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A new Central American genus of pleasing fungus beetles (Coleoptera: Erotylidae) from the *Ischyrus-Megischyrus* complex

Paul E. Skelley

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A new Central American genus
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A new Central American genus
of pleasing fungus beetles
(Coleoptera: Erotylidae)
from the *Ischyryus*-*Megischyryus* complex

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Abstract. *Antoinettia*, **new genus** (Coleoptera: Erotylidae: Erotylinae: Tritomini), is erected for three species: *A. audbala* (Skelley), **new combination**, *A. huhnei* Skelley, **new species**, and *A. kovariki* (Skelley), **new combination**. A genus complex involving *Ischyryus* Lacordaire, 1842, and *Megischyryus* Crotch, 1873, is defined and a preliminary key to neotropical genera of Tritomini with coarsely faceted eyes is presented.

Key words. Belize, Guatemala, Mexico, Erotylinae.

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Introduction

The neotropical Tritomini contain many small genera that are narrowly defined which have had recent work: *Lybanodes* Gorham, 1888 (Skelley et al. 1997), *Neoxestus* Crotch, 1876 (Skelley and Cekalovic 2002), *Xalpiria* Skelley and Cekalovic, 2002 (Skelley and Cekalovic 2002, Pecci-Maddalena et al. 2019), *Mycolybas* Crotch, 1876 (Lásaro Lopes 2006), *Notaepytus* Skelley 2009 (Skelley 2009), and *Myceporthus* Skelley and Powell, 2018 (Skelley and Powell 2018). Other diverse genera remain broadly defined and need revisionary work: *Mycotretus* Lacordaire, 1842 (Pecci-Maddalena and Lopes-Andrades 2017, 2018a, 2018b) and *Ischyryus* Lacordaire, 1842 (Skelley 1998). The purpose of this paper is to describe a distinct new Central American genus whose members were previously placed in *Ischyryus*, to define a complex of genera with coarsely faceted eyes, and establish a framework for recognition and description of other genera with this character.

Coarsely faceted eyes have been used to distinguish taxa in many tribes since the early 1800s: for example, *Cyclomorphus* Hope, 1841, and *Thonius* Lacordaire, 1842 (Erotylini); and *Pselaphacus* Percheron, 1838, *Ischyryus* Lacordaire, 1842, and *Pseudischyryus* Casey, 1916 (Tritomini). Within the Tritomini, *Pselaphacus* is one of the most recognizable genera with distinctly pentagonal mentum, a deep rectangular notched clypeus, and is apparently unique by having maternal care of larvae (Chaboo and McHugh 2010). The genus *Pseudischyryus* also has coarsely faceted eyes and a triangular mentum similar to *Ischyryus*. However, morphological characters of adults (body shape, male genitalia lacking a flagellum, etc.) and larvae (reduced sclerotization, pers. obs.), as well as similar larval host fungi (Skelley et al. 1991), place *Pseudischyryus* closer to *Tritoma* Fabricius, 1775 (Boyle 1956; pers. obs.). Based on collection records at light traps and field observations of multiple genera, taxa with coarsely faceted eyes are often nocturnally active (pers. obs.). This eye character is considered to have convergently evolved in separate lineages for some biological or behavioral reason. Caution must be exercised when using this character to infer relationships.

Materials and Methods

Materials reported in this work are deposited in the following collections:

CMNO	Canadian Museum of Nature, Ottawa, Ontario, Canada (François Génier, Andrew Smith)
CNCI	Canadian National Collection of Insects, Ottawa, Ontario, Canada (Patrice Bouchard)
FSCA	Florida State Collection of Arthropods, Gainesville, FL, USA (Paul Skelley)
NHMUK	Natural History Museum, London, UK (Max Barclay)
SEMC	Snow Entomology Museum, University of Kansas, Lawrence, KS, USA (Zack Falin)
USNM	United States National Museum, Smithsonian Institution, Washington, DC, USA (Floyd Shockley)

Terminology follows several references. Skelley (1998) was followed for color patterns and general structures. More recent terminology follows McHugh et al. (1997), Węgrzynowicz (2002), Leschen (2003), with updates as presented in Lawrence et al. (2010). Genitalia studied are placed in DMHF (Steedman 1958), which is water soluble, on a paper card beneath the specimen. Specimens on paper points were glued with “Gelva”, a polyvinyl acetate, which is soluble in 95% ethanol. Photographs were taken using a Syncroscopy Auto-Montage system with a JVC 3-CCD, KY-F75U digital camera through a Leica Z16 APO lens. Label data are presented verbatim in quote marks. A single slash (/) indicates a break between lines on the same label, and a double slash (//) indicates a different label. Comments are in brackets []. The phylogenetic species definition of Wheeler and Platnick (2000) is used in an evidently synchronic sense, which considers the species as the smallest aggregation of populations diagnosable by a unique combination of character states.

Ischyryus-Megischyryus complex

Ischyryus (*sensu lato*) was described primarily for elongate species with coarsely faceted eyes and triangular mentum plate. Crotch (1873) recognized differences in antennomere IX (elongately triangular vs. transversely hemispherical) and erected *Megischyryus* for some of the larger species with triangular antennomere IX.

Since then various species have been described and placed in *Ischyryus*, based on generalities of color pattern and body size. Some of those species are intermediate in character states between *Ischyryus* and *Megischyryus*, and some species fall outside of their currently defined generic limits.

Ischyryus was partially revised by Skelley (1998) who noted that inclusion of some species makes *Ischyryus* a heterogeneous assemblage of more closely related groups of species. These definable and presumed monophyletic groups bring the monophyly of *Ischyryus* and *Megischyryus* into doubt. The entire complex needs definition and these definable groups need to be described before any phylogenetic analysis of the tribe. This descriptive work was started with the erection of *Cubyryus* Skelley, 2009. The genus describe here is another being erected from this complex.

To establish limits, the *Ischyryus-Megischyryus* genus complex is narrowly defined as neotropical Tritomini with: body shape elongate, most are parallel-sided; eyes large, prominent, with coarse bulging facets; ocular striae not surpassing eye anteriorly; mental plate triangular; lacinia with apical teeth; tibiae narrowed, at most weakly widening toward apex; meso- and metafemora with marginal bead on posterior edge; and antennal club loose.

Key to genera of New World Tritomini with coarsely faceted eyes

This key is artificial and makes no attempt to represent relationships. The first concern is to recognize the difference between coarsely vs. finely faceted eyes, noting that some taxa have intermediate conditions. Coarsely faceted eyes are laterally prominent, with large, distinctly convex ommatidia. These eyes resemble raspberries or blackberries. Finely faceted eyes are generally not prominent and have smaller more flattened ommatidia. Some genera that may be closely related to the *Ischyryus-Megischyryus* complex (e.g., *Notaepytyus* Skelley) are not included because they have finely faceted eyes and other characters not fitting the definition above. The purpose of this key is to illustrate characters used to distinguish genera in the *Ischyryus-Megischyryus* complex and separate genera excluded from the complex, this includes genera both described and recognized but undescribed. Descriptions of other new genera are in preparation.

1. Mental plate pentagonal 2
- Mental plate triangular 3
- 2(1). Clypeus with distinct, deep rectangular medial notch on apical margin *Pselaphacus* Percheron
- Clypeus lacking notch, at most notably concave on apical margin [new genera]
- 3(1). Tibiae strongly, triangularly dilated apically; body ovoid, somewhat flattened; length 3–5 mm; clypeus with fine marginal bead along anterior margin; southeastern North America *Pseudischyrus* Casey
- Tibiae narrow, parallel-side, not distinctly dilated apically; body elongate, flattened to convex dorsally; small to large, length 3–20 mm; clypeus lacking marginal bead; widespread Canada to Argentina, and West Indies (*Ischyrus*-*Megischyrus* complex) 4
- 4(3). Antennomere IX triangularly elongate (Fig. 4), sides straight, narrowed basally, length equal to or greater than width 5
- Antennomere IX trapezoidal or semicircular, sides rounded or angled, not narrowed towards bases, width greater than length 6
- 5(4). Prosternum flattened, not projecting anteriorly, with deep setae-lined groove anterior to procoxa (Fig. 1–2, 5); body small, length < 6.4 mm; Central America *Antoinettia* Skelley, new genus
- Prosternum often keeled, projecting anteriorly, lacking groove anterior to procoxa, with simple line and marginal bead; body generally large, length 13–20 mm; widespread Central and South America . . . *Megischyrus* Crotch (*sensu lato*)
- 6(4). Body ovoid; lacking color pattern, dark black with blue sheen; most elytral striae restricted to base, disc lacking striae; Cuba (see Skelley 2009, fig. 73) *Cubyrus* Skelley
- Body elongate; usually with strong color pattern, some solid black but without color sheen; all elytral striae complete, nearly as long as elytra, disc distinctly punctate; Canada to Argentina *Ischyrus* Lacordaire (*sensu lato*)

***Antoinettia* Skelley, new genus**

Type species. *Ischyrus kovariki* Skelley, 1998, present designation.

Diagnosis. Distinguished from other genera of the *Ischyrus*-*Megischyrus* complex by the triangular elongate antennomere IX (Fig. 4; semicircular or trapezoidal in *Ischyrus*, compare Skelley 1998 fig. 6a–k), prosternum anteriorly flattened and lacking pinch or angulation (Fig. 1–2, 5; usually forming a keel in *Ischyrus* and *Megischyrus*), setose groove anterior to procoxae (unique for *Antoinettia*), presence of 8 distinct elytral striae, and metaventrite with post mesocoxal line continuous around base of mesocoxa (rarely continuous around mesocoxae in *Ischyrus* and *Megischyrus*).

Description. Length 3.7–6.4 mm; Width: 2.0–3.9 mm. Body shape elongate, parallel-sided to ovoid, slightly convex dorsally; microreticulation weak, surface glossy; with distinct color patterns.

Head with ocular striae ending before anterior angle of eye; frons lacking distinct impression at each side; epistome wedge-shaped with truncate apex; epistome and vertex similarly punctured. Eye large, bulging from side; facets coarse. Antenna (Fig. 4) reaching base of pronotum; antennomere I large, elongate; antennomere II circular, ball-like, length = 0.5 × antennomere I; antennomere III elongate, length less than next 2 combined; antennomeres IV–VIII about 1.5 × width; antennomeres IV–VII apically rounded; antennomere VIII edged and angled apically; antennomeres IX–XI form a loose club; antennomere IX triangular, as long as wide; antennomere X semicircular to trapezoidal, apically concave; antennomere XI transversely oval to circular; antennomeres X–XI symmetrical.

Maxillary terminal palpomere securiform (Fig. 1–2, 5), length about 0.66 × width. Labial terminal palpomere width approaching width of terminal maxillary palpomere. Mentum with a pore on each side in front of basal corner; mental plate triangular. Genal braces present, broadly rounded, forming inner side of groove next to the eye for reception of antennomeres II–III.

Pronotal disc evenly rounded; sides variably arched inwardly toward eyes; anterior angles closer together than posterior angles; anterior edge lacking marginal bead between eyes; anterior angles forwardly produced,

making anterior edge concave; base sinuate, lacking marginal bead, lobed at middle, with group of large punctures at each side along edge. Scutellar shield pentagonal, wider than long. Elytra with sides parabolically rounded to apex; 8 distinct striae, stria 9 evident by rows of punctures on apical half; striae lacking at humerus and extreme apex; intervals flattened; base lacking marginal bead; elytral epipleuron widest at base, strongly narrowed at level of metacoxae, gradually folding under to apex.

Prosternum not pinched, not keeled, complete marginal bead anteriorly; sternal plate trapezoidal; lines anteriorly converging, not surpassing front of procoxae, lines continuous or indistinctly broken from anterior coxal line; prosternal line anterior to coxa form a groove that deepens laterally, lined with setae (Fig. 1–2, 5); posterior edge of prosternum concave, lacking marginal bead. Mesoventral lines anteriorly divergent; not continuous with line anterior to mesocoxae. Metaventral lines continuous around mesocoxae. Legs with femora slightly swollen, complete marginal bead on inner surface; tibia straight, almost parallel-sided, slightly widened toward apex; tarsi pseudotetramerus. Abdominal ventrite I with coxal lines present, continuous around metacoxae.

Male genitalia with penis short, apically blunt; flagellum variable with virga thickened in some manner (Fig. 11, 16, 21). Female genitalia with acute process at inner base of gonocoxite (Fig. 3); spermatheca with head bean-shaped, tail thickened, curving back onto self, giving spermatheca an overall S-shape. Stridulatory files on occipital region of head absent in both sexes. No external sexual dimorphism observed.

Etymology. This colorful little genus is named for my mother, Antoinette, who fostered my entomological career by simply allowing me the freedom to pursue such an unusual interest. She once confessed, “Your father and I had no idea how to help.” She remained supportive while I worked on my dissertation (Skelley 1998) from which most of this manuscript is derived. Gender feminine.

Remarks. The prosternal setae-lined groove anterior to the procoxa is a unique character not known from any other erotylid. While most erotylids studied thus far have male genitalia with a narrow hair-like virga of the flagellum, a thickened and modified virga also occurs in the West Indian genera *Altisessor* Skelley, 2009, *Epytus* Dejean, 1836, and *Notaephytus* Skelley, 2009. However, these modifications are highly variable between species within these genera.

Key to species of *Antoinettia*

1. Pronotum with two central spots; elytra with banding pattern (Fig. 7); brachypterous, hindwings lacking apical fold (Fig. 6); Guatemala ***A. huhnei* Skelley, n. sp.**
- Pronotum with two stripes connected to the posterior margin, possibly to each other as one (Fig. 12, 17); each elytron with two central spots, not banded; hind wings fully developed **2**
- 2(1). Pronotum with large single or doubled central stripe connecting anterior and posterior margins; elytra with humeral spot (Fig. 12); Mexico ***A. audbala* (Skelley)**
- Pronotum with two central stripes, connected to posterior margin but not or weakly connected to anterior margin; elytra without humeral spot (Fig. 17); Belize ***A. kovariki* (Skelley)**

Antoinettia huhnei Skelley, new species

Figures 4–11.

Diagnosis. Distinguished from other species in the genus by the more ovoid body shape, brachypterous wings only as long as elytra, virga of male flagellum with a subapical swelling, and color pattern of banded elytra and pronotum with 2 free discal spots. Known from Guatemala.

Description. Length: 5.1–5.8 mm; width: 2.8–3.1 mm. Body ovoid, widest at basal third of elytra; weakly microreticulate, glossy; yellow and orange with black color pattern (Fig. 7, 9).

Head orange. Pronotum orange with two free discal spots (Fig. 10). Scutellar shield black. Each elytron black with two jagged yellow bands that continue onto epipleural fold; bands do not connect across suture. Prosternum yellow except for partially black sternal plate (Fig. 8). Maxillary and labial palps brown. Antennae, mesoventrite, metaventrite, abdomen, and legs black.

Head dorsal distance between eyes = $3.7 \times$ eye width; ocular striae reaching 0.50–0.75 distance to anterior angle of eye; vertex and epistome puncture size = $1 \times$ facet, separated by 0.5–1.0 diameters. Antenna with

antennomere III length shorter than next 2 combined; antennomeres IX–XI symmetrical; antennomere VIII weakly triangular, longer than wide; antennomere IX triangular (Fig. 4), slightly longer than wide; antennomere X trapezoidal; antennomere XI subcircular, slightly narrower than antennomere X. Maxillary palp terminal palpomere triangular, securiform, basally rounded, apical angles nearly 90°, length = $0.66 \times$ width. Labial palp terminal palpomere elongate, extended on medial side, rounded basally, length = width. Terminal labial palpomere width = $0.75 \times$ terminal maxillary palpomere width. Mentum with plate triangular, length = $0.75 \times$ width, sides concave, apical angle acute; ridge with medial extension projecting, sharp (Fig. 5; similar to fig. 8e in Skelley 1998).

Pronotal disc puncture size = $1 \times$ facet, separated by 0.5–1.0 diameters. Scutellar shield pentagonal, length = $0.5 \times$ width. Each elytron with 8 striae, stria IX faintly visible on apical half; stria puncture size larger at base, becoming faint and indistinct apically, size at base = 1.0 – $1.5 \times$ pronotal disc punctures; interval punctures indistinct, obscured by microreticulations. Hind wings shortened to length of elytra, lacking apical membranous fold (Fig. 6).

Prosternum convex (Fig. 8); coxal lines straight, length = $0.4 \times$ sternal length, lines not surpassing coxae, length = $0.75 \times$ basal width; prosternal plate flat, apical width = $0.8 \times$ basal width; base shallowly concave. Mesoventrite basal width = $2.2 \times$ mesocoxal line length; coxal lines straight, weakly converging anteriorly, not continuous with anterior coxal line; base evenly concave. Metaventrite coxal lines meeting medially, continuous around mesocoxa, not extending onto metaventrite; metaventrite with few coarse punctures medially, lacking punctures laterally. Abdominal ventrite I with coxal lines continuous around coxa; anteriorly broadly rounded between metacoxae, almost truncate; coarse punctures medially, lacking punctures laterally.

Male genitalia (3 dissected) with penis straight, short, apically truncate; internal sac without noticeable sclerotized structures; flagellum length = $2 \times$ median lobe length; virga of flagellum thickened with subapical swelling; head of flagellum with sides curved in lateral view but flattened and positioned 90° to each other in anterior view (Fig. 11). Female unknown.

Variation. The specimen from Sacatepéquez has more distinct elytral, metaventrite and abdominal punctation than those from El Progreso, which almost lacks punctation. These localities are widely separated on different mountain ranges. With these being otherwise identical, I consider this variation of a widespread flightless species.

Material examined. The male holotype of *Antoinettia huhnei* label data: “GUATEMALA: Dept. El / Progreso, Sierra de las Minas; / nr. Cerro Pinalon, “las Cabañas” / nr. 15.08467 -89.94299, 2579m / 12-15-V-2010; cloud forest / Skelley, Steck, Sutton; FIT” // “[red paper] **HOLOTYPE** / *Antoinettia* / *huhnei* / P. E. Skelley” (FSCA).

Paratypes (2 males), label data: “GUATEMALA: El Progreso / Sierra de las Minas; nr. Cerro / Pinalon, “las Cabañas” / nr. 15.08467 -89.94299 / 12-15-V-2010, 2579m; / cloud forest; P. Skelley” (1-FSCA); “GUATEMALA: Sacatepéquez: / 5km SE Antigua / 14.52779 -90.6897 \pm 200m / 2350m, 10-VI-2009, ex sifted / leaf litter, oak forest / LLAMA09 Wa-B-08-2-all” // “[bar code] / SM 0887275 / KUNHM-ENT” (1 SEMC).

Etymology. This species is named after the grandfather of PES, John Huhne. The species name is pronounced “who-knee-i”.

Remarks. The body shape and reduced hind wings indicate *A. huhnei* is flightless. It is possible the available specimens from two separate mountain ranges represented distinct species. For now, they are considered conspecific.

Antoinettia audbala (Skelley), new combination

Figures 1, 12–16.

Ischyurus audbalus Skelley 1998: 15.

Diagnosis. Distinguished from other species in the genus by its color pattern with a striped pronotum and elytra with a humeral spot and virga of male flagellum with a weak medial thickening. Known from Mexico.

Description. Length: 5.8–6.4 mm; width: 2.8–3.9 mm. Body elongate, widest at basal third of elytra; microreticulate, feebly glossy; yellow with black pattern (Fig. 12, 14).

Head yellow. Pronotum with central stripe, widest basally (Fig. 15); stripe can have a longitudinal elongate yellow spot. Scutellar shield black. Each elytron with yellow epipleural fold; humeral spot connected to base; sutural edge black; anteriorly placed free central and apical spots; lateral spot appearing as a marginal swelling;

lateral margin edged in black from lateral spot to apex. Prosternum yellow except for black sternal plate (Fig. 13). Meso- and metathorax black except for yellow mid-lateral area on metaventrite. Abdomen yellow except for black medial spots on the posterior edge of ventrites II–IV. See Skelley (1998) for the full description and illustration of male genitalia (Fig. 16).

Variation. The two specimens studied differ in the central pronotal stripe. The female, from Oaxaca, Mexico, has a solid stripe. The male, from Campeche, Mexico, has the stripe medially divided by an elongate yellow spot (Skelley 1998). This difference could be geographical, normal variation within the species, or represent different species. More specimens are needed to resolve this question. The holo- and allotypes are considered the same species until more can be studied.

Material examined. The male holotype of *Ischyryus audbalus* label data (Skelley 1998): “MEXICO: Campeche / Chicana Ruins, 6mi. E. / Xpujil, 13–14.VII.83 / 700', R. Anderson / W. Maddison / Trop. seas. for.” // “[red paper handwritten] HOLOTYPE / *Ischyryus audbalus* / P. E. Skelley” (FSCA). The female allotype label data: “MEX. Oax[aca]. / Temascal / VI-29-[19]64” // “at light” // “A. G. Raske / collector” // “[blue paper hand written] ALLOTYPE / *Ischyryus audbalus* / P. E. Skelley” (CNCI).

Etymology. aud-bal: an intentional phonetic misspelling of “odd-ball,” a slang expression meaning strange, unusual, out of the ordinary. The name was chosen for the many unusual characters of this species.

Remarks. This species is only known from the holotype and allotype specimens.

Antoinettia kovariki (Skelley), new combination

Figures 2–3, 17–21.

Ischyryus kovariki Skelley 1998: 39.

Diagnosis. Distinguished from other species in the genus by its color pattern which lacks a humeral spot and by the modified virga of the flagellum, swollen in appearance, with large dorsal accessory structure at middle, structure with distal cup and proximal hook. Known from Belize.

Description. Length: 3.7–6.1 mm; width: 2.0–3.1 mm. Body elongate, widest at basal third of elytra; microreticulate, feebly glossy; yellow with black pattern (Fig. 17, 19).

Head yellow. Pronotum with basal and lateral margins black (Fig. 20); centrally with 2 black basal projections that almost reach the anterior margin; anterior margin with 2 small spots. Scutellar shield black. Each elytron with yellow epipleural fold; entire lateral and sutural edges black; anteriorly placed free central and apical spots; apical spot often touching suture. Prosternum yellow except for black sternal plate (Fig. 18). Mesoventrite mostly yellow; posterior edge black. Metaventrite mostly yellow, black along mid-line. Abdomen yellow except for black medial spots on the posterior edge of all ventrites. Female genitalia show no remarkable characters (Fig. 3). See Skelley (1998) for the full description and illustration of male genitalia (Fig. 21).

Variation. The apical elytral spots are generally free and the same size as the central spots. Some specimens have the apical spots are larger and broadly touch the sutural margin. Ventrally the size of the black markings varies, but they are always present.

Material examined. The male holotype of *Ischyryus kovariki* label data: “BELIZE: Orange Walk / Dist., Rio Bravo Cons. / Area, Well Tr. vct. Well / 19-VII-1996; P. Kovarik / under bark of log” // “[red paper, handwritten] HOLOTYPE / *Ischyryus / kovariki* Skelley” (FSCA). The female allotype has same data as holotype, only a blue allotype label. Paratypes (20): same data as holotype (8 FSCA); same as holotype except “... Rd. to Well Trail, 16.VII.1996, ...” (12: CMNO, FSCA, NHMUK, USNM) (Skelley 1998).

Other specimen. “BELIZE: Orange Walk / D., Rio Bravo Cons. Area / Hdqtrs, 20-VII-1996, / UVtrap, L.B.O'Brien” (1 FSCA).

Etymology. Named for the collector of the type series, Peter W. Kovarik.

Remarks. The male genitalic flagellum is uniquely modified and is the only known erotylid with such a modification on the virga.

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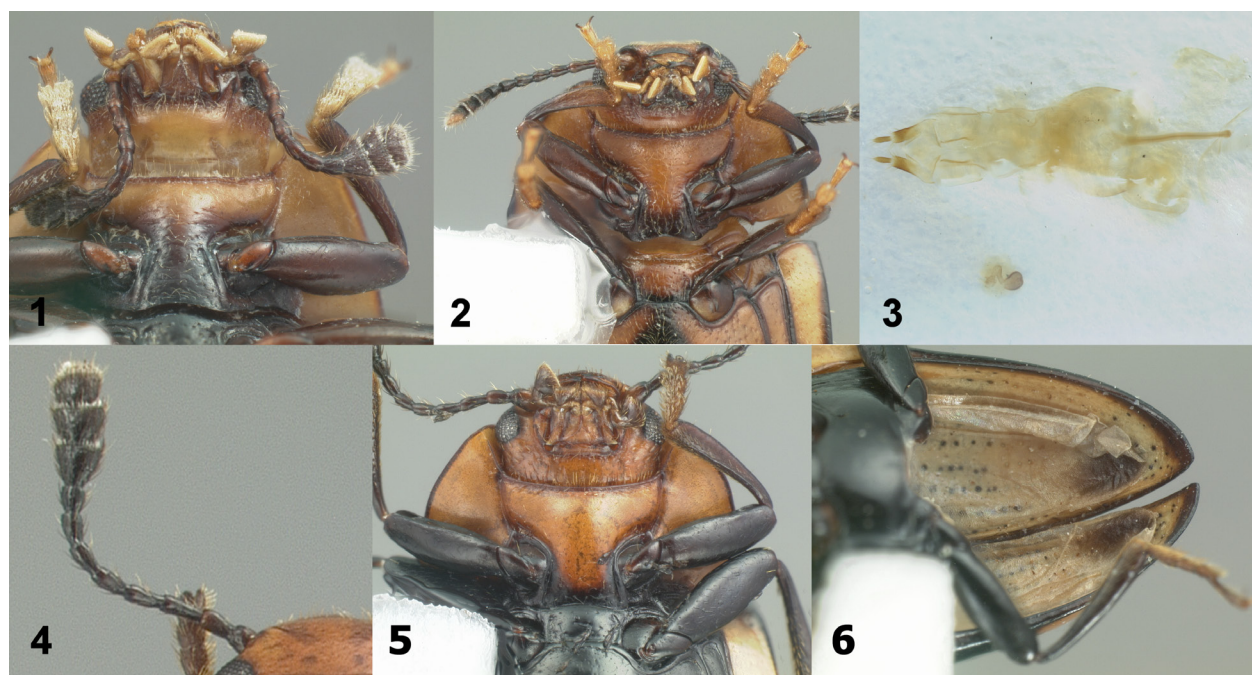
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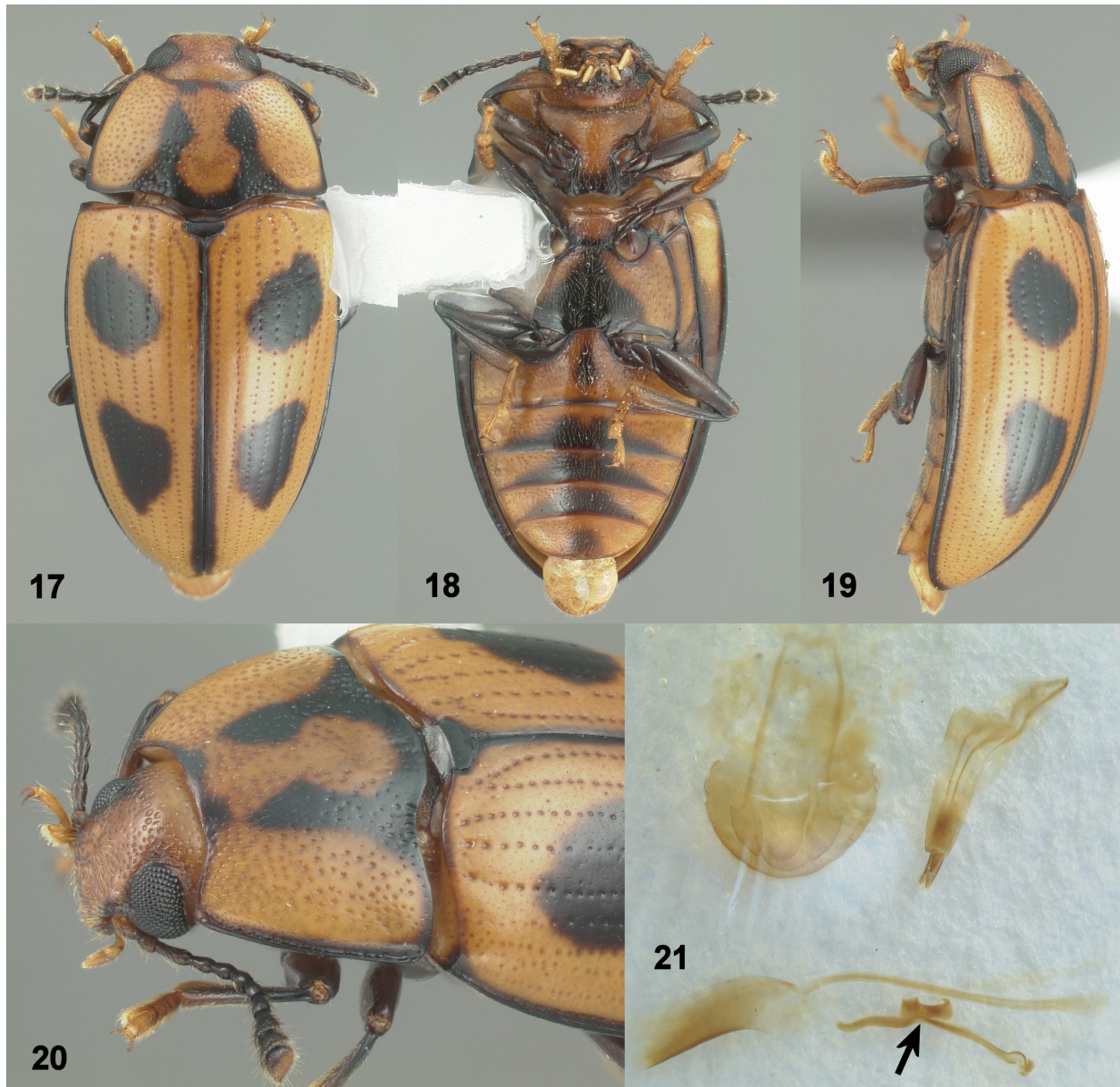
Figures 1–6. Miscellaneous structures of *Antoinettia* Skelley, new genus. 1) *A. audbala* (Skelley), holotype, ventral head and prosternum. 2) *A. kovariki* (Skelley), holotype, ventral head and prosternum. 3) *A. kovariki* (Skelley), allotype, female genitalia. 4–6) *A. huhnei* Skelley, new species. 4) Antenna, holotype. 5) Ventral head and prosternum, holotype. 6) Ventral view of elytra with abdomen removed to show brachypterous wings of this species, paratype from El Progreso.



Figures 7–11. *Antoinettia huhnei* Skelley, holotype except as noted. 7) Dorsal view. 8) Ventral view, note deformity of abdominal ventrite II of this specimen only. 9) Lateral view. 10) Anterior oblique view. 11) Genitalia, male paratype from El Progreso.



Figures 12–16. *Antoinettia audbala* (Skelley), holotype. **12)** Dorsal view. **13)** Ventral view. **14)** Lateral view. **15)** Anterior oblique view. **16)** Genitalia, media strut almost invisible in picture.



Figures 17–21. *Antoinettia kovariki* (Skelley), holotype except as noted. 17) Dorsal view. 18) Ventral view. 19) Lateral view. 20) Anterior oblique view. 21) Genitalia, paratype, arrow points to uniquely modified flagellum.

