**Diagnosis.** See generic diagnosis.

**Description.** Holotype female. Body and legs dark brown to black. Clypeus feebly upturned medially; clypeal teeth short and broadly rounded; marginal bead unmodified, well defined throughout. Gena bluntly and obtusely angular laterally. Frontal carina arcuate in dorsal view, median portion noticeably lower than lateral portions. Vertex with fine, sharply defined punctures throughout. Pronotal surface entirely covered with dense, fine, and sharply defined punctures; punctures slightly larger along posterior edge; pronotal median longitudinal sulcus reduced to a shallow weakly defined concavity on basal third; pronotal anterior portion unmodified. Elytral surface irregular, minutely punctate; striae moderately wide and defined, with distinct microsculptures, slightly wider and more deeply impressed on apical declivity, punctures rounded and encroaching on interstriae. Elytral epipleuron explanate, visible in dorsal view, ventral surface with irregular transverse rugulae. Protibia smooth on dorsal surface. Profemur sharply carinate anteriorly. Mesofemora and metafemora with a wide coarsely microsculptured furrow along posterior edge. Mesotarsi and metatarsi with first tarsomere approximately 1.5 X longer than wide at apex. Abdominal segment 8 wide, with an acute dentiform process pointing posteroventrally. Pygidial surface covered with large, shallow and microsculptured punctation; apical marginal bead interrupted internally; pygidial apex truncate.

Measurements (1 specimen) body length: 7.5 mm.

Holotype ♀ (MZSP): BRAZIL: MATO GROSSO, Mun. Cotriguaçu, Fazenda São Nicolau, mata nordeste, 09°50'25"S, 058°15'9"W, 6.X.2009, coll. F.Z. Vaz-de-Mello, in *Acromyrmex* aff. *subterraneus* nest / WOLRD SCARAB. DATABASE, WSD00017748 / Holotype ♀, *Lobidion punctatissimum* sp. nov. F. Génier, 2010.

**Material examined** (1♀): BRAZIL: MATO GROSSO, Fazenda São Nicolau (mata nordeste), Municipio Cotriguaçu, (9°50'25"S, 58°15'9"W), 6.x.2009, coll. F.Z. Vaz de Mello - 1♀ (holotype) (MZSP).



**PLATE 4.** Figs. 29–31, *Lobidion punctatissimum* sp. nov. (holotype, female); Fig. 29, habitus; Fig. 30, head and pronotum; Fig. 31, ventrites and pygidium, ventral view.

**Etymology.** *Punctatissimum*, an adjective in apposition relating to the finely and densely punctate head and pronotum of this species.

**Natural history.** Collected in the refuse pile of a very large nest of *Acromyrmex* aff. *subterraneus* (Forel, 1893) in Amazonian forest approximately 100 m from a pasture. This specimen was collected along with specimens of *Ontherus* sp. belonging to the *Ontherus brevipennis* group as defined by Génier (1996) (F. Z. Vaz de Mello, Universidade Federal de Mato Grosso, Cuiaba, Brazil; personal communication).

## Identification keys

This key will help separating all the taxa treated herein from *Ateuchus*.

1. Anterior pronotal portion modified medially, either lobate or bilobate along anterior edge and depressed medially (Figs. 1–5, 8–15) *Deltorhinum* Bates (*D. batesi* species group) ..... 2
  - Anterior pronotal portion unmodified or with different configuration ..... 7
2. Anterior pronotal portion unilobate (Figs. 3–5, 10–15) ..... 3
  - Anterior pronotal portion bilobate (Figs. 1–2, 8–9) ..... 6
3. Anterior pronotal portion lacking small median transverse bulge on depressed portion (Figs. 3–5, 10–13) ..... 4
  - Anterior pronotal portion with a small median transverse bulge on depressed portion (Figs. 14–15); Brazil (Pará) ..... *Deltorhinum vazdemelloi* **sp. nov.**
4. Pygidial basal portion with distinct fine coarse punctures on basal third (Fig. 7); Brazil (Amazonas, Rondônia) ..... *Deltorhinum batesi* Harold
  - Pygidial surface minutely punctate throughout, some individuals with few distinct punctures along basal transverse furrow ..... 5
5. Pronotal longitudinal sulcus narrow, edges not extending obliquely outward anteriorly (Fig. 10–11); French Guiana ..... *Deltorhinum guyanensis* **sp. nov.**
  - Pronotal longitudinal sulcus wide, edges extending obliquely outward anteriorly (Fig. 12–13); Bolivia ..... *Deltorhinum kempffmercadoi* **sp. nov.**
6. Pronotal longitudinal sulcus narrow, edges not extending obliquely outward anteriorly (Fig. 8–9); Brazil (Mato Grosso, Mato Grosso do Sul) ..... *Deltorhinum bilobatum* **sp. nov.**
  - Pronotal longitudinal sulcus wide, edges extending obliquely outward anteriorly (Fig. 12–13); Brazil (Mato Grosso) ..... *Deltorhinum armatum* **sp. nov.**
7. Pseudepipleuron explanate and with numerous transverse sulci (Fig. 31), Pronotum strongly convex and finely punctate throughout; Brazil (Mato Grosso) ..... *Lobidion punctatissimum* **sp. nov.**
  - Pseudepipleuron unmodified, pronotum with different configuration ..... 8
8. Anterior edge of clypeus with teeth strongly upturned, clypeofrontal carina wide, well defined and lacking tubercles on each side; pronotal anterior declivity with two triangular depression in line with the eyes (Figs. 16–17); profemur evenly rounded anteriorly, lacking sharply defined carina on basal three fourths; Brazil (unspecified locality) ..... *Deltorhinum robustum* **sp. nov.**
  - Combination of characters different ..... *Ateuchus* Weber

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