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Systematic revision of the American taxa belonging to the genera *Alloblackburneus* Bordat, 2009, and *Blackburneus* Schmidt, 1913, with description of seven new species (Coleoptera: Scarabaeidae: Aphodiinae)

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Systematic revision of the American taxa belonging to the genera *Alloblackburneus* Bordat, 2009, and *Blackburneus* Schmidt, 1913, with description of seven new species (Coleoptera: Scarabaeidae: Aphodiinae)

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Systematic revision of the American taxa belonging to the genera *Alloblackburneus* Bordat, 2009, and *Blackburneus* Schmidt, 1913, with description of seven new species (Coleoptera: Scarabaeidae: Aphodiinae)

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Abstract. The American species belonging to the genera *Alloblackburneus* Bordat and *Blackburneus* Schmidt (Coleoptera: Scarabaeidae: Aphodiinae) are redescribed and figured. Seven **new species** are described: *Alloblackburneus guadalajarae*, *A. ibanezbernali*; *Blackburneus amazonicus*, *B. sanfilippo*, *B. surinamensis*, *B. teposcolulaensis*, *B. thomasi*. The **neotype** of *Scarabaeus rubeolus* Palisot de Beauvois, 1809 is designated. The **lectotype** of *Blackburneus argentinensis* (Schmidt, 1909) and of *Blackburneus laxepunctatus* (Schmidt, 1910) are designated. The following **new combinations** are proposed: *Alloblackburneus aegrotus* (Horn, 1870); *Alloblackburneus cavidomus* (Brown, 1927); *Alloblackburneus cynomysi* (Brown, 1927); *Alloblackburneus fordii* (Gordon, 1974); *Alloblackburneus geomys* (Cartwright, 1939); *Alloblackburneus lentus* (Horn, 1870); *Alloblackburneus rubeolus* (Palisot de Beauvois, 1805); *Alloblackburneus saylora* (Hinton, 1934); *Alloblackburneus tenuistriatus* (Horn, 1887); *Alloblackburneus troglodytes* (Hubbard, 1894).

Key words. New species, new combinations, systematics, American Aphodiinae.

Introduction

The taxa considered here were all recently placed in the genus *Blackburneus* Schmidt, 1913 (Coleoptera: Scarabaeidae: Aphodiinae) (Gordon and Skelley 2007, Skelley et al. 2007). However, the species represent at least two genera. Recently, Bordat (2009) described the genus *Alloblackburneus*, in which several species of *Blackburneus* should be placed.

Alloblackburneus and *Blackburneus* are similar in appearance, and both will be identified as “*Blackburneus*” in the keys of Gordon and Skelley (2007) and Skelley (2008). They are readily distinguished because *Blackburneus* lacks a marginal line on the pronotal base, while *Alloblackburneus* has a complete marginal line.

For *Alloblackburneus* Bordat we also supply a redescription and illustrations of the type species, *A. acutulus* Bordat, and present a key with the other Afrotropical species belonging to the genus, i.e.: *A. mashunensis* (Péringuey).

It seems that *Alloblackburneus* and *Blackburneus* are both paraphyletic (or polyphyletic?) taxa but to solve their relationships would also require a revision of the Afrotropical species. Since the aim of the present paper is limited to settle the systematics of New World taxa both genera as here defined should be considered “*sensu lato*”.

Materials and Methods

As far as possible, the types of critical taxa were examined. In the material examined, for the species more common and wide spread, we list only the country and, in brackets, the number of specimens examined. Regarding the geographical distribution of the taxa, we report only reliable records from previous literature. Terminology used in this work to describe morpho-anatomical features follows that of Dellacasa et al. (2001).

Materials studied are in the following collections:

- BCBG** - Bellman A. Collection, Bremen, Germany
- BCSC** - Bordat P. Collection, Saint Cirq, France
- CNCI** - Canadian National Collection, Ottawa, Canada
- CSCA** - California State Collection of Arthropods, California Department of Food & Agriculture, Sacramento, U.S.A.
- DCGI** - Dellacasa Collection, Genoa, Italy
- EMEB** - Essig Museum of Entomology, Berkeley, U.S.A.
- FMNH** - Field Museum of Natural History, Chicago, U.S.A.
- FSCA** - Florida State Collection of Arthropods, Gainesville, U.S.A.
- HCGN** - Hielkema M. A. Collection, Gouda, The Netherlands
- ISEA** - Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland
- MHNG** - Muséum d'Histoire Naturelle, Geneva, Switzerland
- MNKM** - Museo de Historia Natural, Noel Kempff Mercado, Universidad Autonoma "Gabriel Rene Moreno", Santa Cruz de la Sierra, Bolivia
- MNHN** - Muséum national d'Histoire naturelle, Paris, France
- MSNT** - Museo di Storia Naturale e del Territorio, Università di Pisa, Calci (Pisa), Italy
- NHRS** - Naturhistoriska Riksmuseet, Stockholm, Sweden
- NMPC** - National Museum, Department of Entomology, Praha, Czech Republic
- NYSM** - New York State Museum, Albany, U.S.A.
- NZCS** - National Zoological Collection of Suriname, University of Suriname, Paramaribo, Suriname
- RHTC** - R. H. Turnbow Collection, Enterprise, Alabama, U.S.A.
- USNM** - United States National Museum, Washington, U.S.A.

Systematics

Genus *Alloblackburneus* Bordat, 2009 *sensu lato*

Alloblackburneus Bordat, 2009: 124

Type species. *Alloblackburneus acutulus* Bordat, 2009 by original designation.

Diagnosis. Small size species (length 2.5-5.0 mm), oblong, convex, more or less shiny, glabrous or with elytra more or less diffusely pubescent, rarely also pronotum laterally pubescent. Reddish, brownish-red or rarely piceous. Head with epistome more or less coarsely punctured; clypeus sinuate at middle, angulate or round at sides; genae not or feebly protruding from the eyes; frontal suture without tubercles. Pronotum transverse, simply or dually punctured; bordered at base, rarely edge shortly interrupted medially. Scutellum small, triangular. Elytra regularly oval or tapered toward apex; rarely epipleural carina subdenticulate at shoulder and shortly bristled; striae fine, subcrenulate; interstriae flat, feebly or strongly convex, sometimes roof-shaped, minutely sparsely punctured or with punctures serially arranged near striae. Fore tibiae distally tridentate and proximally not or feebly serrulate on outer margin; upper side distinctly punctured. Middle and hind tibiae with feeble but distinct transverse carinae on outer face; apically fimbriate with spinules more or less elongate and irregularly or progressively unequal. Pygidium densely and coarsely or sparsely and superficially punctured; each puncture with a rather elongate recumbent hair; apical margin with several setae rather short and sparse. Sexual dimorphism shown in males

mainly by more deeply excavate metasternal plate; sometimes by the shape of the protibial spur and by more transverse and less densely punctured pronotum. Aedeagus with parameres more or less abruptly curved and acuminate apically; therein usually with a clump of dense hairs. Epipharynx moderately transverse, widely round at sides, with anterior margin distinctly sinuate at middle; epitorma conical; corypha not protruding beyond front margin and with two strong apical spiculae; pedia rather densely pubescent toward epitorma and with many stout chaetae irregularly scattered; chaetopariae short and dense.

Distribution. Afrotropical, Nearctic and Neotropical regions.

Remarks. A few additional Afrotropical species probably belong to *Alloblackburneus* as herein diagnosed. At present they are placed in several genus group taxa (e.g. *Blackburneus*, *Pleuraphodius* Schmidt, *Trichaphodius* Schmidt, etc.). To resolve their taxonomy requires systematic revisions with studies of type materials. Unfortunately, types seem to be lost for most of them.

Key to species of *Alloblackburneus*

- | | | |
|-------|--|---|
| 1. | Afrotropical species | 13 |
| — | Nearctic and Neotropical species | 2 |
| 2(1). | Elytra surface glabrous, marginal setae may be present | 3 |
| — | Elytra more or less diffusely pubescent, possibly restricted to lateral declivity | 9 |
| 3(2). | Elytra more or less strongly tapered toward apex | 4 |
| — | Elytra regularly oblong | 6 |
| 4(3). | Elytral interstriae alutaceous thus almost dull; pronotum with basal border more or less widely interrupted medially, dually somewhat irregularly punctured, punctures becoming progressively larger and coarser toward lateral margins. Pale brownish-red. Length 3.0-4.5 mm. U.S.A. (Kansas, Oklahoma, Texas) | <i>A. cynomysi</i> (Brown) |
| — | Elytral interstriae shiny; pronotum with basal border thin but complete | 5 |
| 5(4). | Pronotum evenly very finely sparsely punctured throughout; epipleural carina elongately sparsely ciliate; superior apical spur of hind tibiae slender, almost straight and regularly acuminate; tarsal claws normally shaped; clypeus obtusely round at sides. Honey or reddish yellow. Length 3.0-4.0 mm. U.S.A. (South Carolina, Florida) | <i>A. troglodytes</i> (Hubbard) |
| — | Pronotum dually punctured, larger punctures on lateral third; epipleural carina glabrous; superior apical spur of hind tibiae inwardly abruptly curved, on lateral view spatulate; tarsal claws extremely elongate; clypeus angulate at sides. Chestnut brown. Length 4.0-5.0 mm. U.S.A. (from North Carolina to Florida) | <i>A. geomysi</i> (Cartwright) |
| 6(3). | Elytral interstriae strongly convex. Pale reddish. Length 4.5-5.0 mm. Mexico (Aguascalientes, Jalisco, Nayarit) | <i>A. guadalajarae</i> new species |
| — | Elytral interstriae flat or faintly convex | 7 |
| 7(6). | Genae obtuse, feebly but distinctly protruding from the eyes; elytral striae superficially punctured, not crenulate; interstriae shiny, almost imperceptibly sparsely punctured; first segment of hind tarsi shorter than following three combined. Piceous, sometimes elytra brownish-red. Length 3.0-4.5 mm. Mexico (Colima, Durango, Jalisco, México, Michoacán, Quintana-Roo, Sinaloa) | <i>A. saylori</i> (Hinton) |
| — | Genae round, not protruding from the eyes | 8 |

- 8(7). Hind tibiae superior apical spur long as half of first tarsal segment; latter as long as following three combined; elytral striae rather deeply punctured, feebly crenulate; interstriae subapically alutaceous thus weakly shiny. Pale reddish brown. Length 3.0-4.5 mm. U.S.A. (Oklahoma, Texas, Utah) ***A. cavidomus* (Brown)**
- Hind tibiae superior apical spur as long as first tarsal segment; latter shorter than following three combined; elytral striae superficially punctured, faintly crenulate; interstriae entirely very shiny. Dark chestnut brown. Length 3.5-4.0 mm. Mexico (Colima, Durango, Jalisco, México, Michoacán, Nuevo León) ***A. ibanezbernali* new species**
- 9(2). Elytra entirely pubescent **10**
- Elytra pubescent near lateral margins and on preapical declivity only **12**
- 10(9). Pronotum glabrous, coarsely densely punctured on disc, lateral margins not fimbriate, genae feebly but distinctly protruding from the eyes. Reddish-brown; head and pronotum somewhat darker. Length 3.0-4.5 mm. Canada (Ontario, Québec), U.S.A. (North Dakota, south to Georgia, Indiana, Kansas, Texas) ***A. lentus* (Horn)**
- Pronotum pubescent either laterally or before hind angles, lateral margins fimbriate with rather elongate setae; genae not protruding from the eyes **11**
- 11(10). Pronotum with patches of recumbent hairs before hind angles, lateral margins with edge not crenulate; elytral interstriae superficially alutaceous thus rather shiny. Pale reddish, pronotal disc darker. Length 3.5-5.0 mm. U.S.A. (Louisiana, Nebraska, New Mexico, Texas) ***A. tenuistriatus* (Horn)**
- Pronotum with some sparse erect setae toward lateral margins, latter with edge crenulate; elytral interstriae strongly alutaceous thus dull. Piceous; clypeal margin and pronotal sides reddish brown, elytra brownish. Length 3.0-3.5 mm. U.S.A. (Florida, Georgia) ***A. fordii* (Gordon)**
- 12(9). Superior apical spur of hind tibiae short, spatulate and, in lateral view, with a broad concave surface on apical half; first segment of hind tarsi shorter than superior apical spur of tibia as well as following three segments combined. Reddish. Length 3.5-5.0 mm. Southern Canada, U.S.A. (from Michigan and Nebraska, south to northern Florida, westward to Colorado and eastern Texas), Mexico (San Luis Potosí, Tamaulipas) . ***A. rubeolus* (Palisot de Beauvois)**
- Superior apical spur of hind tibiae elongate, narrowly spatulate and, in lateral view, very narrowly concave on apical two thirds; first segment of hind tarsi almost as long as superior apical spur of tibiae and as long as following three segments combined. Reddish, often elytra paler. Length 3.0-4.5 mm. U.S.A. (from New Jersey to Florida) ***A. aegrotus* (Horn)**
- 13(1). Elytral interstriae strongly convex, the lateral ones faintly pubescent; humeral tooth rather strong. Reddish brown, epistome, pronotal disc and sometimes elytra darkened. Length 2.5-3.5 mm. Zimbabwe ***A. acutulus* Bordat**
- Elytral interstriae very feebly convex, the lateral ones glabrous; humeral tooth faint. Pale reddish brown. Length 2.5-3.0 mm. Sub-Saharan Africa **[*A. mashunensis* (Péringuey)]**

***Alloblackburneus acutulus* Bordat, 2009**

(Fig. 1-5)

Alloblackburneus acutulus Bordat, 2009: 126.**Type locality.** Matopos N. P. (20°33'S-28°30'E), Zimbabwe.**Type repository.** Zoologisches Museum, Humboldt Universität. Berlin (paratype examined).

Redescription. Length 2.5-3.5 mm; oblong, convex, moderately shiny, elytra very shortly pubescent. Reddish brown; epistome, pronotal disc, lateral margins of scutellum, elytral suture and sometimes also elytral disc, darkened; legs reddish brown with tarsi somewhat paler; antennal club pale testaceous. Head with epistome gibbous, simply, rather densely regularly and moderately coarsely punctured; clypeus distinctly sinuate at middle, round at sides, thinly bordered, edge glabrous, somewhat reflexed anteriorly, lateral margins almost straight; genae obtusely round, glabrous, feebly protruding from the eyes; frontal suture finely impressed, not tuberculate; front evenly, almost coarsely, not closely punctured. Pronotum transverse, convex, simply, rather densely regularly and moderately coarsely punctured; punctation somewhat denser on sides; lateral margins subparallel toward the base, thinly bordered, edge glabrous; hind angles obliquely subtruncate; base feebly bisinuate, distinctly bordered, edge sometimes with few short hairs at scutellum level. Scutellum narrow with lateral margins arcuate, sparsely coarsely punctured. Elytra oval elongate, subdenticulate at shoulder; epipleural carina shortly bristled toward shoulder; striae rather fine, feebly crenulate, wider toward apex; interstriae strongly convex, almost roof-shaped, finely serially punctured laterally; each puncture shortly recumbently pubescent. Hind tibiae superior apical spur shorter than first tarsal segment; latter as long as following three combined. Male: pronotum somewhat more transverse, less convex and somewhat more sparsely punctured; apical spur of fore tibiae stouter and abruptly downward bent; metasternal plate distinctly excavate; aedeagus Fig. 4-5. Female: pronotum somewhat narrowed anteriorly, somewhat more convex, and somewhat more densely punctured; apical spur of fore tibiae rather slender and moderately curved downward; metasternal plate almost flat.

Material examined. ZIMBABWE: Matopos N. P., 20°33'S-28°30'E, 28.XI-01.XII.1993, leg. M. Uhlig (lux) (1 male, paratype, DCGI).

Distribution. Zimbabwe.

Bionomics. Specimens of the type series were collected at light in November, December, and March.

***Alloblackburneus aegrotus* (Horn, 1870) new combination**
(Fig. 6-10)

Aphodius aegrotus Horn, 1870: 127; Horn 1887: 43; Schmidt 1922: 333 (*subgenere incerto*).

Aphodius campestris Blatchley, 1912: 330; Schmidt 1922: 334; Brown 1927: 164; Woodruff 1973: 85; Gordon 1983: 645; Harpootlian 2001: 29; Gordon and Skelley 2007: 353 (as synonym of *B. aegrotus* and lectotype designation).

Aphodius (*Blackburneus*) *aegrotus*; Dellacasa 1988: 83.

Aphodius (*Blackburneus*) *campestris*; Dellacasa 1988: 104.

Blackburneus aegrotus; Gordon and Skelley 2007: 353 (lectotype designation).

Type locality. North Carolina [U.S.A.].

Type repository. Museum of Comparative Zoology. Harvard University, Cambridge, MA (U.S.A.) (type not examined).

Redescription. Length 3.0-4.5 mm; oval-elongate, convex, shiny; head and pronotum glabrous, elytra laterally and toward apex distinctly pubescent. Reddish-yellow; head, pronotum and elytral suture brownish-red; legs reddish-yellow; antennal club testaceous. Head with epistome feebly convex on disc, evenly finely sparsely punctured throughout; clypeus feebly sinuate at middle, round at sides, not bordered but edge somewhat upturned, glabrous; genae round, sparsely ciliate; faintly protruding from the eyes; frontal suture deeply impressed; front very finely sparsely punctured. Pronotum moderately transverse, convex, dually punctured; large punctures, four to five times larger than small, denser on sides but almost lacking on disc; small fine punctures regularly scattered throughout but lacking on a longitudinal median areola; lateral margins feebly arcuate, thinly bordered, edge elongately sparsely ciliate; hind angles

obliquely feebly truncate; truncation somewhat inwardly sinuate; base not bisinuate, thinly bordered. Scutellum flat, sparsely irregularly punctured. Elytra rather elongate, convex, slightly tapered toward apex, very finely striate; striae superficially punctured, weakly crenulate; interstriae very superficially microreticulate, indistinctly sparsely punctured; the tenth interstria pubescent in apical two thirds; the ninth in apical half; all other pubescent from preapical declivity to apical margin and therein more distinctly punctured. Hind tibiae superior apical spur elongate, narrowly spatulate and, in lateral view, very narrowly concave on apical two thirds; first segment of hind tarsi almost as long as superior apical spur of tibiae and as long as following three segments combined. Male: pronotum somewhat more transverse; metasternal plate posteriorly excavate with somewhat more deep median longitudinal groove; aedeagus Fig. 9-10. Female: pronotum somewhat narrowed anteriorly; metasternal plate almost flat with superficial median longitudinal groove.

Material examined. **USA, Florida** (19 exx., DCGI); Alachua Co., 2.5 mi. SW of Archer, 21-28.VIII.1988, leg. P. Skelley (45 exx., DCGI); *idem*, 18-24.IX.1985, leg. P. Skelley (57 exx., DCGI); *idem*, 20-30.X.1988, leg. P. Skelley (4 exx., DCGI); Alachua Co., SW Archer, 20-27.XI.1998, leg. P. Skelley (21 exx., DCGI); Eau Gallie, 9.VIII.1938, leg. C. C. Goff (1 ex., DCGI); Enterprise, X.1926 (7 exx., DCGI); Gainesville, Bivens Arm Lake, 12-16.IV.2001, leg. P. Skelley (4 exx., DCGI); Highlands Co., Archbold Biol. Sta., 8 mi. S Lake Placid, 5.VII.1988, leg. P. Skelley (blacklight trap) (9 exx., DCGI); *idem*, 7.VII.1988, leg. P. Skelley (blacklight trap) (3 exx., DCGI); Pensacola, VI.1948, leg. I. Rosasco (1 ex., DCGI); Polk Co., Lake Streaty, 10.VIII.1938, leg. C. C. Goff (1 ex., DCGI); **Georgia**: Tifton, 6.X.1968, leg. J. A. Payne (Gopher tortoise dung trap) (10 exx., DCGI); **North Carolina**: Black Mts., VI.1911 (1 ex., DCGI); **Tennessee**: Green Co., Tusculum College, 1.VII.1946, leg. M. Wright (light trap) (1 ex., DCGI).

Distribution. U.S.A. (coastal sites from New Jersey to Florida; Alabama).

Bionomics. A year round coprophagous species, found in several kinds of mammal and gopher tortoise dung in sandy habitats where it may occur in large populations.

***Alloblackburneus cavidomus* (Brown, 1927) new combination**
(Fig. 11-15)

Aphodius cavidomus Brown, 1927: 167.

Aphodius (Blackburneus) cavidomus; Dellacasa 1988: 333.

Blackburneus cavidomus; Gordon and Skelley 2007: 355.

Type locality. Otoe Pasture, Noble Co., Oklahoma [U.S.A.].

Type repository. Canadian National Collection, Ottawa (type not examined).

Redescription. Length 3.0-4.5 mm; oblong, convex, shiny, glabrous. Reddish yellow to pale brownish red; elytral suture and sometimes head and pronotum slightly darker; legs brownish red; antennal club testaceous. Head with epistome moderately convex on disc, finely subregularly punctured throughout; punctation somewhat sparser on disc; clypeus sinuate at middle, obtusely round at sides, distinctly bordered, edge somewhat upturned, glabrous; genae round, almost imperceptibly bristled, not protruding from the eyes; frontal suture faintly impressed; front somewhat more finely sparsely punctured than epistome. Pronotum moderately transverse, very convex, dually punctured; large punctures, five to six times larger than small, dense and coarse on sides, lacking on disc; small sparse punctures regularly scattered throughout, very fine, often indistinct, on disc; lateral margins feebly arcuate, thinly bordered, edge glabrous; hind angles obtusely round; base faintly bisinuate, thinly bordered. Scutellum flat, with few very fine punctures. Elytra almost subparallel-sided, with epipleural carina subdentiform at shoulder, finely striate; striae rather closely punctured, feebly crenulate; intervals nearly flat, finely punctured, subapically microreticulate, alutaceous. Hind tibiae superior apical spur regularly acuminate, shorter than first tarsal segment; latter as long as following three segments combined. Male: head and

pronotum somewhat more superficially and less densely punctured; latter not narrowed frontwardly; aedeagus Fig. 14-15. Female: head and pronotum somewhat more coarsely and more densely punctured.

Material examined. **USA, Oklahoma:** Comanche Co., Wichita Mts. Refuge, 5-7.VI.1979, leg. S. & J. Peck (shortgrass prairie, prairie dog burrows) (1 ex., DCGI); **Texas:** Lubbock Co., 3 mi. W New Deal, 12.V.1977, leg. D. E. Foster & D. D. Ralston (ex burrow of *Cynomys ludovicianus*) (1 ex., DCGI).

Distribution. U.S.A. (Oklahoma, Utah, Texas).

Bionomics. Spring, Summer and early Autumn species known to occur in burrows of the black tailed prairie dog (*Cynomys ludovicianus* (Ord)) from May to September.

***Alloblackburneus cynomysi* (Brown, 1927) new combination**
(Fig. 16-20)

Aphodius cynomysi Brown, 1927: 166.

Aphodius (Blackburneus) cynomysi; Dellacasa 1988: 333.

Blackburneus cynomysi; Gordon and Skelley 2007: 356.

Type locality. Otoe Pasture, Noble Co., Oklahoma [U.S.A.].

Type repository. Canadian National Collection, Ottawa (paratype examined).

Redescription. Length 3.0-4.5 mm; stout, convex, moderately shiny, glabrous. Pale brownish red; legs reddish brown with paler tarsi; antennal club yellowish. Head with epistome feebly convex on disc, rather finely evenly punctured, punctation finer on disc; clypeus moderately sinuate at middle, subangulose at sides, thinly bordered, edge feebly reflexed at anterior angles, laterally shortly and sparsely bristled; genae broadly round, almost imperceptibly ciliate, not protruding from the eyes; frontal suture faintly indicate at middle; front evenly, finely punctured. Pronotum transverse, convex, dually, somewhat irregularly punctured; large punctures, twice to three times larger than small ones, denser and moderately coarser on sides, lacking on disc; small punctures, closer and coarser on sides, finer, very sparse and almost imperceptible on disc; lateral margins feebly arcuate, finely bordered, edge glabrous; hind angles obtusely round; base very finely bordered, edge more or less widely interrupted medially. Scutellum irregularly, moderately punctured on basal half. Elytra convex, moderately tapered toward apex; striae moderately deep, rather closely finely punctured, faintly crenulate; interstriae almost flat, finely alutaceous, more strongly so on preapical declivity thus rather dull, very distinctly and rather closely punctured. Hind tibiae superior apical spur longer than first tarsal segment; latter as long as following three segments combined. Male: head and pronotum somewhat more sparsely punctured; elytral interstriae finely alutaceous, thus more shiny; metasternal plate moderately incavate; aedeagus Fig. 19-20. Female: head and pronotum somewhat more densely punctured; elytral interstriae more strongly alutaceous; metasternal plate almost flat.

Material examined. **USA, Kansas:** Kiowa Co., 13 mi. S Greensburg, 4.V.1997, leg. G. Salsbury (prairie dog burrow) (2 exx., DCGI); **Oklahoma:** Noble Co., Otoe Pasture, 29.VI.1923, leg. W. J. Brown (from *Cynomys* hole) (1 male, paratype, DCGI).

Distribution. U.S.A. (Kansas, Oklahoma, Texas).

Bionomics. Spring species known only from burrows of the black-tailed prairie dog (*Cynomys ludovicianus*).

***Alloblackburneus fordii* (Gordon, 1974) new combination**

(Fig. 21-25)

Aphodius fordii Gordon, 1974: 455.*Aphodius* (*Amidorus*) *fordii*; Dellacasa 1988: 130.*Blackburneus fordii*; Gordon and Skelley 2007: 356.**Type locality.** Jekyll Island, Georgia [U.S.A.].**Type repository.** United States National Museum. Washington (paratype examined).

Redescription. Length 3.0-3.5 mm; slender, oval elongate, convex; head subshiny, pronotum weakly shiny, elytra dull; head glabrous, pronotum with long sparse setae on sides, elytra biserially pubescent. Piceous; clypeal margins and pronotal sides reddish-brown; elytra brownish; legs reddish-brown; antennal club testaceous. Head with epistome very superficially microreticulate thus almost shiny, faintly convex on disc, finely somewhat irregularly punctured; punctation finer distally, sparser on disc; clypeus very feebly sinuate at middle, round at sides, extremely finely bordered, edge distinctly upturned, glabrous; genae round, sparsely elongately ciliate, not protruding from the eyes; frontal suture finely impressed; front evenly sparsely punctured. Pronotum weakly transverse, convex, distinctly microreticulate thus weakly shiny, dually somewhat irregularly punctured but with a basal median narrow longitudinal impunctate areola, and with long, erect, sparse setae on sides near lateral margins; large punctures, three to four times larger than small ones, denser and coarser on sides; small punctures subregularly scattered throughout but more superficial on disc; lateral margins feebly arcuate, faintly crenulate, fimbriate with long, sparse setae; hind angles round, fringed with rather elongate setae; base feebly bisinuate, distinctly bordered, with fringe of rather long setae denser medially. Scutellum somewhat excavate, distinctly microreticulate thus almost dull, sparsely irregularly punctured. Elytra elongate, subparallel-sided, convex, strongly microreticulate thus dull; epipleural carina sparsely fringed by rather short setae; striae fine, superficially not closely punctured, subcrenulate; interstriae flat with two rows of rough setigerous punctures; rows rather irregular on odd interstriae; most setae decumbent except some on odd interstriae. Hind tibiae superior apical spur shorter than first tarsal segment; latter as long as following three segments combined. Male: metasternal plate with median longitudinal groove somewhat more deep, posteriorly foveolate; aedeagus Fig. 24-25. Female: metasternal plate with median longitudinal groove somewhat more superficial, posteriorly not foveolate.

Material examined. USA, Georgia: Camden Co., Little Cumberland I., 29.VII.1975, leg. W. E. Steiner (1 ex., DCGI); Jekyll Is., 17.VII.1971, leg. E. J. Ford Jr. (light trap) (1 ex., paratype, DCGI).

Distribution. U.S.A. (Florida, Georgia).

Bionomics. Spring and summer species with bionomy almost unknown. The studied specimens of this extremely rare species were collected at light in July.

***Alloblackburneus geomysi* (Cartwright, 1939) new combination**

(Fig. 26-30)

Aphodius geomysi Cartwright, 1939: 356; Woodruff 1973: 83 (as synonym of *A. aegrotus*); Dellacasa 1988: 334 (as synonym of *A. aegrotus*).*Aphodius aegrotus* auctorum nec Horn 1870: 127; Woodruff 1973: 83; Gordon 1983: 645; Skelley and Gordon 2002: 83.*Blackburneus geomysi*; Gordon and Skelley 2007: 357 (*bona species*).**Type locality.** Newman's Lake, Alachua Co., Florida [U.S.A.].

Type repository. United States National Museum. Washington (type not examined).

Redescription. Length 4.0-5.0 mm; broadly stout, convex, shiny, glabrous. Castaneous; elytra paler; legs reddish-brown; antennal club brownish. Head with epistome moderately convex on disc, very finely, almost evenly punctured; clypeus broadly but feebly sinuate at middle, abruptly angulate at sides, thinly bordered, edge somewhat upturned laterally, glabrous; genae round, sparsely ciliate, not protruding from the eyes; frontal suture, at least medially, distinctly impressed; front more finely and more sparsely punctured than epistome. Pronotum transverse, convex, slightly narrowed frontwardly, dually punctured; large umbilicate punctures, some of which oblong, seven times larger than small ones, grouped on posterior half of lateral third; very small punctures evenly scattered, becoming extremely minute and almost imperceptible on disc; lateral margins feebly arcuate, rather thickly bordered, edge glabrous; hind angles obtusely round; base faintly bisinuate, thinly bordered. Scutellum flat, somewhat depressed basally and therein with few fine punctures. Elytra suboval, tapered posteriorly; epipleural carina very distinct at shoulder and on elytral base reaching the sixth stria; striae fine, superficially punctured, weakly crenulate; interstriae flat with punctures very minute, nearly imperceptible. Hind tibiae superior apical spur inwardly abruptly curved, spatulate in lateral view, with broad concave face, shorter than first tarsal segment; latter as long as following three segments combined. Tarsal claws slender and very elongate, nearly as long as two-thirds the length of last tarsal segment. Male: fine punctures on pronotal disc almost obsolete; fore tibiae apical spur obtuse at tip; aedeagus Fig. 29-30. Female: fine punctures of pronotal disc somewhat more distinct; fore tibiae apical spur acuminate at tip.

Material examined. **USA, Florida:** Alachua Co., 2.5 mi SW Archer, 21-28.VIII.1988, leg. P. Skelley (pitfall trap in *Geomys* burrow – pig dung + malt) (8 exx., DCGI); *idem*, 18-24.IX.1986, leg. P. Skelley (*Geomys* burrow pitfall) (4 exx., DCGI); *idem*, 23-30.X.1988, leg. P. Skelley (*Geomys* burrow pitfall trap) (5 exx., DCGI); Eau Gallie, 9.VIII.1938, leg. C. C. Goff (from burrow of *Geomys floridana*) (1 ex. paratype, DCGI); Polk Co., Lake Streaty, 10.VIII.1938, leg. C. C. Goff (from burrow of *Geomys floridana*) (1 ex. paratype, DCGI).

Distribution. U.S.A. (from North Carolina to Florida).

Bionomics. The adults seem to be active almost all year round, known to occur only in burrows of the pocket gopher (*Geomys* spp.), frequently collected at lights.

***Alloblackburneus guadalajarae* new species**
(Fig. 31-35)

Type locality. Guadalajara, Jalisco, Mexico.

Type repository. United State National Museum. Washington.

Description. Length 4.5-5.0 mm; oval elongate, convex, moderately shiny, glabrous. Reddish testaceous; legs somewhat darker; antennal club yellow. Head with epistome slightly convex on disc, dually coarsely somewhat irregularly not closely punctured; clypeus feebly sinuate at middle, round at sides, thinly bordered, edge glabrous, moderately reflexed; genae obtusely round, sparsely ciliate, not protruding from the eyes; latter rather large; frontal suture distinctly impressed, not tuberculate; front dually, rather sparsely punctured. Pronotum weakly transverse, strongly convex, dually punctured; large punctures, seven to eight times larger than small ones, denser on sides, sparser and nearly lacking medially; small very fine punctures evenly, not closely scattered throughout; lateral margins feebly arcuate, thickly bordered, edge glabrous; hind angles obtusely round; base feebly bisinuate, thinly bordered. Scutellum narrowly elongate, slightly convex, sparsely punctured in basal half. Elytra feebly broadened posteriorly, deeply striate; striae rather superficially punctured, subcrenulate; interstriae strongly convex, near imperceptibly sparsely punctured. Hind tibiae superior apical spur shorter than first tarsal segment; latter shorter than following three segments combined. Male: pronotum somewhat more transverse and less

convex; metasternal plate distinctly excavate; aedeagus Fig. 34-35. Female: pronotum somewhat more narrowed frontwardly and more convex; metasternal plate almost flat.

Type material. **MEXICO, Aguascalientes:** Aguascalientes, 9.VIII.1955, leg. F. S. Islas (1 male, **allotype**, USNM); **Jalisco:** Guadalajara, 30.VII.1963, leg. P. J. Spangler (1 female, **holotype**, USNM); **Nayarit:** Acaponeta (1 male and 2 females, paratypes, DCGI).

Distribution. Mexico (Aguascalientes, Jalisco, Nayarit).

Etymology. Named after the type locality.

Bionomics. Almost unknown. Two specimens of the type series were collected in Summer.

***Alloblackburneus ibanezbernali* new species**

(Fig. 36-40)

Type locality. Carr. to Copala, Copala env., m 1800, 19°60'N-103°74'W, Jalisco, Mexico.

Type repository. Dellacasa collection. Genoa.

Description. Length 3.5-4.0 mm, oblong, convex, strongly shiny, glabrous. Dark chestnut brown; clypeal margin and anterior angles of pronotum reddish-brown; sometimes entirely brownish-red; legs reddish; antennal club piceous. Head with epistome feebly convex on disc, evenly, not closely punctured; clypeus feebly sinuate at middle, widely round at sides, not bordered, margins glabrous and slightly upturned; genae round, almost glabrous, not protruding from the eyes; frontal suture nearly obsolete; front sparsely finely punctured. Pronotum moderately transverse, strongly convex, very shiny, dually punctured; large coarse punctures, seven to eight times larger than small ones, moderately dense on sides but not reaching lateral margins; small punctures more or less regularly scattered throughout, somewhat denser and coarser on sides, extremely fine and sparser on disc; lateral margins moderately arcuate, rather thinly bordered, edge glabrous; hind angles obtusely round; base almost regularly arcuate, distinctly bordered. Scutellum feebly convex, shiny, finely and rather sparsely punctured basally. Elytra rather shortly oval, strongly convex, very finely striate; striae superficially punctured, faintly crenulate; interstriae flat, very finely sparsely punctured. Hind tibiae superior apical spur somewhat shorter than first tarsal segment; latter shorter than following three segments combined. Male: metasternal plate somewhat more broadly and deeply excavate at middle; aedeagus Fig. 39-40. Female: metasternal plate somewhat more narrowly and superficially excavate at middle.

Type material. **MEXICO, Colima:** Sierra de Manantlán, Municipio Minatitlán, Taperetta, m 2300, 14.VII.1989, leg. S. Espaica (pastizal) (1 ex., paratype, DCGI); **Durango:** Minillas, Res. Biosf "La Michilia", 1-8.VII.1994, leg. S. Anduaga (pastizal, bajo excremento fresco de vaca) (1 ex., paratype, DCGI); *idem*, 9-14.VIII.1989, leg. S. Anduaga (pastizal, excremento fresco de vaca) (1 ex., paratype, DCGI); *idem*, 23°25'29"N-104°09'08"W, m 2300, IX.2003, leg. C. Huerta & S. Anduaga (1 ex., paratype, DCGI); **Jalisco:** carr. to Copala, Copala env., 19°60'N-103°74'W, m 1800, 28.VII.2003, leg. M. Dellacasa & I. Martínez (**holotype** male and **allotype** female, DCGI); Sierra de Manantlán, Estacion Cientifica "Las Soyas", m 1900, 20.VII.1989, leg. E. Garcia (1 ex., paratype, DCGI); **México:** Real de Arriba, Temascaltepec [= Temascaltepec], 14.VII.1933, leg. H. E. Hinton & R. L. Usinger (1 ex., paratype, CNCI); **Michoacán:** Condembaro env., 19°18'14.3"N-102°17'36.9"W, m 2700, 27.VII.2003, leg. M. Dellacasa & I. Martínez (1 ex., paratype, DCGI); rd. Patzcuaro-Uruapán, Planta PEMEX Diablo de Zirahuén, 19°29'N-101°48'W, m 2200, 23.VII.2001, leg. M. Dellacasa & I. Martínez (1 ex., paratype, DCGI); Uruapán, 28.VII.1980, leg. M. Zunino (3 exx., paratypes, DCGI; 1 ex. paratype, FSCA); Zitacuaro, 25.VI.1979, leg. M. Zunino (1 ex., paratype, DCGI); **Nuevo León:** Monterreal env., 25°13'35.8"N-100°24'40.2"W, m 2736, 3.VII.2006, leg. M. Dellacasa, C. Fresi & I. Martínez (horse dung) (2 exx., paratypes, DCGI).

Distribution. Mexico (Colima, Durango, Jalisco, México, Michoacán, Nuevo León).

Etymology. Named in honor of Sergio Ibañez-Bernál, dipterologist at the Instituto de Ecología, Xalapa, Veracruz, Mexico.

Bionomics. Specimens were collected in Summer or in early Autumn; some of them in horse and cow dung.

***Alloblackburneus lentus* (Horn, 1870) new combination**

(Fig. 41-45)

Aphodius lentus Horn, 1870: 124; Horn 1887: 27; Brown 1927: 165; Helgesen and Post 1967: 38; Gordon 1983: 637; Ratcliffe 1991: 48; Harpootlian 2001: 30; Ratcliffe and Paulsen 2008: 184.

Aphodius (*Amidorus*) *lentus*; Schmidt 1913: 149; Schmidt 1922: 227; Dellacasa 1988: 151.

Blackburneus lentus; Gordon and Skelley 2007: 360 (lectotype designation).

Type locality. Georgia [U.S.A.].

Type repository. Museum of Comparative Zoology. Harvard University, Cambridge, MA (U.S.A.) (type not examined).

Redescription. Length 3.0-4.5 mm; oblong, moderately convex, weakly shiny; head and pronotum glabrous, elytra pubescent. Reddish-brown, head and pronotum somewhat darker; legs and antennal club ferruginous. Head with epistome moderately convex, finely microreticulate, almost evenly coarsely moderately closely punctured; clypeus slightly sinuate at middle, round at sides; rather thickly bordered, edge somewhat upturned, glabrous; genae round, sparsely ciliate, feebly but distinctly protruding from the eyes; frontal suture finely impressed; front with punctation similar to that of epistome. Pronotum moderately transverse, rather convex, dually subregularly coarsely punctured throughout; large punctures, twice larger than small ones, somewhat sparser on sides and on disc; small punctures almost uniformly scattered; lateral margins feebly arcuate, rather thickly bordered, edge glabrous; hind angles obtuse; base arcuate, thickly bordered. Scutellum narrowly elongate, roughly punctured on basal half. Elytra oval, epipleural carina glabrous and somewhat raised at shoulder; striae deep, rather coarsely not closely punctured, crenulate; interstriae slightly convex, microreticulate so rather dull, irregularly biserially roughly punctured; each puncture with a short recumbent hair. Hind tibiae superior apical spur slightly shorter than first tarsal segment; latter as long as following three segments combined. Male: pronotum somewhat more transverse, not narrowed frontwardly; metasternal plate somewhat more excavate and with distal punctures pubescent; aedeagus Fig. 44-45. Female: pronotum somewhat narrowed frontwardly; metasternal plate almost flat, glabrous.

Material examined. USA, Virginia: Botetourt Co., Jefferson N. F., 3 mi NE Powell Gap, 5-6.VI.1967, leg. O. L. Cartwright (under deer dung) (6 exx., DCGI).

Distribution. Canada (Ontario, Québec), U.S.A. (North Dakota, south to Georgia, Indiana, Kansas, Texas).

Bionomics. A sporadic late Spring and early Summer species found in several kinds of dung (cow, sheep, deer) usually in sandy soils.

***Alloblackburneus rubeolus* (Palisot de Beauvois, 1809) new combination**

(Fig. 46-50)

Scarabaeus rubeolus Palisot de Beauvois, 1809: 90.

Aphodius rubeolus; Horn 1870: 126; Horn 1887: 34; Brown 1927: 164; Woodruff 1973: 91; Gordon 1983: 637, 645; Ratcliffe 1991: 53; Harpootlian 2001: 32; Ratcliffe and Paulsen 2008: 199.
Aphodius (Koshantschikovius) rubeolus; Schmidt 1913: 149; Schmidt 1922: 229; Dellacasa 1988: 190.
Aphodius copronymus Melsheimer, 1844: 136; Horn 1870: 126; Dellacasa 1988: 115 (as synonym of *A. rubeolus*); Gordon and Skelley 2007: 361 (lectotype designation).
Blackburneus rubeolus; Gordon and Skelley 2007: 360; Skelley et al. 2007: 2.

Type locality. Clemson College, South Carolina [U.S.A.].

Type repository. Muséum National d'Histoire naturelle. Paris.

Redescription. Length 3.5-5.0 mm, moderately elongate, convex, shiny, nearly glabrous, only elytra laterally, and before apex, pubescent. Rufo-ferruginous or pale chestnut brown; legs somewhat paler; antennal club rufo-testaceous. Head with epistome moderately convex on disc, narrowly flattened distally, finely, rather sparsely, subregularly punctured; clypeus feebly sinuate at middle, obtusely round at sides, finely bordered, edge slightly upturned, glabrous; genae widely round, sparsely ciliate, faintly protruding from the eyes; frontal suture distinctly impressed; front somewhat more sparsely punctured. Pronotum moderately transverse, strongly convex, dually punctured, smaller very fine punctures sparsely subregularly scattered throughout, larger punctures, five to six times larger than small ones, regularly sparse toward sides; latter feebly arcuate, very thinly bordered, edge sparsely ciliate; hind angles obtusely round; base distinctly bisinuate, completely very thinly bordered. Scutellum narrowly elongate, flat, finely punctured on basal third. Elytra faintly broadened posteriorly, lateral margins sparsely ciliate; striae distinct, moderately impressed, superficially punctured, slightly crenulate; interstriae flat with punctation extremely fine and sparse, shiny and glabrous except the ninth and the tenth more or less diffusely pubescent preapically. Hind tibiae stout; superior apical spur short, spatulate and, in lateral view, with a broad concave surface on apical half; first segment of hind tarsi shorter than superior apical spur of tibia as well as following three segments combined. Male: fore tibiae apical spur abruptly outwardly curved; metasternal plate almost flat, with fine longitudinal groove, rather superficially sparsely punctured; aedeagus Fig. 49-50. Female: fore tibiae apical spur moderately curved outwardly; metasternal plate with faint longitudinal groove, almost imperceptibly punctured.

Material examined. **MEXICO, San Luis Potosí:** 1.8 mi. n. El Naranjo, 1000', 4-13.X.1965, leg. G. E. Ball & D. R. Whitehead (1 ex., DCGI); **Tamaulipas:** Tampico 29.XII, leg. E. A. Schwarz (1 ex., DCGI); **USA, Arkansas:** Hope, 6.IV.1923, leg. L. Knobel (1 ex., DCGI); **Florida** (9 exx., DCGI); **North Carolina:** Black Mts., 15.XI.1911 (1 ex., DCGI); **South Carolina:** Clemson Co., 19.IV.1937, leg. O. L. Cartwright (**neotype** male, MNHN; 2 exx., DCGI); Jocassee, 5.V.1937, leg. O. L. Cartwright (2 exx., DCGI); Sassafras Mtn., 24.VI.1934, leg. O. L. Cartwright (1 ex., DCGI); **Tennessee:** West Tennessee (4 exx., DCGI); **Texas:** Mount. Texas (1 ex., DCGI); Mountain Home (6 exx., DCGI).

Distribution. Southern Canada; U.S.A. (from Michigan to northern Florida, eastern Texas, eastern Colorado); Mexico (San Luis Potosí, Tamaulipas).

Bionomics. Spring, Summer, and Autumn species with bionomy almost unknown. Attracted to light, occasionally collected in dung, probably detritivore.

Remarks. According to Evenhuis (1997: 587) most of Palisot de Beauvois' U.S. collections were lost at sea in 1798. So, that could explain why the type of *Scarabaeus rubeolus* could not be found in the collections of the Paris Museum and it has to be considered lost. Thus we herein designate as **neotype** a male from our collection, now in the Muséum nationale d'Histoire naturelle, Paris, bearing the following labels:

- 1) white, printed: Clemson College / 19 Apr. 1937 SC / O.L. Cartwright
- 2) red, handwritten: *Scarabaeus rubeolus* / Palisot de Beauvois, 1805/ neotype/ Dellacasa M. & G. des. 2009.

***Alloblackburneus saylori* (Hinton, 1934) new combination**

(Fig. 51-55)

Aphodius saylori Hinton, 1934: 192; Blackwelder 1944: 213.*Aphodius (Blackburneus) saylori*; Dellacasa 1988: 147.*Blackburneus saylori*; Skelley et al. 2007: 2.**Type locality.** Real de Arriba, District of Temascaltepec [Estado de México, Mexico].**Type repository.** United States National Museum. Washington (paratype examined).

Redescription. Length 3.0-4.5 mm; oblong, convex, shiny, glabrous. Piceous; clypeal margin, pronotal sides and elytra brownish-red; legs pale reddish; antennal club testaceous. Head with epistome moderately convex, evenly rather finely sparsely punctured; punctation somewhat coarser distally, sparser on disc; clypeus feebly sinuate at middle, round at sides, rather thinly bordered, edge somewhat upturned, glabrous; genae obtusely round, near imperceptibly ciliate, feebly but distinctly protruding from the eyes; frontal suture finely impressed; front more sparsely punctured than epistome. Pronotum moderately transverse, convex, dually punctured; large punctures, five to six times larger than small ones, irregularly sparse on sides, lacking on disc; small very fine punctures evenly scattered throughout, somewhat finer on disc and lacking on a longitudinal median areola at basal pronotal half; lateral margins feebly arcuate, rather thickly bordered, edge glabrous; hind angles obtusely round; base arcuate, feebly bisinuate, thinly bordered. Scutellum flat, finely sparsely punctured on basal half. Elytra oval elongate, feebly broadened posteriorly, more or less distinctly denticulate at shoulder, finely striate; striae superficially punctured, not crenulate; interstriae flat or nearly flat, extremely finely sparsely punctured. Hind tibiae superior apical spur regularly acuminate, somewhat shorter than first tarsal segment; latter nearly as long as following three segments combined. Male: head somewhat more sparsely and less coarsely punctured; pronotum not narrowed frontwardly; aedeagus Fig. 54-55. Female: head somewhat more densely coarsely punctured; pronotum somewhat narrowed frontwardly.

Material examined. **MEXICO, Colima:** El Tapeiztle, Municipio Minatitlán, Sierra de Manantlán, m 2300, 13.VII.1989, leg. L. Zivera (pastizal) (3 exx., DCGI); **Durango:** 7 mi SW Buenos Aires, 8800', 28.VII.1973, leg. A. Newton (4 exx., DCGI); 25 mi. W Durango, 23.VI.1964, leg. H. F. Howden (4 exx., CNCI; 1 ex., DCGI); 26.5 mi SW Durango, 21.VII.1973, leg. A. Newton (3 exx., DCGI); Minillas, Res. Biosf. "La Michilia", 9-14.VIII.1989, leg. S. Anduaga (pastizal, excremento fresco de vaca) (3 exx., DCGI); *idem*, 23°25'29"N-104°09'08"W, m 2300, 30.VI.2004, leg. C. Huerta & S. Anduaga (3 exx., DCGI); *idem*, IX.2003, leg. C. Huerta & S. Anduaga (5 exx., DCGI); Molinillos, Municipio Durango, 23°38'N-105°03'W, m 2400, 23.VII.2006, leg. S. Anduaga & K. Grajales (bosque pino) (7 exx., DCGI); Rancho Paraíso de los Santos, Piedra Herrada, Res. Biosf. "La Michilia", 23°23'23.5"N-104°14'50.1"W, m 2480, 2.VII.2004, leg. C. Huerta & S. Anduaga (bosque pino-encino) (2 exx., DCGI); 24 mi. W La Ciudad, 8.VII.1964, leg. H. F. Howden (1 ex., CNCI); *idem*, 19.VII.1964, leg. H. F. Howden (1 ex., CNCI); **Jalisco:** 3 mi. NE Mazamitla, 12.VII.1973, leg. A. Newton (1 ex., DCGI); **México:** Temascaltepec, 4.VI.1979, leg. M. Zunino (1 ex., DCGI); Temascaltepec [= Temascaltepec], Real de Arriba, VIII.1933, leg. H. E. Hinton & R. L. Usinger (2 exx., paratypes, USNM; 2 exx., paratypes, DCGI); **Michoacán:** Mazamitla, 24.VII.1953, leg. C. & P. Vaurie, Rockefeller Exp. (1 ex., DCGI); rd. Patzcuaro-Uruapan, Planta PEMEX Diablo de Zirahuén, 19°29'N-101°48'W, m 2200, 23.VII.2001, leg. M. Dellacasa & I. Martínez (2 exx., DCGI); **Quintana Roo:** Palmeras, Playa Azul, 20.VII.1980, leg. M. Zunino (1 ex., DCGI); **Sinaloa:** 38 mi NE Concordia, 19.VI.1973, leg. A. Newton (2 exx., DCGI); 26.5 mi. SW Durango, 21.VII.1973, leg. A. Newton (3 exx., DCGI).

Distribution. Mexico (Colima, Durango, Jalisco, México, Michoacán, Quintana Roo, Sinaloa).**Bionomics.** Late Spring and Summer coprophagous species found in cow dung, sometimes in wooded areas.

***Alloblackburneus tenuistriatus* (Horn, 1887) new combination**

(Fig. 56-60)

Aphodius tenuistriatus Horn, 1887: 60; Brown 1927: 165; Ratcliffe and Paulsen 2008: 209.*Aphodius* (*Trichonotulus*) *tenuistriatus*; Schmidt 1913: 154; Schmidt 1922: 243; Dellacasa 1988: 206.*Aphodius lentus* auctorum *nec* Horn 1887; Ratcliffe 1991: 48.*Blackburneus tenuistriatus*; Gordon and Skelley 2007: 364.**Type locality.** southwestern Texas [U.S.A.].**Type repository.** Museum of Comparative Zoology, Harvard University, Cambridge, MA (U.S.A.) (type not examined).

Redescription. Length 3.5-5.0 mm; oblong, convex, weakly shiny; pronotum pubescent before hind angles, elytral interstriae with double row of recumbent hairs. Rufo-testaceous; head and pronotum somewhat darker medially; legs reddish-brown; antennal club brownish. Head with epistome feebly convex, evenly regularly punctured throughout; punctures very fine and sparse; clypeus faintly sinuate at middle, round at sides, very thinly bordered, edge slightly upturned, glabrous; genae round, elongately sparsely ciliate, not protruding from the eyes; frontal suture distinctly impressed; front somewhat more irregularly punctured than epistome. Pronotum moderately transverse, convex, with patch of recumbent pubescence near posterior angles; dually punctured; large punctures, five to six times larger than small ones, coarser and denser on sides, lacking on disc; small fine punctures regularly scattered throughout, somewhat more coarser on sides; lateral margins feebly arcuate, rather thickly bordered, edge fimbriate with sparse elongate setae; hind angles obtusely round; base regularly arcuate, thinly bordered. Scutellum somewhat convex medially, microreticulate, irregularly punctured. Elytra elongate, almost parallel-sided; epipleural carina fimbriate with moderately elongate setae; striae fine, superficially punctured, not crenulate; interstriae flat, alutaceous, with double longitudinal row of small, rough punctures; each puncture bearing a rather short recumbent hair. Hind tibiae superior apical spur not spatulate, somewhat shorter than first tarsal segment; latter longer than following three segments combined. Male: pronotum somewhat more transverse and less convex; metasternal plate more deeply grooved medially and moderately incavate posteriorly; aedeagus Fig. 59-60. Female: pronotum somewhat narrowed frontwardly; metasternal plate less deeply grooved medially, not incavate posteriorly.

Material examined. USA, Texas (12 exx., DCGI); Bexar Co., 10 mi. S Somerset, 9.IV.1992, leg. D. W. Sundberg (blacklight) (1 ex., DCGI); *idem*, I-37 S at Mathis Rd., "Waterwood", 21.III.1987, leg. D. W. Sundberg (blklight) (4 exx., DCGI); *idem*, 2-4.V.1987, leg. D. W. Sundberg (4 exx., DCGI); *idem*, Applewhite Rd. 3 mi. S loop 1604, 15.IX.1991, leg. D. W. Sundberg (blacklight) (1 ex., DCGI); Columbus, 4.IV.1933, leg. Hubbard & Schwarz (2 exx., DCGI); Tyler, 7.II.[????], leg. H. Soltao (4 exx., DCGI).

Distribution. U.S.A. (Louisiana, Nebraska, New Mexico, Texas).**Bionomics.** Spring, Summer, and Autumn species. A general surface dung feeder that prefers shaded habitat, sandy substrates and is attracted to light.***Alloblackburneus troglodytes* (Hubbard, 1894) new combination**

(Fig. 61-65)

Aphodius troglodytes Hubbard, 1894: 312; Brown 1927: 166; Jerath 1960: 64 (larval morphology); Woodruff 1973: 100; Gordon 1983: 636; Harpootlian 2001: 33.*Aphodius* (*Koshantschikovius*) *troglodytes*; Schmidt 1922: 231; Dellacasa 1988: 211.*Blackburneus troglodytes*; Gordon and Skelley 2007: 366.**Type locality.** Crescent City, Florida [U.S.A.].

Type repository. United States National Museum. Washington (type not examined).

Redescription. Length 3.0-4.0 mm; oblong, convex, shiny, glabrous. Honey yellow to reddish-yellow; sutural margin of elytra brownish; legs reddish-yellow; antennal club yellowish. Head with epistome slightly convex, evenly regularly sparsely punctured throughout; punctures extremely fine, almost indistinct on disc; clypeus feebly sinuate at middle, obtusely round at sides, not bordered but margin somewhat upturned, glabrous; genae round, sparsely elongately ciliate, not protruding from the eyes; frontal suture finely impressed, somewhat raised laterally; front more irregularly sparsely punctured than epistome. Pronotum moderately transverse, evenly, finely sparsely punctured; punctures somewhat more distinct and closer on sides; lateral margins feebly arcuate, rather thickly bordered, edge glabrous; hind angles obtusely round; base almost regularly arcuate, thinly bordered. Scutellum elongate, superficially microreticulate, finely sparsely punctured. Elytra distinctly tapered posteriorly, slightly truncate at apex; epipleural carina fimbriate with elongate sparse setae; striae fine, superficially punctured, not crenulate; interstriae almost flat, very superficially microreticulate, very finely sparsely punctured. Hind tibiae superior apical spur not spatulate, shorter than first tarsal segment; latter longer than following three segments combined. Male: pronotum somewhat more transverse and less convex; metasternal plate more deeply grooved medially and moderately incavate posteriorly; aedeagus Fig. 64-65. Female: pronotum somewhat narrowed frontwardly; metasternal plate less deeply grooved medially, not incavate posteriorly.

Material examined. USA, Florida: Crescent City, VI.1894, leg. H. G. Hubbard (6 exx., DCGI); Enterprise, X.1910 (8 exx., DCGI); Levy Co., 4.0 mi SW Archer, 9.VI.1992, leg. P. Skelley (b-light) (4 exx., DCGI); *idem*, 9.X.1992, leg. P. Skelley (tortoise burrow) (6 exx., DCGI).

Distribution. U.S.A. (Florida, South Carolina).

Bionomics. Probably all year round coprophagous species, known to occur only in burrows of the gopher tortoise (*Gopherus polyphemus* Daudin); often attracted to light.

Genus *Blackburneus* Schmidt, 1913 *sensu lato*

Aphodius (*Blackburneus*) Schmidt, 1913: 137; Schmidt 1922: 143; Balthasar 1964: 178; Dellacasa 1988: 99.

Blackburneus; Paulian 1942: 75; Dellacasa et al. 2001: 102; Dellacasa et al. 2002: 195; Gordon and Skelley 2007: 348.

Type species. *Aphodius furcatus* Schmidt, 1909, subsequent designation by Paulian (1942: 75).

Diagnosis. Small size species (length 2.5-5.0 mm), shortly oval, convex, shiny, glabrous rarely with pubescent elytra. Usually pale testaceous, sometimes more or less dark piceous. Head with epistome punctured; clypeus sinuate at middle, round at sides, thinly bordered, edge quite glabrous; genae faintly bristled, not protruding from the eyes; latter rather large; frontal suture distinctly grooved, not tuberculate. Pronotum doubly punctured; lateral margins and hind angles thinly bordered; base not bordered. Scutellum small, triangularly elongate. Elytra without humeral denticle or with epipleural carina more or less distinctly raised at shoulder; striae punctured, the first one broadened apically; interstriae flat or moderately convex. Fore tibiae distally tridentate and proximally feebly serrulate on outer margin, upper side sparsely and irregularly punctured. Middle and hind tibiae with strong transverse carinae on outer face, apically fimbriate with spinules elongate and irregularly unequal. All tarsi somewhat longer than respective tibiae. Abdominal sternites punctured and pubescent. Pygidium with some elongate apical setae sparse and straight. Sexual dimorphism nearly faint: in males, the punctation of pronotum disc is somewhat sparser and the inferior apical spur of mesotibiae somewhat shorter and stouter. Aedeagus

with short and apically abruptly curved parameres. Epipharynx transverse with anterior margin distinctly sinuate at middle; epitorma triangular; corypha with two strong apical spiculae; tormae short; pedia with rather stout and sparse setae, stronger ones immixed, above all, laterally frontward; chaetopariae rather stout.

Distribution. Nearctic and Neotropical region.

Key to species of *Blackburneus*

1. Elytral interstriae subserially pubescent. Piceous. Length 3.0-4.0 mm. Mexico (Durango, México, Michoacán, Oaxaca) ***B. teposcolulaensis* new species**
- Elytral interstriae glabrous **2**
- 2(1). Epistome with median longitudinal carina, anteriorly furcate; pronotum dually punctured. Reddish testaceous; elytral suture darker. Length 2.5-3.0 mm. Argentina, Bolivia, Brazil, Panama, Paraguay, Venezuela ***B. furcatus* (Schmidt)**
- Epistome without anterior furcate carina, flattened **3**
- 3(2). Genae feebly angulate, feebly but distinctly protruding from the eyes; pronotum rather finely regularly punctured; elytral interstriae feebly convex, sparsely irregularly punctured. Piceous; elytra yellowish with juxtasutural interstria, sides and apical third piceous, therein with round preapical yellowish spot, sometimes almost entirely piceous, yellowish only at shoulder. Length 3.0-3.5 mm. Brazil, Costa Rica, El Salvador, Mexico (Chihuahua, Oaxaca, Puebla, Veracruz), Panama ***B. charmionus* (Bates)**
- Genae round, not or faintly protruding from the eyes **4**
- 4(3). Pronotum irregularly, rather confusedly punctured mostly laterally; punctures sparser and finer on disc, larger denser and coarser on sides **5**
- Pronotum distinctly dually punctured; larger punctures usually lacking on disc **7**
- 5(4). Elytral interstriae moderately convex, rather coarsely sparsely punctured. More or less dark reddish-brown. Length 2.5-3.5 mm. El Salvador, Guatemala ***B. diminutus* (Bates)**
- Elytral interstriae flat, finely sparsely punctured **6**
- 6(5). Shape rather elongate, moderately convex; elytral interstriae shiny; hind angles of pronotum obtusely round. Piceous; elytra with several yellowish basal stripes, sometimes entirely testaceous, more rarely entirely piceous. Length 3.0-4.0 mm. Costa Rica, El Salvador, Guatemala, Honduras, Mexico (Chiapas, Colima, Distrito Federal, Durango, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Oaxaca, Queretaro, San Luis Potosí, Veracruz), Panama ***B. guatemalensis* (Bates)**
- Shape stout, strongly convex; elytral interstriae microreticulate, sericeous; hind angles of pronotum widely round. Blackish, sometimes elytra brownish, rarely orange with or without a blackish cloudy discal spot. Length 3.0-3.5 mm. Mexico (Chiapas, Chihuahua, Distrito Federal, Durango, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Queretaro, Sinaloa, Sonora, Veracruz, Zacatecas), U.S.A. (Arizona) ***B. saylorea* (Robinson)**
- 7(4). Upper side alutaceous, thus rather dull; pronotum coarsely, densely subregularly punctured throughout; elytral interstriae very finely and sparsely punctured; shape stout and strongly convex. Chestnut brown, pronotum disc and elytral suture darker. Length 3.0-3.5 mm. Costa Rica, Panama ***B. erythrinus* (Bates)**
- Upper side smooth or superficially microreticulate, thus rather shiny; elytra shiny, at least, on disc **8**

- 8(7). Elytral interstriae flat or very feebly convex 9
 — Elytral interstriae moderately but distinctly convex at least on disc 16
- 9(8). Pronotal punctation sparse, more evenly distributed; elytral interstriae smooth at middle, finely subserially punctured near striae. Testaceous. Length 3.0-3.5 mm. Honduras, Panama *B. xanthus* (Bates)
 — Pronotal punctation of large and small punctures coarser and denser on sides 10
- 10(9). Eyes notably large, their diameter often at least as wide as one third of the distance between them 11
 — Eyes not so large 12
- 11(10). Clypeus not at all sinuate at middle thus almost semicircular; genae not at all auriculate; pronotal punctation somewhat denser and coarser; elytral striae somewhat more deeply impressed and more strongly punctured. Dark red. Length 3.0-3.5 mm. Brazil (Amazonas) *B. amazonicus* new species
 — Clypeus feebly sinuate at middle; genae somewhat auriculate; pronotal punctation somewhat less dense and less coarse; elytral striae somewhat less deeply impressed, finely superficially punctured. Pale reddish-brown. Length 3.0-4.5 mm. Argentina, Bolivia, Brazil, Costa Rica, French Guiana, Paraguay, Peru, Suriname, Venezuela *B. laxepunctatus* (Schmidt)
- 12(10). Shape stout; elytra more or less widened posteriorly; entirely reddish brown or rufo-testaceous 13
 — Shape elongate, subcylindrical; entirely piceous or, at least, epistome, pronotal and elytral disc piceous 15
- 13(12). Elytral interstriae strongly alutaceous on preapical declivity thus dull; all interstriae, juxtasutural excepted, of the same width also basally. Rufo-testaceous. Length 3.0-4.5 mm. Canada (Québec), U.S.A. (from Michigan south to Florida, west to eastern Kansas, eastern and southern Texas) *B. stercorosus* (Melsheimer)
 — Elytral interstriae shiny preapically 14
- 14(13). Fifth elytral interstria broadened at base, therein twice as wide as the sixth interstria; second interstria wider than first and third ones. Pale reddish-brown. Length 4.0-4.5 mm. Argentina, Brazil, French Guiana, Paraguay, Uruguay *B. argentinensis* (Schmidt)
 — Fifth elytral interstria not broadened at base; second interstria as wide as third. Dark reddish brown. Length 3.5-4.0 mm. Suriname *B. surinamensis* new species
- 15(12). Head with epistome smooth, almost flat, dually punctured; clypeus anteriorly subtruncate, straight laterally; genae round not protruding from the eyes; first segment of hind tarsi as long as following four combined. Piceous, Length 3.5-4.5 mm. Brazil *B. indio* (Petrovitz)
 — Head with epistome finely alutaceous, moderately convex, irregularly coarsely punctured; clypeus slightly sinuate at middle, arcuate at sides; genae obtusely round feebly protruding from the eyes; first segment of hind tarsi as long as following three combined. Brownish yellow; epistome, pronotal and elytral disc brown. Length 4.5-5.0 mm. Argentina *B. sanfilippoi* new species
- 16(8). Elytral interstriae distinctly microreticulate thus rather dull mostly preapically; distal tooth of fore tibiae, in males, distinctly angulate on proximal margin (Fig. 118). Reddish-testaceous or reddish-brown. Length 2.5-3.0 mm. Argentina, Bolivia, Brazil, Paraguay *B. richteri* (Schmidt)
 — Elytral interstriae smooth or superficially microreticulate thus rather shiny also on preapical declivity; distal tooth of fore tibiae normally shaped in both sexes 17

- 17(16). Elytral striae deeper and wider on preapical declivity thus interstriae somewhat more convex preapically; epistome and front evenly, rather finely, not closely punctured throughout; first segment of hind tarsi as long as following three segments combined. Reddish testaceous. Length 2.5-3.0 mm. Argentina, Brazil, Paraguay ***B. caracaensis* (Petrovitz)**
- Elytral striae moderately impressed, interstriae flat preapically; epistome and front postero-laterally dually somewhat irregularly coarsely punctured; first segment of hind tarsi longer than following three segments combined. Brownish-red. Length 2.0-2.5 mm. Bolivia ***B. thomasi* new species**

***Blackburneus amazonicus* new species**

(Fig. 160-164)

Type locality. Fazenda Porto Alegre, 70 Km N of Manaus, Amazonas, Brazil.

Type repository. Florida State Collection of Arthropods. Gainesville, FL (U.S.A.).

Description. Length 3.0-3.5 mm; shortly oval, convex, shiny, glabrous. Dark red; elytral suture darker; legs dark red; antennal club testaceous. Head with epistome almost flat, dually irregularly punctured; larger punctures lacking distally; clypeus not at all sinuate at middle, almost semicircular, finely bordered, edge moderately upturned, glabrous; genae round, not protruding from the eyes, not ciliate; frontal suture distinctly impressed; front dually, rather regularly and coarsely punctured; eyes rather large. Pronotum transverse, convex, dually punctured; large punctures, about eight times larger than small, denser on sides, sparser toward disc and therein lacking; very small and fine punctures sparsely scattered throughout; lateral margins moderately arcuate, finely bordered, edge glabrous; hind angles obtusely round; basal margin faintly bisinuate and with a contiguous series of large coarse punctures. Scutellum almost ogival, finely irregularly punctured on basal half. Elytra elongate, subparallel-sided; striae moderately impressed, rather strongly punctured, subcrenulate; interstriae very finely, irregularly punctured. Hind tibiae superior apical spur somewhat shorter than first tarsal segment; latter shorter than following three segments combined. Male: metasternal plate excavate and with distinct longitudinal groove; aedeagus Fig. 162-163. Female: metasternal plate almost flat, with longitudinal groove nearly faint.

Type material. Brazil: Amazonas, 70 Km N of Manaus, Fazenda Porto Alegre, 15.VI.1986, bait: human dung, habitat: mature forest reserve, leg. B. Klein (**holotype** male and **allotype**, FSCA); *idem*, 14.VI.1986 (2 exx. paratypes, FSCA; 1 ex., paratype, DCGI); *idem*, 16.VI.1986 (1 ex., paratype, FSCA; 1 ex., paratype, DCGI); Amazonas, Fazenda Esteio, Rd. ZF3. Km 23, 4.VII.1985, bait: human dung, habitat: mature forest reserve, leg. B. Klein (2 exx., paratypes, FSCA); *idem*, 20.VII.1985 (1 ex., paratype, FSCA; 1 ex., paratype, DCGI); Amazonas, 70 Km N of Manaus, Fazenda Dimona, 14.VI.1986, bait: human dung, habitat: mature forest reserve, leg. B. Klein (1 ex., paratype, FSCA).

Distribution. Known only from the localities of the type series.

Etymology. Named after the type locality.

Bionomy. All the specimens of the type series were collected in Summer, in traps baited with human dung.

***Blackburneus argentinensis* (Schmidt, 1909)**

(Fig. 66-70)

Aphodius argentinensis Schmidt, 1909a: 101; Blackwelder 1944: 212.

Aphodius (*Blackburneus*) *argentinensis*; Schmidt 1913: 138; Schmidt 1922: 148; Dellacasa 1988: 90.

Blackburneus argentinensis; Skelley et al. 2007: 2.

Type locality. Prov. Santa Fé, Argentina.

Type repository. Naturhistoriska Riksmuseet, Stockholm (type examined).

Redescription. Length 4.0-4.5 mm; elongate, convex, shiny, glabrous. Pale reddish-brown; juxtasutural interstria of elytra and legs somewhat darker; antennal club testaceous. Head with epistome distinctly gibbous on disc, sparsely and rather irregularly punctured; clypeus feebly sinuate at middle, round at sides, very thinly bordered, edge slightly upturned, laterally with extremely short sparse bristles; genae round, almost imperceptibly ciliate, feebly protruding from the eyes; frontal suture distinctly impressed, raised at each side; front coarsely, densely irregularly punctured mainly on sides. Pronotum moderately transverse, strongly convex, dually punctured; large punctures, six to seven times larger than small ones, irregularly scattered, rather widely lacking on disc; small extremely fine punctures subregularly sparse throughout, somewhat more superficial on disc; lateral margins feebly arcuate, very thinly bordered, edge glabrous; hind angles obtusely round; base slightly bisinuate. Scutellum elongate, somewhat narrowed toward base, with few fine punctures on basal half. Elytra faintly widened, rather finely striate; striae subcrenulate; eighth and ninth striae shortened toward shoulder; interstriae flat or almost flat, nearly imperceptibly sparsely punctured; second interstria wider than first and third ones; fifth interstria broadened at base, therein twice as wide as the sixth. Hind tibiae superior apical spur shorter than first tarsal segment; latter shorter than following three segments combined. Male: frontal suture strongly raised on each side; pronotum somewhat more convex, not narrowed frontward, less densely punctured; fore tibiae apical spur subcylindrical, apically rounded; metasternal plate somewhat more strongly incavate; aedeagus Fig. 69-70. Female: frontal suture not or feebly raised on each side; pronotum somewhat less convex, somewhat narrowed frontwardly and more densely punctured; fore tibiae apical spur slender and acuminate; metasternal plate almost flat.

Type material. 1 female (**lectotype**, herein designated, NHRS) bearing the following labels: 1) white: Rep. Argentina [printed] / prov. [printed] / Sta. Fé [handwritten] / R. Richter [printed]; 2) white (handwritten): argenti- / nensis / m.; 3) red (printed): Typus; 4) white (printed): 125; 5) red (printed): *Aphodius argentinensis* / Schmidt A., 1909 / Lectotypus / Dellacasa M. & G. des., 2002. Other 4 females (paralectotypes, NHRS) with the same collecting data as lectotype.

Material examined. **ARGENTINA:** Prov. Buenos Aires, 12 Km E 9 de Julio, 30.XII.1979, leg. R. E. Woodruff & V. Duthie, cow dung (1 ex., ISEA); Cordoba, Alta Gracia, 10.IV.1967, leg. L. E. Peña (3 exx., DCGI); Prov. Cordoba, Anizacate, 9.IV.1967, leg. L. E. Peña & G. Barria (1 ex., CNCD); Prov. Cordoba, Ao. Tegua, 5-9.IV.1967, leg. L. E. Peña & G. Barria (2 exx., CNCD); Prov. Salta, El Rey Nat. Park, m 1000, Pozo Verde Trail Km 7, 5-15.XII.1987, leg. S. & J. Peck (malaise-FIT, Yungas forest) (1 ex., DCGI); Prov. San Luis, 18 Km S Arizona, m 250, 18-23.I.1982, leg. H. & A. Howden (2 exx., CNCD); **BRAZIL:** Distrito Federal, Brasilia, m 1100, XII.1998, leg. N. Dégallier (piège lumineaux) (3exx., DCGI); Goiás, San Antonio de Descoberto, 20.XII.1998, leg. N. Dégallier (piège lumineaux) (1 ex., DCGI); **FRENCH GUIANA:** Roura (8 Km SSE), 04°40'41"N-52°13'25"W, m 200, 10.VI.1997, leg. J. Ashe & R. Brooks (flight int. trap) (1 ex., CNCD); **PARAGUAY:** Dpt. Guaira, Calle Florida, VIII.1993 (4 exx., DCGI); *idem*, Melgarejo, X.1994 (2 exx., DCGI); **URUGUAY:** 90 Km SW of Artigas, Pampa de Lavalleja, 27-30.IX.2001, leg. Z. Linek (2 exx., DCGI).

Distribution. Argentina, Brazil, French Guiana, Paraguay, Uruguay.

Bionomics. Almost unknown. Adults seem to be active all year round.

***Blackburneus caracaensis* (Petrovitz, 1970)**

(Fig. 71-75)

Aphodius (*Blackburneus*) *caracaensis* Petrovitz, 1970: 228; Dellacasa 1988: 233.*Aphodius* (*Blackburneus*) *brasilicola* Balthasar, 1971: 60; Petrovitz 1973: 146 (as synonym of *A. caracaensis*); Dellacasa 1988: 233.*Blackburneus caracaensis*; Skelley et al. 2007: 2.**Type locality.** Serra Caraça, M[inas]. G[erais]., Brazil.**Type repository.** University of São Paulo, Dept. Zoologia, Secret. da Agricult., São Paulo, Brazil (Type not examined).

Redescription. Length 2.5-3.0 mm; oblong, moderately convex, more or less shiny; glabrous. Piceous to brownish-red; sides of pronotum and elytral margins paler; legs pale reddish; antennal club testaceous. Head with epistome gibbous on disc, evenly rather finely not closely punctured; clypeus subtruncate anteriorly, round at sides, lateral margins almost straight very thinly bordered, edge upturned, almost imperceptibly sparsely bristled; genae round, almost imperceptibly ciliate; not protruding from the eyes; frontal suture finely impressed; front evenly distinctly punctured. Pronotum weakly transverse, convex, dually punctured; large punctures, three to four times larger than small ones, widely lacking on disc, irregularly scattered on sides but wanting also closely to lateral margins; latter feebly arcuate, very thinly bordered, edge glabrous; hind angles obtusely round, base feebly bisinuate. Scutellum somewhat convex, sparsely irregularly distinctly punctured on basal half. Elytra moderately elongate, convex, deeply striate; striae rather fine, superficially punctured, subcrenulate, deeper and wider on preapical declivity; interstriae moderately convex and superficially microreticulate on disc, finely irregularly sparsely punctured, more convex and more strongly microreticulate, thus rather dull, toward apex. Hind tibiae superior apical spur almost as long as the half of first tarsal segment; latter only almost as long as following three combined. Male: fore tibiae apical spur somewhat stouter and more strongly curved downward; elytral interstriae distinctly microreticulate mostly on preapical declivity thus weakly shiny; metasternal plate somewhat more incavate, more distinctly punctured and with somewhat deeper longitudinal groove; aedeagus Fig. 73-74. Female: fore tibiae apical spur somewhat slender and feebly curved downward; elytral interstriae superficially microreticulate thus almost shiny; metasternal plate somewhat less incavate and with longitudinal groove less deep.

Material examined. ARGENTINA: Pr. Salta, P. Nac. Finca El Rey, m 800, 21.II.1984, leg. C. Bordón (10 exx., DCGI); Prov. Salta, El Rey Nat. Park, Pozo Verde Trail, Km 7, m 1000, 5-15.XII.1987, leg. S. & J. Peck (malaise FIT, Yungas forest) (3 exx., CNCI); Prov. Salta, Carrillos, INTA, 5-9.II.1982, leg. H. & A. Howden (2 exx., CNCI); BRAZIL: Amazonas, Santarem (2 exx., DCGI); Bahia, Encruzilhada, 980 m, XI.1972, leg. M. Alvarenga (33 exx., FSCA; 4 exx., DCGI); Mato Grosso, Varzea Grande County, Cuiabá, Parque de Exposição, 18.III.1972, leg. W. H. Whitcomb, (Black light trap) (21 exx. FSCA; 3 exx., DCGI); Nova Teutonia (1 ex., coll. Petrovitz, MHNG); Minas Gerais, Serra Caraça, m 1380, XI.1961, leg. Kloss, Lenko, Martins & Silva (1 ex., holotype of *brasilicola* Balthasar, NMPC); PARAGUAY: Dpto. Concepción, Zanja Moroti, 19.XI.2004 (1 ex., BCBG); *idem*, 20.XII.2005 (3 exx., BCBG); Dpto. Cordillera, Naranjo, 15.X.2005 (2 exx., BCBG).

Distribution. Argentina, Brazil, Paraguay.**Bionomics.** Almost unknown. The specimens examined were collected in Winter and early Spring.***Blackburneus charmionus* (Bates, 1887)**

(Fig. 76-83)

Aphodius charmionus Bates, 1887: 89; Blackwelder 1944: 212.

Aphodius (*Volinus*) *charmionus*; Schmidt 1913: 142.

Aphodius (*Chilo thorax*) *charmionus*; Dellacasa 1988: 108.

Blackburneus charmionus; Dellacasa et al. 2002: 201; Skelley et al. 2007: 2.

Type locality. Jalapa, [Estado de Veracruz], Mexico.

Type repository. Natural History Museum, London (type examined).

Redescription. Length 3.0-3.5 mm; oblong, moderately convex, shiny, glabrous. Piceous; head anteriorly, pronotum at sides, testaceous; elytra yellowish with juxtasutural interstria and sides more or less widely piceous; usually also elytral apical third piceous with a more or less extended yellowish preapical spot (Fig. 79), or elytra dirty yellow with juxtasutural interstria and lateral margins piceous (Fig. 80), or elytra piceous with transverse irregular binds of yellow stripes (Fig. 81), sometimes elytra piceous with only shoulder and preapical declivity shadowy yellow (Fig. 82); legs reddish brown; antennal club dark brown. Head with epistome feebly gibbous, coarsely, regularly and rather densely punctured; clypeus subsinuate at middle, widely round at sides, distinctly bordered, edge nearly imperceptibly bristled; genae obtusely round, shortly ciliate, feebly but distinctly protruding from the eyes; frontal suture extremely fine; front coarsely, regularly and densely punctured. Pronotum transverse, convex, rather finely and subregularly punctured, punctation coarser and denser laterally; sides thinly bordered, edge glabrous; hind angles obtusely round; base feebly bisinuate. Scutellum triangularly elongate, with curved sides, superficially and finely punctured near base and with a trace of longitudinal groove at each side. Elytra oval-elongate, regularly convex and with epipleural carina distinctly raised at shoulder, finely striate; striae distinctly crenulate; interstriae feebly convex, sparsely, irregularly, and finely punctured, apically distinctly microreticulate. Hind tibiae superior apical spur distinctly shorter than first tarsal segment; latter as long as following three segments combined. Male: pronotum somewhat more transverse; metasternal plate distinctly grooved; aedeagus Fig. 77-78. Female: pronotum somewhat narrower frontward; metasternal plate nearly flat.

Material examined. **BRAZIL:** Guayabillos, SW Abhang, Irazu, 2200 m (im Fell von *Bradypus* sp (zufall 33) (1 ex., USNM); **MEXICO, Chihuahua:** El Manzano, 28°10'44.0"N-107°28'39.1"W, m 2171, 25.VI.2005, leg. M. Dellacasa & I. Martínez (1 ex. DCGI); **Oaxaca:** San Juan Teposcolula, 17°33'56.4"N-97°25'32.8"W, m 2376, 1.VII.2007, leg. M. Dellacasa, C. Fresi & I. Martínez (horse dung) (1 ex., DCGI); 5 Km S Sola de Vega, m 1600, 4-9.VII.2005, leg. D. Curoe (2 exx., DCGI); **Puebla:** 4 mi. E Tezuitlan, 5000', 14.VII.1971, leg. A. Newton (3 exx., CNCI); **Veracruz:** El Zeltlal, carr. Actopan-Veracruz, desv. Otates, m 480, 20.IX.1994, leg. L. Arellano & R. Sanchez (2 exx., DCGI); Municipio Coscomatepec, 15.VI.1999, leg. M. Cruz & alii (11 exx. DCGI); *idem*, Cuiyachapa, m 2700, 06.II.1999, leg. M. Alvarado (2 exx., DCGI); *idem*, 08.III.1999, leg. M. Alvarado & M. Cruz (1 ex., DCGI) *idem*, 11.V.1999, leg. M. Cruz (1 ex., MSNT); *idem*, 14.VI.1999, leg. M. Alvarado, M. Cruz & J. Sosa (horse dung) (4 exx., DCGI); *idem*, 15.VI.1999, leg. M. Cruz & M. Alvarado (8 exx., DCGI; 43 exx., MSNT); *idem*, 13.VII.1998, leg. M. Cruz (11 exx., DCGI; 6 exx., MSNT); *idem*, VI-VII.1998, leg. J. S. Sosa, M. Alvarado & M. Cruz (43 exx., DCGI); *idem*, VII-VIII.1999, leg. J. S. Sosa (45 exx., DCGI); *idem*, 4.IX.2000, leg. F. Cabrero & J. Passerat (2 exx., DCGI); *idem*, 10.X.1998, leg. M. Cruz & J. Sosa (6 exx., MSNT); *idem*, 8.XII.1998, leg. Alvarado M. & Sosa J. (1 ex., MSNT); *idem*, camino a Potrero Nuevo, 15.XI.1994, leg. L. Arellano & M. Zunino (sheep dung) (1 ex., DCGI); Municipio Xico, Km 14.5 rd. Xico-Oxtlapa, m 2050, 18.XI.1999, leg. M. Dellacasa (2 exx., DCGI); *idem*, 2 Km desp. Oxtlapa, m 2400, 18.XI.1999, leg. M. Dellacasa (6 exx., DCGI); *idem*, Oxtlapa, m 2100, 18.XI.1999, leg. M. Dellacasa (10 exx., DCGI); *idem*, San José Paso Nuevo, 19°26'58"N-97°06'28"W, m 2300, 8.V-1.VI.2000, leg. E. Montes De Oca & Q. Santiago (6 exx., DCGI); *idem*, 9.III.2000, leg. I. Martínez & C. Huerta (1 ex., DCGI); *idem*, Tonalaco, 19°25'59"N-97°07'51"W, m 2620, 7.II.2005, leg. F. Cabrero, N. Trotta & T. Suarez (9 exx., DCGI); *idem*, 7.III.2005, leg. F. Cabrero, N. Trotta & T. Suarez (5 exx., DCGI); *idem*, 4.IV.2005, leg. F. Cabrero, N. Trotta & T. Suarez (13 exx., DCGI); 4 mi. N Huatusco, 4200', 2.VII.1973, leg. A. Newton (Cl. For.) (1 ex., CNCI); **PANAMA:** Bugaba, leg. Champion (1 ex., USNM).

Distribution. Brazil, Costa Rica, El Salvador, Mexico (Chihuahua, Oaxaca, Puebla, Veracruz), Panama.

Bionomics. Adults seem to be active all year round. Some of the specimens examined were collected in horse and sheep dung.

***Blackburneus diminutus* (Bates, 1887)**

(Fig. 84-88)

Aphodius diminutus Bates, 1887: 89; Blackwelder 1944: 212.

Aphodius (Blackburneus) diminutus; Schmidt 1913: 137; Dellacasa 1988: 121.

Blackburneus diminutus; Dellacasa et al. 2002: 203; Skelley et al. 2007: 2.

Type locality. Dueñas, Guatemala.

Type repository. Natural History Museum, London (type examined).

Redescription. Length 2.5-3.5 mm; oblong, moderately convex, rather shiny, glabrous. Brownish; head anteriorly, and pronotum sides reddish; elytra shadowy reddish toward base; legs testaceous; antennal club dark brown. Head with epistome feebly convex, superficially microreticulate, coarsely, densely and regularly punctured; clypeus faintly sinuate at middle, round at sides, thinly bordered, edge near imperceptibly bristled; genae round, very shortly bristled, not protruding from the eyes; frontal suture distinct; front coarsely, rather densely and regularly punctured. Pronotum transverse, convex, distinctly, densely and somewhat irregularly punctured; punctation coarser and denser laterally and basally, lacking along a longitudinal areola on disc; sides thinly bordered, edge glabrous; hind angles obtusely round, with extremely short bristles, base almost regularly arcuate. Scutellum very elongate, with curved sides, sparsely punctured and grooved laterally. Elytra oval-elongate, regularly convex, finely but deeply striate; striae feebly crenulate; interstriae moderately convex, superficially microreticulate apically, distinctly, almost coarsely and rather sparsely punctured. Hind tibiae superior apical spur stout, nearly as long as inferior one, distinctly shorter than first tarsal segment; latter longer than following two segments combined. Male: pronotum somewhat more transverse; metasternal plate distinctly grooved; aedeagus Fig. 87-88. Female: pronotum somewhat narrower frontward; metasternal plate nearly flat.

Material examined. **EL SALVADOR:** Dept. San Miguel, Lake Olomega, 14.VIII.1925, leg. R. A. Stirton (1 ex. CNCI); Cerro Verde, 18.VI.1958, leg. O. L. Cartwright (3 exx., USNM); **GUATEMALA:** Alta Verapaz, Coban (1 ex., DCGI); Zapote, VI-VII.1932, leg. H. E. Hinton & R. L. Usinger (2 exx., DCGI).

Distribution. El Salvador, Guatemala.

Bionomics. Almost unknown. The specimens examined were collected in summer.

***Blackburneus erythrinus* (Bates, 1887)**

(Fig. 89-93)

Aphodius erythrinus Bates, 1887: 89; Blackwelder 1944: 212.

Aphodius (Blackburneus) erythrinus; Schmidt 1913: 138; Dellacasa 1988: 125.

Blackburneus erythrinus; Dellacasa et al. 2002: 205; Skelley et al. 2007: 2.

Type locality. Volcan de Chiriqui, Panama.

Type repository. Natural History Museum, London (type examined).

Redescription. Length 3.0-3.5 mm; shortly oval, strongly convex, rather dull, glabrous. Chestnut-brown; pronotum disc, scutellum and elytral suture darker; legs and antennal club chestnut-brown.

Head with epistome nearly flat, densely microreticulate, finely and sparsely punctured; clypeus subsinuate at middle, obtusely round at sides, thinly bordered, edge glabrous and faintly upturned anteriorly; genae round, very shortly ciliate, not protruding from the eyes; frontal suture finely impressed; front strongly microreticulate, finely and sparsely punctured. Pronotum transverse, convex, microreticulate, rather coarsely and irregularly punctured; sides round, thinly bordered, edge glabrous; hind angles obtusely round; base feebly bisinuate. Scutellum elongate, microreticulate, with trace of lateral grooves, sparsely punctured. Elytra shortly oval, convex, distinctly striate; striae superficially punctured, not crenulate; interstriae moderately convex, strongly microreticulate, finely and sparsely but distinctly punctured. Hind tibiae superior apical spur as long as inferior one and shorter than first tarsal segment; latter longer than following two segments combined. Male: pronotum somewhat more transverse; metasternal plate distinctly grooved; aedeagus Fig. 92-93. Female: pronotum somewhat feebly narrowed frontward; metasternal plate nearly flat.

Material examined. **COSTA RICA:** Prov. Limón, Los Diamantes Exper. Station, 17.VII.1964, leg. R. E. Woodruff (in cow dung) (2 exx., CNCI; 4 exx. DCGI; 20 exx., FSCA); Puntarenas, Monteverde, 1200-1700 m, 2-6.XII.1987, leg. Génier & Bertrand (sweeping) (1 ex., DCGI); **PANAMA:** Potrerillos, II.1934 (1 ex., USNM).

Distribution. Costa Rica, Panama.

Bionomics. According to their labels, the majority of specimens examined were collected in cow dung in July.

***Blackburneus furcatus* (Schmidt, 1909)**

(Fig. 94-98)

Aphodius furcatus Schmidt, 1909b: 10.

Aphodius (Blackburneus) furcatus; Schmidt 1913: 137.

Blackburneus furcatus; Paulian 1942: 75; Dellacasa et al. 2001: 102 (lectotype designation); Skelley et al. 2007: 2.

Type locality. Cuniyaba [= Cuiabá], Mato Grosso [Brazil].

Type repository. Naturhistoriska Riksmuseet, Stockholm (type examined).

Redescription. Length 2.5-3.0 mm, shortly oval, strongly convex, glabrous; shiny, elytra feebly alutaceous. Reddish-testaceous, elytral suture darker; legs brown-reddish; antennal club brownish. Head subtrapeziform; epistome finely, nearly regularly, sparsely punctured, with median longitudinal carina anteriorly furcate, each branch obliquely extended almost till clypeal margin; clypeus sinuate at middle, round at sides, rather finely bordered, edge glabrous; genae small, round, faintly bristled, not protruding from the eyes; frontal suture strongly impressed, anteriorly feebly carinate. Pronotum dually punctured, throughout scattered small punctures somewhat coarser than those of head, larger punctures, six times larger than small ones, sparse on disc and more dense at sides; lateral margins parallel on basal half, regularly curved toward front angles; hind angles obtusely round; base feebly bisinuate. Scutellum narrow, somewhat subparallel sided at basal fourth, with some small punctures near base. Elytra finely striate; striae feebly crenulate; interstriae flat on disc, feebly convex on preapical declivity, superficially microreticulate, finely and sparsely punctured. Fore tibiae with one or two proximal denticles, their apical spur slender and rather elongate, as long as first two tarsal segments combined. Hind tibiae superior apical spur somewhat shorter than first tarsal segment; latter shorter than following two segments combined. Male: pronotum somewhat less densely punctured on disc; inferior apical spur of middle tibiae relative shorter than superior one; aedeagus Fig. 96-97. Female: pronotum somewhat more densely punctured on disc; inferior apical spur of middle tibiae as long as superior one.

Material examined. **ARGENTINA:** Misiones, San Ignacio, II.1988, leg. L. E. Peña (1 ex., DCGI); Santiago del Estero, General Pinedo, leg. L. E. Peña (2 exx., DCGI); **BOLIVIA:** Santa Cruz, 5 Km ESE Warnes, Hotel Rio Selva, 20.X.2000, leg. M. C. Thomas (blacklight) (1 ex., FSCA); **BRAZIL:** Distrito Federal, Brasília, II.2000, leg. N. Dégallier (lumière) (2 exx., BCSC); *idem*, V.2000, leg. N. Dégallier (lumière) (1 ex., BCSC); *idem*, X.2002, leg. N. Dégallier (lumière) (2 exx., BCSC); *idem*, m 1100, I.1999, leg. N. Dégallier (piège lumineux) (1 ex., BCSC); *idem*, 15-30.IX.1999, leg. N. Dégallier (piège lumineux) (2 exx., BCSC); *idem*, XII.1998, leg. N. Dégallier (piège lumineux) (3 exx., DCGI); Matt. Grosso, Corumba (1 ex., DCGI); Mato Grosso, Cordisburgo, Faz. Pontinha, XII.1998, leg. F. Vaz-de-Mello (1 ex., DCGI); Mato Grosso, Paraopeba, III.1997, leg. S. Lourenco Jr. (1 ex., DCGI); Mato Grosso, 30 Km N Uirapuru, 14°17'N-59°15'W, XII.2002, leg. A. Foucart (1 ex., DCGI); *idem*, Chapada dos Parecis, 14°17'N-59°16'W, 1-15.XII.2001, leg. A. Foucart (2 exx., DCGI); Mato Grosso, Varzea Grande County, Cuiabá, Parque de Exposição, 18.III.1972, leg. W. H. Whitcomb (Black light trap) (6 exx., FSCA); *idem*, 20.IV.1972 (1 ex., FSCA); Mato Grosso do Sul, Campo Grande, 1990-1992, leg. I. Bianchin (2 exx., DCGI); **PANAMA:** Panamá Prov., Cerro Campana, 11-15.V.1980, leg. E. G. Riley & D. LeDoux (1 ex., FSCA); **PARAGUAY:** Itapua, 17 Km W Encarnacion, 1.II.1983, leg. E. G. Riley (1 ex., FSCA); Dept. La Guaira, Calle Florida, VIII.1993 (2 exx., DCGI); **VENEZUELA:** Buena Vista, Paraguaná, Falcon, Cueva del Guano, 2.I.1971, leg. C. Bordón (1 ex., CNCI); Edo. Guarico, La Cruz-Ruviera, VII.1925, leg. M. Carlos (2 exx., DCGI).

Distribution. Argentina, Bolivia, Brazil, Panama, Paraguay, Venezuela.

Bionomics. Adults seem to be active almost all year round. Most of the specimens examined were collected at light.

***Blackburneus guatemalensis* (Bates, 1887)**

(Fig. 99-105)

Aphodius guatemalensis Bates, 1887: 88; Blackwelder 1944: 212.

Aphodius guatemalensis var. *scotinus* Bates, 1887: 89; Blackwelder 1944: 212.

Aphodius guatemalensis var. *chiriquinus* Bates, 1887: 89; Blackwelder 1944: 212.

Aphodius (*Emadiellus*) *guatemalensis*; Schmidt 1913: 138; Dellacasa 1988: 137.

Aphodius (*Emadiellus*) *guatemalensis* var. *scotinus*; Schmidt 1913: 138.

Aphodius (*Emadiellus*) *guatemalensis* ab. *scotinus*; Dellacasa 1988: 185.

Aphodius (*Emadiellus*) *guatemalensis* var. *chiriquinus*; Schmidt 1913: 138.

Aphodius (*Emadiellus*) *guatemalensis* ab. *chiriquinus*; Dellacasa 1988: 108.

Aphodius (*Gonaphodiellus*) *striatipennis* Petrovitz, 1962: 111; Skelley et al. 2007: 2 (as synonym of *A. guatemalensis*).

Blackburneus guatemalensis; Dellacasa et al. 2002: 193; Skelley et al. 2007: 2.

Blackburneus guatemalensis ab. *scotinus*; Dellacasa et al. 2002: 197.

Blackburneus guatemalensis ab. *chiriquinus*; Dellacasa et al. 2002: 200.

Type locality. Quezaltenango, Guatemala.

Type repository. Natural History Museum, London (type examined).

Redescription. Length 3.0-4.0 mm; oblong, moderately convex, shiny, glabrous. Piceous; head shadowy reddish on each side, pronotum reddish on front margin, elytra brownish, at base with several yellowish strips more or less elongate, shadowy reddish on humeral callus and with a preapical small yellowish spot (Fig. 104); sometimes blackish, front angles of pronotum and elytral humeral callus testaceous (Fig. 103); or testaceous with disc of pronotum, sides and apex of elytra shadowy brownish (Fig. 102); legs reddish; antennal club brownish. Head with epistome feebly convex, regularly, rather finely, evenly, not closely punctured, punctation somewhat denser and coarser laterally; clypeus subsinuate at middle, round at sides, thinly bordered, edge anteriorly faintly upturned; genae round, very shortly ciliate, not protruding from the eyes; frontal suture finely impressed; front regularly and coarsely punctured as epistome. Pronotum

transverse, moderately convex, rather sparsely and somewhat irregularly punctured, punctation somewhat denser and coarser on sides, finer and superficial on disc; lateral margins almost subparallel, thinly bordered, edge glabrous; hind angles obtuse; base feebly bisinuate. Scutellum elongate, superficially microreticulate, with traces of lateral grooves, sparsely and superficially punctured. Elytra oval, moderately convex, not denticulate at shoulder, finely striate; striae distinctly punctured, subcrenulate; interstriae flat, smooth, sparsely very finely and irregularly punctured. Hind tibiae superior apical spur distinctly shorter than first tarsal segment; latter somewhat longer than following three segments combined. Male: metasternal plate distinctly concave; aedeagus Fig. 100-101. Female: metasternal plate nearly flat.

Material examined. **COSTA RICA:** 19 exx. (CNCI, DCGI, FSCA, HCGN, MHNG); **EL SALVADOR:** 7 exx. (DCGI, USNM); **GUATEMALA:** 4 exx. (DCGI, NYSM, USNM); **HONDURAS:** 2 exx. (DCGI); **MEXICO:** **Chiapas:** 213 exx. (CNCI, DCGI, FSCA, MSNT); **Colima:** 8 exx. (DCGI, RHTC); **Distrito Federal:** 1 ex. (NYSM); **Durango:** 5 exx. (CSCA, NYSM); **Hidalgo:** 1 ex. (USNM); **Jalisco:** 6 exx. (CNCI, DCGI); **México:** 4 exx. (CNCI, DCGI, USNM); **Michoacán:** 66 exx. (DCGI, MSNT, USNM); **Morelos:** 1 ex. (DCGI); **Oaxaca:** 99 exx. (BCBG, CNCI, DCGI, MSNT, NYSM); **Queretaro:** 12 exx. (CNCI, MSNT); **San Luis Potosí:** 3 exx. (CNCI, RHTC); **Veracruz:** 3 exx. (CNCI, DCGI); **PANAMA:** 198 exx. (CNCI, DCGI, EMEB, FSCA).

Distribution. Costa Rica, El Salvador, Guatemala, Honduras, Mexico (Chiapas, Colima, Distrito Federal, Durango, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Oaxaca, Queretaro, San Luis Potosí, Veracruz), Panama.

Bionomics. Adults are active all year round and are general surface dung feeders.

***Blackburneus indio* (Petrovitz, 1973)**

(Fig. 106-110)

Aphodius (*Blackburneus*) *indio* Petrovitz, 1973: 143; Dellacasa 1988: 234.

Blackburneus indio; Skelley et al. 2007: 2.

Type locality. Faz[enda]. Cachoeirinha, Jataí, Goiás, Brasilien [Brazil].

Type repository. Instituto de Biologia, São Paulo (paratype examined).

Redescription. Length 3.5-4.5 mm; elongate, subcylindrical, convex, shiny, glabrous. Piceous; clypeal margin, pronotal sides and elytral apex paler; legs brownish-red; antennal club yellowish. Head with epistome smooth, almost flat, dually punctured; few large punctures, twice to three times larger than small ones, irregularly scattered only distally; small fine punctures subregularly sparse throughout, somewhat superficial on disc; clypeus almost truncate anteriorly, round at sides, laterally straight, thinly bordered, edge feebly upturned, glabrous; genae round, very shortly bristled, not protruding from the eyes; frontal suture almost obsolete; front dually irregularly punctured, small punctures finer than those on epistome. Pronotum weakly transverse, convex, dually punctured; large punctures, five to seven times larger than small ones, irregularly sparse on sides but lacking near lateral margins as well as on disc; extremely fine small punctures, regularly sparse throughout, somewhat denser and coarser on sides; lateral margins feebly arcuate, distinctly bordered, edge glabrous; hind angles obtusely round; base bisinuate. Scutellum slightly convex, with a striola along lateral margins, nearly imperceptibly punctured. Elytra convex, elongate, parallel-sided, distinctly striate; striae fine, superficially punctured, faintly crenulate; interstriae almost flat, with extremely fine sparse punctures, apically distinctly microreticulate thus rather dull. Hind tibiae superior apical spur shorter than first tarsal segment; latter as long as following four segments combined. Male: metasternal plate microreticulate, weakly shiny, somewhat more densely punctured; median longitudinal groove foveolate anteriorly; aedeagus Fig. 109-110. Female: metasternal plate smooth, somewhat more sparsely punctured; median longitudinal groove not foveolate.

Material examined. BRAZIL: Bahia, Encruzilhada, 980 m, XI.1972, leg. M. Alvarenga (1 ex. DCGI; 4 exx. FSCA); Goiás, Alto Paraíso, 26-31.X.1997, leg. N. Dégallier (sous bouses) (2 exx., BCSC; 2 exx., DCGI); Goiás, Minaçu, 5-6.I.2000, leg. N. Dégallier (bouse de vache) (1 ex., BCSC); Goiás, Santo Antonio do Descoberto, 16.XI.1997, leg. N. Dégallier (piège lumineux) (1 ex., DCGI); *idem*, 20.XII.1998, leg. N. Dégallier (3 exx., DCGI); Mato Grosso, Unaí (Faz. Bolivia), 22-24.X.1964, leg. Exp. Dep. Zoologia (1 ex., paratype, coll. Petrovitz, MHNG); Sao Paulo, Mata Atlantica, Sao Roque, Sitio Itatuba, m 950, 27.III-27.V.1993, leg. Sár J. (2 exx., ISEA).

Distribution. Brazil.

Bionomics. The specimens examined were collected in Autumn and Winter; some of them in cow dung or at light.

***Blackburneus laxepunctatus* (Schmidt, 1910)**

(Fig. 111-115)

Aphodius laxepunctatus Schmidt, 1910: 356; Blackwelder 1944: 212.

Aphodius (Blackburneus) laxepunctatus; Schmidt 1913: 137; Dellacasa 1988: 137.

Blackburneus laxepunctatus; Skelley et al. 2007: 2.

Type locality. Sao [=São] Paulo, Brasilien [Brazil].

Type repository. Naturhistoriska Riksmuseet, Stockholm (type examined).

Redescription. Length 3.0-4.5 mm; moderately elongate, convex, shiny, glabrous. Reddish-brown; elytral suture darkened, legs dark reddish; antennal club pale testaceous. Head with epistome convex on disc, superficially alutaceous, doubly irregularly punctured; smaller very fine punctures scattered throughout, mixed with few much larger ones mainly toward frontal suture; clypeus slightly sinuate at middle, round at sides, finely bordered, edge glabrous and moderately upturned; genae small, round, not ciliate, not protruding from the eyes; frontal suture finely impressed, sunk at middle, somewhat raised laterally; genal sutures distinctly raised; front dually and more regularly punctured than epistome; eyes unusually large, their diameter equal to one third of the distance between them. Pronotum moderately transverse, convex, dually punctured; small very fine punctures more or less regularly sparse throughout; larger coarser punctures, seven to eight times larger than small ones, irregularly sparse, denser on sides; latter slightly curved, finely bordered; hind angles obtusely round; base feebly bisinuate, not bordered but marked by a row of more or less contiguous large punctures. Scutellum narrow, elongate, flat, finely punctured on basal half. Elytra elongate, somewhat broadened posteriorly; striae distinct, finely superficially punctured, not crenulate; interstriae flat, almost imperceptibly sparsely punctured. Hind tibiae superior apical spur shorter than first tarsal segment; latter as long as following three combined. Male: head and pronotum somewhat more sparsely and less coarsely punctured; pronotum not narrowed frontward; fore tibiae apical spur stouter, outward and downward bent; aedeagus Fig. 114-115. Female: head and pronotum somewhat more densely and more coarsely punctured; pronotum narrowed frontward; fore tibiae apical spur slender and almost straight.

Type material. 1 female (**lectotype**, herein designated, NHRS) bearing the following labels: 1) white (handwritten): Sao Paulo / Brasilien; 2) white (handwritten): laxepunct. / m.; 3) red (printed): Typus; 4) white (printed): 121; 5) red (printed): *Aphodius laxepunctatus* / Schmidt A., 1910 / Lectotypus / Dellacasa M. & G. des., 2002. Other 2 females (paralectotypes, NHRS) with the same collecting data as lectotype.

Material examined. ARGENTINA: Prov. Tucuman, C. Bruch leg. (1 ex., NHRS); **BOLIVIA:** Santa Cruz, Potrerillos del Guendá, 40 km NW Santa Cruz de la Sierra, 17°40'26"S-63°27'44"W, 5-20.XI.2004, leg. B.K. Dozier (black light) (2 exx., FSCA); **BRAZIL:** Amapa, Macapa, 25.II-25.III.1993, leg. N. Dégallier (piège d'interception) (1 ex., BCSC); Amazonas, Reserva Ducke, 26 Km NE Manaus, 4.IV.1978, leg. B. C.

Ratcliffe (1 ex., ISEA); Amazonas, Tefé, VII.1984, leg. L. E. Peña (3 exx., DCGI); Amazonas, Fazenda Esteio, Rd ZF3 Km 23; 20.VII.1985, leg. B. Klein (bait: human dung, hab.: Mature Forest Reserve) (1 ex., DCGI; 2 exx., FSCA); *idem*, 7.VI.1986 (2 exx., FSCA); *idem*, 19.VII.1985 (1 ex., FSCA); Amazonas, 70 Km N of Manaus, Fazenda Porto Alegre, 14.VI.1986, leg. B. Klein (bait: human dung, hab.: Mature Forest Reserve) (1 ex., DCGI; 3 exx., FSCA); Amazonas, 70 Km N of Manaus, Fazenda Dimona, 20.VI.1986; leg. B. Klein (bait: human dung, hab.: Mature Forest Reserve) (6 exx., FSCA); *idem*, 19.VI.1986 (1 ex., FSCA); Amazonas, 70 Km N of Manaus, Fazenda Esteio, 2.VI.1986, leg. B. Klein (bait: beef, hab.: Mature Forest Reserve) (1 ex., FSCA); Goiás, Santo Antonio do Descoberto, 16.XI.1997, leg. N. Dégallier (1 ex., DCGI); Minas Gerais, Cordisburgo, F. Pontinha, VII.1994, leg. de Mello (1 ex., ISEA); Pará, Barcarena, 12-26.VI.1991, leg. N. Dégallier (piège d'interception) (1 ex., BCSC); *idem*, 19-30.IX.1990, leg. N. Dégallier (piège d'interception) (14 exx., BCSC; 7 exx., DCGI); Pará, Tacurui, 28.XI-11.XII.1989, leg. N. Dégallier (1 ex., BCSC); Rondonia, 62 Km SW Ariquemes, Fzda. Rancho Grande, 10.XI.1994, leg. C. O'Brien (black-light trap) (2 exx., DCGI); *idem*, 12.XI.1995, leg. C. O'Brien (black light trap) (4 exx., FSCA); *idem*, 3-15.XII.1996 (4 exx., DCGI; 24 exx., FSCA) *idem*, 8-20.XI.1994, leg. J. Eger (blacklight trap) (1 ex., FSCA); *idem*, 8-20.XI.1994, leg. J. Eger & C. O'Brien (blacklight) (5 exx., FSCA; 1 ex., ISEA); Rondonia, 9 Km NE Cacauplandia, 17.I.1997, leg. K. Vulinec & D. Mellow (human dung pitfall trap) (1 ex., FSCA); Sao Paulo, Sidrolandia, route Campo-Grande, Pk 68, 23.V-10.VI.1992, leg. N. Dégallier (piège d'interception) (1 ex., DCGI); Serra do Navio, Amapa, 1-14.V.1991, leg. N. Dégallier (piège d'interception) (9 exx., BCSC; 4 exx., DCGI); Sto. Paulo d'Oliveira, M. de Mathan, VI-VII.1883 (1 ex., DCGI); State of Sao Paulo, Piracicaba, 29.XII.1965, leg. C. A. Triplehorn (black light trap) (1 ex., FSCA); **COSTA RICA:** Heredia, Est. Biol. La Selva, 10°26'N-84°01'W, 22.VI.1998, leg. C. Carlton & A. Tishechkin (F.I.T.) (1 ex., DCGI); **FRENCH GUIANA:** Cabassou, III.1979, leg. N. Dégallier (5 exx., DCGI); Entomotech Lodge, 30 Km SE Roura on Kaw Rd., 04°33.570'N-52°12.438'W, m 300, 1-12.XII.2002, leg. J. E. Eger (BL Trap) (1 ex., FSCA); Hwy N2 to Regina, 67 Km S of Cayenne, 1.VI.1986, leg. E. G. Riley & D. A. Rider (1 ex., FSCA); Ile de Cayenne, II.1979, leg. N. Dégallier (1 ex., DCGI); Roura, Cacao, 26-27.V.2005, leg. A. J. Hielkema, in pitfall with human excrement in forest (1 ex., HCGN); Roura 8.4 Km SSE, 04°40'41"N-52°13'25"W, m 200, 29.V-10.VI.1997, leg. J. Ashe & R. Brooks (flight int. trap) (2 exx., CNCI; 1 ex., DCGI); Saül, VII.1973, leg. N. Dégallier (1 ex., DCGI); **PARAGUAY:** Paraguay (1 ex., NHRS); Paraguay, 188[?], leg. Dr. Drake (1 ex., NHRS); Alto Paraná, 16.XI.1990, leg. L. E. Peña (1 ex., DCGI); Dpt. Guaira, Calle Florida, VIII.1993 (1 ex., DCGI); **PERU:** Loreto, 80 Km NE Iquitos, Explorama Lodge, Rio Yanamono, 1 Km from Amazon R., 1-5.IX.1992, leg. P. E. Skelley (human dung) (1 ex., DCGI); **SURINAME:** Commewijne, Akintosccla, Celos, 05°16'17"N-54°55'15"W, m 50, 2.VII.1999, leg. Z. Falin (ex dung trap) (2 exx., DCGI; 2 exx., ISEA); Sipaliwini, Raleighvaller N. P., E-Bank Coppename, 11-13.V.1998, leg. A. J. Hielkema (1 ex., HCGN); **VENEZUELA:** Bolivar, Rio Chicanan, 40 Km SW El Dorado, 22-23.VII.1986, leg. B. Gill (1 ex., DCGI; 2 exx., ISEA).

Distribution. Argentina, Bolivia, Brazil, Costa Rica, French Guiana, Paraguay, Peru, Suriname, Venezuela.

Bionomics. Adults seem to be active all year round. Most of the specimens examined were collected at light, with interception traps, or with pitfall traps baited with human dung.

Blackburneus richteri (Schmidt, 1911)

(Fig. 116-121)

Aphodius richteri Schmidt, 1911: 21; Blackwelder 1944: 213.

Aphodius (Blackburneus) richteri; Schmidt 1913: 138; Schmidt 1922: 147; Dellacasa 1988: 189.

Blackburneus richteri; Skelley et al. 2007: 2.

Type locality. Prov. Tucuman, Argentina.

Type repository. Naturhistoriska Riksmuseet, Stockholm (type examined).

Redescription. Length 2.5-3.0 mm, oblong, convex, weakly shiny; glabrous. Testaceous; legs somewhat paler; antennal club yellowish. Head with epistome feebly convex on disc, almost evenly, finely and rather sparsely punctured; clypeus slightly sinuate at middle, round at sides, very finely bordered, edge near faintly bristled and somewhat upturned; genae round, almost imperceptibly ciliate, not protruding from the eyes; frontal suture distinctly impressed; front more densely and coarsely punctured than epistome. Pronotum weakly transverse, moderately convex, superficially microreticulate, dually, almost regularly punctured; large punctures, three times larger than small ones, somewhat sparser on disc; lateral margins finely bordered, border glabrous; hind angles obtusely round; base feebly bisinuate. Scutellum narrow, elongate, subpentagonal, with curved lateral margins, flat, very finely sparsely punctured on basal half. Elytra elongate, subparallel-sided; striae rather wide and deeply impressed, superficially punctured, not crenulate; interstriae finely microreticulate thus weakly shiny, feebly convex on disc, somewhat more convex on sides, finely sparsely punctured. Hind tibiae superior apical spur distinctly shorter than first tarsal segment; latter nearly as long as following three segments combined. Male: fore tibiae apical spur somewhat stouter and more bent downward, third distal tooth angulately widened proximally (Fig. 118); metasternal plate moderately incavate, distinctly sparsely somewhat irregularly punctured, with deep longitudinal groove; aedeagus Fig. 120-121. Female: fore tibiae apical spur somewhat slender and feebly bent downward, third distal tooth normally shaped; metasternal plate almost flat, nearly imperceptibly punctured, with feeble longitudinal groove.

Material examined. ARGENTINA: Aragua, Cagua, 7.XI.1961, leg. C. Bordón (trampa luminosa) (1 ex., CNCI); Salta, Rosario de Lerma, m 1325, 4-5.II.1982, leg. H. & A. Howden (2 exx., CNCI; 1 ex., DCGI); **BOLIVIA:** Saavedra Exp. Sta., 60 mi N Santa Cruz, 27.XI.1959, leg. R. C. Cumming (6 exx., DCGI; 17 exx., FSCA); *idem*, 31.XII.1959, leg. R. C. Cumming (black light trap) (1 ex., FSCA); *idem*, 2.I.1960 (6 exx., FSCA); *idem*, 3.I.1960 (22 exx., FSCA); Saavedra Exp. Sta., 60 mi N Santa Cruz, (20 exx., FSCA; 1 ex. ISEA); Santa Cruz, Buena Vista, 17°27'69"S-63°39'63"W, m 380, 20.II.1999, leg. L. Stange (mercury vapor light) (1 ex., FSCA); Santa Cruz, Buena Vista, m 410, 29.X.1999, leg. C. Porter & L. Strange (disturbed tropical transition forest) (2 exx., FSCA); Santa Cruz, Buena Vista vic., Flora & Fauna Hotel, 22-26.X.2002, leg. Morris & Wappes (1 ex., FSCA); Santa Cruz, 3.7 Km SSE Buena Vista, Hotel Flora y Fauna, m 400, 17°29'S- 63°33'W, 24.IV.2004, leg. A. Cline (1 ex., FSCA); Santa Cruz, 3.7 Km SSE Buena Vista, Hotel Flora & Fauna, m 430, 2-13.III.2000, leg. M. C. Thomas (tropical transition forest) (3 exx., DCGI; 22 exx., FSCA); *idem*, 14-19.X.2000, leg. M. C. Thomas (tropical transition forest) (3 exx., FSCA); *idem*, 23-26.X.2000, leg. M. C. Thomas (tropical transition forest) (2 exx., FSCA); *idem*, 14-28.X.2000, leg. B. K. Dozier (1 ex., DCGI; 1 ex., FSCA); *idem*, 23-26.X.2000, leg. M. C. Thomas (tropical transition forest) (1 ex., DCGI); Santa Cruz, 4-6 Km SSE Buena Vista, F. & F. Hotel, 14-16.X.2000, leg. J. E. Wappes & Morris (1 ex., FSCA); *idem*, 21-24.XI.2003, leg. J. Wappes, Morris & Nearn (6 exx., FSCA); *idem*, m 420-450, 27-29.X.2000, leg. J. E. Wappes & Morris (transition tropical forest) (1 ex., FSCA); *idem*, 2-12.XI.2000, leg. J. E. Wappes (1 ex., FSCA); Santa Cruz, 5 Km ESE Warnes, Hotel Rio Selva, 20.X.2000, leg. M. C. Thomas (blacklight) (3 exx., FSCA); Santa Cruz, Potrerillos del Guendá, 40 km NW Santa Cruz de la Sierra, 17°40'26"S- 63°27'44"W, 5-20.XI.2004, leg. B. K. Dozier (2 exx., FSCA); *idem*, 16-22.XII.2004, leg. G. Nears (2 exx., FSCA); Santa Cruz, Samaipata, 1600 m elev., 18.II.1999, leg. L. Stange (light trap) (1 ex., FSCA); **BRAZIL:** BA, Mucuri, 24.X.1997, leg. Anjos & Silveira (2 exx., DCGI); Distrito Federal, Brasília, II.2000, leg. N. Dégallier (lumière) (1 ex., BCSC); *idem*, V.2000, leg. N. Dégallier (lumière) (1 ex., BCSC); *idem*, m 1100, 15-30.IX.1999, leg. N. Dégallier (piège lumineaux) (2 exx., DCGI); *idem*, X.1999, leg. N. Dégallier (piège lumineaux) (1 ex., BCSC); *idem*, X.2002, leg. N. Dégallier (4 exx., DCGI); *idem*, XI.1997, leg. N. Dégallier (lumière) (2 exx., BCSC); *idem*, XII.1998, leg. N. Dégallier (6 exx., DCGI); Goiás, San Antonio do Descoberto, 20.XII.1998, leg. N. Dégallier (piège lumineaux) (1 ex., BCSC); Goiás, Goiânia, 12.IV-10.V.1993, leg. J. Sár (serrato) (1 ex., ISEA); *idem*, Fazenda Dione, 1.V.1993, leg. J. Sár (at light) (2 exx., ISEA); Prov. Matto [sic] Grosso, 1886, leg. P. Germain (1 ex., BCSC); Mato Grosso, Cordisburgo, XII.1993, leg. F. Vaz-de-Mello (2 exx., DCGI); Mato Grosso, Cordisburgo, Faz. Pontinha, I.1996, leg. F. Vaz-de-Mello (2 exx., DCGI); *idem*, VII.1994, leg. F. Vaz-de-Mello (1 ex., DCGI); Mato Grosso, Zavras, 7.II.2001, leg. J. N. C. Louzada (1 ex., DCGI); Mato Grosso, Viçosa, 26.II.1986, leg. P. S. Fiuza F. (1 ex., DCGI); Mato Grosso do Sul, Campo Grande, 1990-1992, leg. I. Bianchin (3 exx., DCGI); Mato Grosso do Sul, Teixeiras, XI.1996, leg. Hardy & Harrison (1 ex., DCGI; 1 ex., ISEA); Pará, Barcarena, 19-30.IX.1990, leg. N. Dégallier (2 exx., DCGI); Sao Paulo, Mata Atlantica, Sao Roque, Sitio

Itatuba, m 950, 27.III-27.V.1993, leg. J. Sár (1 ex., ISEA); Sao Paulo, Sidrolandia, route Campo-Grande/Sao Paulo, Pk 68, 23.V-10.VI.1992, leg. N. Dégallier (piège d'interception) (4 exx., BCSC); **PARAGUAY:** Alto Paraná, 16.XI.1990, leg. L. E. Peña (1 ex., DCGI); Dpto. Cordillera, Naranjo, 15.X.2005 (1 ex., BCBG); Dpto. Guaira, Calle Florida, VIII.1993 (1 ex., DCGI); Dpto. Paraguari, Sapucay, II.1995 (1 ex., DCGI).

Distribution. Argentina, Bolivia, Brazil, Paraguay.

Bionomics. Almost unknown. Adults seem to be active all year round. Most of the specimens examined were collected at light.

***Blackburneus sanfilippo* new species**

(Fig. 122-126)

Type locality. S[ie]rra Ventana, m 200, P[rovin].cia B[uenos]. A[ire].s, Arg[entina].

Type repository. Dellacasa Collection, Genoa.

Description. Length 4.5–5.0 mm; elongate, convex, moderately shiny, glabrous. Brownish yellow; epistome and pronotal disc brown; elytra shadowy brownish yellow but second interstria paler; legs brownish yellow; antennal club yellow. Head with epistome superficially alutaceous, moderately gibbous medially, irregularly punctured; punctation distally denser and coarser, more superficial and sparser on disc; clypeus slightly sinuate at middle, round at sides, slightly arcuate laterally, thinly bordered, edge shortly bristled; genae obtusely round, shortly bristled, feebly protruding from the eyes; frontal suture finely impressed, not tuberculate; front sparsely, finely, evenly punctured. Pronotum transverse, convex, dually punctured; large punctures, three to four times larger than small ones, rather sparsely irregularly scattered on sides, lacking medially; small punctures almost evenly scattered throughout but somewhat deeper laterally and more superficial medially, lacking on a narrow longitudinal medio-basal areola; lateral margins feebly arcuate, very thinly bordered, edge glabrous; hind angles obtusely round; base regularly arcuate, not bordered. Scutellum flat, elongate, very finely sparsely punctured on basal half. Elytra oval-elongate, feebly broadened posteriorly, very convex, finely striate; striae superficially, not closely punctured, faintly crenulate; interstriae almost flat, superficially alutaceous, near imperceptibly sparsely punctured. Hind tibiae superior apical spur shorter than first tarsal segment; latter as long as following three segments combined. Male: head and pronotum somewhat more transverse and less convex; metasternal plate excavate; aedeagus Fig. 125-126. Female: head and pronotum somewhat less transverse and more convex; metasternal plate nearly flat.

Type material. **ARGENTINA:** Sierra Ventana, m 200, Provincia Buenos Aires, 14.III.1972, leg. C. Bordón (**holotype** male, **allotype** and two paratypes, DCGI; one paratype, FSAC).

Distribution. Known from the type locality only.

Etymology. Named in honor of our dear friend, the late Nino Sanfilippo, dytiscidologist in Genoa.

Bionomics. Unknown. Specimens of the type series were collected in March.

***Blackburneus saylorea* (Robinson, 1940)**

(Fig. 127-134)

Aphodius saylorea Robinson, 1940: 147.

Aphodius (*Koshantschikovius*) *saylorea*; Dellacasa 1988: 241.

Blackburneus saylorea; Gordon and Skelley 2007: 361; Skelley et al. 2007: 2.

Type locality. Patagonia, Santa Clara, Arizona [U.S.A.].

Type repository. United States National Museum, Washington (type not examined).

Redescription. Length 3.0-3.5 mm; shortly oblong, convex, moderately shiny, glabrous. Blackish or piceous; clypeal margin and pronotal sides more or less broadly reddish (Fig. 131); sometimes elytra brown (Fig. 130) rarely orange (Fig. 128), more rarely widely blackish with shoulder and juxtasutural interstria orange (Fig. 129); legs brownish yellow; antennal club piceous. Head with epistome feebly convex, evenly, closely regularly punctured throughout; clypeus slightly sinuate at middle, round at sides, very thinly bordered, edge somewhat upturned, glabrous; genae round, nearly imperceptibly ciliate, not protruding from the eyes; frontal suture finely impressed; front somewhat more sparsely irregularly punctured than epistome. Pronotum very convex, rather finely, not closely, somewhat irregularly punctured throughout; punctation gradually coarser, denser and larger toward sides; lateral margins arcuate, distinctly bordered, edge glabrous; hind angles widely obtusely round; base bisinuate. Scutellum flat, distinctly punctured on basal half. Elytra strongly convex, shortly oval, rather deeply striate; striae distinctly punctured, feebly crenulate; interstriae slightly convex, finely microreticulate, thus rather dull, finely near biserially punctured. Hind tibiae superior apical spur slightly shorter than first tarsal segment; latter as long as following three segments combined. Male: metasternal plate with median longitudinal groove foveolate and somewhat more deep; aedeagus Fig. 132-133. Female: metasternal plate with median longitudinal groove weakly foveolate and somewhat more superficial.

Material examined. MEXICO: Chiapas: 17 exx. (DCGI); Chihuahua: 19 exx. (DCGI); Distrito Federal: 3 exx. (DCGI); Durango: 36 exx. (DCGI, FSCA); Guanajuato: 1 ex. (FSCA); Guerrero: 195 exx. (DCGI, MSNT); Hidalgo: 2 exx. (FMNH, USNM); Jalisco: 73 exx. (DCGI, MSNT); México: 15 exx. (CNCI, DCGI); Michoacán: 102 exx. (DCGI, MSNT); Morelos: 1 (USNM); Nayarit: 13 exx. (DCGI, MSNT); Nuevo León: 8 exx. (DCGI); Oaxaca: 617 exx. (CNCI, DCGI, MSNT); Puebla: 1 ex. (FMNH); Queretaro: 9 exx. (CNCI, DCGI, MSNT); San Luis Potosí: 1 ex. (MSNT); Sinaloa: 17 exx. (DCGI); Sonora: 2 exx. (FSCA); Veracruz: 103 exx. (DCGI, FMNH, MSNT); Zacatecas: 14 exx. (DCGI). U.S.A.: Arizona: 1 ex. (FSCA).

Distribution. U.S.A. (Arizona); Mexico (Chiapas, Chihuahua, Distrito Federal, Durango, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Queretaro, Sinaloa, Sonora, Veracruz, Zacatecas).

Bionomics. Late Spring and Summer coprophagous species, usually found in cow and horse dung.

***Blackburneus stercorosus* (Melsheimer, 1844)**

(Fig. 135-139)

Aphodius stercorosus Melsheimer, 1844: 136; Horn 1870: 127; Horn 1887: 35; Jerath 1960: 63 (larval morphology); Woodruff 1973: 98; Ratcliffe and Paulsen 2008: 208.

Aphodius (Koshantschikovius) stercorosus; Schmidt 1913: 150; Schmidt 1922: 230; Dellacasa 1988: 202. *Blackburneus stercorosus*; Gordon and Skelley 2007: 364.

Type locality. Pennsylvania [U.S.A.].

Type repository. Unknown to authors; type probably lost.

Redescription. Length 3.0-4.5 mm; oblong, convex, shiny, glabrous. Rufo-testaceous; epistome and pronotal disc dark brownish; elytra with more or less widened dark brownish cloudy discal spot; legs yellowish-brown to dark brown; antennal club testaceous. Head with epistome moderately convex on disc, regularly evenly punctured; punctation somewhat denser and coarser distally, sparser and more superficial medially; clypeus feebly sinuate at middle, round at sides, thinly bordered, edge glabrous; genae

round, with extremely short near imperceptible bristles, faintly protruding from the eyes; frontal suture very finely impressed, sometimes almost obsolete; front rather sparsely evenly punctured. Pronotum transverse, convex, dually punctured; large punctures, three to four times larger than small ones, dense and coarse on sides, lacking on disc; small punctures regularly scattered throughout, somewhat distinct on sides, more superficial on disc; lateral margins feebly arcuate, rather thickly bordered, edge glabrous; hind angles obtusely round; base faintly bisinuate. Scutellum flat, sparsely finely punctured. Elytra oval, feebly widened posteriorly, epipleural carina distinctly raised at shoulder, finely striate; striae distinctly punctured, feebly crenulate; interstriae flat, near imperceptibly sparsely punctured on disc; more distinctly punctured and finely microreticulate thus alutaceous on preapical declivity, dull at apex. Hind tibiae superior apical spur regularly acuminate, somewhat shorter than first tarsal segment; latter longer than following three segments combined. Male: head somewhat less convex; pronotum more transverse less densely and coarsely punctured on sides; fore tibiae apical spur stouter and downward curved; aedeagus Fig. 136-137. Female: head somewhat more convex; pronotum somewhat narrowed frontwardly, more coarsely densely punctured on sides; fore tibiae apical spur slender and almost straight.

Material examined. CANADA: Québec, Berthierville, 19.VI.1938, leg. J. Ouellet (4 exx., DCGI); USA: Florida (30 exx., DCGI); Illinois: Clark Co., Rocky Branch Creek, N. of Clarkville, 2.VII.1991, leg. P. Skelley, L. Heyer & M. A. Goodrich (4 exx., DCGI); *idem*, 8-11.VII.1988, leg. P. Skelley (1 ex., DCGI); Macon Co., NW side of Decatur, 7-14.VIII.1988, leg. P. Skelley (pigdung & malt pitfall) (1 ex., DCGI); *idem*, 15.VIII.1988, leg. P. Skelley (blacklight trap) (1 ex., DCGI); Maine: Bingham, 27.VII.1991, leg. G. Minet (2 exx., BCSC; 1 ex., DCGI); New Jersey: Westwood, VII.1917 (4 exx., DCGI); New York: Catskill Mountains, VII.1977 (1 ex., BCSC); North Carolina: Black Mt., VII.1900 (2 exx., DCGI); Pisgah Forest, 1.VII.1937, leg. O. L. Cartwright (2 exx., DCGI); Pennsylvania (3 exx., DCGI); Tennessee: Fortress Co., Picked State Forest, 26-27.VI.1992, leg. C. Cook (1 ex., BCSC); Virginia: Basye, 18.IX.1943, leg. O. L. Cartwright (6 exx., DCGI); Botetourt Co., Jefferson N. F., 3 mi NE Powell Gap, 5-6.VI.1967, leg. O. L. Cartwright (2 exx., DCGI); Wisconsin: Jefferson N. F., Botetourt, 6.VI.1967, leg. O. L. Cartwright (3 exx., DCGI).

Distribution. Canada (Québec), U.S.A. (from Michigan south to Florida, west to eastern Kansas, eastern and southern Texas).

Bionomics. Coprophagous species found in several kinds of dung, from April to October; often attracted to light.

***Blackburneus surinamensis* new species**

(Fig. 155-159)

Type locality. Ston Eiland Eco Resort near Brownsberg, Brokopondo Dist., 04°59'0"N – 55°08'0"W; Suriname.

Type repository. Florida State Collection of Arthropods, Gainesville, FL (U.S.A.).

Description. Length 3.5-4.0 mm; moderately elongate, convex, shiny, glabrous. Dark reddish brown, legs somewhat paler, antennal club testaceous. Head with epistome feebly convex on disc, medially depressed toward clypeal margin, distinctly, irregularly, not densely punctured; clypeus feebly sinuate at middle, round at sides, very thinly bordered, edge glabrous and distinctly upturned on each side of median sinuosity; genae round, not ciliate, not protruding from the eyes; the latter rather large; frontal suture almost obsolete; front coarsely irregularly punctured. Pronotum transverse, moderately convex, dually not closely punctured; large punctures, seven to eight times larger than small ones, irregularly scattered, very sparse and superficial on sides, lacking on disc; small punctures irregularly, not closely scattered throughout, finer and sparser on disc; lateral margins feebly arcuate, thinly bordered, edge glabrous; hind angles obtusely round; base feebly bisinuate not bordered. Scutellum flat, rather finely irregularly punctured on basal half. Elytra faintly widened posteriorly, rather deeply striate; striae distinctly punc-

tured, feebly crenulate; interstriae almost flat near imperceptibly sparsely punctured. Hind tibiae superior apical spur shorter than first tarsal segment; latter longer than following three segments combined. Male: head and pronotum somewhat more transverse, less convex and less coarsely punctured; metasternal plate longitudinally grooved medially; aedeagus Fig. 158-159. Female: head and pronotum somewhat less transverse, more convex and more coarsely punctured; metasternal plate nearly flat.

Type material. SURINAME: Brokopondo Dist., Ston Eiland Eco Resort, nr. Brownsberg, 04°59'0"N–55°08'0"W; 10-13.II. 2010; leg. P. Skelley, W. Warner, C. Gillett (light) (**holotype**, **allotype** and 3 paratypes, FSCA; 2 paratypes, NZCS; 3 paratypes, DCGI); *idem*, 10-13.II.2010, leg. P. Skelley (at light) (3 paratypes, FSCA).

Distribution. Known from type locality only.

Etymology. Named after the type locality.

Bionomics. Unknown. Specimens of type series were collected in February at light.

***Blackburneus teposcolulaensis* new species**

(Fig. 140-144)

Type locality. San Juan Teposcolula, m 2376, Estado de Oaxaca. Mexico.

Type repository. Dellacasa Collection, Genoa.

Description. Length 3.0-4.0 mm; shortly oval, strongly convex, rather dull; head and pronotum glabrous, elytra pubescent. Piceous, head and pronotum darker; legs brownish yellow, antennal club fuscous. Head with epistome feebly gibbous on disc, widely flattened distally, superficially alutaceous, coarsely, evenly, not closely punctured throughout; punctation somewhat finer and sparser on disc; clypeus very feebly sinuate at middle, round at sides, thinly bordered, edge slightly reflexed, with extremely short sparse bristles; genae round, very shortly ciliate, not protruding from the eyes; frontal suture extremely fine, somewhat raised laterally; front coarsely evenly, not closely punctured. Pronotum transverse, strongly convex, feebly alutaceous, dually densely, somewhat irregularly punctured throughout except an impunctate narrow longitudinal areola, frontwardly shortened, large punctures, twice to three times larger than small ones, faintly umbilicate; lateral margins feebly arcuate, thinly bordered, edge very shortly bristled; hind angles broadly obtusely round; basal margin not bordered, crenulate by contiguous series of small punctures shortly bristled. Scutellum elongate, alutaceous, irregularly punctured on basal half, somewhat depressed at lateral margins. Elytra strongly convex, regularly oval; striae wide, moderately deep, with margins faintly reflexed, superficially punctured, not crenulate; interstriae almost flat, finely alutaceous, moderately roughly and rather irregularly punctured; each puncture with short pale hair. Hind tibiae superior apical spur shorter than first tarsal segment; latter longer than following two segments combined. Male: head and pronotum somewhat more shiny and less densely punctured; metasternal plate with distinct longitudinal groove at middle; aedeagus Fig. 143-144. Female: head and pronotum somewhat more dull and more densely punctured; metasternal plate very feebly grooved at middle.

Type material. MEXICO: Durango: Nueva Patria, rd. to San Miguel de Cruces, 24°05'07.5"N–105°27'16.7"W, m 1950, 19.VII.2004, leg. M. Dellacasa & I. Martínez (horse dung) (1 paratype, DCGI); **México:** Salazar, 8.IX.1968, leg. M. Cabrera (excr. en bosque de *Abies*) (1 paratype, DCGI); **Michoacán:** Patambán env., m 1800, 19°38'19.8"N–102°16'29.2"W, 26.VII.2003, leg. M. Dellacasa & I. Martínez (1 paratype, DCGI); rd. Patzcuaro-Uruapán, Planta PEMEX Diablo de Zirahuén, 19°29'N–101°48'W, m 2200, 23.VII.2001, leg. M. Dellacasa & I. Martínez (1 female, **allotype**; DCGI; 1 paratype, FSCA); **Oaxaca:** San Juan Teposcolula, 17°33'56.4"N–97°25'32.8"W, m 2376, 1.VII.2007, leg. M. Dellacasa, C. Fresi & I. Martínez (horse dung) (1 male, **holotype** and 3 paratypes, DCGI; 1 paratype, FSCA); Aldama env.,

16°57'35.7"N-97°36'05.0"W, m 2339, 2.VII.2007, leg. M. Dellacasa, C. Fresi & I. Martínez (3 paratypes, DCGI).

Distribution. Mexico (Durango, México, Michoacán, Oaxaca).

Etymology. Named after the type locality.

Bionomics. Most of the specimens of type series were collected in July in horse dung.

***Blackburneus thomasi* new species**

(Fig. 145-149)

Type locality. Hotel Flora & Fauna, m 430, 3.7 Km SEE Buena Vista, Santa Cruz, Bolivia.

Type repository. Museo de Historia Natural, Noel Kempff Mercado, Universidad Autonoma "Gabriel Rene Moreno", Santa Cruz de la Sierra, Bolivia.

Description. Length 2.0-2.5 mm; oblong, moderately convex, subshiny, glabrous. Brown-yellowish; pronotal disc and elytral suture somewhat darker; legs brown-yellowish; antennal club yellowish. Head with epistome feebly gibbous on disc, rather dually, somewhat irregularly punctured posteriorly on sides; clypeus subtruncate anteriorly, round at sides, thinly bordered, edge upturned and very shortly sparsely bristled; genae round, near imperceptibly ciliate, not protruding from the eyes; frontal suture finely impressed, sometimes almost obsolete; front dually, irregularly, rather densely and more coarsely punctured than epistome. Pronotum transverse, moderately convex, dually punctured; large punctures four to five times larger than small ones, irregularly not closely scattered on sides; small fine punctures scattered throughout, sparser and finer on disc; lateral margins feebly arcuate, thinly bordered, edge glabrous; hind angles obtusely round; base faintly bisinuate. Scutellum elongate, punctured on basal third. Elytra oval, superficially microreticulate, thus subshiny; striae fine, uniformly, moderately impressed, distinctly punctured, subcrenulate; interstriae moderately convex and weakly microreticulate on disc, very finely sparsely punctured, on preapical declivity flat and distinctly microreticulate thus almost dull. Hind tibiae superior apical spur shorter than first tarsal segment; latter longer than following three combined. Male: fore tibiae apical spur somewhat stouter; head and pronotum less densely and less coarsely punctured; aedeagus Fig. 148-149. Female: fore tibiae apical spur somewhat more slender; head and pronotum more densely and more coarsely punctured.

Type material. BOLIVIA: Santa Cruz, 3.7 Km SSE Buena Vista, Hotel Flora & Fauna, m 430, 23-26.X.2000, leg. M. C. Thomas (tropical transition forest) (1 male, **holotype**, MNKM; 1 female **allotype** and 1 paratype, FSCA; 2 paratypes, DCGI); *idem*, 2-13.III.2000 (1 paratype, FSCA); *idem*, 5-15.XI.2001, 17°29'949"S-63°33'162"W (blt) (1 paratype, FSCA).

Distribution. Known from the type locality only.

Etymology. Named in honor of Michael C. Thomas, curator of beetles at the Florida State Collection of Arthropods in Gainesville, FL.

Bionomics. Almost unknown. The specimens examined were collected in tropical transition forest in Autumn and Spring.

***Blackburneus xanthus* (Bates, 1887)**

(Fig. 150-154)

Aphodius xanthus Bates, 1887: 90; Blackwelder 1944: 212.

Aphodius (Blackburneus) xanthus; Schmidt 1913: 138; Dellacasa 1988: 216.
Blackburneus xanthus; Dellacasa et al. 2002: 206; Skelley et al. 2007: 2.

Type locality. Bugaba, Panama.

Type repository. Natural History Museum, London (type examined).

Redescription. Length 3.0-3.5 mm; oblong, convex, shiny, glabrous. Testaceous, elytral suture darkened; legs testaceous; antennal club pale testaceous. Head with epistome convex, superficially microreticulate, finely and somewhat irregularly punctured; clypeus feebly sinuate at middle, obtusely round at sides, very thinly bordered, edge glabrous, slightly upturned anteriorly; genae round, shortly and sparsely ciliate, not protruding from the eyes; frontal suture distinctly impressed; front irregularly and sparsely punctured. Pronotum transverse, convex, dually and sparsely punctured, nearly parallel-sided; lateral margins feebly arcuate, very thinly bordered, edge glabrous; hind angles obtusely round; base feebly bisinuate. Scutellum triangularly elongate, faintly microreticulate, sparsely punctured. Elytra oval-elongate; finely striate; striae distinctly punctured, subcrenulate; interstriae flat, laterally superficially microreticulate, smooth at middle, very finely and sparsely punctured. Hind tibiae superior apical spur slightly shorter than first tarsal segment; latter nearly as long as following three segments combined. Male: metasternal plate distinctly grooved; aedeagus Fig. 152-153. Female: metasternal plate nearly flat.

Material examined. **COSTA RICA:** Prov. Puntarenas, Palmar Sur, United Fruit Co., 5.VIII.1964, leg. R. E. Woodruff (black light trap) (2 exx., FSCA); **HONDURAS:** Tegucigalpa, 1-12.XII.1917, leg. J. Dyer (1 ex., USNM); **PANAMA:** Chiriqui: Chiriquicito, 16.V.1996, leg. R. Turnbow (mv+bl) (2 exx., FSCA; 7 exx., RHTC); Chiriqui, Dolega, 25.VI.1964, leg. A. Broce (2 exx., DCGI); Chiriqui, Dolequita, 25.VII.1964, leg. A. Broce (4 exx., DCGI); Chiriqui: Elvira Farm, 15.VII.1964, leg. A. Broce (1 ex., DCGI); Prov. Chiriqui, Rovira, 2200 ft., 4.VII.1964, leg. A. B. Broce (3 exx., DCGI; 9 exx., FSCA); *idem*, 7.VII.1964 (1 ex., FSCA); *idem*, 9.VII.1964 (1 ex., FSCA); *idem*, 19.VII.1964 (1 ex., FSCA); 0.3 Km W El Llano, 12.V.1996, leg. R. Turnbow (1 ex., RHTC); La Chorrera, 14.V.1912, leg. A. Busek (1 ex., USNM); Panamá Prov., Cerro Campana, 11-15.V.1980, leg. E. G. Riley & D. LeDoux (2 exx., FSCA); Puerto Armuelles, 12-19.VII.1982, leg. A. Castillo (Malaise trap) (1 ex. DCGI; 3 exx., FSCA).

Distribution. Costa Rica, Honduras, Panama.

Bionomics. Almost unknown. The specimens examined were collected in December, May, June, and July.

Acknowledgments

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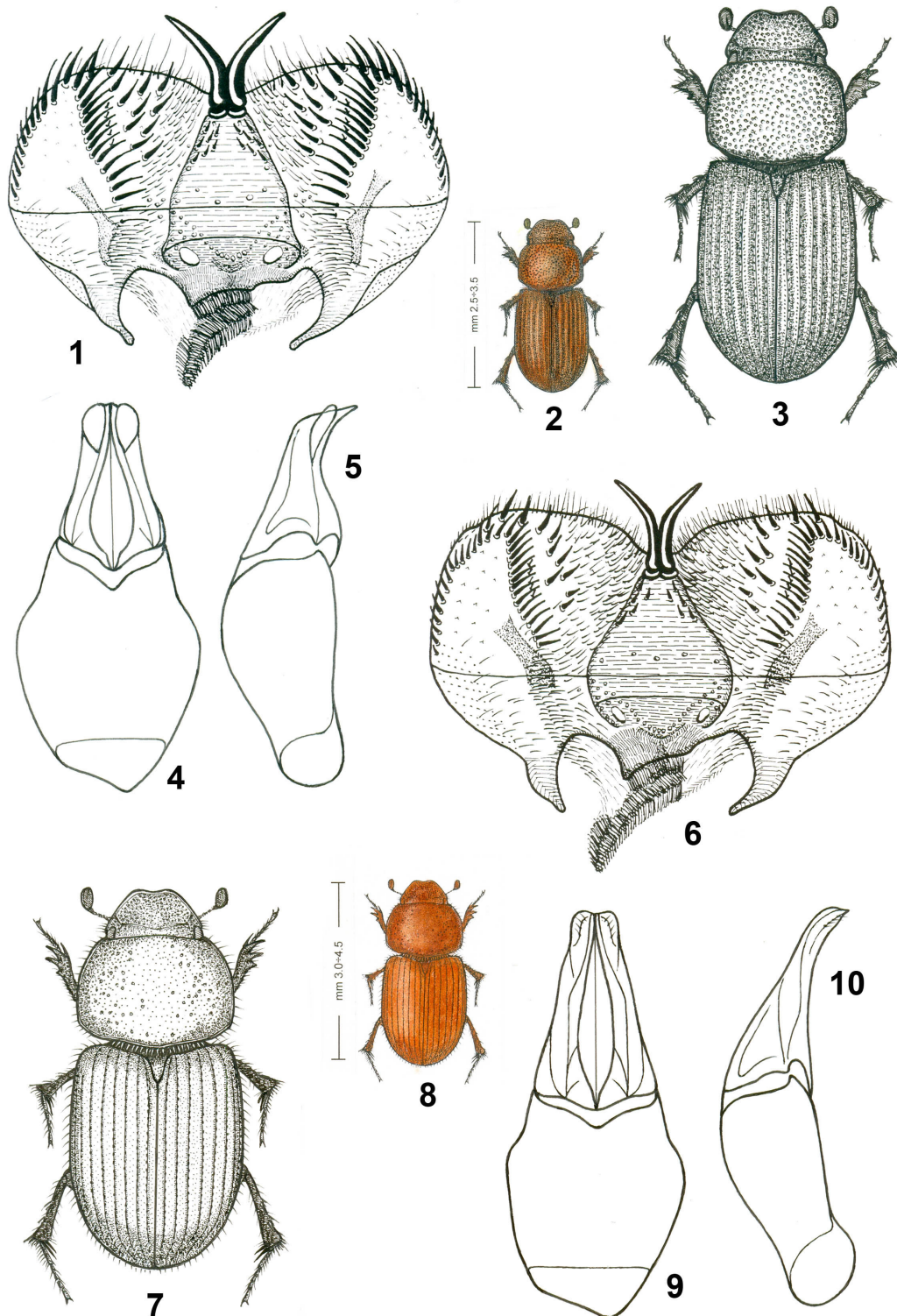
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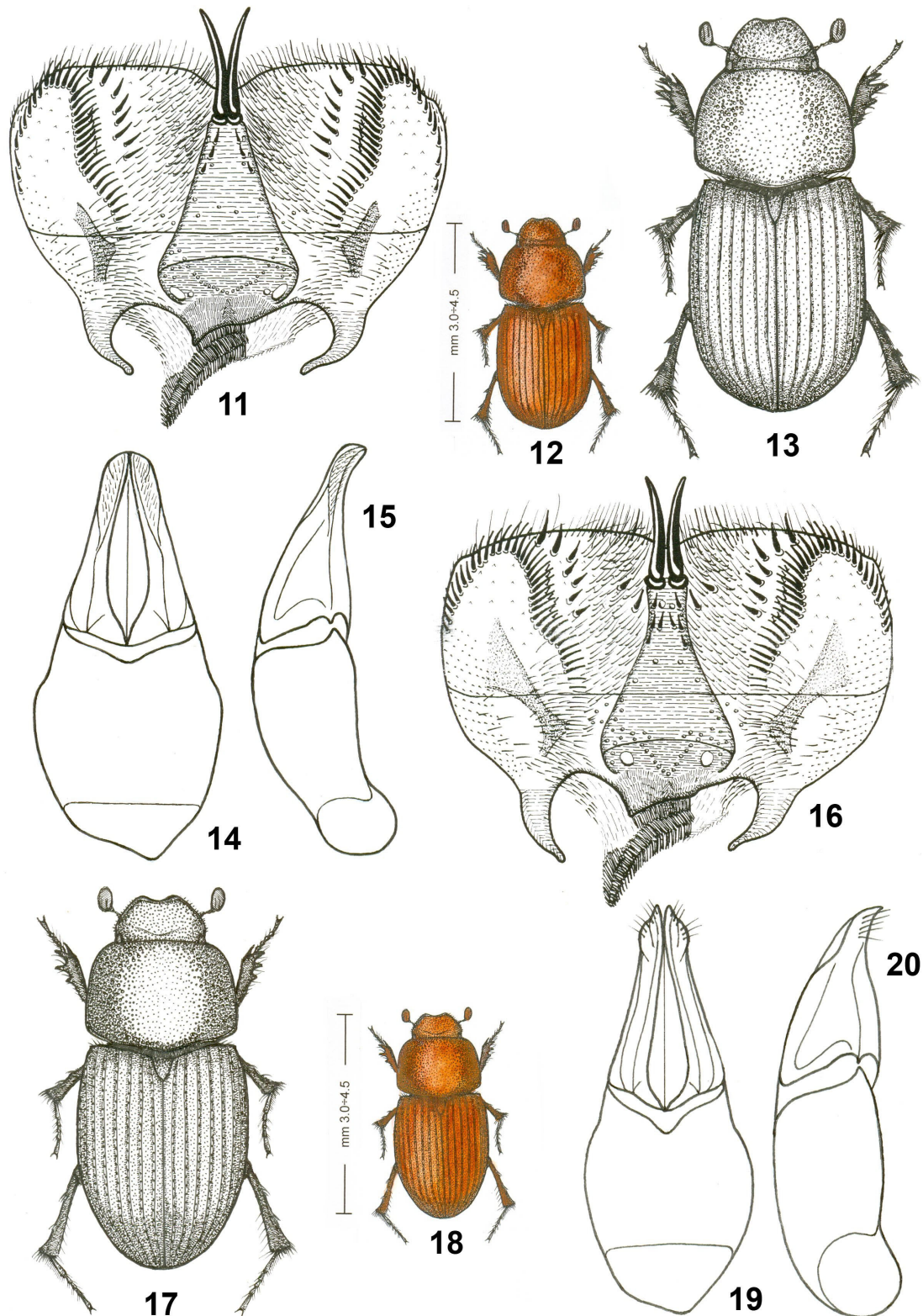
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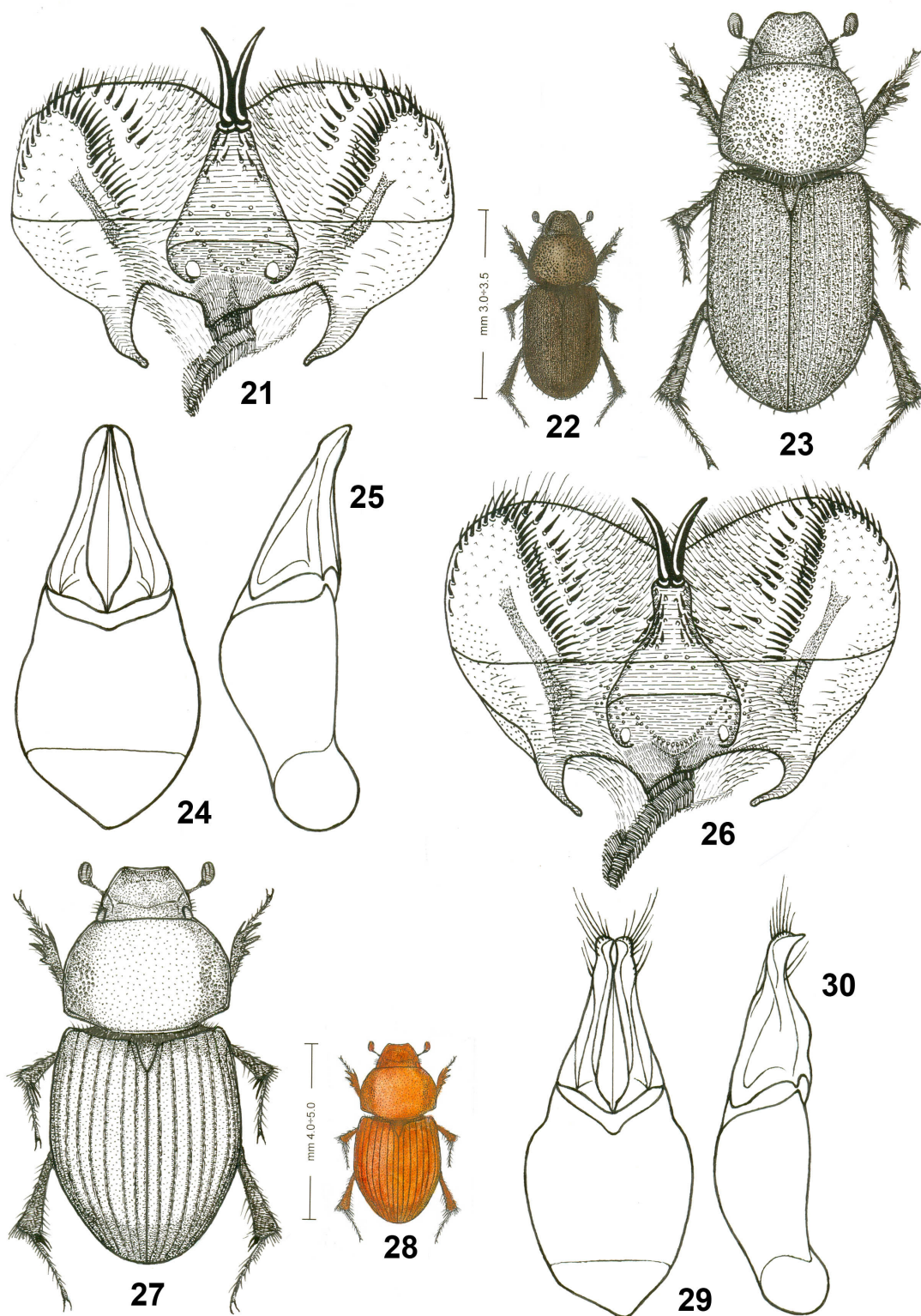
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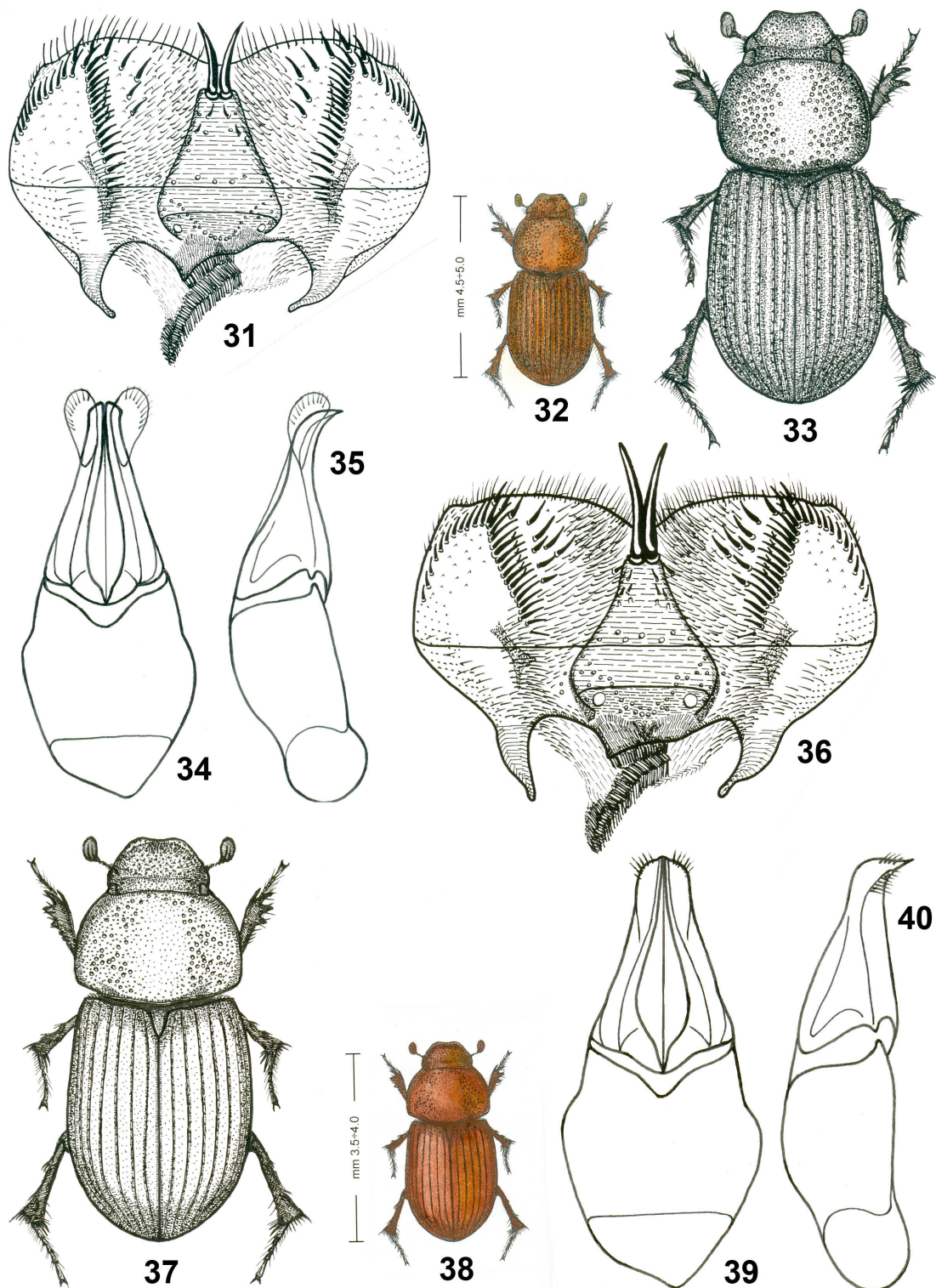
Figures 1-10. *Alloblackburneus acutulus* Bordat, 2009 (Matopos N. P., Zimbabwe). **1)** Epipharynx. **2-3)** Habitus (length ideogram and morphological details). **4-5)** Aedeagus (dorsal and lateral view). *Alloblackburneus aegrotus* (Horn, 1870) (Tifton, Georgia, U.S.A.). **6)** Epipharynx. **7-8)** Habitus (morphological details and length ideogram). **9-10)** Aedeagus (dorsal and lateral view).



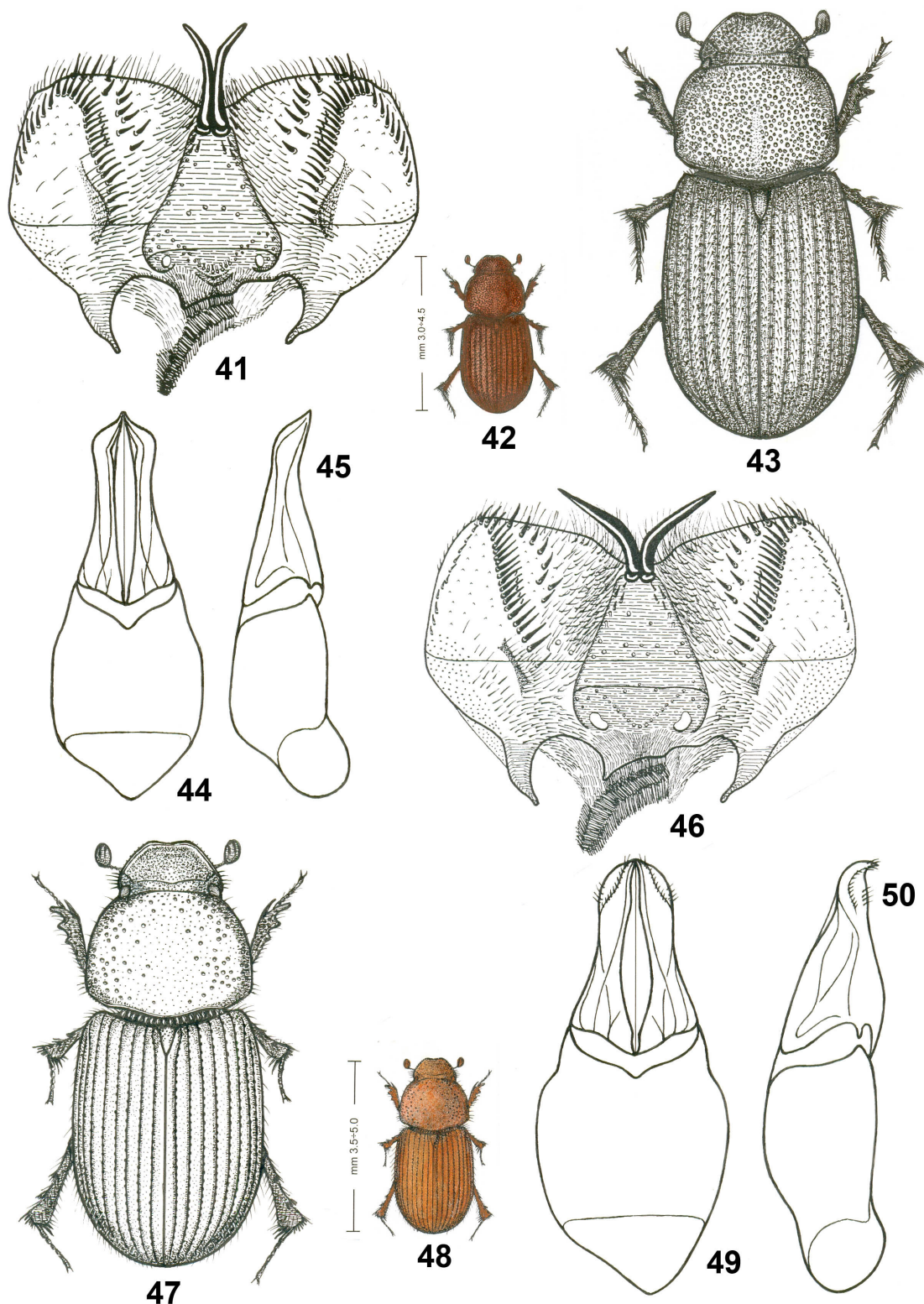
Figures 11-20. *Alloblackburneus cavidomus* (Brown, 1927) (Wichita, Mts. Refuge, Comanche Co., Oklahoma, U.S.A.). **11)** Epipharynx. **12-13)** Habitus (length ideogram and morphological details). **14-15)** Aedeagus (dorsal and lateral view). *Alloblackburneus cynomysi* (Brown, 1927) (Noble Co., Oklahoma, U.S.A.). **16)** Epipharynx. **17-18)** Habitus (morphological details and length ideogram). **19-20)** Aedeagus (dorsal and lateral view).



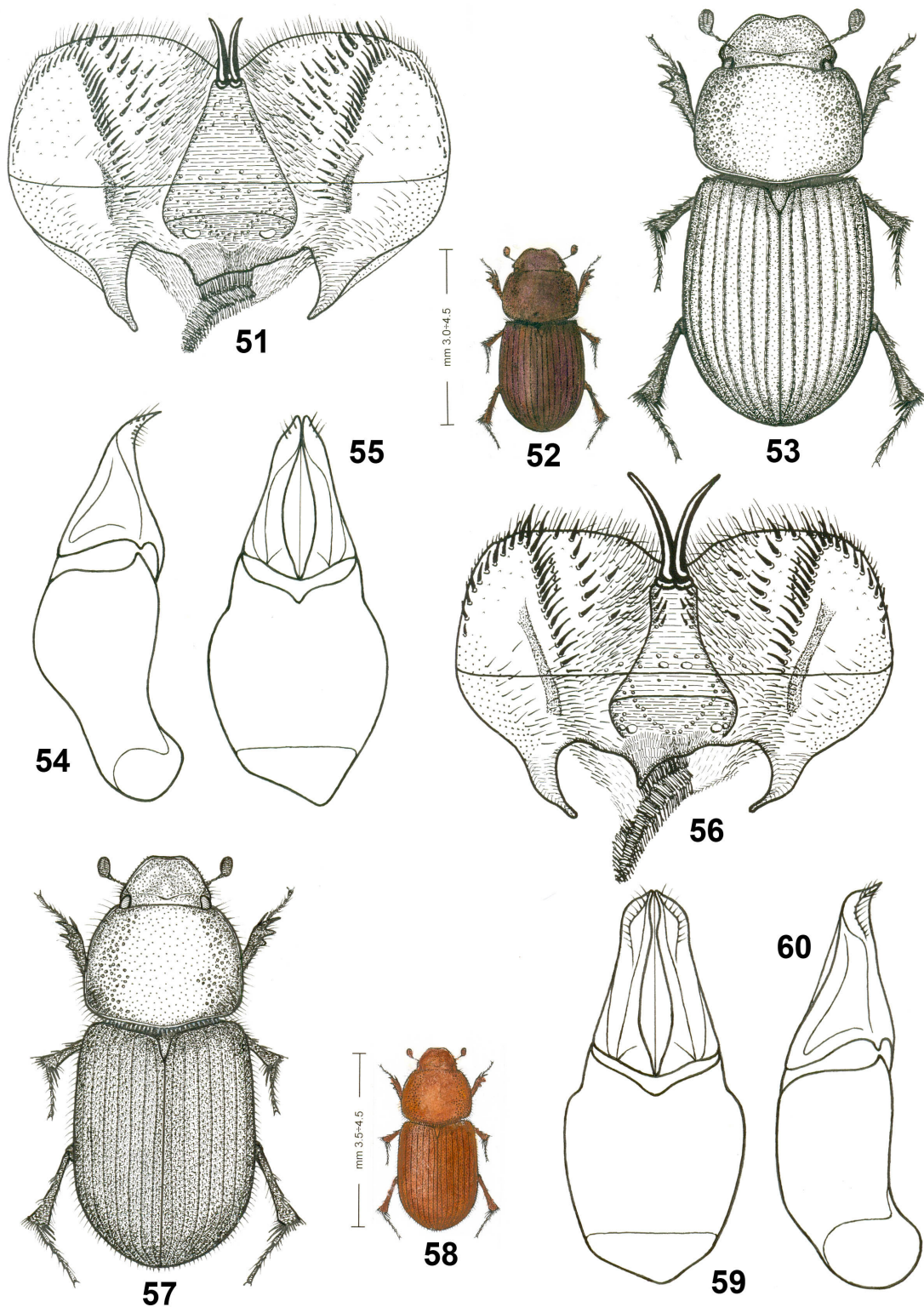
Figures 21-30. *Alloblackburneus fordii* (Gordon, 1974) (Little Cumberland I., Camdem Co., Georgia, U.S.A.). **21)** Epipharynx. **22-23)** Habitus (length ideogram and morphological details). **24-25)** Aedeagus (dorsal and lateral view). *Alloblackburneus geomysi* (Cartwright, 1939) (2.5 mi. SW Archer, Alachua Co., Florida, U.S.A.). **26)** Epipharynx. **27-28)** Habitus (morphological details and length ideogram). **29-30)** Aedeagus (dorsal and lateral view).



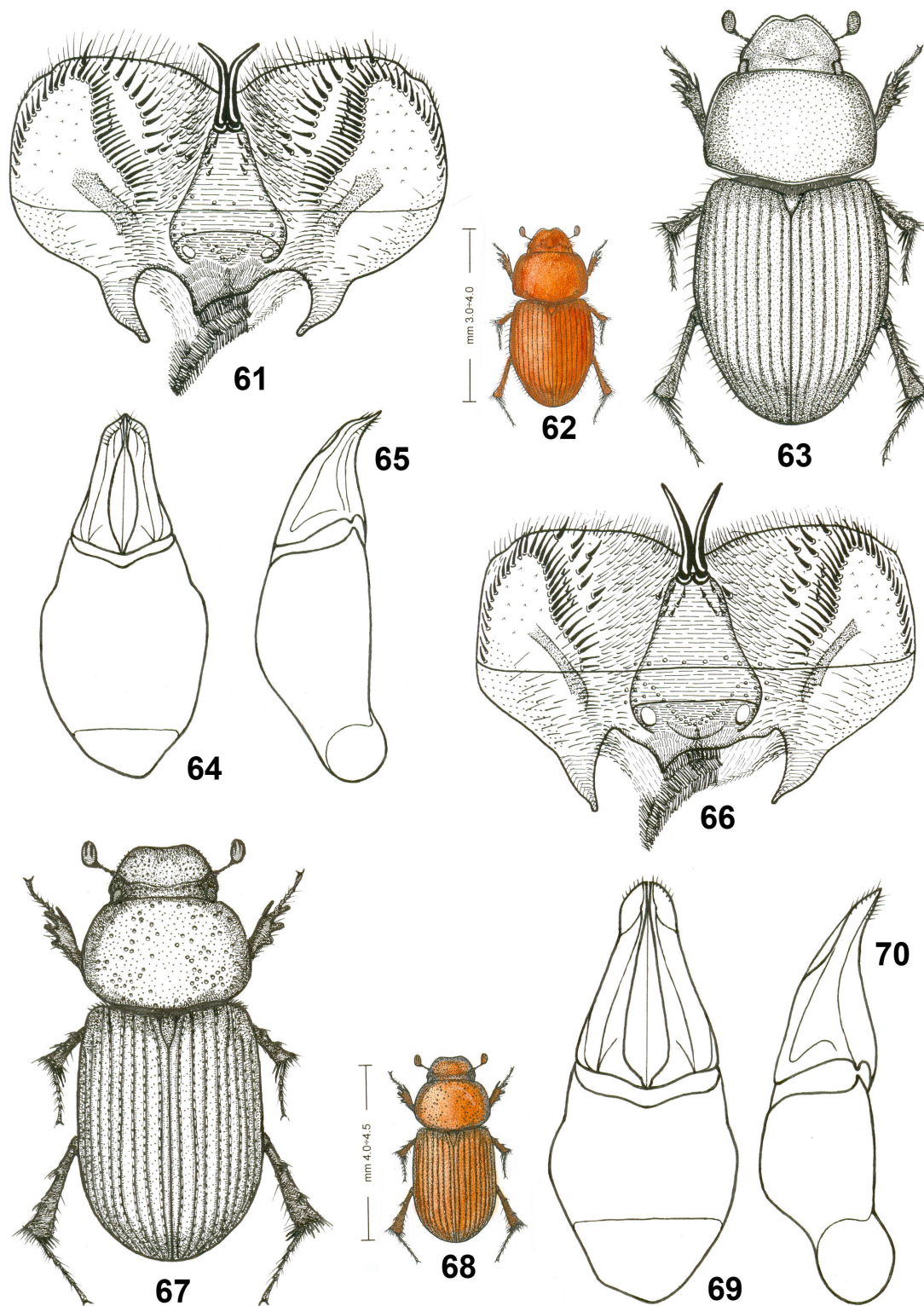
Figures 31-40. *Alloblackburneus guadalajarae*, new species (Guadalajara, Estado Jalisco, Mexico). **31)** Epipharynx. **32-33)** Habitus (length ideogram and morphological details). **34-35)** Aedeagus (dorsal and lateral view). *Alloblackburneus ibanezbernali*, new species (carr. to Copala, m 1800, Estado Jalisco, Mexico). **36)** Epipharynx. **37-38)** Habitus (morphological details and length ideogram). **39-40)** Aedeagus (dorsal and lateral view).



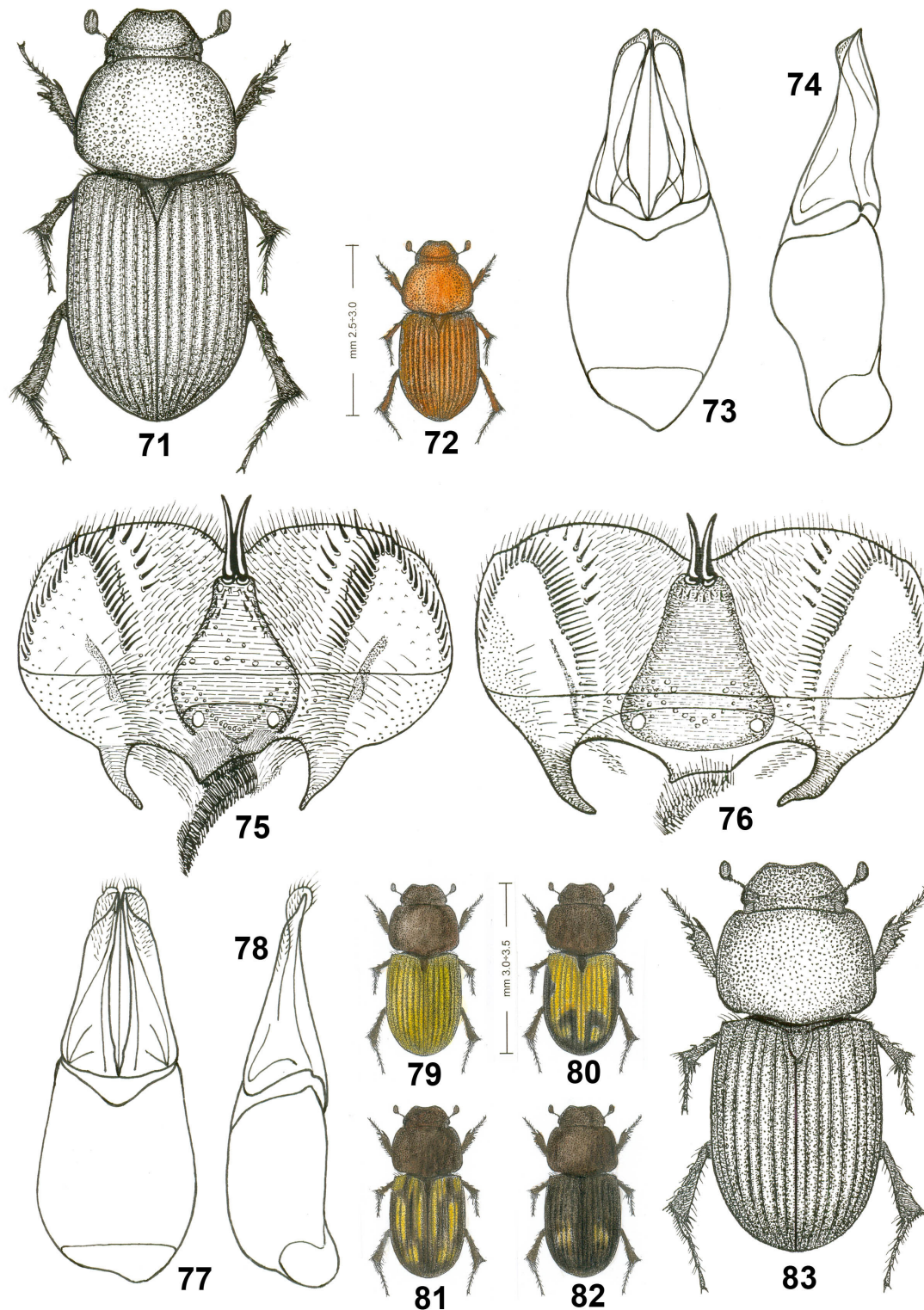
Figures 41-50. *Alloblackburneus lentus* (Horn, 1870) (Jefferson N. F., Botetourt Co., Virginia, U.S.A.). 41) Epipharynx. 42-43) Habitus (length ideogram and morphological details). 44-45) Aedeagus (dorsal and lateral view). *Alloblackburneus rubeolus* (Palisot de Beauvois, 1809) (West Tennessee, U.S.A.). 46) Epipharynx. 47-48) Habitus (morphological details and length ideogram). 49-50) Aedeagus (dorsal and lateral view).



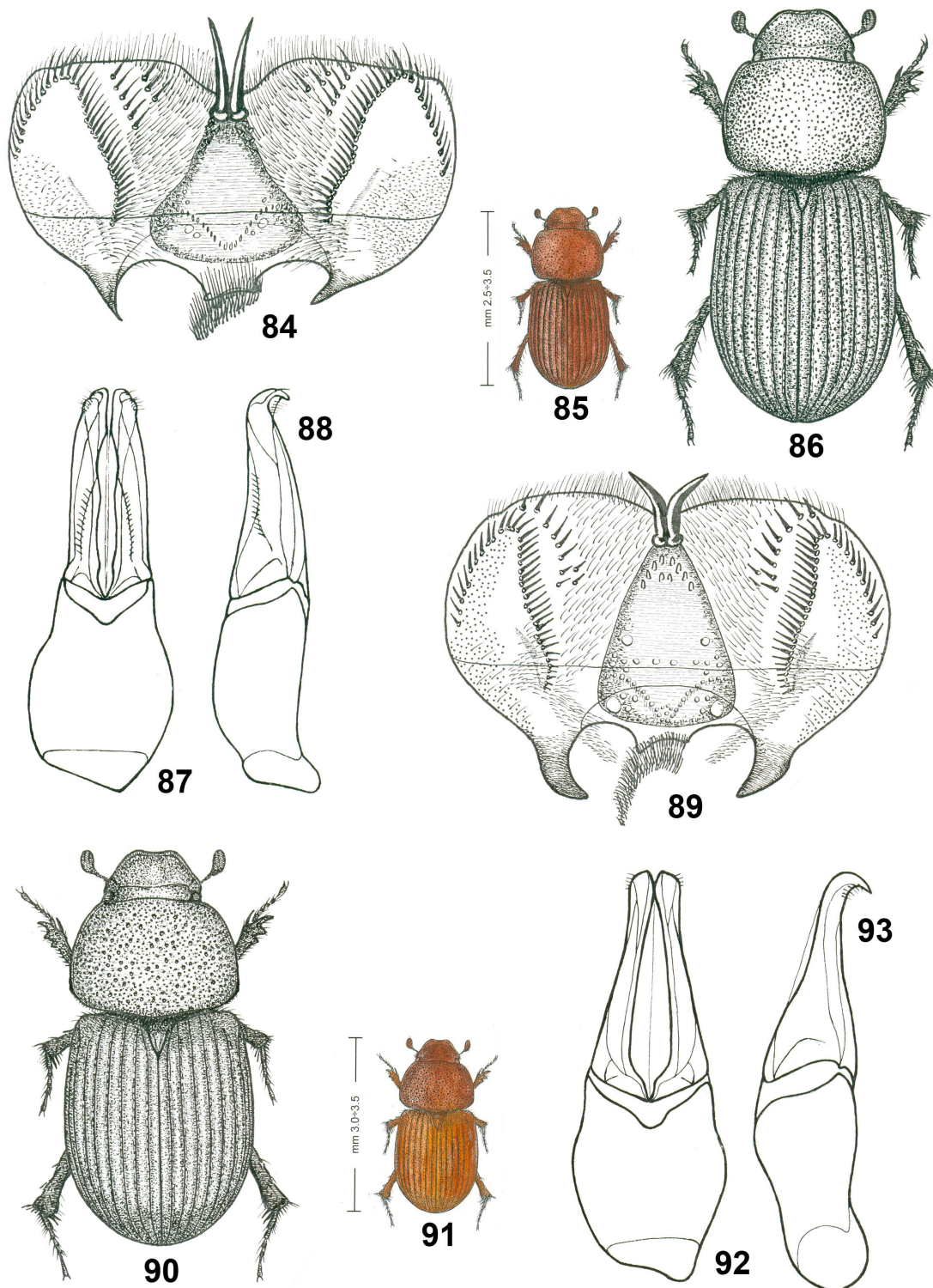
Figures 51-60. *Alloblackburneus saylora* (Hinton, 1934) (Real de Arriba, Temascaltepec, Estado de México, Mexico). **51)** Epipharynx. **52-53)** Habitus (length ideogram and morphological details). **54-55)** Aedeagus (dorsal and lateral view). *Alloblackburneus tenuistriatus* (Horn, 1887) (Tyler, Texas, U.S.A.). **56)** Epipharynx. **57-58)** Habitus (morphological details and length ideogram). **59-60)** Aedeagus (dorsal and lateral view).



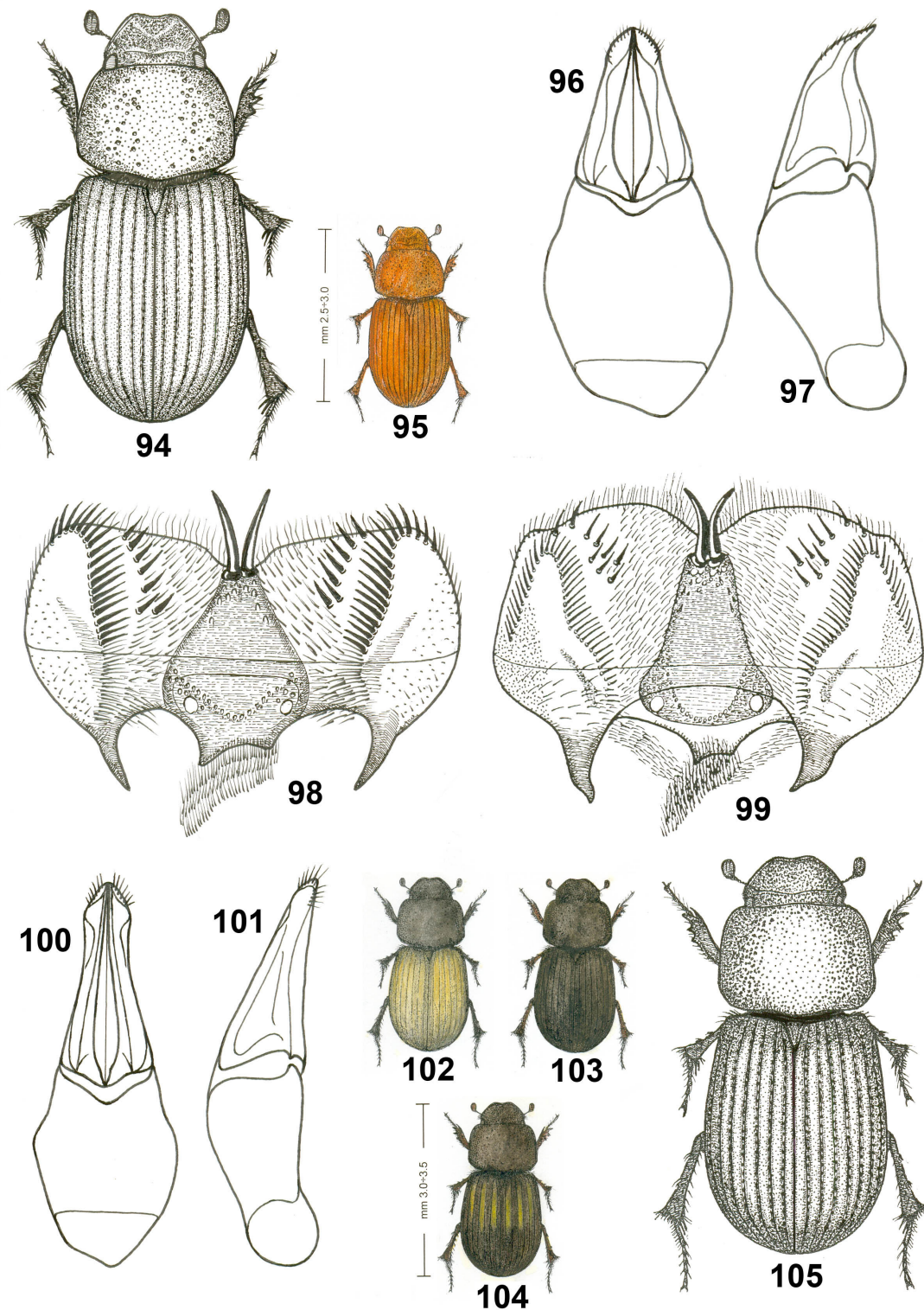
Figures 61-70. *Alloblackburneus troglodytes* (Hubbard, 1894) (4.0 mi. SW Archer, Levy Co., Florida, U.S.A.). **61)** Epipharynx. **62-63)** Habitus (length ideogram and morphological details). **64-65)** Aedeagus (dorsal and lateral view). *Blackburneus argentinensis* (Schmidt, 1909) (Alta Gracia, Cordoba, Argentina). **66)** Epipharynx. **67-68)** Habitus (morphological details and length ideogram). **69-70)** Aedeagus (dorsal and lateral view).



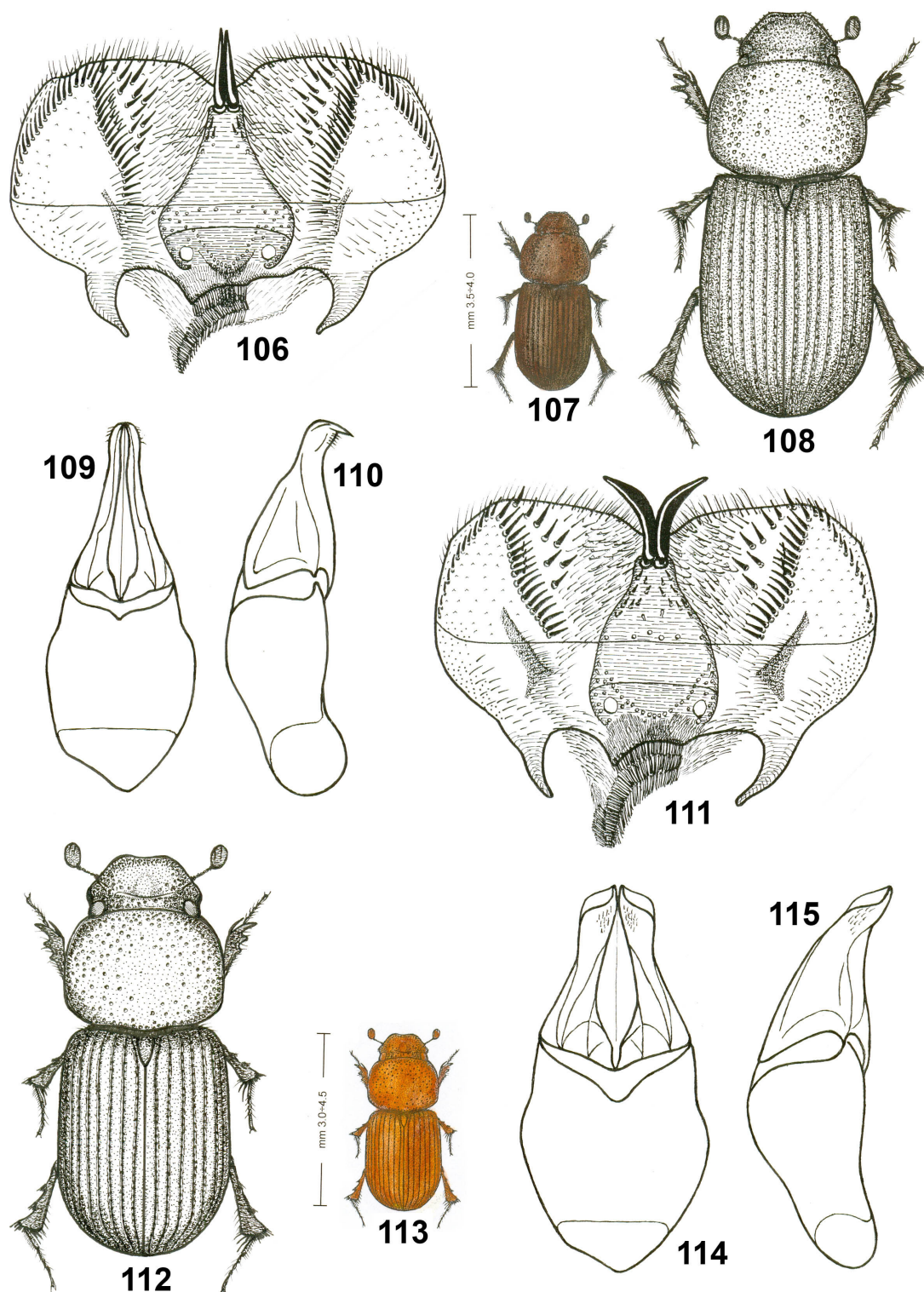
Figures 71-83. *Blackburneus caracaensis* (Petrovitz, 1970) (Sierra Caraça, Minas Gerais, Brazil). **71-72)** Habitus (morphological details and length ideogram). **73-74)** Aedeagus (dorsal and lateral view). **75)** Epipharynx. *Blackburneus charmionus* (Bates, 1887) (Cuiyachapa, Municipio Coscomatepec, Estado Veracruz, Mexico). **76)** Epipharynx. **77-78)** Aedeagus (dorsal and lateral view). **79-82)** Habitus (length ideogram and colour variations). **83)** Habitus (morphological details).



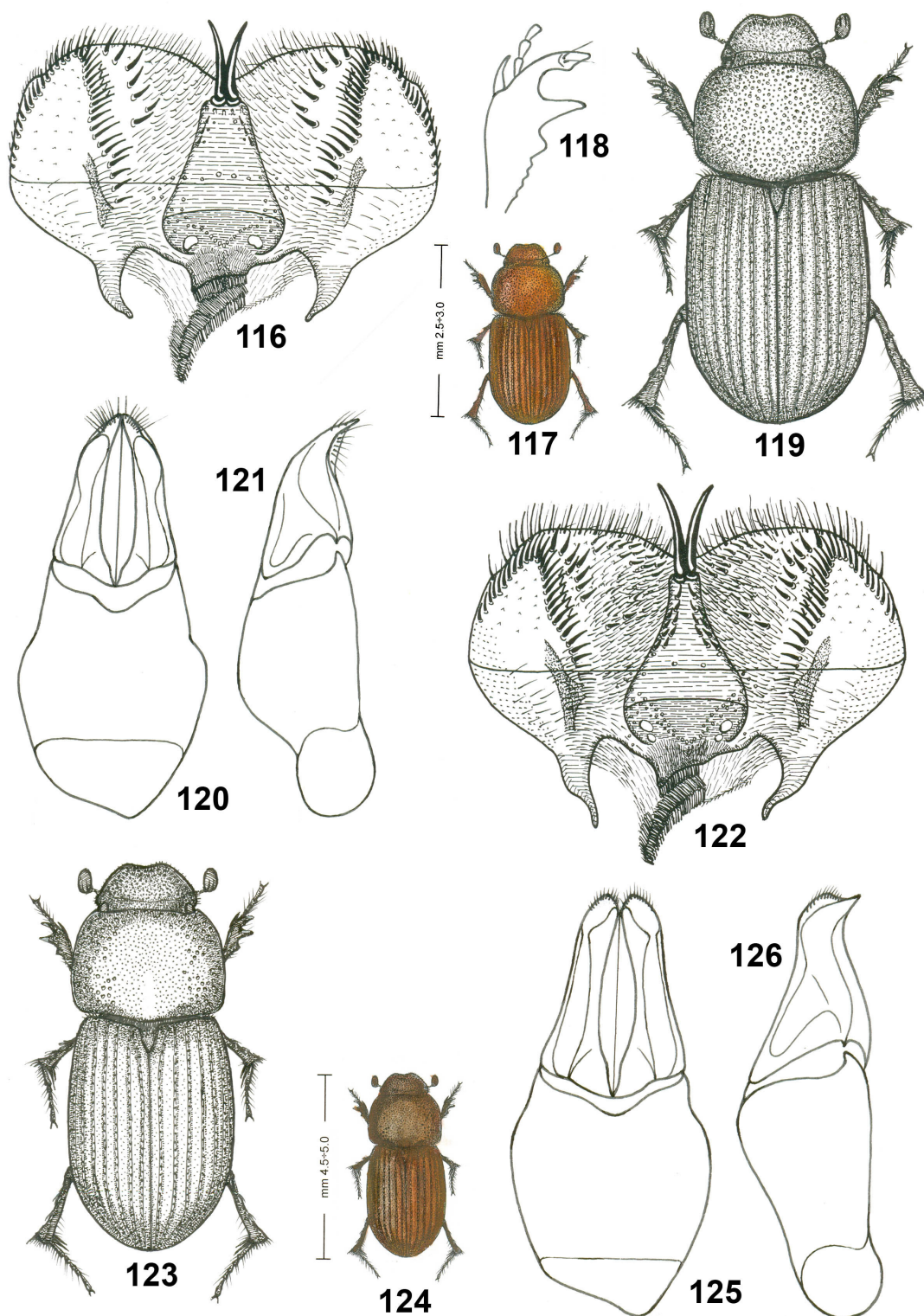
Figures 84-93. *Blackburneus diminutus* (Bates, 1887) (Dueñas, Secatepéquez, Guatemala). **84**) Epipharynx. **85-86**) Habitus (length ideogram and morphological details). **87-88**) Aedeagus (dorsal and lateral view). *Blackburneus erythrinus* (Bates, 1887) (Bugaba, Panama). **89**) Epipharynx. **90-91**) Habitus (morphological details and length ideogram). **92-93**) Aedeagus (dorsal and lateral view).



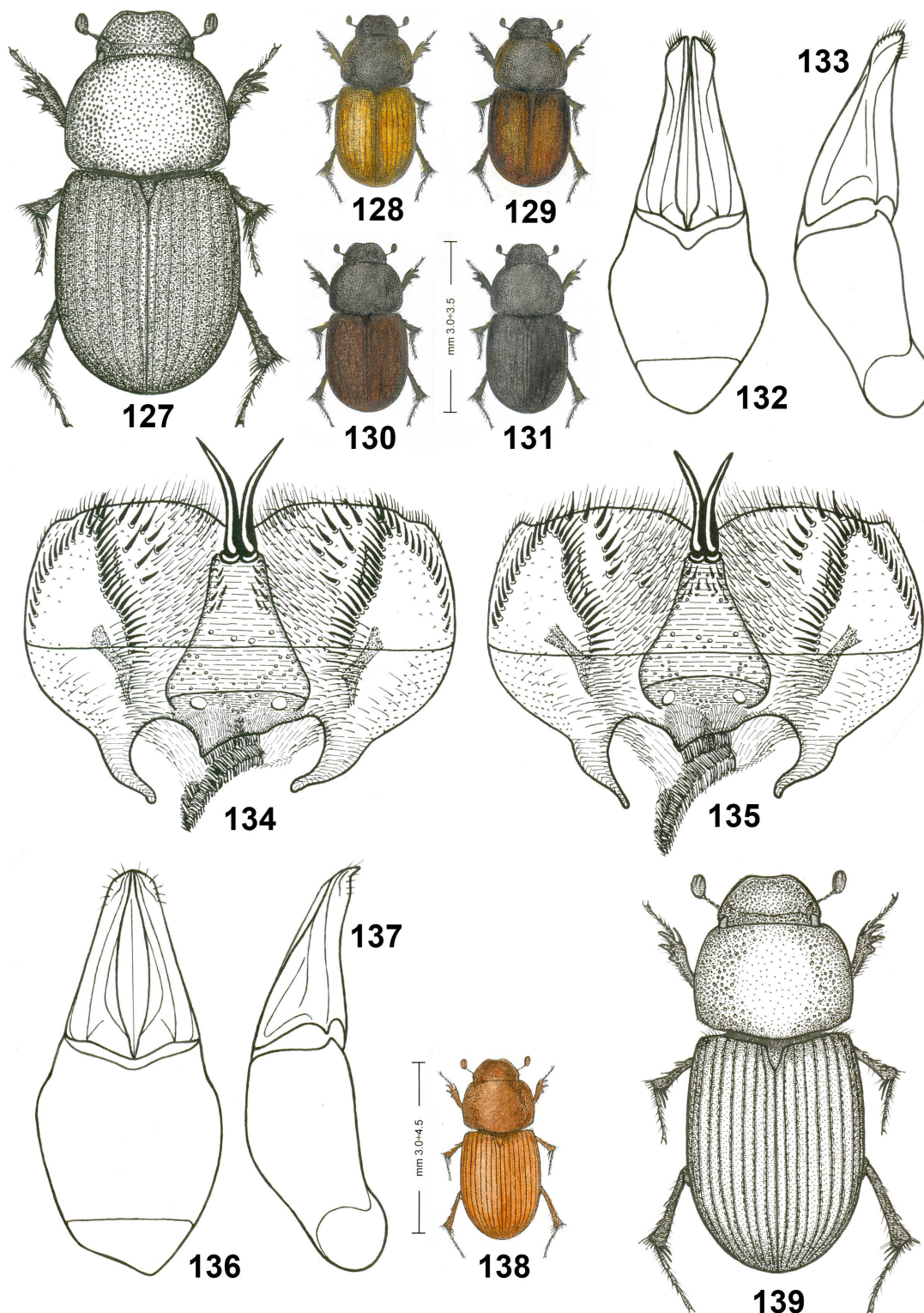
Figures 94-105. *Blackburneus furcatus* (Schmidt, 1909) (Cunyaba [= Cuiabá], Mato Grosso, Brazil). **94-95)** Habitus (morphological details and length ideogram). **96-97)** Aedeagus (dorsal and lateral view). **98)** Epipharynx. *Blackburneus guatemalensis* (Bates, 1887) (Ostuncalco, Quezaltenango, Guatemala). **99)** Epipharynx. **100-101)** Aedeagus (dorsal and lateral view). **102-104)** Habitus (length ideogram and colour variations). **105)** Habitus (morphological details).



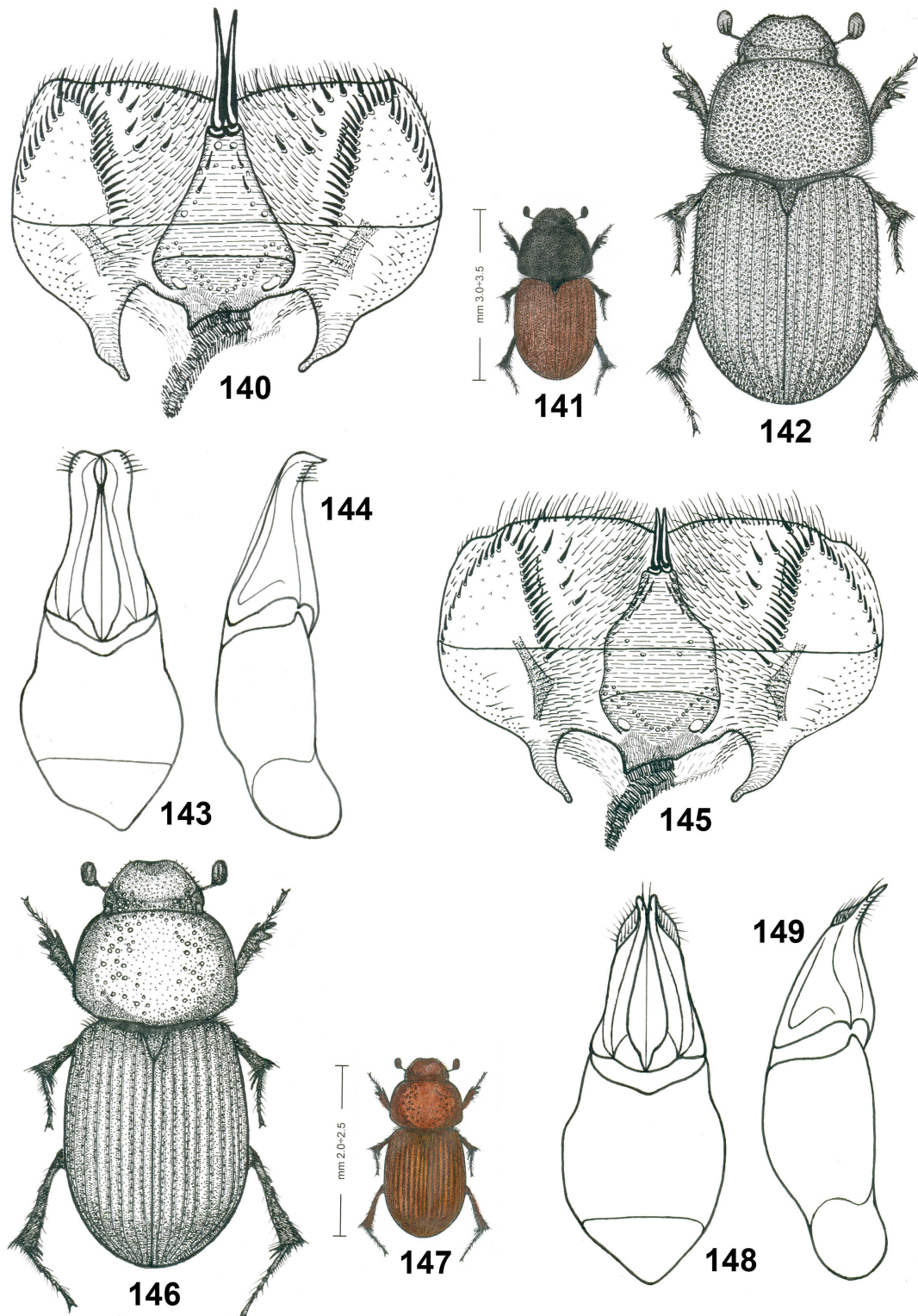
Figures 106-115. *Blackburneus indio* (Petrovitz, 1973) (Santo Antonio do Descoberto, Goiás, Brazil). **106)** Epipharynx. **107-108)** Habitus (length ideogram and morphological details). **109-110)** Aedeagus (dorsal and lateral view). *Blackburneus laxepunctatus* (Schmidt, 1910) (Sao Paulo, Brazil). **111)** Epipharynx. **112-113)** Habitus (morphological details and length ideogram). **114-115)** Aedeagus (dorsal and lateral view).



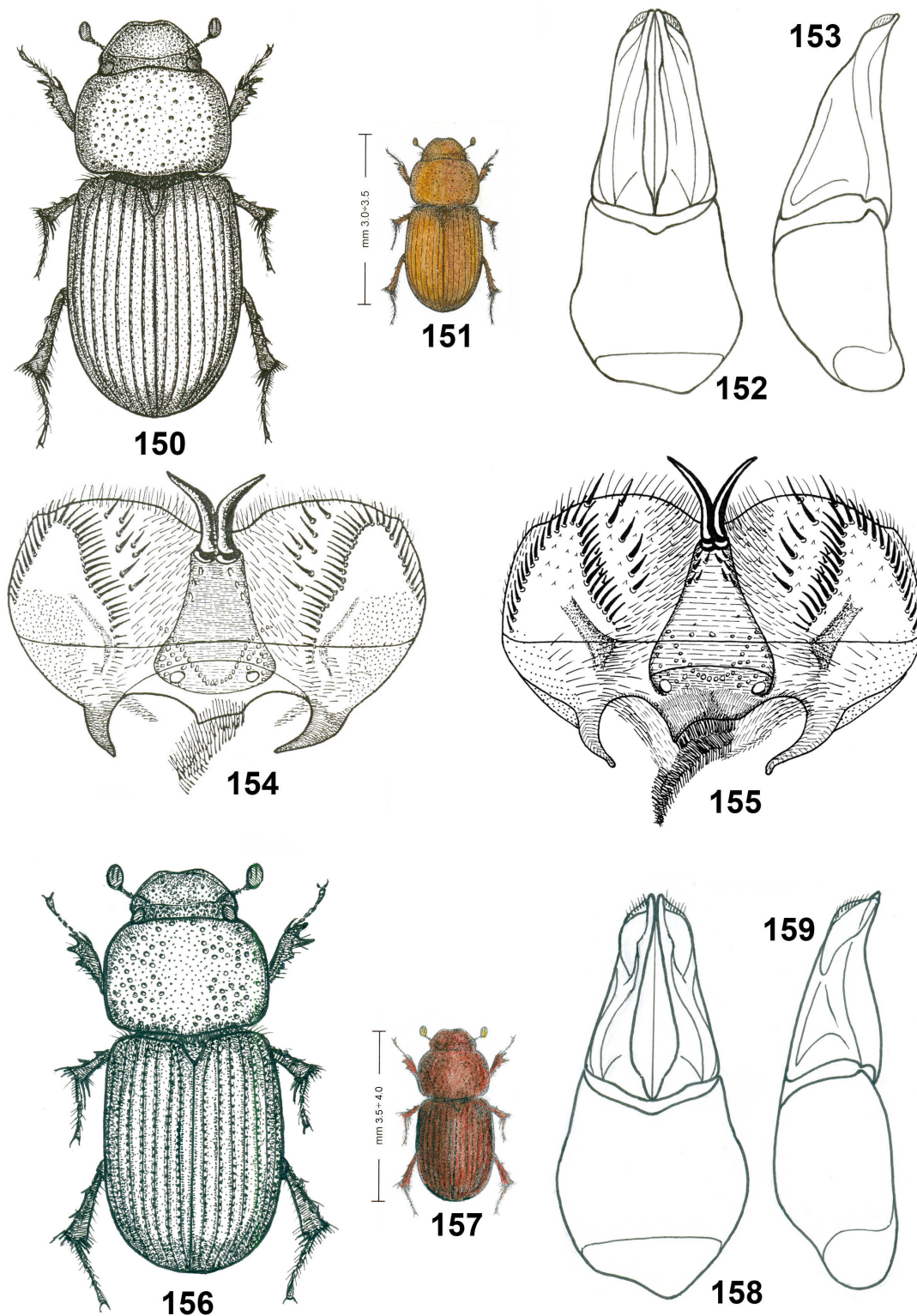
Figures 116-126. *Blackburneus richteri* (Schmidt, 1911) (Hotel Flora & Fauna, Buenavista, Santa Cruz, Bolivia). **116)** Epipharynx. **117)** Habitus (length ideogram). **118)** Male right fore tibia (dorsal view). **119)** Habitus (morphological details). **120-121)** Aedeagus (dorsal and lateral view). *Blackburneus sanfilippoii*, new species (Sierra Ventana, Provincia Buenos Aires, Argentina). **122)** Epipharynx. **123-124)** Habitus (morphological details and length ideogram). **125-126)** Aedeagus (dorsal and lateral view).



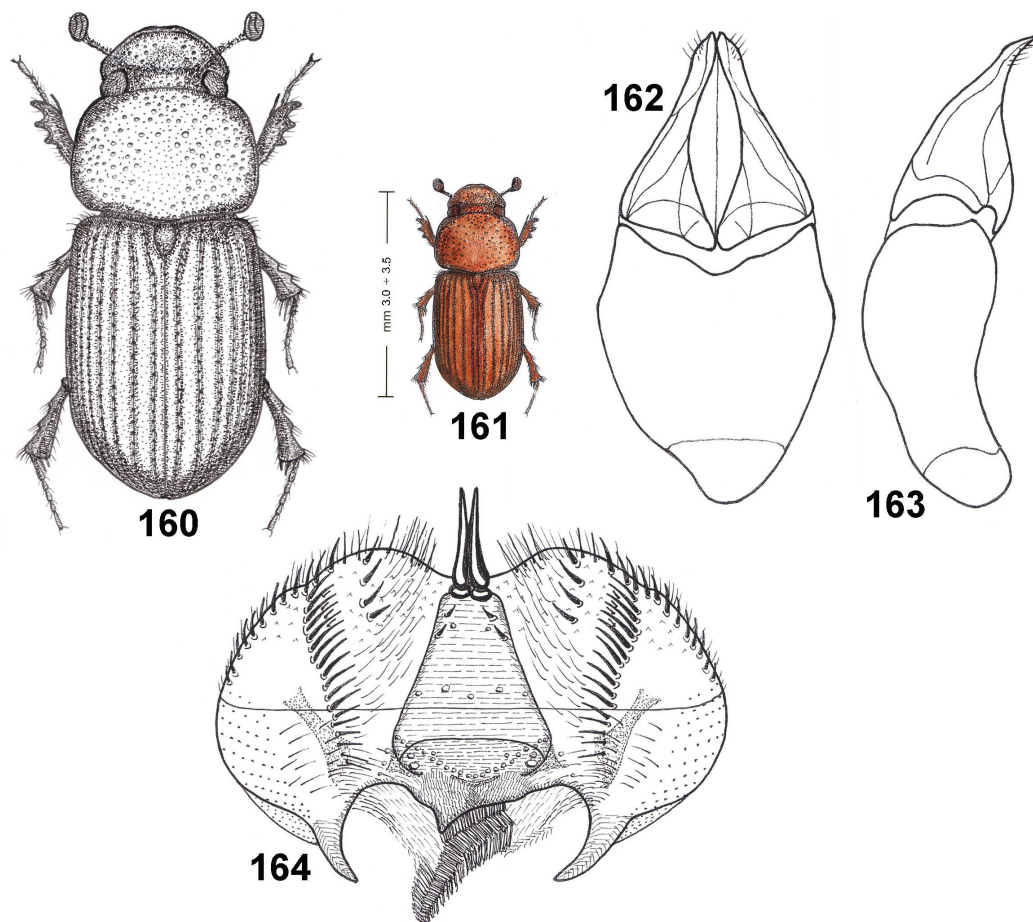
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Figures 140-149. *Blackburneus teposcolulaensis*, new species (San Juan Teposcolula, Estado de Oaxaca, Mexico). 140) Epipharynx. 141-142) Habitus (length ideogram and morphological details). 143-144) Aedeagus (dorsal and lateral view). *Blackburneus thomasi*, new species (Hotel Flora & Fauna, Buenavista, Santa Cruz, Bolivia). 145) Epipharynx. 146-147) Habitus (morphological details and length ideogram). 148-149) Aedeagus (dorsal and lateral view).



Figures 150-159. *Blackburneus xanthus* (Bates, 1887) (Volcan de Chiriquí, Panama). **150-151)** Habitus (morphological details and length ideogram). **152-153)** Aedeagus (dorsal and lateral view). **154)** Epipharynx. *Blackburneus surinamensis*, new species (Ston Eiland Eco Resort near Brownsberg, Brokopondo Dist., 04°59'0"N–55°08'0"W; Suriname). **155)** Epipharynx. **156-157)** Habitus (morphological details and length ideogram). **158-159)** Aedeagus (dorsal and lateral view).



Figures 160-164. *Blackburneus amazonicus*, new species (Fazenda Porto Alegre, 70 Km N of Manaus, Amazonas, Brazil). **160-161)** Habitus (morphological details and length ideogram). **162-163)** Aedeagus (dorsal and lateral view). **164)** Epipharynx.