



A revision of the genus *Aphengium* Harold, 1868 (Coleoptera: Scarabaeidae: Scarabaeinae: Ateuchini)

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Abstract

Aphengium Harold, a dung beetle genus endemic to the Atlantic forests of Brazil, comprises four valid species: *A. sordidum* Harold, 1868, *A. cupreum* Shipp, 1897, *A. ibateguara* **sp. nov.**, *A. curtum* **sp. nov.**. In this revision of the genus each species is analyzed as follows: a detailed literature review, a diagnosis, illustrations of key morphological characters, a listing of material examined and geographic distribution. A **lectotype** is designated for *A. sordidum*, and a **neotype** for *A. cupreum*.

Key words: taxonomy, dung beetles, Ateuchina, new species, Atlantic Forest

Resumo

Aphengium Harold, um gênero de rola-bosta endêmico da Mata Atlântica do Brasil, compreende quatro espécies válidas: *A. sordidum* Harold 1868, *A. cupreum* Shipp, 1897, *A. ibateguara* **sp. nov.**, *A. curtum* **sp. nov.**. Nesta revisão do gênero a seguinte informação é apresentada para cada espécie: uma revisão da literatura detalhada, uma diagnose, ilustração de caracteres morfológicos chave, dados do material examinado e distribuição geográfica. Um **lectótipo** é designado para *A. sordidum*, e um **neótipo** para *A. cupreum*.

Palavras-chave: taxonomia, rola-bosta, Ateuchina, novas espécies, Mata Atlântica

Introduction

This paper aims to review the taxonomy of the genus *Aphengium*, providing information on species identities, identification and geographical distributions.

Aphengium Harold (1868) is a small group of Ateuchini scarab beetles cited from Brazil and Uruguay [doubtful locality] (Harold 1868; Gillet 1911). The main diagnostic characters of the genus are an expanded last abdominal sternite that crowds out other sternites along the midline (other sternites are visible only laterally), and the pilose elytra and pronotum (Vaz-de-Mello 2007; Vaz-de-Mello *et al.* 2011).

The genus was based on single species, *Aphengium sordidum* from specimens labeled “Montevideo” (Harold 1868). Bates (1887) described *A. seminudum* from Panama. Waterhouse (1890) placed *A. seminudum* Bates in the genus *Bdelyrus* upon concluding that it had been placed in *Aphengium* in error. Later, Shipp (1897) described *A. cupreum* from Espírito Santo, Brazil. Since Shipp's work, no additional species have been described until now.

Vaz-de-Mello (2008) redefined Ateuchini and some of the genera that compose this tribe. According to him, *Aphengium* is positioned in the subtribe Ateuchina, which currently includes *Ateuchus* Weber, *Deltorhinum* Harold, *Aphengium*, and *Sinapisoma* Boucomont (transferred from Canthonini [currently Deltochilini]). The subtribe was diagnosed as follows: (1) medial part of clypeal surface concave; (2) clypeal ventral process in the form of a transverse carina; (3) pronotum evenly convex, at most with a longitudinal sulcus; (4) lateral pronotal pit well-defined; (5) hypomera deeply excavated anteriorly and with a transverse carina (as in Scatimina); (6) prolegs lacking trochantofemoral pit; (7) protibia with anterior border straight (as in Scatimina), except for anteroapical tooth in males; (8) nine elytral striae (with pseudoepipleuron delimited by a fold or convexity in the 9th interstria); (9) parameres symmetrical; (10) internal sac sclerites represented by a few small flagelliform lamellae, all apical in position (Vaz-de-Mello 2008).

Methods

This study was based on the examination of 97 adult specimens of *Aphengium*. Material examined was kindly provided by the curators of institutions as listed below. The name of curators is placed in parentheses.

CEMT	Seção de Entomologia da Coleção Zoológica, Departamento de Biologia e Zoologia, Universidade Federal de Mato Grosso, Cuiabá, Brazil (Fernando Vaz-de-Mello).
CERPE	Coleção Entomológica, Departamento de Agronomia, Universidade Federal Rural de Pernambuco, Recife, Brazil (Paschoal Grossi).
IRSN	Institut Royal des Sciences Naturelles, Bruxelles, Belgium (Alain Drumont).
MNHN	Muséum National d'Histoire Naturelle, Paris, France (Olivier Montreuil and Antoine Mantilleri).
NHML	Natural History Museum, London (Max Barclay and Malcolm Kerley).

Examination of the aedeagus and endophallic sclerites was undertaken to clarify the taxonomic differences among species. In describing these structures, we generally follow Tarasov & Solodovnikov (2011) with some slight modifications. The endophallus was removed from the aedeagus through the basal foramen of the phallobase, and its sclerites were illustrated according to the natural orientation inside the body (the symmetric aedeagus rests on its left side, with its right lateral side facing upwards); endophallic sclerites were drawn in dorsal view in the resting position (seen through the right lateral side of the aedeagus), except for the superior right peripheral sclerite (SRP), which was illustrated in ventral view in resting position (seen from the left side of the aedeagus). One sclerite was found to be taxonomically useful: the fronto-lateral peripheral sclerite (FLP) (Figs. 37–40). The complex of subaxial and axial sclerites did not provide significant taxonomic value.

Illustrations were made using a digitizing tablet and image editing software (Adobe Photoshop CS4). Images of specimens and key characters were taken with a Leica stereomicroscope M205A, using image stacking software (Leica Application Suite, version 3.7.0).

Information about collection conditions and habitat were included when available for individuals examined. Additional remarks were also added where relevant.

Aphengium Harold, 1868

Aphengium Harold 1868: 82 (original description); Harold 1869: 1001 (catalogue); Bates 1887: 42 (taxonomic comments); Waterhouse 1890: 379 (taxonomic comments); Gillet 1911: 49 (catalogue); Blackwelder 1944: 203 (checklist); Cook 1998: 631 (taxonomic comments); Vaz-de-Mello 2000: 186, 190 (checklist); Vaz-de-Mello 2008: 12, 13 (systematic position); Vaz-de-Mello *et al.* 2011: 4, 13, 21, 28, 36, 43, 49 (identification keys).

Type species. *Aphengium sordidum* Harold, by monotypy

Diagnosis. Pronotum (especially at sides) and elytra densely pilose, with long setae. Last abdominal sternite expanded and crowding out other sternites along midline; other sternites visible only laterally (Fig. 3). Hypomera deeply excavated anteriorly (Fig. 1). Profemur lacking trochantofemoral anterior pit. These characters distinguish *Aphengium* from all other New World Scarabaeinae genera.

Description. Body. Oval to elongate-oval (viewed dorsally). Dorsal surface with foveiform punctures and dense setae. **Colour.** Black or reddish brown, matte or with silky sheen. **Length.** Small (6–10 mm). **Head.** Clypeus bidentate; clypeal teeth separated by either a narrow or broad emargination (Figs. 9–10). Medial part of clypeal surface concave. Margin between clypeal teeth and clypeogenal suture almost straight. Margin of gena strongly curved outward, with a groove along its margin. Clypeogenal suture distinct. Frontoclypeal carina inconspicuous. Eyes comma-shaped in dorsal view; interocular width at least 12 times the eye width (Figs. 15–16). **Pronotum.** Convex. Foveiform punctures variable according to species, dense or sparse. Punctures larger and closer on lateral and posterior portions of pronotum. Lateral pronotal impressions with a small rounded tubercle, poorly differentiated from surrounding surface. Posteromedian pronotal fossae absent. **Elytra.** Lateral margins slightly curved outwards. Elytral striae narrow, carinate margins close and almost contiguous. Interstriae flattened, with foveiform punctures surrounded by microgranulation. Pseudopileural carina complete, visible for entire length of epipleuron. **Abdomen.** Pygidium almost horizontal and rounded at apex (Figs. 3–4), completely emarginated, visible in ventral view; emargination bounded internally by a groove. **Legs.** Profemur lacking trochantofemoral anterior pit. Meso and metafemur emarginated along its anterior margin. Protibia subtriangular, flat, with three external teeth; apical internal angle straight; margin of apical tooth continuous (not forming angle) with apical truncation. External margin of protibia lacking denticles between its base and the basal tooth. Meso and metatibia strongly widened at apex, subtriangular (Fig. 2). Length of basal metatarsomere subequal to that of following two tarsomeres combined (Fig. 2). **Secondary sexual characters.** Female clypeal teeth more triangular, longer and more acute (Figs. 10, 16, 22, 28) than those of males (Figs. 9, 15, 21, 27). Protibial spur spiniform and conical in females (Fig. 6). Male protibial spur wider, spatuliform (Fig. 5). Anterior angle of pronotum more acute in females (Figs. 12, 18, 30). Differences between the sexes in the head and pronotum punctures vary according to species. **Aedeagus.** Parameres symmetrical, short or elongate, simple, without ornamentation or setae (Figs. 31–34). Superior right peripheral sclerite (SRP) sigmoid (Figs. 35–36). Fronto-lateral peripheral sclerite (FLP) with irregular shape (Figs. 37–40).

Geographical distribution. Species of *Aphengium* inhabit wet forests, particularly at lower altitudes and mainly in coastal parts of the Brazilian Atlantic rainforest. However, each species appears to be distributed within one defined region of Atlantic rainforest, with three distribution gaps between them (Fig. 41). The northern gap includes the coastal region located between the São Francisco river and the Todos os Santos bay, separating *A. ibateguara* **sp. nov.** and *A. curtum* **sp. nov.**. The central gap includes the area between the mouths of the Pardo and Mucuri rivers, separating *A. curtum* **sp. nov.** and *A. cupreum*. The southern gap includes the region between the Paraíba do Sul river and Guanabara bay, separating *A. cupreum* and *A. sordidum*.

So far, extensive sampling in some lower elevation parts of the Atlantic forest located within these gaps have not produced *Aphengium*. We examined dung beetles from Sapiranga forest reserve in the first gap. In the second gap numerous field trips have been made to Porto Seguro and neighboring areas. Finally, in the third gap there are historical collections of dung beetles from the São Fidélis region but no recent extensive collecting in lower altitude forest fragments.

Key to males of *Aphengium* Harold

1. Dorsal surface of head with dense foveiform punctures deeply impressed and often rounded (Figs. 9, 15, 21). Anterolateral portion of pronotum lacking sleek callus 2
- Dorsal surface of head smooth and sleek or punctures almost inconspicuous (Fig. 27). Anterolateral portion of pronotum with a longitudinal and sleek callus (Fig. 29). Male genitalia figs. 34, 40. Brazil (Bahia) *A. curtum* **sp. nov.** (Fig. 25).

2. Dorsal surface of head with contiguous foveiform punctures over its central portion (Figs. 9, 21). Anterolateral margin of pronotum explanate (Figs. 11, 23) 3
- Dorsal surface of head with foveiform punctures separated by distance equivalent to at least two times puncture diameter along most of midline (Fig. 15). Anterolateral margin of pronotum not explanate (Fig. 17). Male genitalia figs. 32, 36, 38. Brazil (Espírito Santo and Minas Gerais) *A. cupreum* Shipp (Fig. 13).
3. Pronotum with larger and contiguous foveiform punctures on lateral and posterior portions (Fig. 11). Length of parameres one-half that of phallobase (Fig. 31); apical third of parameres slightly narrowed (Fig. 31); fronto-lateral peripheral sclerite (FLP) as in figure 37. Brazil (Rio de Janeiro and São Paulo) *A. sordidum* Harold (Fig. 7).
- Foveiform punctures of lateral and posterior portions of pronotum not contiguous, usually separated by distance equivalent to less than one puncture diameter (Fig. 23). Length of parameres less than one-half that of phallobase (Fig. 33); apical third of parameres abruptly narrowed (Fig. 33); fronto-lateral peripheral sclerite (FLP) as in figure 39. Brazil (Alagoas) *A. ibateguara* **sp. nov.** (Fig. 19).

***Aphengium sordidum* Harold 1868**

(Figs 1, 4–12, 31, 35, 37, 41)

Aphengium sordidum Harold 1868: 82 (original description); Harold 1869: 1001 (catalogue); Gillet 1911: 49 (catalogue); Pessoa and Lane 1941: 440; Blackwelder 1944: 203 (checklist); Vaz-de-Mello 2000: 190 (checklist); Vaz-de-Mello *et al.* 2011: 49 (figure).

Diagnosis. Males of *A. sordidum* are similar to those of *A. ibateguara* **sp. nov.** in having dense and contiguous dorsal punctures on head (Fig. 9). However, it can be distinguished from *A. ibateguara* **sp. nov.** by the following characters of the genitalia: length of parameres approximately one-half that of phallobase (Fig. 31); ventral margin of parameres almost straight; dorsal margin curved inward at its apical third (Fig. 31); and fronto-lateral peripheral sclerite (FLP) as in figure 37. Females can be immediately distinguished from other *Aphengium* species by the following characters: dorsal interocular surface of head with two distinct rounded depressions, covered by dense and contiguous punctures (Fig. 10); central and lateral portions of head with small, weakly impressed punctures, more dispersed than those on the dorsal interocular surface (Fig. 10).

Description. **Length.** Small (7–10 mm) (Figs. 7, 8). **Head.** Foveiform punctures dense and contiguous over dorsal surface; deeply impressed and often rounded (Fig. 9). Surface around clypeal teeth rugose. **Pronotum.** Covered by foveiform, setose punctures; larger and contiguous on lateral and posterior portions (Fig. 11). Anteromedial punctures coarse, scattered and weakly impressed. Disc of pronotum slightly convex. Anterior angle of pronotum approximately 90°. Lateral angle greater than 90°, margin explanate. Margin between lateral and posterior angles straight. **Elytra.** Elongate-oval shape (Figs. 7, 8). Disc slightly convex, with dense and conspicuous setae. Lateral margins slightly curved outwards. Foveiform punctures separated on the elytral disc by distance equivalent to at least one puncture diameter. **Secondary sexual characters.** Besides the sexual dimorphism described for the genus, females differ from males in the following aspects: dorsal interocular surface of head with two distinct rounded depressions (Fig. 10); central and lateral portions of head with small and weakly impressed punctures, more dispersed than those on the dorsal interocular surface (Fig. 10). Clypeal teeth with rugose dorsal surface. Punctures on central portion of pronotum small and weakly impressed (Fig. 12); punctures more dispersed than those in males. Margin of pronotum, close to lateral angles, not explanate (Fig. 12). **Aedeagus.** Length of parameres with approximately one-half that of phallobase; ventral margin almost straight; dorsal margin curved inward at its apical third; apex rounded (Fig. 31). Superior right peripheral sclerite (SRP) as in figure 35. Fronto-lateral peripheral sclerite (FLP) as in figure 37.

Material studied. Type material. Lectotype (MNHN) [here designated]: ♂. 1. [old white label, handwritten]. Montevideo./ 2. [old white label, handwritten]. sordidum Harold./ 3. [old white label, printed and bordered in black]. Ex-Musaeo E. Harold./ 4. [white label, printed in black]. Muséum Paris ex Coll. R. Oberthür 1952./ 5. [red label, handwritten, printed and bordered in black]. LECTOTYPE, *Aphengium sordidum* Harold, des. F. Z. Vaz-de-Mello. **Paralectotypes** (MNHN): 2♀. 1. [old white label, printed and bordered in black]. Ex-Musaeo E. Harold./ 2. [white label, printed in black]. Muséum Paris ex Coll. R. Oberthür 1952./ 3. PARALECTOTYPE, *Aphengium sordidum* Harold, des. F. Vaz-de-Mello.

Non-type material [24]. [unreadable label] (1♀ IRSN). **BRAZIL:** [no data] (4♂ 2♀ IRSN); RIO DE JANEIRO: [no data] (1♂ 1♀ MNHN); SANTA CATARINA: Nova Teutônia (1♂ 1♀ IRSN; doubtful locality); SÃO PAULO: Caraguatatuba, P. E. Serra do Mar, (45°25'25"W, 23°35'30"S), 13.I.2012, pitfall hum. faeces, E. Bovy (2♀ CEMT); same, (45°25'22"W, 23°35'28"S), (1♂ 1♀ CEMT); same, (45°25'17"W, 23°35'26"S), (3♂ CEMT); same, (45°25'34"W, 23°35'29"S), (1♀ CEMT); same, (45°25'37"W, 23°35'32"S), (1♀ CEMT); same, (45°25'16"W, 23°35'24"S), (1♂ CEMT); same, (44°49'52"W, 23°19'55"S), 14.I.2012, E. Bovy (1♂ 1♀ CERPE). **URUGUAY:** Montevideo (1♂ IRSN, doubtful locality).

Taxonomic notes. A lectotype is here designated in order to maintain nomenclatural stability by choosing the only male (presenting characters that are easier to use for distinguishing from other species) among the available syntypes as the single name-bearing type.

Distribution. This species is distributed in the southeastern parts of the Brazilian coastal Atlantic Forest, from Rio de Janeiro to São Paulo states. It is expected to also be present in southern Rio de Janeiro coastal forests (around Parati). Extensive sampling around Rio de Janeiro city has not yet resulted in *Aphengium* specimens. Data from Santa Catarina and from Uruguay (including the type locality) probably correspond to mislabeled specimens. Nova Teutônia in Santa Catarina is a classical locality where several specimens have been collected and sold to various museums and collectors around the world by Fritz Plaumann. As Plaumann also collected in other regions, and only one specimen examined here was from this locality, we prefer to consider this a doubtful locality. As for Montevideo, there is at least one other case of a Scarabaeinae species endemic from the southeastern Atlantic Forest erroneously recorded from there: *Oxysternon pteroderum* Nevinson, 1892 (França *et al.* 2012).

Aphengium cupreum Shipp 1897

(Figs 13–18, 32, 36, 38, 41)

Aphengium cupreum Shipp 1897: 187 (original description)

Diagnosis. Male of *A. cupreum* is readily distinguishable from all other *Aphengium* species by the following character: dorsal surface of head with foveiform punctures separated by distance equivalent to at least two times puncture diameter along most of midline (Fig. 15). Furthermore, the aedeagus and fronto-lateral peripheral sclerite (FLP) are unique among *Aphengium* species (Figs. 32, 38). Female can be immediately distinguished by the combination of two characters: punctures on dorsal surface of head usually contiguous (Fig. 16); central and anterior portions of head with rugose surface (Fig. 16).

Description. Length. Small (7–8 mm) (Figs. 13, 14). **Head.** Foveiform punctures dense, not contiguous, separated by at least two times puncture diameter (Fig. 15); punctures often elliptical. Punctures on anterior portion, near to clypeal teeth, weakly impressed. **Pronotum.** Covered by foveiform, setose punctures; larger on lateral and posterior portions, not contiguous, usually separated by less than one puncture diameter (Fig. 17). Disc of pronotum slightly convex. Anterior angle of pronotum approximately 70°. Lateral angle greater than 90°; margin not explanate. Margin between lateral and posterior angles straight. **Elytra.** Elongate-oval shape (Figs. 13, 14). Disc slightly convex, with dense and conspicuous setae. Lateral margins slightly curved outwards. Foveiform punctures separated on the elytral disc by distance equivalent to at least two times puncture diameter. **Secondary sexual characters.** Besides the sexual dimorphism described for the genus, females differ from males in the following aspects: punctures on dorsal surface of head usually contiguous (Fig. 16). Central and anterior portions of head with rugose surface. Punctures on central portion of pronotum small and weakly

impressed (Fig. 18); punctures more dispersed than those in males. **Aedeagus.** Length of parameres approximately one-half that of phallobase; ventral margin slightly curved inward; dorsal margin almost straight; apex acuminate (Fig. 32). Superior right peripheral sclerite (SRP) as in figure 36. Fronto-lateral peripheral sclerite (FLP) as in figure 38.

Material studied. Type material. Neotype (NHML) [here designated]: ♂. **BRAZIL:** ESPÍRITO SANTO: Linhares, Reserva Natural Vale, 04–06/VIII/2012. R.C. Lima col (ex-CEMT).

Non-type material [38]. BRAZIL: ESPÍRITO SANTO: Cachoeira de Itapemirim, [41°07'13"W, 20°51'00"S], II.1997, J. Louzada (1♀ CEMT); Castelo, [41°12'13"W, 20°36'13"S], XII.1996, J. N. C. Louzada (9♂ 11♀ CEMT; 1 ♂ 1 ♀ CERPE); Linhares, Faz. Lagoa do Macuco, prim. lowland Atlantic Forest, (39°58'43"W, 19°03'50"S), 27.I.2000, pitfall, F. Génier and S. Ide (1♂ 2♀ CEMT); same, Reserva Natural Vale, [40°03'50"W, 19°08'28"S], 9.VI.2012, pitfall pig faeces, R. C. Lima (5♂ 5♀ CEMT); same, 04–06.VIII.2012, (1♀ CEMT); MINAS GERAIS: Açucena, [42°32'34"W, 19°04'27"S], II.1952, A. B. Machado (1♀ CEMT).

Taxonomic notes. The type of this species as described in the original description (Shipp, 1897) is said to be in the Tring Museum. The Tring Museum insect collection is now deposited in NHML (M. Barclay, pers. com.), but no specimen of *A. cupreum* was found in that latter institution that could be considered a type. Nor has any specimen identified under this name that could have come from either Tring or Shipp been found in the Oxford University Museum of Natural History, or in any other consulted museums. The type specimen is then considered by us to be irretrievably lost (ICZN article 75.3.4). The original description mentions differences between this species and the older *A. sordidum* that are of secondary sexual nature (e.g clypeal teeth shorter and thorax broader than *A. sordidum*), making this species hard to characterize from the original description except for the type locality given there. Hence, the exceptional need to clarify its identity (ICZN article 75.3.1). Since no name-bearing type specimen is believed to be extant and a name-bearing type is necessary to define this species objectively, we herein designate a neotype. So, in order to maintain the stability of nomenclature, a male from Reserva Natural Vale, Linhares, Espírito Santo, Brazil, 04–06/VIII/2012, R.C. Lima leg (ICNZ article 75.3.3), coming from a locality described as the original type locality of this species (ICZN article 75.3.6), and **corresponding to its original**

description (see Shipp, 1897; ICNZ articles 75.3.2 and 75.3.5) was chosen to be the neotype, being here deposited in the institution where the original type specimen was alleged to be (NHML), a recognized scientific institution that maintains a research collection with proper facilities for preserving name-bearing types (ICZN article 75.3.7).

Distribution. This species is known from lowland Atlantic Forest from Espírito Santo and Minas Gerais states. It has not been recorded yet but could also be present in northern Rio de Janeiro state (Campos area) and extreme southern Bahia (around Porto Seguro). Numerous field trips have been made to the latter location but no *Aphengium* specimens have been caught so far.

***Aphengium ibateguara* sp. nov.**

(Figs 2, 3, 19–24, 33, 39, 41)

Etymology. The species name is a toponym in apposition referring to the type locality.

Diagnosis. Males of *A. ibateguara* sp. nov. are similar to those of *A. sordidum* by having dense and contiguous dorsal punctures on head (Fig. 21). However, it can be distinguished from *A. sordidum* by the following characters of the genitalia: length of parameres less than one-half that of phallobase (Fig. 33); apical third of parameres abruptly narrowed (Fig. 33); and fronto-lateral peripheral sclerite (FLP) as in figure 39. Females can be immediately distinguished from other *Aphengium* species by having the same puncture patterns on the central and posterior portions of head (Fig. 22).

Description. Length. Small (7–8 mm) (Figs. 19, 20). **Head.** Foveiform punctures dense and contiguous over dorsal surface; deeply impressed and often rounded (Fig. 21). Surface around clypeal teeth rugose. **Pronotum.** Covered by foveiform, setose punctures; larger on lateral and posterior portions, not contiguous, usually separated by distance equivalent to less than one puncture diameter (Fig. 23). Anteromedial punctures weakly impressed. Disc of pronotum slightly convex. Anterior angle of pronotum approximately 90°. Lateral angle greater than 90°; margin explanate. Margin between lateral and posterior angles straight. **Elytra.** Elongate-oval shape (Figs. 19, 20). Disc slightly convex, with dense and conspicuous setae. Lateral margins

slightly curved outwards. Foveiform punctures separated on the elytral disc by distance equivalent to at least two times puncture diameter. **Secondary sexual characters.** Besides the sexual dimorphism described for the genus, females differs from the males in the following aspects: punctures on dorsal surface of head usually smaller and more dispersed than those in males (Fig. 22). Punctures around clypeus weakly impressed. Margin of pronotum, close to lateral angles, not explanate (Fig. 24). **Aedeagus.** Length of parameres less than one-half that of phallobase. Apical third of parameres abruptly narrowed; apex rounded (Fig. 33). Superior right peripheral sclerite (SRP) sigmoid. Fronto-lateral peripheral sclerite (FLP) as in figure 39.

Material studied. Holotype. BRAZIL: ALAGOAS: Ibateguara, [Usina Serra Grande], [35°56'15"W, 8°58'41"S], 16.III.2008, pitfall hum. faeces, B.K.C. Filgueiras (1♂ CEMT). **Paratypes [9]. BRAZIL:** ALAGOAS: Ibateguara, [Usina Serra Grande], [35°56'15"W, 8°58'41"S], 19.IX.2007, pitfall carrion, B.K.C. Filgueiras (1♂ CEMT); same, 21.IX.2007, pitfall hum. faeces, B.K.C. Filgueiras (3♀ CEMT); same, 12.X.2007, pitfall hum. faeces, B.K.C. Filgueiras (1♀ 1♂ CERPE); same, 10.XI.2007, pitfall hum. faeces, B.K.C. Filgueiras (1♂ CEMT); same, 16.III. 2008, pitfall carrion, B.K.C. Filgueiras (2♂ CEMT).

Distribution. This species is known from a single locality that corresponds to the largest remaining Atlantic Forest fragment in Alagoas state. Extensive sampling in forest fragments of neighboring areas provided no further specimens of *Aphengium*.

Aphengium curtum sp. nov.

(Figs 25–30, 34, 40, 41)

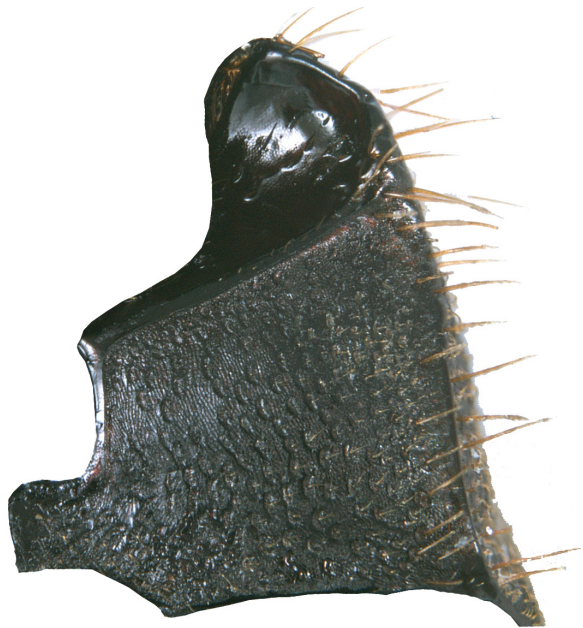
Etymology. The epithet is a Latin adjective referring to the short body that characterizes this species.

Diagnosis. Immediately distinguished from all remaining species of *Aphengium* by the following characters: short body (6–7 mm); head and disc of pronotum, in dorsal view, with smooth and sleek surface or punctures almost inconspicuous (Figs. 27–30); anterolateral portion of pronotum with a longitudinal and sleek callus (Figs. 29, 30). Furthermore, the aedeagus morphology and the fronto-lateral peripheral sclerite (FLP) are unique among *Aphengium* species (Figs. 34, 40).

Description. Length. Small (6–7 mm) (Figs. 25, 26). **Head.** Dorsal surface smooth and sleek, with short and almost inconspicuous setae; lacking foveiform punctures or coarse, scattered and weakly impressed (Fig. 27). **Pronotum.** Foveiform punctures only present on some lateral and posterior portions, not contiguous, usually separated by distance equivalent to more than one puncture diameter (Figs. 29, 30). Disc smooth, sleek and convex. Anterolateral portion of pronotum, between anterior angle and lateral fovea, with a longitudinal and sleek callus (Figs. 29, 30). Anterior and lateral angles of pronotum greater than 90°. Margin between lateral and posterior angles straight. **Elytra.** Rounded shape (Figs. 25, 26). Disc convex, with minute and almost inconspicuous setae. Lateral margins curved outwards. Foveiform punctures separated on the elytral disc by distance equivalent to at least three puncture diameter. **Secondary sexual characters.** Besides the sexual dimorphism described for the genus, females differ from males in the following aspects: dorsal surface around clypeus slightly rugose, with weakly impressed punctures (Fig. 28). **Aedeagus.** Length of parameres longer than one-half that of phallobase. Dorsal and ventral margins of parameres almost straight; apex acuminate (Fig. 34). Superior right peripheral sclerite (SRP) sigmoid. Fronto-lateral peripheral sclerite (FLP) as in figure 40.

Material studied. Holotype. BRAZIL: BAHIA: Itabuna, Cabruca veg. type, [39°16'38"W, 14°47'20"S], 07.I.2003, M. S. Santos (1♂ CEMT). **Paratypes [34]. BRAZIL:** BAHIA: Ilheus, Universidade Estadual de Santa Cruz (UESC), [39°10'20"W, 14°47'45"S], 19.V.2000, V. A. Melo (1♂ 3♀ CEMT); Itabuna, Cabruca veg. type, [39°16'38"W, 14°47'20"S], 07.I.2003, M. S. Santos (10♂ 6♀ CEMT); Itapetinga, Mata Seca veg. type, [40°14'55"W, 15°14'58"S], 05.II.2009, pitfall hum. faeces, J. G. Mota-Souza (12 CEMT; 2 CERPE).

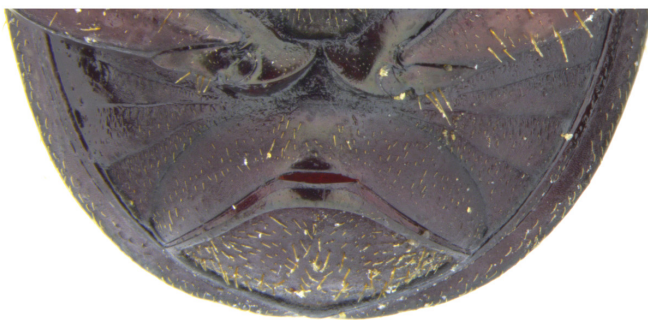
Distribution. This species is known only from forest patches around Ilhéus in the center of the coastal region of Bahia state. At least two of those patches are either Cabruca vegetation type (agricultural area where the cacao is planted in the midst of the natural vegetation of Atlantic forest) or secondary growth.



1



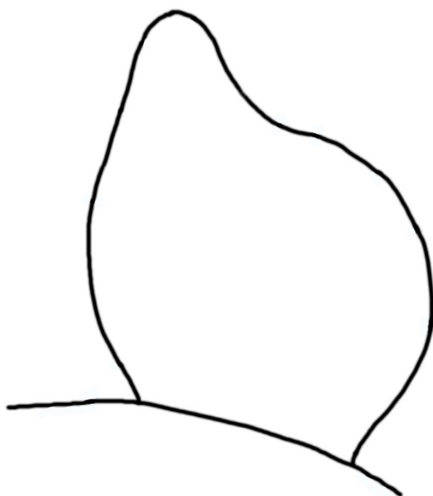
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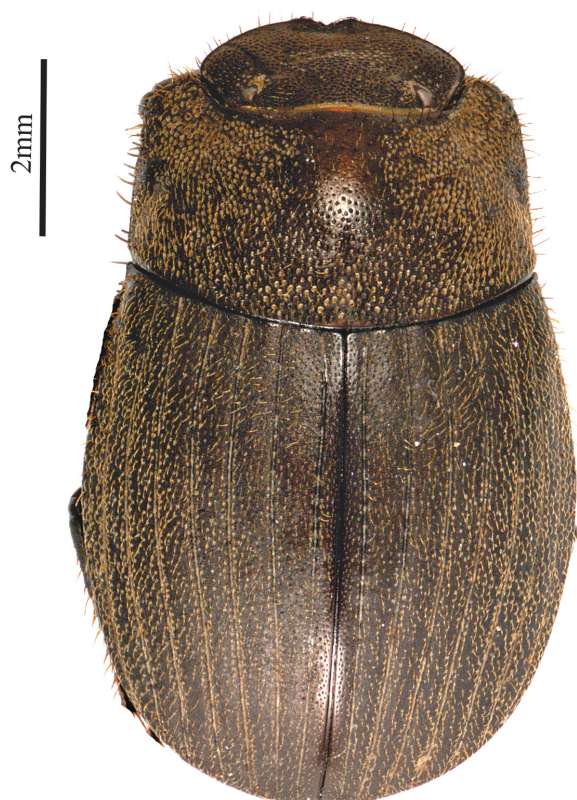


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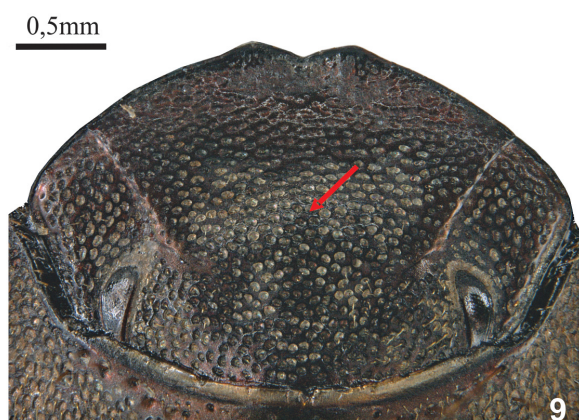
FIGURE 1. Hypomera of *Aphengium sordidum* Harold; **FIGURE 2.** Metatibia of *A. ibateguara* sp. nov.; **FIGURE 3.** Male abdominal ventrites of *A. ibateguara* sp. nov.; **FIGURE 4.** Pygidium of *A. sordidum*; **FIGURE 5.** Male protibial spur of *A. sordidum*; **FIGURE 6.** Female protibial spur of *A. sordidum*.



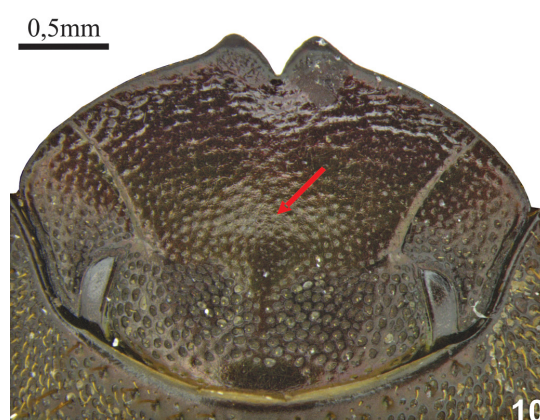
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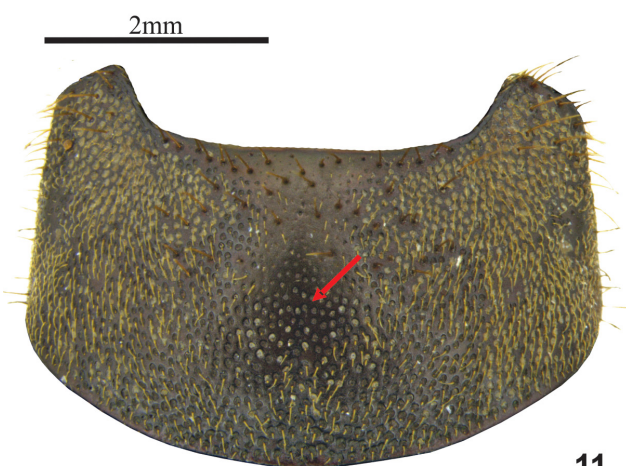
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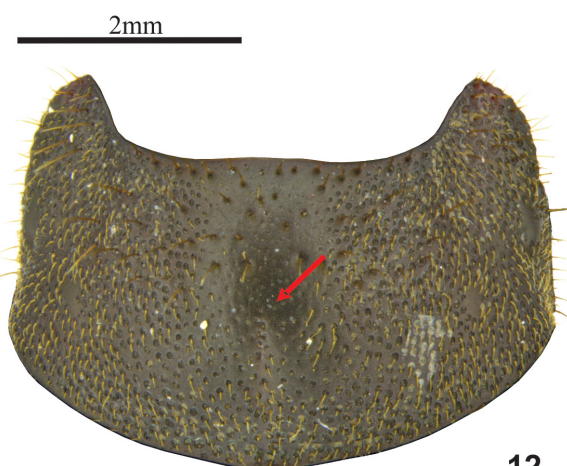
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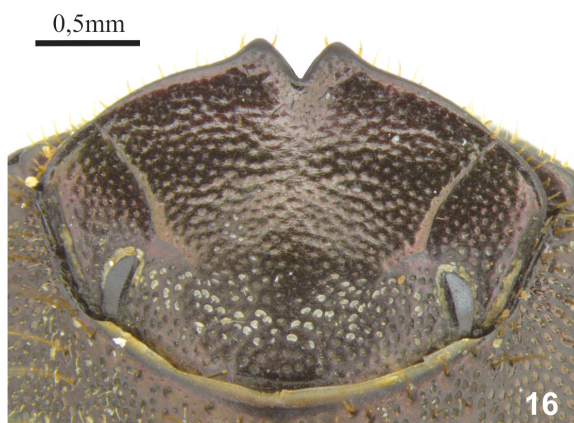
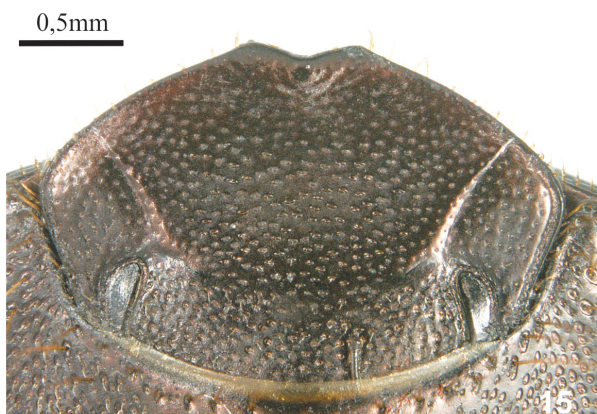
FIGURES 7–12. *Aphengium sordidum* Harold; 7. Male (dorsal view); 8. Female (dorsal view); 9. Male head (arrow shows foveiform punctures along midline); 10. Female head (arrow shows foveiform punctures along midline); 11. Male pronotum (arrow shows punctures on central portion); 12. Female pronotum (arrow shows punctures on central portion).



13



14



16

2mm

2mm

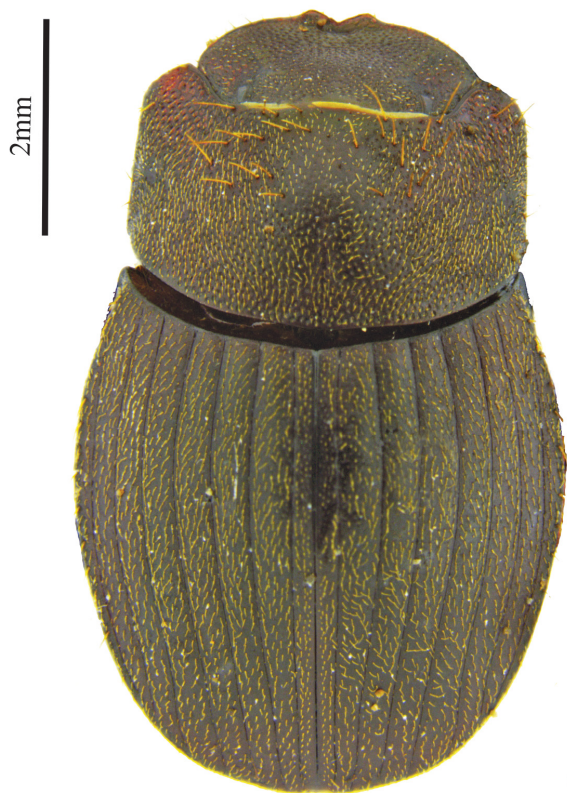


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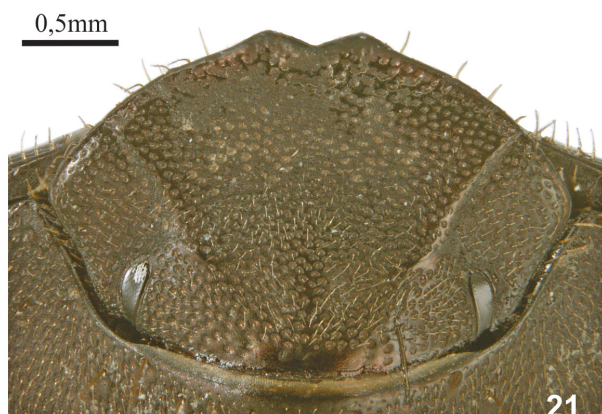
FIGURES 13–18. *Aphengium cupreum* Shipp; 13. Male (dorsal view); 14. Female (dorsal view); 15. Male head; 16. Female head; 17. Male pronotum; 18. Female pronotum.



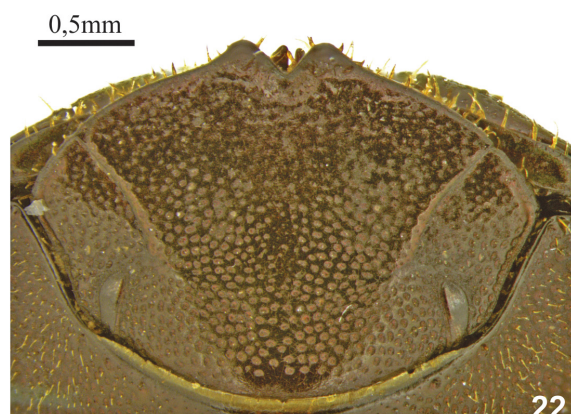
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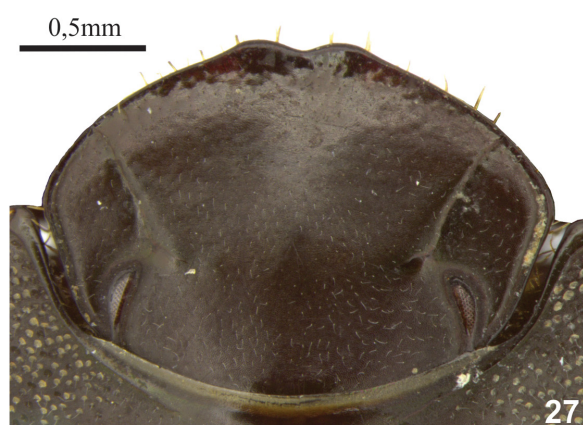
FIGURES 19–24. *Aphengium ibateguara* sp. nov.; 19. Male (dorsal view); 20. Female (dorsal view); 21. Male head; 22. Female head; 23. Male pronotum; 24. Female pronotum.



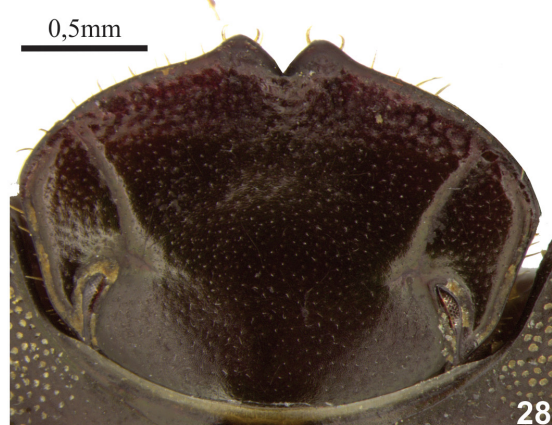
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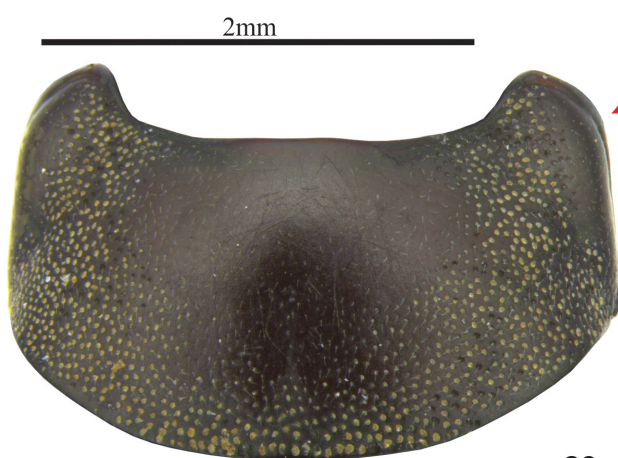
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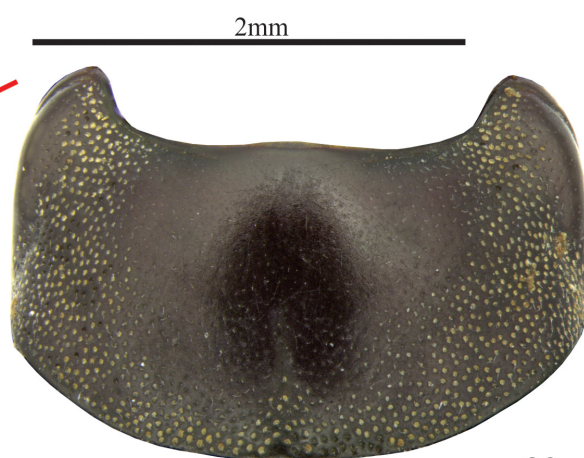
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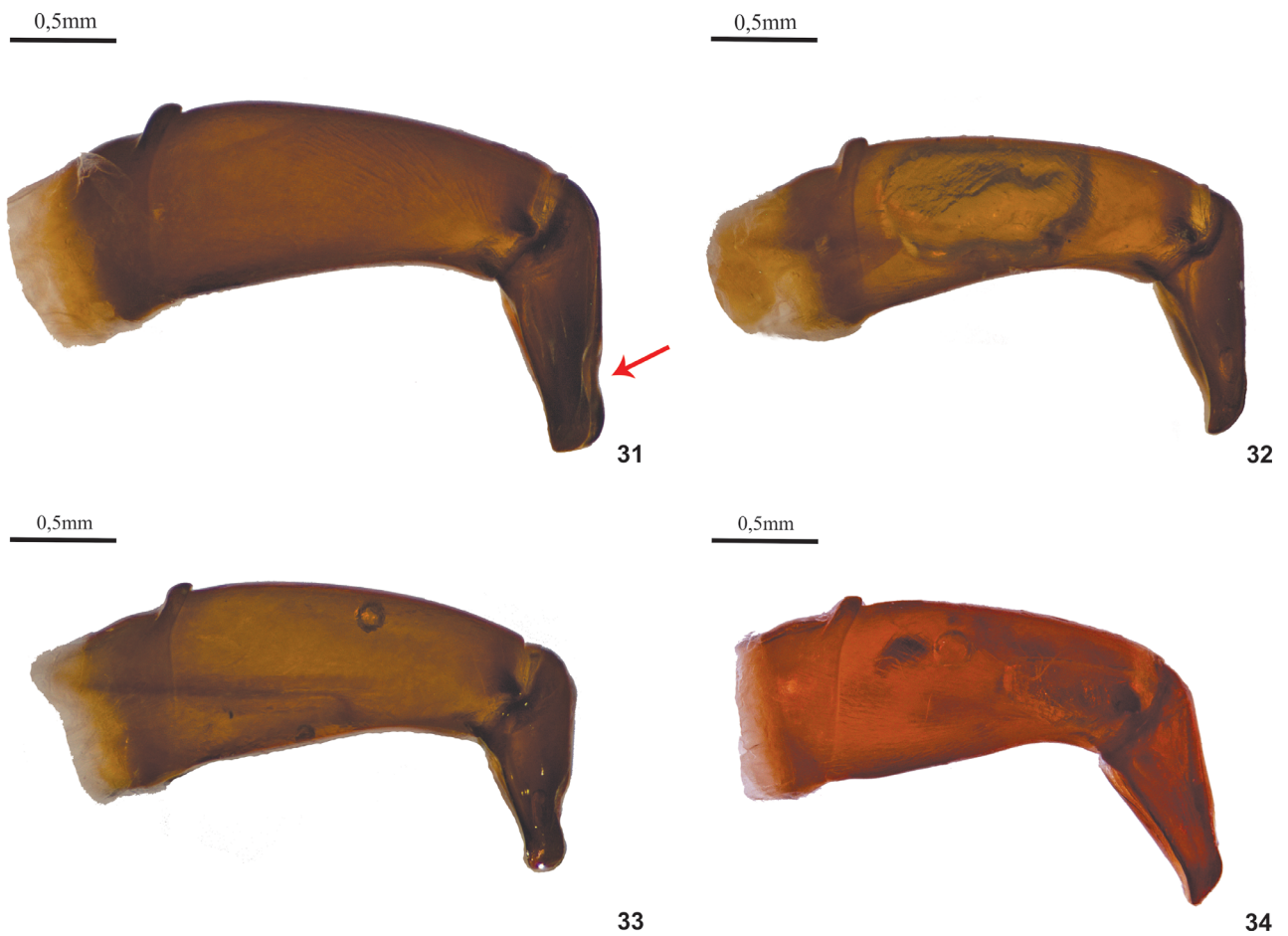


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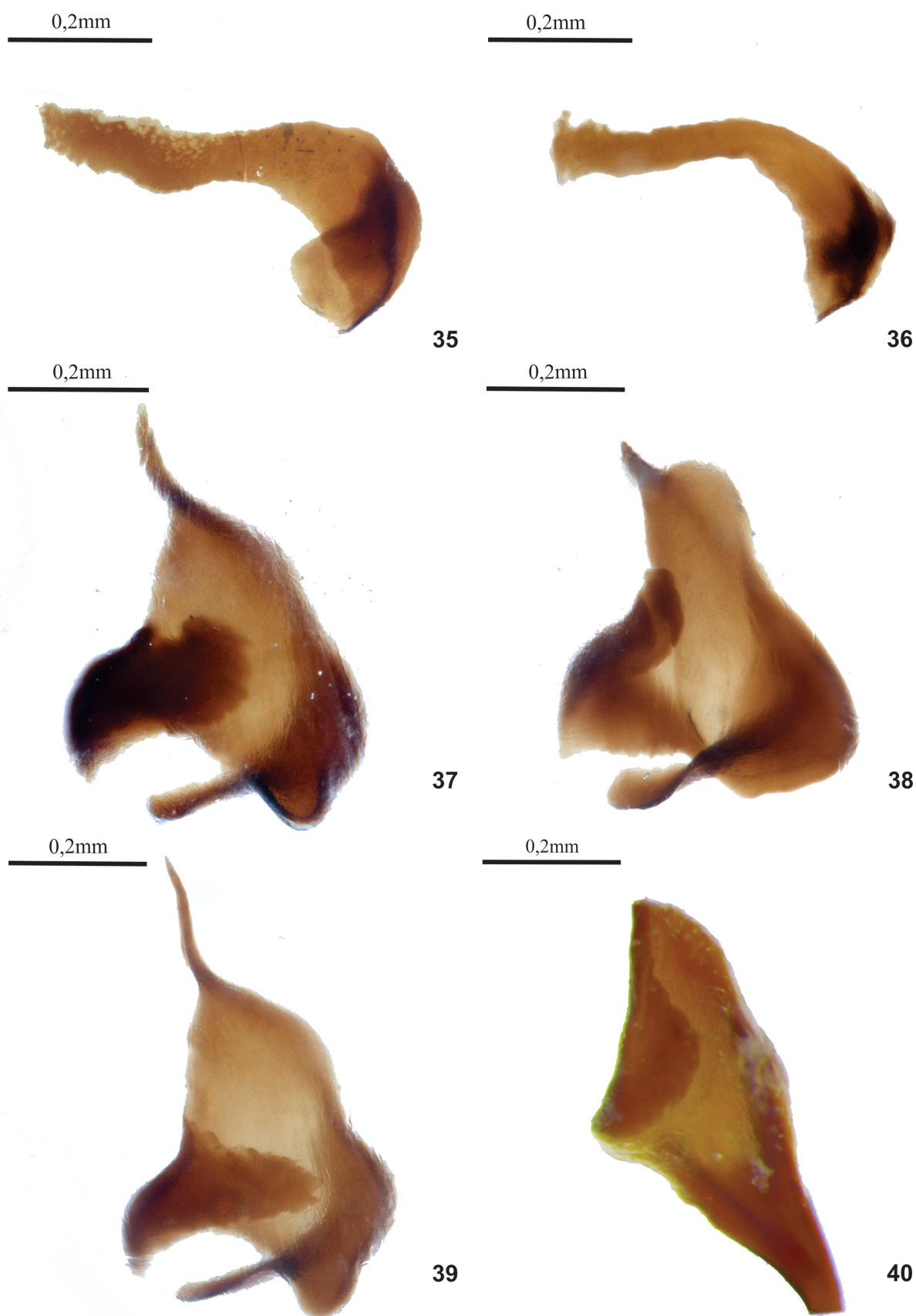


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FIGURES 25–30. *Aphengium curtum* sp. nov.; 25. Male (dorsal view); 26. Female (dorsal view); 27. Male head; 28. Female head; 29. Male pronotum (arrow shows anterolateral portion of pronotum with a longitudinal and sleek callus); 30. Female pronotum.



FIGURES 31–34. Aedeagus of *Aphengium*; **31.** *A. sordidum* (arrow shows dorsal margin of parameres curved inward at its apical third); **32.** *A. cupreum*; **33.** *A. ibateguara* sp. nov.; **34.** *A. curtum* sp. nov.



FIGURES 35–36. Superior right peripheral sclerite (SRP) of *Aphengium*; **35.** *A. sordidum*; **36.** *A. cupreum*; **Figures 37–40.** Fronto-lateral peripheral sclerite (FLP) of *Aphengium*; **37.** *A. sordidum*; **38.** *A. cupreum*; **39.** *A. ibateguara* **sp. nov.**; **40.** *A. curtum* **sp. nov.**

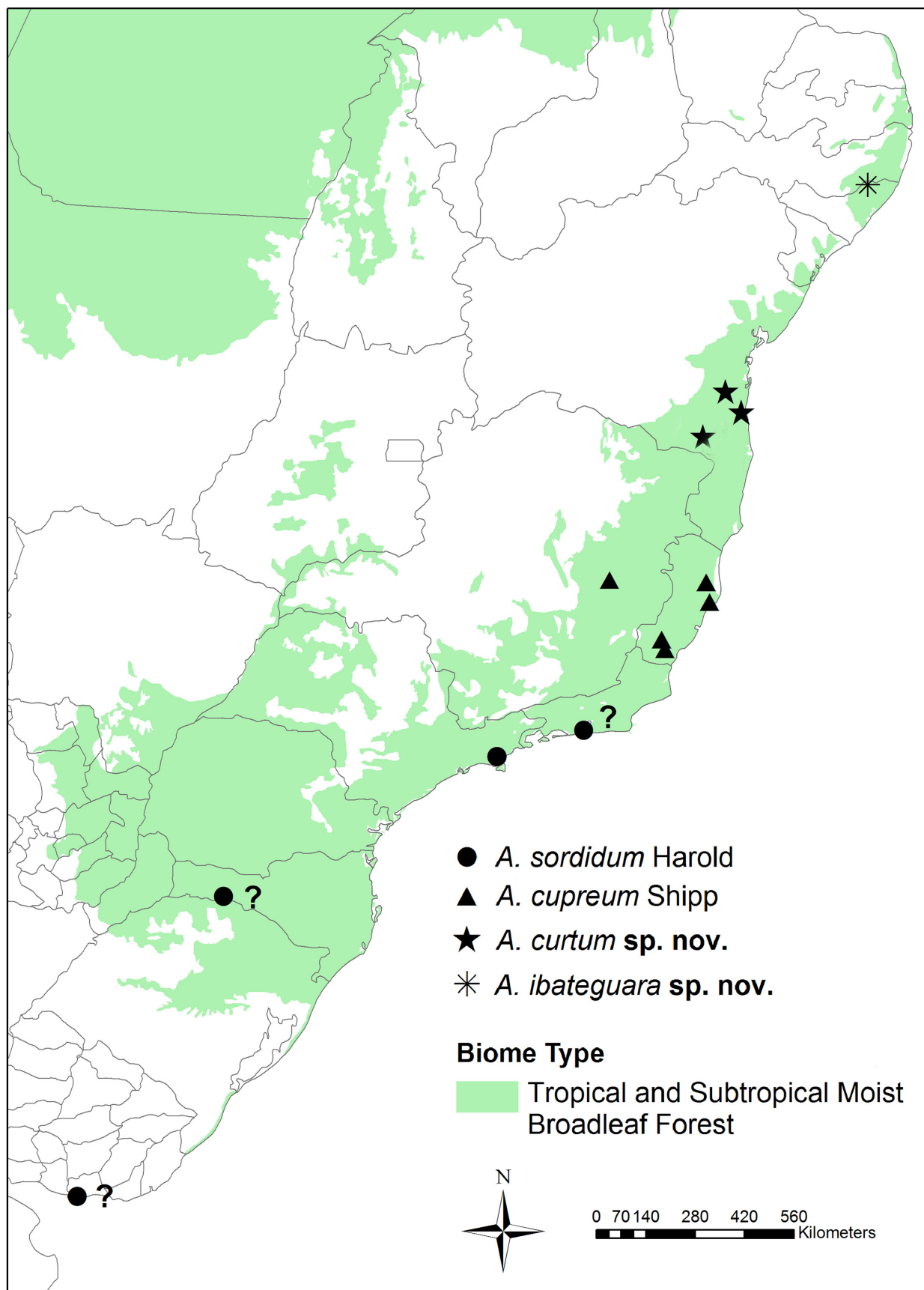


FIGURE 41. Known distribution of *Aphengium* Harold.

Acknowledgments

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