Research Article

New species and records of Neotropical ladybirds (Coleoptera: Coccinellidae)

Nuevas especies y registros de coccinélidos neotropicales (Coleoptera: Coccinellidae)

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Abstract. A review of the Neotropical Coccinellidae in the Prague Museum, also including to a lesser extent material from other collections, has led to the description of 14 new species from Brazil, Ecuador, Panama, Peru, and Venezuela, two new combinations and 16 first records for countries. The new species described are *Cyrea napoensis*, *Dilatitibialis manaus* (Brachiacanthini), *Neaporia chucanti*, *Prodilis saopaulo*, *P. pastaza* and *P. qedi* (Cephaloscymnini), *Siola karpish* (Chnoodini), *Calloeneis veraguas* (Cryptognathini), *Diomus chiriqui*, *D. panamensis* and *D. sekerkai* (Diomini), *Toxotoma venezuelae* and *T. aguascalientes* (Epilachnini) and *Nexophallobase panamensis* (Stilochotidini) **nov. spp.** The new combinations are *Sidonis vianai* (for *Neorhizobius vianai* González, 2013) and *Neda areolata* (for *Neocalvia areolata* Gorham, 1982) **comb. nov**. First country records are *Azya exuta* Gordon for Ecuador, *Chilocorus nigrita* (Fabricius) for French Guiana, *Harpasus zonatus* (Mulsant) for Paraguay, *Chnoodes separata* Mader for Paraguay, *Coelaria erythrogaster* Mulsant for Surinam, *Sidonis vianai* (González) for Brazil, *Coleomegilla occulta* González for Bolivia, *Neda callispilota* (Guerín-Méneville) for Uruguay, *Epilachna bistrisignata* (Mader) for Peru, *Epilachna dives* Erichson for Bolivia, *Hyperaspis pseudodonzeli* Gordon & Canepari for Ecuador and French Guiana, *Menoscelis saginata* Mulsant for Bolivia, *Zagloba beaumonti* Casey for Bolivia and Venezuela and *Scymnus hamatus* Gordon for Panama.

Key words: Coccinelloidea; ladybird beetles; South America species distribution; taxonomy.

Resumen. La revisión de los Coccinellidae neotropicales en el Museo de Praga, incluyendo también en menor medida material de otras colecciones, ha llevado a la descripción de 14 nuevas especies de Brasil, Ecuador, Panamá, Perú y Venezuela, dos nuevas combinaciones y 16 primeros registros para países. Las nuevas especies descritas son *Cyrea napoensis*, *Dilatitibialis manaus* (Brachiacanthini), *Neaporia chucanti*, *Prodilis saopaulo*, *P. pastaza* y *P. qedi* (Cephaloscymnini), *Siola karpish* (Chnoodini), *Calloeneis veraguas* (Cryptognathini), *Diomus chiriqui*, *D. panamensis* y *D. sekerkai* (Diomini), *Toxotoma venezuelae* y *T. aguascalientes* (Epilachnini) y *Nexophallus panamensis* (Stilochotidini) **spp. nov.** Las nuevas combinaciones son *Sidonis vianai* (para *Neorhizobius vianai* González, 2013) y *Neda areolata* (para *Neocalvia areolata* Gorham, 1982) **comb. nov.** Los primeros registros de países son *Azya exuta* Gordon para Ecuador, *Chilocorus nigrita* (Fabricius) para la Guayana Francesa, *Harpasus zonatus* (Mulsant) para Paraguay, *Chnoodes separata* Mader para Paraguay, *Coelaria erythrogaster* Mulsant para Surinam, *Sidonis vianai* (González) para Brasil, *Coleomegilla occulta* González para Bolivia, *Neda callispilota* (Guerín-Méneville) para Uruguay, *Epilachna bistrisignata* (Mader) para Perú, *Epilachna dives* Erichson para Bolivia, *Hyperaspis pseudodonzeli* Gordon & Canepari para Ecuador y Guayana

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Francesa, *Menoscelis saginata* Mulsant para Bolivia, *Zagloba beaumonti* Casey para Bolivia y Venezuela y *Scymnus hamatus* Gordon para Panamá.

Palabras clave: América del Sur; coccinélidos; Coccinelloidea; distribución de especies; taxonomía.

Introduction

Ladybirds are one of the most familiar groups of beetles, partly because they are commonly observed and known by people due to their abundance, small size, bright colors, and harmless appearance, forming part of folklore in many countries (Gordon 1985), and partly because they have been highly studied for their role as pest controllers (Michaud 2012). It has long been considered that the Coccinellidae to belong to the Cucujoidea superfamily (Crowson 1955; Vandenberg 2002a; Bouchard *et al.* 2011), but recently a study with DNA analysis included it in a new Coccinelloidea superfamily of the Coleoptera (Robertson *et al.* 2015).

Although Linnaeus (1758) described several species of ladybirds, it was not until the middle of the 19th century that Mulsant (1846, 1850, 1853) and latter Crotch (1874), established the bases of their classification, defining many genera and superior groups, many of which are valid until today. The superior classification of the family did not make much progress until Sasaji (1968) carried out for the first time a comparative analysis of the morphological characters of a large number of tribes, defining six subfamilies. This scheme was later improved by Chazeau *et al.* (1989, 1990), Fürsch (1996), Kovář (1996) and Nedvěd & Kovář (2012), among others, while Ślipiński (2007), continuing with a traditional morphological approach, proposed a different scheme with only two subfamilies: Microweiseinae and Coccinellinae. Several phylogenetic studies based entirely or partially on DNA have recognized the validity of this subfamily scheme, establishing the monophyly of Microweiseinae and Coccinellinae (Giorgi *et al.* 2009; Seago *et al.* 2011; Robertson *et al.* 2015; Escalona *et al.* 2017), while Che *et al.* (2021), based on amino acid and nucleotide analysis proposed a third subfamily, Monocorynae, to host the genus *Monocoryna* Gorham, 1885 (tribe Monocorynini), strongly supported as (Microweiseinae, (Monocoryninae, Coccinellinae)).

Che *et al.* (2021) recognized the monophyly of almost all currently recognized tribes (Ślipiński 2007; Bouchard *et al.* 2011; Escalona and Ślipiński 2012; Szawaryn *et al.* 2020), proposing certain changes, such as the transfer of some genera of the old world Chnoodini to a new tribe Sumniini, and recognizing Pentiliini as separated from Cryptognathini, while tribes Ortaliini, Sticholotidini, Scymnini, and Coccidulini are not monophyletic and propose unresolved issues.

The family Coccinellidae in South America has been the subject of numerous studies in recent years. While Blackwelder (1945) reported only 700 described species, this number reached 1,300 by the year 2000, and 1,900 species today (author´s data), mainly due to the numerous studies of Robert D. Gordon, who has described more than 900 new ladybird species. Many of the genera and tribes have been recently revised, including examination of genitalia and revision of types (*i.e.*, Gordon 1999 for tribe Diomini, Gordon & Canepari 2008 for Hyperaspidini). Some groups, however, have not been revised or have only been partially so, including the tribes Poorini, Chnoodini and Chilocorini and a large part of the Coccinellini, including over 100 species that have not been revised recently. There are around 60 species whose types are lost and have not been identified (Gordon 1975, 1999; Gordon & Canepari 2008; Gordon *et al*. 2013, 2019, 2020; Gordon & Hanley 2017). Also there are some described species whose generic assignment is doubtful, *i.e.*, species in *Zagreus* Mulsant, *Exochomus* Redtembacher, *Cycloneda* Crotch, *Toxotoma* Weise and *Epilachna*

Chevrolat, genera whose definition and scope have been modified after the assignment of species to them (Chapin 1965; Vandenberg 2002b; Szawaryn *et al.* 2015; Tomaszewska & Szawaryn 2016); while the previously described species in those genera were only partially revised and assigned to the correct genus; currently there are about 200 species with unclear generic status.

The geographic distribution of Neotropical Coccinellidae, as well as many groups of insects, is very poorly known. There are many species known only from the type locality, in many cases only from the holotype. For example, out of 140 species of Hyperaspidini reported by Gordon & Canepari (2008), 59 are known from a single location, while of 264 species of the genus *Diomus* considered by Gordon (1999), 161 are known from the type location only, being a relevant deficiency when it is desired to compare the species richness in different areas of the continent.

There are still countless species to be described and geographic distributions that need to be known, and this becomes evident when collections are reviewed. During the past year, the authors reviewed around 400 specimens of material from the National Museum of Prague and other collections. As a result of this revision, several undescribed species and new records for many other species were found.

Materials and Methods

The classification of Coccinellidae follows Bouchard *et al.* (2011). The terminology of adults is that used by Ślipiński (2007), with the exception of some terms not used by this author such as "inner arm", "outer arms", "basal margin" and "accessory piece", all in the penis capsule, and "dorsal keel" in the penis guide, coming from Gordon (1999), and "paramere ears" and "protibial flange" from Gordon *et al.* (2013). The species description follows the scheme used by Ślipiński *et al.* (2020), separating it into "color pattern", "morphology", "terminalia" (male and female) and "measurements".

All sexed specimens in this study had the genitalia extracted. For genitalia extraction we used the standard procedure as described in Vandenberg and Hanson (2019). The dissected parts were examined using an optical microscope (Celestron #4500, 100-400x), photographed (Kodak Easyshare C813), and packed in microvials with glycerin, or glued on a card, pinned beneath the respective specimen.

Although all the descriptions of species treated in this study are based on material deposited in the National Museum of Prague, Czech Republic (NMP), where all the holotypes of the new described species are deposited, in some cases additional specimens from other collections are also reported in order to improve the knowledge and distribution of the species, including the following collections: Víctor Manuel Diéguez collection, Santiago, Chile (CVMD); Guillermo González collection, Santiago, Chile (GGC); Juan Enrique Barriga-Tuñón collection, Curicó, Chile (JEBC); Jaroslav Větrovec collection, Hradec Králové, Czech Republic (JVC); National Museum of Natural History, Santiago, Chile (MNNC); Natural History Museum of the Universidad Nacional Mayor de San Marcos, Lima, Peru (MUSM); and Universidade Federal Rural de Pernambuco, Pernambuco, Brazil (UFRPE).

The labels attached to the examined specimens were copied between quotation marks ("") and the lines separated by oblique bars. Measurements were taken as defined in Ślipiński *et al.* (2020): TL: total length, PL pronotal length, PW pronotal width, EL elytral length, EW elytral width, and GD greatest depth. The tegmen of the male genitalia (and its parts) are described in the position in which it is observed to be mostly symmetrical, that is to say, with its parameres on each side, while the term "lateral view" is used when viewed from one side of the previous position. The terms "right" and "left" were used in reference to the image position. The length of the tegmen is considered from the phallobase

to the apex of the penis guide or the paramere, depending on which is the longest, without considering pubescence or tegminal strut. The figures of the male genitalia (tegmen, penis) are presented with the apex down, in a position coinciding with its position at rest in the main figure of the habitat, as well as coinciding with the position in which it represents the genitalia of the female, as used by Ślipiński *et al.* (2020).

Results and Discussion

Taxonomy

Family COCCINELLIDAE Mulsant, 1846

Subfamily COCCINELLINAE Mulsant, 1846

Tribe AZYINI Mulsant, 1850

Azya exuta Gordon, 1980

Azya exuta Gordon, 1980: 190.
First record for Ecuador.

Specimens examined. 1 ♂ "Ecuador, Prov. Napo (2) / 1.3 km SW Baeza, 2050m / S 00°28'34" W 77°53'47" / 11.xi.2006, J. Skuhrovec lgt.", "dense bush of *Chusquea* / close to stream with few solitary trees / near pastures & moss and / leaves on slope above road", "♂ 1999" (NMP).

Remarks. The male specimen examined has a black head, contrary to the yellow color indicated by Gordon (1980) for males, but the genitalia and habitus of the specimen entirely agree with the original description, especially the homogeneous brown pubescence which gives it the appearance of being glabrous. Species reported previously for Colombia (Gordon 1980).

Tribe BRACHIACANTHINI Mulsant, 1850

Cyrea napoensis González & Větrovec, **new species**
(Figs. 1a-1l)

Holotype ♂ "Ecuador, prov. Napo (24) / 2.7 km SW of Diaz de Pineda, / S 00°19'10" W 77°45'33" / 1.xii.2006; 1560 m / M. Fikáček & J. Skuhrovec lgt", "small orchards of local fruit- / trees near to small stream / and local settlements", "♂ 2016" (NMP).

Diagnosis. The species is distinguished by a combination of the elytral color pattern and the genitalia of the male. The elytral color presents an extreme variation of the common pattern in the genus of black elytra with 5 yellow spots (2:2:1); these spots have developed to such an extent that they only leave a wide, dark sutural stripe, two irregular dark spots on the disc and two dark projections from the lateral edge towards these spots (Figs. 1a, 1c); this color pattern bears a slight resemblance to *C. marion* Canepari & Gordon, 2016 and *C. tamara* Canepari & Gordon, 2016, both from Ecuador, and *C. jeanne* Canepari & Gordon, 2016 from Colombia. The male genitalia have parameres with apical projections or "ears" (Figs. 1i, 1l), which places it in the "emiliae" group defined by Canepari *et al.* (2016), none of whose species presents an elytral design similar to that indicated above.

Description. Color pattern (Figs. 1a-1e). Head and antenna yellow, mouthparts yellowish brown. Pronotum yellow with a black basal stripe, extended 1/3 of the length, indented in a triangle in the apex and tapering in the lateral 1/4, where it projects forward by the lateral border about 1/3 of the pronotum length. Scutellar shield black. Elytra yellow with a black, sub-triangular, humeral spot which extends up to 2/5 of the elytron's length; a second spot, in a longitudinal line with the first, at 2/3 length, smaller and longitudinally oval; a black sutural stripe, approximately one sixth the width of the elytron, widened in 1/3 the length of the elytron and on the elytral declivity, and a narrow black lateral border widened in 1/3 and 3/4 of the length, with projections towards the two discal spots. Ventral color yellow, hypomeron with a thin brown lateral border, prosternum, mesoventrite and metaventrite black, epipleuron with brown lateral borders, abdomen black (Fig. 1b). Legs yellow, except for femora reddish-brown. **Morphology.** Body oval, convex, widest at middle of the elytra (Figs. 1a, 1c). Frons about twice the width of an eye. Eyes oval, with short eye canthus. Clypeus with apical margin weakly emarginate (Fig. 1d). Antenna with eleven antennomeres, the last four forming a spindle-shaped club. Apical maxillary palpomere securiform with sides slightly diverging. Carinae on prosternal process convergent towards the anterior border where they join into a single carina, almost obliterated towards the posterior border. Epipleuron narrow, grooved, descending externally, deeply emarginate for reception of femoral apices. Metaventrite with tuft of setae. Tufts of large hairs medially in ventrites 1 to 4 (Fig. 1b). Abdominal postcoxal lines incomplete, angled to posterior ventrite margin, curved along apical margin of ventrite, apex extended forward without reaching the anterior or lateral borders. Without pores between ventrites 4–5 (Fig. 1f). Protibia with outer margin slightly arcuate, smooth. Head punctures very regular, separated by 1/2 diameter or less, very fine, pronotal punctures larger than on head, elytral punctures slightly larger than pronotal punctures; metaventrite punctures larger than on elytra, coarse, separated by less than 1/2 diameter; punctures in median area of ventrite 1 similar to those on elytra, smaller laterally, very fine in ventrites 2 to 5 and scarce in ventrite 6. Pubescence only on the ventral side, hairs short and regular. **Male terminalia.** Apex of ventrite 5 slightly notched in the central 2/3, without lateral tubercles, apex of ventrite 6 truncate (Fig. 1f). Tegmen twice as long as wide, phallobase sub-square. Tegminal strut as long as the rest of the tegmen. Penis guide with straight sides, slightly convergent, ending in a rounded tip in the distal 1/6, inclined slightly to one side (Fig. 1g); in lateral view rather straight on the outer side, while on the inner side it presents semicircular projections on each side, the largest extending almost as long as the length of the penis guide (Figs. 1h, 1i). Parameres straight but with very sinuous borders, with a small "ear" in apex (Fig. 1g), in lateral view of very irregular shape, somewhat triangular, with sinuous borders especially on the outer side, which ends in a truncate border; the "ear", not very evident at the outer side at apex, (Fig. 1j). Penis narrow and curved in the basal 2/3, almost straight in the distal 1/3; presents a slight curvature in the distal 1/8 towards the outer side and a widening ending in a bifurcation in which a membranous projection is inserted that extends on both sides of the apex. Penis capsule with outer arm sub-rectangular, a little longer than wide, inner arm somewhat shorter and sub-quadrate, almost perpendicular to the tube, basal margin concave, accessory piece large (Figs. 1i-1k). **Female.** Unknown.

Measurements (mm): TL 3.3; PL 0.8; PW 1.9; EL 2.5; EW 2.3; GD 1.7.

Geographic distribution. Ecuador, Napo province.

Remarks. The genus *Cyrea* Gordon & Canepari, 2013 was reviewed by Canepari *et al.* (2016) for South America, where they recognized 121 species, 76 of them described as new. Part

of the tribe Brachiacanthini, the genus is characterized by simple tibiae and by the absence of pores between ventrites 4-5. The paramere with an "ear", even though it is not very apparent in this species, similar to that of *Cyrea emiliae* (Crotch, 1874), confirms it in the genus and places it in the "emiliae" group defined in Canepari *et al*. (2016).

Etymology. The name of the species is given by the province of Napo, where the holotype was found.

Dilatitibialis manaus González & Větrovec, **new species**
(Figs. 1m-1w)

Holotype ♂ "Brasil / Manaus / XII. 1997 / Pumr leg.", "♂ 2034" (NMP).

Diagnosis. The L-shaped brown disc spot in the anterior half of the elytron allows it to be differentiated from any other species of the genus (Fig. 1m).

Description. Color pattern (Figs. 1m-1q). Head yellow, including antennae and mouthparts. Pronotum yellow with four brown spots in a semicircle, two basal and two on the disc, the latter triangle-shaped, pointing to the center of the base, and a narrow basal stripe of the same color joining the two basal spots. Scutellar shield brown, with small yellow spot in the center (Fig. 1m). Elytra yellow with a brown sutural stripe, somewhat widened around 2/5 of the length; base of elytra with narrow brown band in the margin; a poorly defined and partially interrupted brown lateral border, notorious at apex, and four disc spots isolated from each other and from the borders (2:2); inner anterior spot extends from near the base to more than 1/2 the length, L-shaped, somewhat oblique, with the long branch pointing to the base and the short branch towards the lateral border, the oval humeral spot reaching 2/5 of the length; the last two spots in a transverse line towards two-thirds of the length, sub-squared and somewhat smaller than the previous ones. Epipleuron yellow. Ventral side yellow with exception of head and prosternum which are dark brown, mesoventrite and metaventrite black, abdomen yellow with ventrites 1 and 2 brown (Fig. 1n); legs yellow; pubescence yellowish white. **Morphology.** Body oval, convex, widest anterior to middle of elytra (Figs. 1m, 1o). Frons about twice the width of an eye diameter. Eyes oval with short triangular eye canthus. Clypeus apex weakly emarginate (Fig. 1p). Antenna with 11 antennomeres, the last three forming a spindle-shaped club. Apical maxillary palpomere securiform with sides slightly diverging. Protibia widely flanged, flange evenly arcuate, wider than remainder of protibia, outer margin smooth. Metaventrite without tuft of setae. Carinae on prosternal process separated, slightly convergent anteriorly, joined just before the anterior border. Epipleuron narrow, descending externally, grooved for reception of femoral apices. Abdominal postcoxal lines broadly rounded, incomplete, angled to posterior ventrite margin, flattened along margin, apex extended forward without reaching the anterior or lateral borders. Pores between ventrites 4–5 extended under apical 1/4 of ventrite 4 (Fig. 1r). Dorsal punctures somewhat irregularly distributed, head punctures very fine, separated by 1/2 diameter, pronotal punctures larger than on head, separated by about one diameter, elytral punctures larger than on pronotum, coarse and separated by a diameter or less; punctures on metaventrite smaller than on elytra, very scarce, separated by about four times their diameter; more dense laterally, punctures in median area of ventrite 1 similar than on elytra, separated by less than a diameter, smaller laterally, very fine in ventrites 2 to 5, and scarce in ventrite 6. Pubescence present only on ventral side, scarce, hairs short, denser toward lateral and apical margins of ventrites, without tufts of hairs. **Male terminalia.** Apex of ventrite 5 slightly convex throughout, apex of ventrite 6 convex, truncate medially (Fig. 1r). Tegmen 1.8 times longer than wide, phallobase trapezoidal, tegminal strut 1.5 times

the length of the rest of the tegmen (Figs. 1s, 1t). Penis guide very asymmetric, 2.5 times longer than wide, rectangular at distal 2/5, left side regularly concave, right side with straight sections and an obtuse angle at 3/5 of the length, in lateral view triangular, inner side membranous, apex curved to the outer side (Figs. 1t, 1u). Parameres almost straight, somewhat wider towards the base and the apex (Fig. 1u), oval in lateral view, barely curving towards the inner side (Figs. 1s-1t). Penis very narrow and curved along the entire length, curvature gradually decreasing from base to apex, in the distal 1/8 it bifurcates into a thin short spine on the outer side, with strong membranous projections towards the same side. Penis capsule large, outer arm somewhat irregular, 45° from the penis tube, 1.5 times as long as wide, inner arm shorter and almost perpendicular to the tube, basal margin with very deep concavity, accessory piece large, subquadrate (Figs. 1v-1w). **Female.** Unknown.

Measurements (mm): TL 2.5; PL 0.6; PW 1.4; EL 1.9; EW 1.8; GD 1.3.

Geographic distribution. Brazil, state of Amazonas.

Remarks. The genus *Dilatitibialis* Duverger, 2001, was reviewed by Canepari *et al.* (2013) for South America, where he recognized 61 species, 38 of them described as new. In the tribe Brachiacanthini, the genus is characterized by the spineless anterior tibiae and by the presence of pores between ventrites 4 and 5. The present species is assigned to the "*mulsanti*" group defined in Canepari *et al.* (2013), due to the laterally curved paramere and the absence of some specific characters of other groups (such as a tuft of hair on ventrite 1 or tubercles on ventrite 5).

Etymology. The species is named after the city of Manaus, Brazil, where the holotype was collected.

Tribe CEPHALOSCYMNINI Gordon, 1985

Neaporia chucanti González & Větrovec, **new species**
(Figs. 2a-2m)

Holotype ♂ "Panamá: Darien, 28.-29.viii.2017 / Cerro Chucanti Reserve: ridge trail, / 08°48.1-2'N, 78°27.7-26.9'W, 1200-1440m / montane forest; individual collecting, / Fikáček, Hájek & Sekerka lgt." (NMP).

Diagnosis. The yellow male head with a black spot between the eyes from the vertex to the lower part of the eyes, which leaves a yellow lateral border adjacent to the eyes, identifies this species. Additionally, no other species of the genus has a black pronotum completely bordered with yellow (Figs. 2a, 2e).

Description. Color pattern (Figs. 2a-2e). Head yellow, with a vertical black spot from the vertex to the lower border of the eyes, leaving yellow lateral border 1/2 the width of the black spot, antennae and mouthparts yellow, except maxillary palpi partially dark brown. Pronotum black with brown shine, with a completely yellow border. Scutellar shield yellowish-brown. Elytra metallic green, shiny, with a narrow yellowish brown lateral border. Epipleuron yellowish brown. Ventral side yellowish brown. Legs brown with tibiae partially yellow. Dorsal pubescence golden yellow, white on ventral side. **Morphology.** Body oblong, depressed, elytra with slightly curved side, widest at middle of elytra (Figs. 2a, 2c). Frons about 1.5 the width of an eye. Eyes vertically elongated, twice as long as wide, with inner sides diverging downwards. Very short eye canthus, 1/5 of the width of an

eye. Clypeus with apical margin almost straight, slightly concave (Fig. 2e). Antennae with ten antennomeres, the last four forming an oval club (Fig. 2f). Apical maxillary palpomere elongated with pointed apex (Fig. 2e). Pronotum transversal, widest at middle, advanced anterior angles, and reflexed lateral borders (Fig. 2a). Prosternum "Y" shaped, apically emarginate, prosternal process short, wide, constrained between coxae, without lateral carina (Fig. 2g). Metaventrite without setiferous pit. Abdominal postcoxal lines complete, evenly rounded, extended slightly more than 2/3 the distance to apical margin of ventrite (Fig. 2h). Dorsal punctures very regular, small in head, larger in pronotum and almost twice the size on elytra, space between them about 1/2 diameter in head, separated by 1/3 diameter, sometimes in contact on pronotum, and separated by a diameter in elytra; ventral side punctures large in prosternum, mesoventrite and anterior and lateral borders of the metaventrite, scarce in the rest of the metaventrite, abdominal punctures of variable size, a line of very large punctures bordering the abdominal postcoxal line, the punctures decrease in size and density towards the posterior and lateral border, they are almost non-existent in the lateral borders of ventrites 2 to 5, and all of ventrite 6. Pubescence semi-erect to decumbent, with hairs in each puncture, short on head, on pronotum long hairs 3/4 the length of the scutellar shield, about scutellar shield length on elytra; sparse on the ventral side, concentrated on the borders. **Male terminalia.** Apex of ventrite 5 truncate, apex of ventrite 6 triangularly notched in the center (Fig. 2f). Tegmen elongated, approximately four times as long as wide; phallobase narrow, elongated. Tegminal strut 0.7 times the length of the rest of the tegmen (incomplete in the image). Penis guide symmetrical, very elongated, nine times longer than wide, spindle-shaped, with a sclerosed apex deeply emarginate; in lateral view, inner side almost straight, outer side very expanded with maximum height at 1/4 of the length, at the apex it ends in a sharp point and has a tooth on the outer part at 9/10 of the length. Parameres 1/6 shorter than the penis guide, curved and inclined sharply towards penis guide at the apex, where it presents a sclerosed area in the shape of a hoof, and a few isolated long hairs that do not reach the apex of the penis guide (Figs. 2i-2l). Penis semicircular, making 3/4 of a circle in the basal half, then in a smoother curve to the apex, where it reaches 1 1/4 circle, the final section tapering to the punctured apex; penis capsule with outer arm barely insinuated, somewhat triangular, outer arm perpendicular to penis tube, approximately four times longer than wide, basal margin slightly concave. A wrinkled area in the tube, possibly due to the dissection process (Fig. 2m). **Female.** Unknown.

Measurements (mm): TL 2.2; PL 0.35; PW 1.2; EL 1.7; EW 1.5; GD 0.35.

Geographic distribution. Panama, Darien province.

Remarks. The tribe Cephaloscymnini was reviewed by Gordon & Hanley (2017); they recognized eight species of *Neaporia* Gorham, 1897 and described 41 new species. The genus is distributed between Mexico and southern Brazil. *Neaporia chucanti* **n. sp.** is assigned to the genus by the last palpomere acute in the distal half, the frons with divergent eye margins (Fig. 2e), the prosternal process without lateral carinas (Fig. 2g), and the flat and highly depressed thoracic sternites (Fig. 2b). Gordon & Hanley (2017) in the description of the tribe Cephaloscymnini indicate that the antennae have nine antennomeres with a club of three, without making additional references at generic or specific level or including images. All the antennae of the four species of the genera *Neaporia* and *Prodilis* Mulsant, 1850 described in this study, as well as of other species of the same genera revised, have antennae of ten antennomeres with a mass of four (Figs. 2f, 2s, 3g, 3t).

Etymology. The species is named after the Chucantí Natural Reserve, Panama, where the holotype was collected.

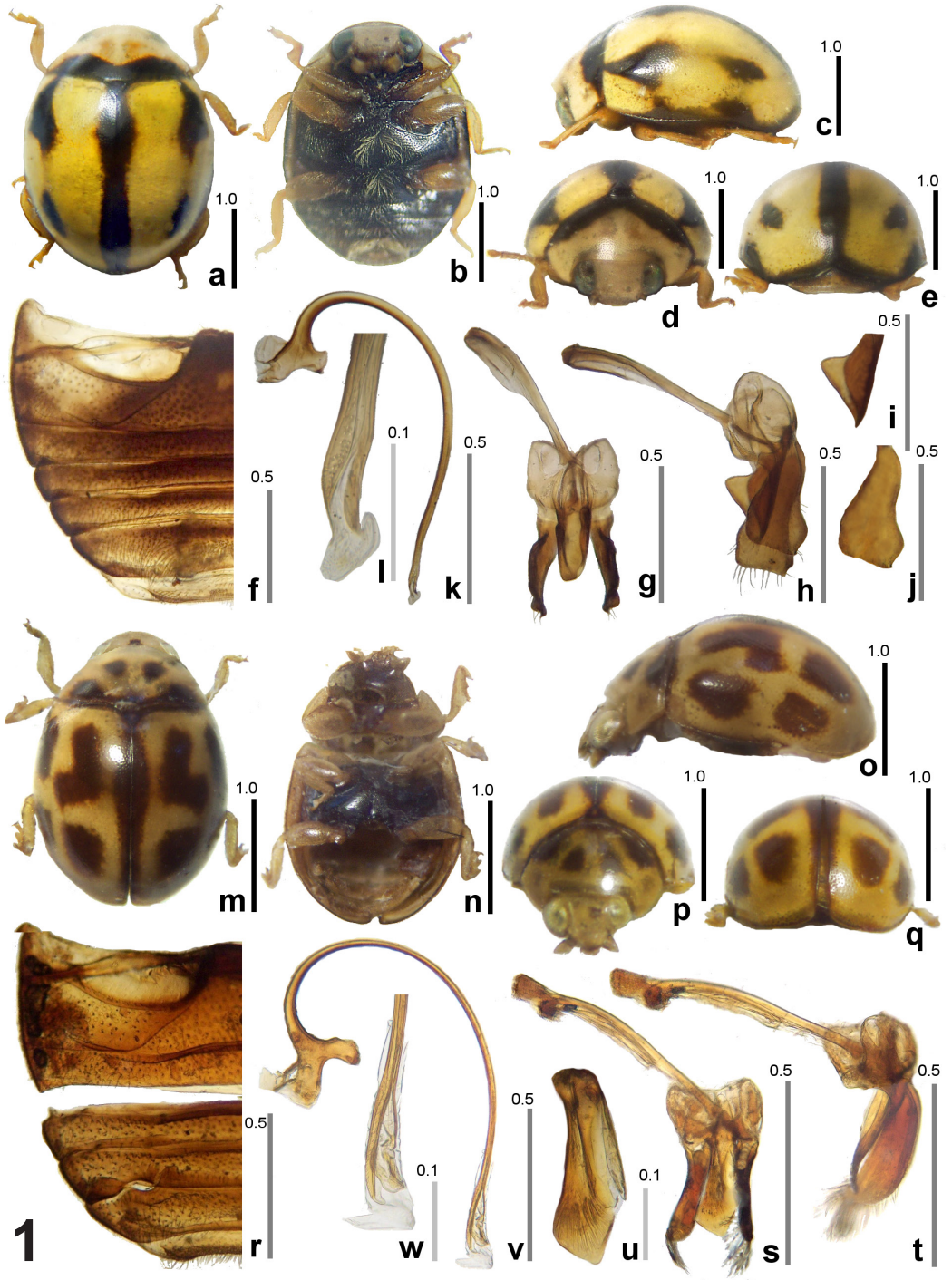
Prodilis saopaulo González & Větrovec, **new species**
(Figs. 2n-2ac)

Holotype ♂ "Saõ [sic!] Paulo / Bras. MRaz lgt / Mus. Pragense" (NMP).

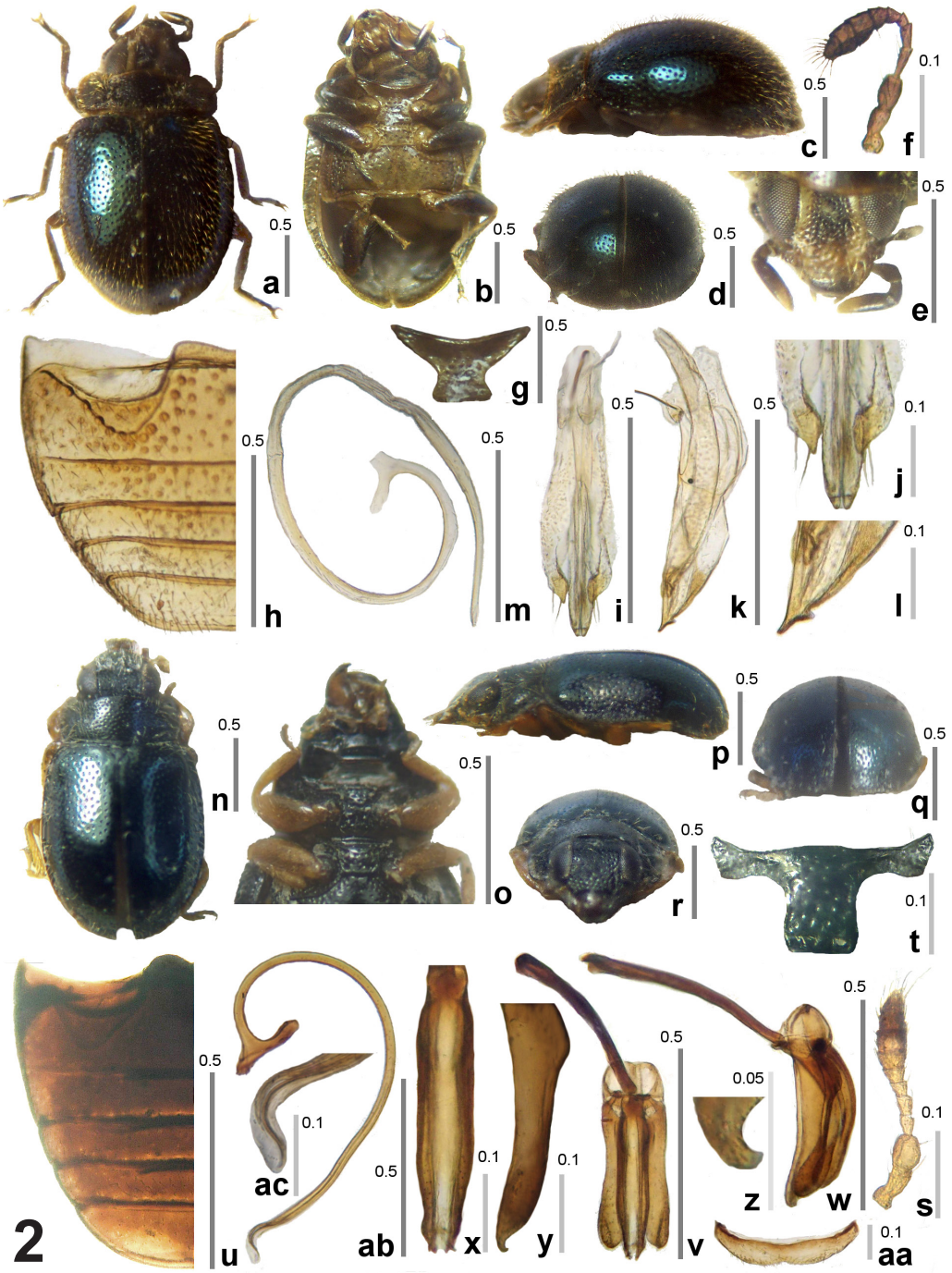
Diagnosis. The elongated body and entirely black dorsum, with greenish luster including head, pronotum and elytra identify this species (Fig. 3n). The entirely black dorsum does not appear in any known species of the genus except *P. kristy* Gordon & Hanley, 2017 from Brazil, but this species has a rounded body. Other species also have head, pronotum and elytra black, but these always present light areas on the head or in the borders and fore angles of the pronotum, and they are mostly circular in shape. The male genitalia also have the penis apex with an outer side 90° fold (Figs. 2ab-2ac), which is unique in the genus and in the tribe.

Description. Color pattern (Figs. 2n-2r). Body black, elytra with green metallic luster. Antennae yellow and mouthparts brown. Ventral side black, except abdomen dark brown with middle part of ventrites 1 and 2 black. Legs yellow. Pubescence yellowish white. **Morphology.** Body oblong**,** elongate, elytra depressed with slightly curved sides, almost straight medially, widest at middle of elytra (Figs. 2n-2q). Frons about twice the width of an eye. Eyes vertically elongated with almost parallel inner sides, twice as long as wide, short eye canthus 1/4 width of the eye. Clypeus with apical margin slightly concave (Fig. 2r). Antenna with ten antennomeres, the last four forming an oval club (Fig. 2s). Maxillary palpi lost. Pronotum widest near anterior border, advanced anterior angles and plain lateral borders (Fig. 2n). Mesoventrite T-shaped, apically truncate, prosternal process elongated, with lateral carina (Fig. 2t). Metaventrite without setiferous pit. Abdominal postcoxal lines complete, evenly rounded, extended slightly more than 3/5 distance to apical margin of ventrite (Fig. 2u). Dorsal punctures large and very regular, slightly larger in elytra, space between them about half the diameter in head and pronotum, slightly larger on elytra, separated by a diameter on average; ventral side punctures large, distributed, more coarse in the prosternum, mesoventrite and anterior border of the metaventrite, abdominal punctures small, sparse, separated by four diameters on average, a little more abundant on ventrite 5. Pubescence decumbent with hairs in each puncture, hair size about 3/4 length of scutellar shield, on pronotum and elytra concentrated on the lateral borders, scarce on ventral side. **Male terminalia.** Apex of ventrite 5 convex, rounded, apex of ventrite 6 triangularly notched in the center (Figs. 2u-2aa). Tegmen elongated, slightly more than three times as long as wide, phallobase short, transverse, with rounded posterior angles. Tegminal strut somewhat longer than the rest of the tegmen (Figs. 2v-2w). Penis guide symmetrical, more than four times longer than wide, with almost parallel sides in the basal half, slightly sinuous, maximum width at 2/3 of the length, then a small contraction before the rounded apex that is bifurcate, in lateral view parallel sides somewhat sinuous, with dorsal keel arched at the base, at the apical 1/6 sharply narrowed to end in a small hook (Fig. 2x-2z). Parameres about 1/8 shorter than the penis guide, curved inward, narrow at base, widening at the apical fourth, pubescence sparse and short at the apex (Figs. 2v-2w). Penis semicircular in the basal 1/2, then only slightly curved towards the inner side, but somewhat sinuous, presents at the apex a short fold very curved towards the outer side, ending perpendicular to the tube; penis capsule with aligned outer and inner arms, oblique with respect to the tube, the inner arm twice the length of the outer one, four times as long as wide, basal margin almost straight, slightly sinuous (Figs. ab-ac). **Female.** Unknown.

Measurements (mm): TL 2.0; PL 0.35; PW 0.9; EL 1.5; EW 1.2; GD 0.6.



Figures 1a-1w. a-l: *Cyrea napoensis* **n. sp.**; a-e: habitus (dorsal, ventral, lateral, frontal, posterior); f: abdomen; g-h: tegmen; i: penis guide; j: paramere; k-i: penis and detail. m-w: *Dilatitibialis manaus* **n. sp.**; m-q: habitus (dorsal, ventral, lateral, frontal, posterior); r: abdomen; s-t: tegmen; u: penis guide; v-w: penis and detail. Scale bars in mm. / a-l: *Cyrea napoensis* **sp. n.**; a-e: habitus (dorsal, ventral, lateral, frontal, posterior); f: abdomen; g-h: tegmen; i: guía del penis; j: parámero; k-i: penis y detalle. m-w: *Dilatitibialis manaus* **sp. n.**; m-q: habitus (dorsal, ventral, lateral, frontal, posterior); r: abdomen; s-t: tegmen; u: guía del penis; v-w: penis y detalle. Escalas en mm.



Figures 2a-2ac. a-m: *Neaporia chucanti* **n. sp.**; a-d: habitus (dorsal, ventral, lateral, posterior); e: head; f: antenna; g: prosternum; h: abdomen; i-l: tegmen and details; m: penis. n-ac: *Prodilis saopaulo* **n. sp.** n-r: habitus (dorsal, ventral, lateral, frontal, posterior); s: antenna; t: prosternum; u: abdomen; v-w: tegmen; x-z: penis guide and detail; aa: ventrite 6; ab-ac: penis and detail. Scale bars in mm. / a-m: *Neaporia chucanti* **sp. n.**; a-d: habitus (dorsal, ventral, lateral, posterior); e: cabeza; f: antena; g: prosterno; h: abdomen; i-l: tegmen y detalles; m: penis. n-ac: *Prodilis saopaulo* **sp. n.** n-r: habitus (dorsal, ventral, lateral, frontal, posterior); s: antena; t: prosterno; u: abdomen; v-w: tegmen; x-z: guía del penis y detalle; aa: ventrito 6; ab-ac: penis y detalle. Escalas en mm.

Geographic distribution. Brazil, State of São Paulo.

Remarks. Gordon & Hanley (2017) in the revision of the tribe Cephaloscymnini recognized eight species of *Prodilis* and described 63 new species. The genus is distributed from Mexico to Argentina. *Prodilis saopaulo* **n. sp.** is assigned to the genus by the broad frons with the margins of the eyes almost parallel (Fig. 2r), and by the prosternal process with lateral carinas.

Etymology. The species is named after the state of São Paulo, Brazil, where the species comes from.

Prodilis pastaza González & Větrovec, **new species**
(Figs. 3a-3l)

Holotype ♂ "Ecuador, prov. Pastaza (8) / 1.6 km see of Santa Clara / S 01°16'17" W 77°52'32" / 660m, 17.xi.2006, M. Fikáček / & J. Skuhrovec lgt.", "drying up wooden boards / exposed to the sun, near lowland / rain forest and stony river" (NMP).

Diagnosis. Highly recognizable by the dark brown elytra with yellow borders and a large red oval discal spot (Fig. 3a), and the frons with the upper half black and the lower half golden yellow (Fig. 3e). The red elytra disc spot exists in several other species of the genus, but in none with clear elytral borders, and most males of these species have an entirely black head.

Description. Color pattern (Figs. 3a-3e). Head black, with golden yellow macula on apical 1/2, base of golden yellow area slightly tridentate, golden area divided in three by two vertical lines slightly raised and not very noticeable, somewhat brown. Antenna yellow and mouthparts brown. Pronotum black with lateral margins and anterior angles yellow. Scutellar shield reddish brown. Elytra with large, regularly oval, median red macula, from 1/5 to 2/3 of the length, and a narrow yellow lateral border from the humerus to the apex, about 1/10 the width of elytron. Ventral side brown, except lateral borders of hypomeron yellow, and epipleuron yellow bordered with brown. Abdomen yellowish brown, anterior middle area of first ventrite almost black. Legs yellow. Dorsal pubescence white to greyish yellow. **Morphology.** Body oval, depressed, elytra slightly curved, almost parallel sides medially, widest at 1/3 the length of the elytra (Fig. 3a). Frons almost twice the width of an eye. Eyes vertically elongated twice as long as wide, with divergent inner sides towards the clypeus. Very short eye canthus, 1/5 of the width of the eye. Clypeus apex straight (Fig. 3e). Antenna with ten antennomeres, the last four forming an oval club (Fig. 3g). Apical maxillary palpomere slender, narrowed to apex in apical 1/2 (Fig. 3f). Pronotum wide, with reflexed lateral margin and advanced anterior angles, widest at anterior 1/3 (Fig. 3a). Prosternum T-shaped, apically expanded, prosternal process elongated, wide, parallel between coxae, with lateral carina (Fig. 3h). Metaventrite without setiferous pit. Abdominal postcoxal lines complete, irregularly rounded, extended 4/5 of distance to apical margin of ventrite, outer side of postcoxal plate slightly concave (Fig. 3i). Dorsal punctures deep and regular, similar in head and pronotum, elytra punctures almost twice as large, space between punctures 1.5 times the diameter on head and pronotum, twice on elytra; few large punctures on the ventral side, almost non-existent in the middle part of the metaventrite, variable on abdomen, thicker and closer on ventrite 1 where they are separated by two diameters on average, smaller and more separated towards posterior border of the abdomen. Pubescence decumbent with hairs in each puncture, hairs almost as long as the scutellar shield, in pronotum

and elytra concentrated on the lateral borders, scarce on ventral side. **Male terminalia.** Ventrite 5 as long as ventrites 3 and 4 together, with rounded apex, apex of ventrite 6 widely truncate (Figs. 3i, 3j). Tegmen almost three times as long as wide, phallobase short, wider than long, trapezoidal. Tegminal strut as long as tegmen. Penis guide symmetrical, almost four times as long as wide, maximum width 1/5 of length, smoothly converging straight sides until apex, this strongly emarginate with a triangular notch of 1/8 of the length; in lateral view with a raised keel at 1/3 of the length, then convergent to end in a somewhat hooked apex towards the inner side in the apical 1/6 (Figs. 3k-3l). Parameres little shorter than the penis guide, curved inwards, in lateral view widening at 2/5 of the length, then converging to end in a rather narrow apex, with scarce and short hairs (Figs. 3k-3l). Penis semicircular in basal 4/5, apical 1/5 almost straight, tube of constant thickness, with a very narrow and sinuous inner border filament at the apex and a membranous outer border; penis capsule with outer and inner arms perpendicular to the penis tube, outer arm triangular, elongated, inner arm 3 times longer than wide, slightly longer than outer arm; irregularly convex basal margin (Figs. 3n-m). **Female.** Unknown.

Measurements (mm): TL 2.2; PL 0.6; PW 1.2; EL 1.6; EW 1.5; GD 1.0.

Geographic distribution. Ecuador, Pastaza province.

Remarks. See discussion of the genus *Prodilis* under *P. saopaulo* **n. sp.** The new species is assigned to the genus by the broad frons with slightly divergent margins of the eyes (Fig. 3e) and by the prosternal process long with lateral carina (Fig. 3h). Apical maxillary palpomere of this species (Fig. 3f) presents an intermediate configuration between the acute shape (as in *Neaporia*) and the securiform shape (as in *Prodilis*), which in these cases makes it useless for the purpose of differentiating between the two genera.

Etymology. The species is named after the province of Pastaza, Ecuador, where this species was collected.

Prodilis qedi González & Větrovec, **new species**
(Figs. 3m-3y)

Holotype ♂ "Panamá, Panamá Prov., / Cerro Jefe, 770-1000m, / 09°13.700'N, 79°23.000'W, / 15.v.2015, individual collecting, / L. Sekerka & K. Štajerová lgt.", "♂ 2059" (NMP).

Diagnosis. *Prodilis qedi* **n. sp.** is distinguished by the rounded shape, the bluish black color (Fig. 3o) and the bicolor head, blue in the upper half and yellow in the lower half, medially bidentate apex of bluish-black area (Fig. 3t), characters that do not occur together in the genus except in *Prodilis molly* Gordon & Hanley, 2017, from Colombia, a species that presents a very wide penis guide, three times as long as wide, different from the present species, five times as long as wide. Additionally, the abdominal postcoxal lines are concave on the outer side to a greater degree than any known species of the genus (Fig. 3w), while the parameres narrowing sharply at two-thirds of the length are unique in the genus (Fig. 3ab).

Description. Color pattern (Figs. 3o-3t). Head bright blue, with yellow macula in apical 1/2, apex of bluish area bidentate, penetrating in the yellow area as much as ¼ the length of the eyes. Antenna yellow, mouthparts yellowish brown. Pronotum bluish black, with very narrow anterior half of lateral border, and anterior angles dark brown.

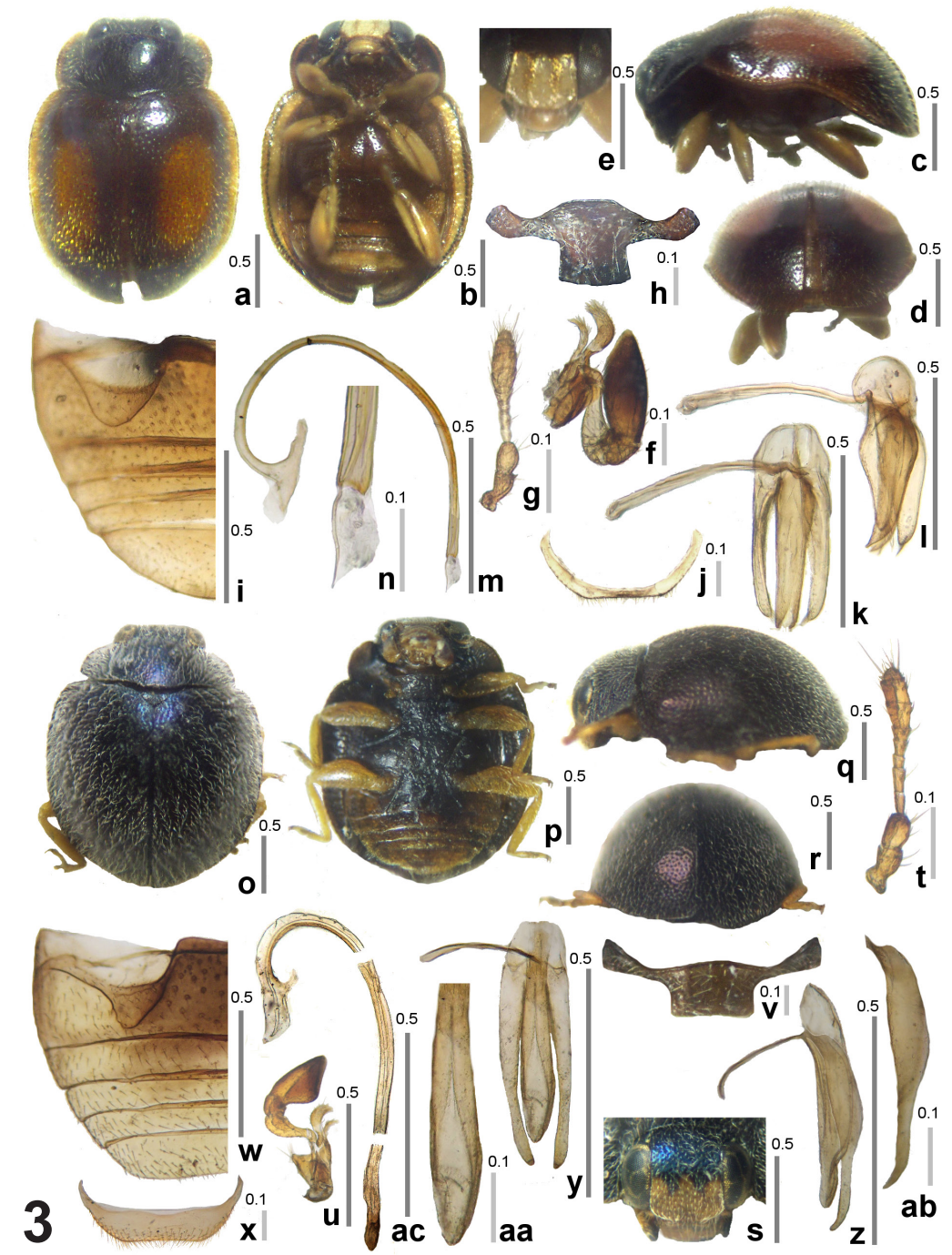
Elytra bluish black, with some purple shine, anterior third with very narrow dark brown lateral borders. Epipleuron black. Ventral side black, except lateral borders of hypomeron brown, abdomen brown with anterior middle area of first ventrite black. Legs yellow. Pubescence white. **Morphology.** Body rounded, convex, elytra with curved sides, widest anterior to middle of elytra (Fig. 3o). Frons about twice the width of an eye. Eyes vertically elongated with inner sides slightly diverging towards the clypeus, twice as long as wide. Very short eye canthus, shorter than one quarter the width of an eye. Clypeus with apical margin truncate (Fig. 3s). Antennae with ten antennomeres, the last four forming an oval club (Fig. 3t). Apical maxillary palpomere securiform, widened from base to truncate apex (Fig. 3u). Pronotum slightly convex, flared, with rounded lateral borders and slightly projected anterior angles. Prosternal process short, wide, apically truncate, without lateral carina (Fig. 3v). Metaventrite without setiferous pit. Abdominal postcoxal lines complete, angulate, extended 7/8 of the distance to apical margin of ventrite, postcoxal plate concave in the outer side (Fig. 3w). Dorsal punctures deep and regular, slightly larger on pronotum than on head, in elytra almost twice as large as on pronotum, all separated by 1/2 diameter on average. Scarce large punctures on ventral side in the prosternum, mesoventrite and anterior part of metaventrite, almost non-existent on the posterior part and sides of metaventrite; abdominal punctures variable, large punctures separated by one or two diameters in the middle 1/3 of the first ventrite, very small and disperse in the rest of the abdomen. Pubescence regular, dense, decumbent, with hairs in each puncture, hair length shorter than scutellar shield, scarce on ventral side. **Male terminalia.** Apex of ventrite 5 slightly convex, apex of ventrite 6 truncate (Figs. 3w-3x). Tegmen 3.5 times longer than wide, phallobase short, transverse and trapezoidal. Tegminal strut half the length of the rest of the tegmen. Penis guide symmetrical, almost five times longer than wide, maximum width two-thirds of length, with convex sides, slightly indented apically, in lateral view widened in the first quarter of the length, then of constant width until 3/5 of the length, where it thins abruptly to less than half, constant width continuing to the apex (Figs. 3y-3z). Parameres exceed the length of the penis guide by 1/6 of the length, curved inward, in lateral view slightly curved to the inner side, of constant width in the basal half and then tapering abruptly in the distal half to almost 1/3 of the width to an apex where they curve inward, with a small sclerosed round tip (Figs. 3aa-3ab). Penis semicircular in basal half, then almost straight to apex, tube of constant thickness, slightly thinned at apex; penis capsule with outer arm continuing the tube, widened and terminating in an oblique cut 1.5 times longer than wide, inner arm small and hooked, three times longer than wide, basal margin concave (Figs. 3ac). **Female.** Unknown.

Measurements (mm): TL 2.4; PL 0.45; PW 1.4; EL 1.8; EW 1.95; GD 1.2.

Geographic distribution. Panama, Panama province.

Remarks. See discussion of the genus *Prodilis* under *P. saopaulo* **n. sp.** The new species is assigned to *Prodilis* by the apical maxillary palpomere very wide, securiform, and by the broad frons with almost parallel margins of the eyes (Fig. 3u). The prosternal process, wide and without lateral carinae, as in *Neaporia*, suggests the need to define the characters and extension of the genera *Prodilis* and *Neaporia* better, since the characters used in Gordon & Hanley (2017) for keys and descriptions are inconsistent for some species (Fig. 3v).

Etymology. The name of the species is dedicated to one of the best scientists in the field of psychology in the Czech Republic, Radvan "QED" Bahbouh.



Figures 3a-3ac. a-n: *Prodilis pastaza* **n. sp.**; a-d: habitus (dorsal, ventral, lateral, posterior); e: head; f: maxillary palpi; g: antenna; h: prosternum; i: abdomen. j: ventrite 6; k-l: tegmen; m-n: penis and detail. o-ac: *Prodilis qedi* **n. sp.**; o-r: habitus (dorsal, ventral, lateral, posterior); s: head; t: antenna; u: maxillary palp; v: prosternum; w: abdomen; x: ventrite 6; y-z: tegmen; aa-ab: penis guide; ac: penis. Scale bars in mm. / a-n: *Prodilis pastaza* **sp. n.**; a-d: habitus (dorsal, ventral, lateral, posterior); e: cabeza; f: palpo maxilar; g: antena; h: prosterno; i: abdomen. j: ventrito 6; k-l: tegmen; m-n: penis y detalle. o-ac: *Prodilis qedi* **sp. n.**; o-r: habitus (dorsal, ventral, lateral, posterior); s: cabeza; t: antena; u: palpo maxilar; v: prosterno; w: abdomen; x: ventrito 6; y-z: tegmen; aa-ab: guía del penis; ac: penis. Escalas en mm.

Tribe CHILOCORINI Mulsant, 1846

Chilocorus nigrita (Fabricius, 1798)

Coccinela nigrita Fabricius, 1798: 79.
Chilocorus nigritus Mulsant, 1850: 463; Crotch 1874: 184; Korschefsky 1932: 240.
Chilocorus nigrita Correa, 2008: 16.
First record for French Guiana.

Specimens examined. FRENCH GUIANA: 1 ♂ "French Guyana / Matouri, house garden / 04.01.2018 / M. Plachetka leg." (JVC).

Remarks. Species of Eastern Hemisphere origin, introduced in several countries of the world for its effectiveness as a scale insect controller (Coccomorpha: Diaspididae) (Omkar & Pervez 2003), especially in Asia, Africa and Oceania (Poorani 2002). In America it has been reported in USA (Florida) and in several Caribbean islands (Dominica, Trinidad and Tobago, Puerto Rico, Grenada) (Thomas & Blanchard 2014), while in South America it has been repeatedly reported from Brazil, Colombia and Venezuela, where it is abundant in many areas (Arcaya *et al*. 2018).

Harpasus zonatus (Mulsant, 1850)

Orcus (*Harpasus*) *zonatus* Mulsant, 1850: 473.
Curinus (*Harpasus*) *zonatus* Crotch, 1874: 190.
Curinus zonatus Korschefsky, 1932: 252; Blackwelder 1945: 451.
Harpasus zonatus Chapin, 1965: 239, 240; Gordon 1987: 24; Almeida & Carvalho 2006: 32; González *et al*. 2008: 42; Correa & Almeida 2010: 353.
First record for Paraguay.

Specimens examined. PARAGUAY: 1 ♂ "Paragay [sic!]", "17", "♂ 1983" (JVC).

Remarks. The species is abundant in Brazil, from where it has been reported in several states (Correa & Almeida 2010). The specimen examined presents the most common habitus in the species, confirmed by the male genitalia.

Tribe CHNODIINI Mulsant, 1846

Chnoodes separata Mader, 1957

Chnoodes separata Mader, 1957: 86; Krüger 2018: 42.
First record for Paraguay.

Specimens examined. PARAGUAY: 1 ♂ "Paraguay, Paraguarí, Comena, Caatymi, 27 a 30-I-2004. leg. B. Garcete / Oliver Trap" (GGC). BRAZIL: 1 ♂ "São Paulo / Bras. M Raz. Lgt. / Mus. Pragense", "♂ 1959" (NMP); 1 ♀ "PE, Recife, UFRPE / em *Malpiguia emarginata* / 22.ix.2010; / Giorgi & Leme" (UFRPE); 1 ♂ "PE, Recife, UFRPE / em *Malpiguia emarginata* / 9.x.2010; / J.A. Giorgi Col" (UFRPE); 1 ♂ "Perú, Cusco, San / Pedro Manu 1500m / 16/18-VI-2006, Leg. R. / Westerduijn, Montane evergreen forest" (GGC). PERU: 1 ej. (holotype) "Perú: Marcapata, 790 m., 3.2.1949, leg. Kuschel", "Holotype *Chnoodes separata* mihi" "Holotype" "Chile MNHN Tipo N° 2197" (MNNC); 1 ♂ "Perú, AM Bongará / Cuispes, Fundo Arawishka / 5°53'44.03" S / 77°57'52.95" 1536m FIT / 11-14.vi.2016 / M.

Rodriguez", "♂ 1885" (MUSM); 1 ♂ "Madre de Dios / Perú 500m", "♂ 1909" (NMP).

Remarks. The species is difficult to distinguish by its external characters; however, Krüger (2018) dissected and documented the genitalia of a male paratype of this species, allowing its accurate identification. Previously the species was known from Bolivia, Brazil and Peru (Mader 1957; Krüger 2018).

Coelaria erythrogaster Mulsant, 1850

Exoplectra erythrogaster Mulsant, 1850: 916, 1042.
Coeliaria erythrogaster Mulsant, 1850: 1042; Crotch 1874: 283; Korschefsky 1932: 229; Blackwelder 1945: 451; Churata-Salcedo & Almeida 2017: 4.
First record for Suriname.

Specimens examined. SURINAME: 1 ♂ "Surinam / Juliana Top / XII.1999 / Pumr. Leg" (JVC).

Remarks. The habitus and the male genitalia are very characteristic. *Coelaria erythrogaster* has been previously reported from Bolivia, Brazil, and Paraguay (González 2010; Churata-Salcedo & Almeida 2017).

Sidonis vianai (González, 2013), **new combination**
(Figs. 4a-4i)

Neorhizobius vianai González, 2013: 65.
Sidonis vianai Churata-Salcedo, 2016: 77 (unpublished thesis).
First record for Brazil.

Specimens examined. ARGENTINA: holotype ♂ "Misiones – Argentina / Dept. Concep. Sta. María / XI-1958 M.J. Viana", "ex Colección / M. Viana / Arg 033071" "Colección / J.E. Barriga / Chile […]" (JEBC); 1 ♀ paratype same data as holotype except "Arg 032466", "Chile 076254". BRAZIL: 1 ♂ and 2 ♀ "Brasil Mato Grosso / Chapada dos Guimaráes / Faz. Mutuca, 6.12.2009 /Leg. Rocha & Gava, Intercep." (CVMD).

Remarks. The review of the type material and specimens from Brazil has allowed us to confirm that the species *N. vianai* belongs to the genus *Sidonis* Mulsant, 1850, as Churata-Salcedo (2016) proposed, and to include a color pattern re-description, since both the holotype and the paratype specimens have a somewhat deteriorated state and faded coloration. A morphological description in González (2013).

Color pattern re-description (specimen ♂ from Brazil) (Figs. 4a-4d). Head black. Antenna and mouthparts brown. Pronotum black except lateral 1/3 orange. Elytra black with apex diffusely brown. Ventral side dark brown except for anterior border of hypomeron orange brown, mesoventrite and metaventrite black, and three last abdominal ventrites reddish brown. Legs with femora dark brown to black, tibiae and tarsi reddish brown. Pubescence white. In the holotype and the paratype specimens, the head is reddish brown, the pronotum dark brown with 1/3 lateral yellow brown and the elytra dark brown (González 2013).

Measurements (mm): TL 2.5-3.0; PL 0.6-0.7; PW 1.3-1.5; EL 1.9-2.2; EW 2.1-2.4; GD 1.3-1.5.

Geographic distribution. Argentina, Misiones province, and Brazil, state of Mato Grosso.

Remarks. Mulsant (1850) described the genus *Aulis* Mulsant, 1850 to include some ladybird species of Afrotropical and Neotropical realms. The American species were assigned to the subgenus *Sidonis*. Later Crotch (1874) and Sicard (1912) described a few new species for South America. Korschefsky (1931) and Blackwelder (1945) included *Sidonis* (as a subgenus of *Aulis*) in the tribe Coccidulini, while Gordon (1994) overlooked it and did not include it in his revision of Coccidulinae or Exoplectrinae. It was not until the 21st century when Churata-Salcedo (2016) and Churata-Salcedo *et al.* (2017) determined the validity of *Sidonis* as a genus and assigned it to the tribe Chnoodini in the vicinity of *Neorhizobius* Crotch, 1874. Churata-Salcedo (2016) proposed that the two species described by González (2013) in *Neorhizobius* should be transferred to *Sidonis*. Churata-Salcedo *et al.* (2017), in their revision of *Sidonis*, formalized *N. barrigai* González, 2013 as a synonym for *Sidonis guttata* (Sicard, 1912) without mentioning *N. vianai*, whose new combination is formally established here.

Siola karpish González & Větrovec, **new species**
(Figs. 4j-4v)

Holotype ♂ "Perú, Huanuco Prov., / Tunel Karpish, foggy tropical / forest, 10. – 11.ii.2013 / V. Hula & J. Niedobivá leg.", "♂ 1972" (NMP). **Paratype:** 1 ♂ "Perú, AM. Abra Patricia / Trocha Mono 17.xi.2012 / 05°41′36″S 77°48′41.9″W / 2362m Malaise trap J. / Suárez & P. Sánchez", "♂1850" (MUSM).

Diagnosis. *Siola karpish* **n. sp.** is characterized by the rounded shape and the black color, with or without greenish sheen, only the anterior angles of the pronotum with a narrow yellow border (Fig. 4j), but especially by the legs yellow with the basal two thirds of the femora black (Fig. 4k). Since these characters are shared with *S. atra* González, 2015a from Ecuador, for the identification of this species it is necessary to review the genitalia of the male, whose penis guide is about six times as long as wide (Fig. 4t), while in *S. atra* it does not exceed three times.

Description. Color pattern (Figs. 4j-4m)**.** Head black, antenna, and mouthparts yellowish brown. Pronotum black with greenish metallic sheen, anterior border narrowly yellow from the anterior angle to the middle part of the eyes. Scutellar shield black. Elytra black with greenish metallic sheen. Epipleuron black. Ventral side black, anterior border of hypomeron yellow, abdomen yellowish-brown with anterior border of first ventrite dark brown. Legs yellow with the basal 2/3 of the femora black. Pubescence yellowish white. **Morphology.** Body almost circular, wide, very convex, elytra with regularly curved sides, widest just anterior to middle of elytra (Fig. 4j). Frons about twice the width of an eye. Eyes round. Eye canthus protruding, about 3/4 the width of an eye. Antenna with ten antennomeres, the last four forming an oval club, basal antennomere very large, laterally compressed (Fig. 4o). Clypeus apex slightly concave, laterally angulate. Apical maxillary palpomere securiform. Pronotum transverse, with very rounded angles. Hypomeron with a deep groove parallel to the anterior border and leading to the anterior notch of the pronotum (Fig. 4n). Prosternum Y-shaped, prosternal process raised, without carinae. Abdominal postcoxal lines complete, angled to posterior ventrite margin, flattened along ventrite apex, curved abruptly in a right angle, then oblique toward basal ventrite margin near lateral border. Ventrites 2 and 4 apexes deeply concave in a semicircular membranous notch (Fig. 1p). Head punctures deep and regular, the same size, separated 1.0 diameters on average, pronotum punctures of the same size, separated 1.5 diameters, elytra punctures regular, slightly larger than those on pronotum, separated by two diameters on average, ventral side punctures sparse, abundant towards the borders, absent in the central and posterior parts of the metaventrite, abdomen punctures fine and regular, separated by

twice their diameter, larger and very scarce on the abdominal postcoxal plate. Dorsal pubescence decumbent, dense, approximately half the length of the scutellar shield, ventral pubescence scarce. **Male terminalia.** Apex of ventrite 5 truncate, apex of ventrite 6 slightly convex (Figs. 4p-4q). Tegmen very elongated, almost six times longer than wide, phallobase little elongated, curved and rounded on the posterior side. Tegminal strut two-thirds the length of the rest of the tegmen. Penis guide symmetrical, six times longer than wide, spindle-shaped, maximum width at three-fourths of the length; in lateral view in the shape of an elongated triangle curved slightly towards the outer side in apex (Figs. 4r-4t). Parameres exceed half the length of the penis guide, in lateral view almost parallel sides, narrowing slightly towards the rounded apex and slightly curved at the distal 1/3 towards the outer side (Figs. 4r-4s). Penis curved in a semicircle in the basal third, then almost straight, apex with sinuous tip with membranous outer area. Penis capsule with short outer arm, sub-quadrangular, smaller inner arm, very curved towards the penis tube, basal margin sinuous, convex (Figs. 4u-4v). **Female.** Unknown. **Variation.** The specimen form Amazonas, Peru, lacks a greenish sheen on the dorsal surface.

Measurements (mm): TL 2.8-3.0; PL 0.5-0.55; PW 1.6-1.7; EL 2.3-2.5; EW 2.4-2.6; GD 1.4-1.5.

Geographic distribution. Peru, departments of Amazonas and Huánuco.

Remarks. Mulsant (1850) described the genus *Siola* Mulsant, 1850 based on a very special character, which is the presence of a groove on the hypomeron parallel to the lateral border of the pronotum (Fig. 4n). The genus is quite distinctive among the Chnoodini with its complete abdominal postcoxal lines touching the posterior border of ventrite 1. Mulsant (1850) initially included two species from Colombia; that remained unchanged until González (2015a) described a third species from Ecuador, *Siola atra* González, 2015.

Etymology. The species is named after the Karpish Tunnel, Huánuco, Peru, the collection site, a place where interesting species of ladybirds have been found repeatedly.

Tribe COCCINELLINI Mulsant, 1846

Coleomegilla occulta González, 2014

Coleomegilla occulta González, 2014a: 109.
First record for Bolivia.

Specimens examined. BOLIVIA: 1 ♂ " Incachaca / 20.9.2005 / Bolivie / leg. Kondler2", *Coleomegilla occulta* González, 2014 / Větrovec det. 2018" (JVC).

Remarks. The species has been previously reported from Argentina, Brazil, Paraguay, and Peru (González 2014a).

Neda areolata (Gorham, 1892), **new combination**
(Figs. 5a-5k)

Neocalvia areolata Gorham, 1892: 169; Korschefsky 1932: 530; Camargo 1937: 376; Blackwelder 1945: 454; Bicho & Almeida 1988: 187.

Specimens examined. PANAMA: 1 ♂ "Panamá, Chiriquí / La Fortuna. Cerro / Pinola. 6.9.2010 / F. Pavel leg., 1250m", "N 08°45'29.6" / W 082°15'44.4"" (NMP).

Diagnosis. The species is immediately recognized by its unique habitus, a light brown color with yellow spots, of which six in the elytra (2:1:2:1) leave a very thin brown net between them, and a seventh point-like spot in the intersection of the posterior three (Fig. 5a). This design is very different from any known species of the genus *Neda* Mulsant, 1850. Here the male genitalia are described for the first time.

Description. Male terminalia. Apex of ventrite 5 truncate, ventrite 6 with rounded apex, truncate medially (Figs. 5e-5f). Tegmen elongated, 4.5 times longer than wide, phallobase elongated, curved, terminating in two independent tips. Tegminal strut one-third the length of the rest of the tegmen. Penis guide symmetrical, three times as long as wide, with convergent sides from the base to 5/6 of the length, where it has half the width of the base, then bifurcates into perpendicular tips; in lateral view gradually tapering to a pointed apex, curved towards the outer side in the apical 1/3. Parameres slightly exceed the length of the penis guide, widening in the distal half in the shape of an elongated paddle, with a rounded apex (Figs. 5g-5i). Penis wide, curved in a semicircle in the basal half, then slightly narrowing and almost straight until ending in a very small apex, which is slightly narrower than the rest of the penis tube. Penis capsule with very long outer arm, 1/3 the length of the penis tube and in line with it, ending in a short widening before the apex, trumpet-shaped; inner arm small and very curved in a hook towards the penis tube, inner angle slightly concave (Figs. 5j-5k).

Measurements (mm): TL 6.6; PL 1.3; PW 3.2; EL 5.1; EW 5.5; GD 3.1.

Remarks. *Neocalvia areolata* was described by Gorham (1892), who illustrated its unmistakable habitus. Camargo (1937) and Bicho & Almeida (1998) expressed doubts about the generic location of this species; the latter authors reviewed the genus but did not examine any specimen. Here the male genitalia are documented for the first time, and the species is transferred to the genus *Neda*, which is characterized by the apex of the penis guide bifurcated (whole and with a nipple-shaped projection in *Neocalvia* Crotch, 1871), and the penis capsule with a long, trumpet-shaped outer arm (short and unexpanded in *Neocalvia*). The penis is also similar to those of *Neoharmonia* Crotch, 1871, but in this genus the penis guide has an entire apex. The genitalia of the present species resemble that of *Neda callispilota* (Guérin-Méneville, 1844) but its habitus with elytra white with eight black spots is very different.

Neda callispilota (Guerín-Méneville, 1844)

Coccinella callispilota Guérin-Méneville, 1844: 320.
Neda calispilota Mulsant, 1850: 294; 1866: 88.
Neda callispilota Araujo & Almeida, 2003: 3.
Cycloneda callispilota Crotch, 1874: 163; Weise 1904: 358; Korschefsky 1931: 283; Blackwelder 1945: 452; Mader 1958: 244.
Cycloneda callispilota v. *biocellata* Weise, 1922: 33; Bertoni 1925: 74; Mader 1958: 242.
First record for Uruguay.

Specimens examined. URUGUAY: 1 ♂ "Uruguay / Colonia, Playa / Arenisca / 28.12.2015 / lgt. G.J.Witmer", "*Neda callispilota* / det. Jaroslav Větrovec, 2019" (NMP).

Remarks. The known distribution of the species includes Argentina, Brazil, Colombia, Paraguay, and Mexico (Blackwelder 1945; Bertoni 1925).

Tribe CRYPTOGNATHINI Mulsant, 1850

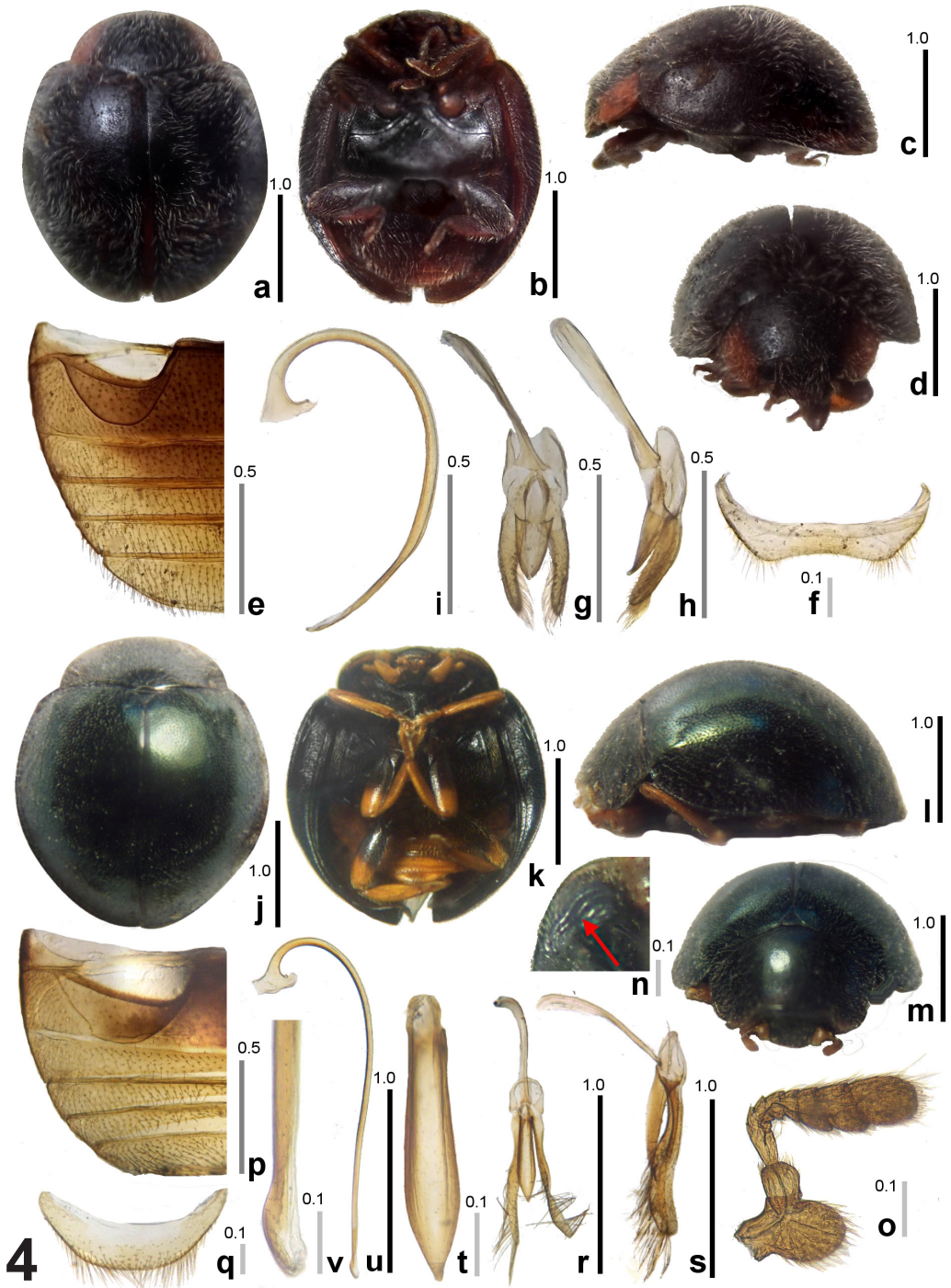
Calloeneis veraguas González & Větrovec, **new species**
(Figs. 5l-5u)

Holotype ♂ "Panamá, Veraguas prov., / Santa Fé – Cerro Mariposa, 800- / 1170m, 08°30.375'N, 81°07.218'W, / 30.v.2015, individual collecting, / L. Sekerka & K. Štajerová", "♂ 2043" (NMP).

Diagnosis. *Calloeneis veraguas* **n. sp.** is immediately recognized among the species of the genus by the black color with pronotum borders yellow and the red discal spot on the elytron (Fig. 5l). Male genitalia with penis guide much longer than parameres (Figs. 5s-5t) also distinguish this species from any other known in the genus. Male genitalia only bears some resemblance to *C. krista* Gordon & Hanley, 2020 from Venezuela, a light-colored species with discrete dark spots.

Description. Color pattern (Figs. 5l-5u)**.** Head yellow, antenna and mouthparts yellowish brown. Pronotum black, lateral one-third and anterior border narrowly yellow. Scutellar shield black. Elytra black, shiny, with a large red discal spot medially on elytron. Epipleuron black. Ventral side black except hypomeron yellow. Abdomen dark brown, median part of ventrites 1 to 4 black. Legs yellowish brown. **Morphology.** Body almost circular, very convex, elytra with sides regularly rounded, widest at middle (Figs. 5l-5m). Frons about 1.5 times the width of an eye diameter. Eyes round, eye canthus conspicuous, about 1/2 the width of an eye (Fig. 5n). Clypeus apex slightly convex (Fig. 5n). Apical maxillary palpomere slightly widening apically. Antenna with eight antennomeres, the last two forming a club, antennomere 8 as long as 5-7 combined (Fig. 3p). Pronotum transverse, very convex, lateral sides slightly explanated on anterior half. Prosternum flat, anterior margin expanded concealing mouthparts in repose; prosternal process without carina. Epipleuron descending externally, foveate for reception of femoral apices. Abdominal postcoxal lines incomplete, evenly rounded, extended 3/4 distance to apical margin of ventrite, extended forward without reaching the anterior or lateral border of ventrite (Fig. 5q). Head punctures small, space between them heavily microreticulated, separated by about twice their diameter; pronotum punctures slightly larger than those on head, separated by 1.5 diameters; elytra punctures on elytron regular, larger than on pronotum, separated by 1.5 diameters; ventral side with very few punctures, more abundant on the prosternum, separated about a diameter, punctures on metaventrite sparse, separated by four diameters; abdominal punctures fine and sparse, slightly more dense on ventrite 5. **Male terminalia.** Ventrite 5 with rounded apex, with a tuft of straight hairs directed outwards (Fig. 5q). Apex of ventrite 6 truncate, slightly notched in the center (Fig. 5r). Tegmen elongate, 3.5 times as long as wide, phallobase transverse, somewhat trapezoidal. Tegminal strut 3/4 the length of the rest of the tegmen (Fig. 5u). Penis guide symmetrical, elongate, three times as long as wide, subtriangular, with rounded apex; lateral view has a large dorsal keel at the base, then slightly narrowing to the end in a sharp point, distal 1/4 slightly inclined towards the inner side. Parameres short, 2/3 the length of the penis guide, with sides parallel in the basal half, then the lower border curves to end in a pointed apex, in the distal half of the inner side an abundant brush of hairs, as long as 2/3 of the length of the paramere, at the apex another tuft of hairs narrow but exceeding the length of the paramere by 4/5 (Figs. 5s-5u). The penis was lost during preparation, but with very large penis capsule, long inner arm in the direction of the penis guide, short outer arm, trapezoidal. **Female.** Unknown.

Measurements (mm): TL 1.7; PL 0.4; PW 1.0; EL 1.3; EW 1.5; GD 1.0.



Figures 4a-4v. a-i: *Sidonis vianai* (González); a-d: habitus (dorsal, ventral, lateral, frontal); e: abdomen; f: ventrite 6; g-h: tegmen; i: penis. j-v: *Siola karpish* **n. sp.**; j-m: habitus (dorsal, ventral, lateral, posterior); n: hypomeron detail; o: antenna; p: abdomen; q: ventrite 6; r-s: tegmen; t: penis guide; u-v: penis and detail. Scale bars in mm. / a-i: *Sidonis vianai* (González); a-d: habitus (dorsal, ventral, lateral, frontal); e: abdomen; f: ventrito 6; g-h: tegmen; i: penis. j-v: *Siola karpish* **sp. n.**; j-m: habitus (dorsal, ventral, lateral, posterior); n: detalle del hipomerón; o: antena; p: abdomen; q: ventrito 6; r-s: tegmen; t: guía del penis; u-v: penis y detalle. Escalas en mm.

Figures 5a-5u. a-k: *Neda areolata* (Gorham); a-d: habitus (dorsal, lateral, frontal, posterior); e: abdomen; f: ventrite 6; g-i: tegmen and detail; j-k: penis and detail. l-u: *Calloeneis veraguas* **n. sp.**; l-o: habitus (dorsal, ventral, lateral, posterior); p: antenna; q: abdomen; r: ventrite 6; s-t: tegmen; u: penis guide. Scale bars in mm. / a-k: *Neda areolata* (Gorham); a-d: habitus (dorsal, lateral, frontal, posterior); e: abdomen; f: ventrito 6; g-i: tegmen y detalle; j-k: penis y detalle. l-u: *Calloeneis veraguas* **sp. n.**; l-o: habitus (dorsal, ventral, lateral, posterior); p: antena; q: abdomen; r: ventrito 6; s-t: tegmen; u: guía del penis. Escalas en mm.

Geographic distribution. Panama, Veraguas province.

Remarks. The genus *Calloeneis* Grote, 1873, was reviewed for South America by Gordon *et al*. (2020), recognizing 2 described species and describing 19 new species. The present species is assigned to *Calloeneis* by the antenna with eight antennomeres and the prosternum apex expanded, concealing mouthparts in repose. Gordon *et al.* (2020) indicated for the genus that "club apparently with three articles", but this species has a club of two, which together with the unusual shape of the tegmen, indicates that the current generic assignment could be revised.

Etymology. The name of the species is given by the province of Veraguas, Panama, where the holotype was collected.

Tribe DIOMINI Gordon, 1999

Diomus nicholas Gordon, 1999

Diomus nicholas Gordon, 1999: 155.
First record for Peru.

Specimens examined. PERU: 1 ♀ "Peru, Huanuco prov. / Tingo Maria / 13-23.ii 2013, / V. Hula & J. Niedobová leg.", "♀ 1969" (NMP); 1 ♂ "Perú, San Martín, / Morro de Calzada, / 1100m. 27-I-2009 Leg. / R. Westerduijn. / Understory of altered forest" (GGC); 2 ♀ "Perú, Loreto / Tamshiyacu, 100 m. / 3 a 5-VIII-2010 leg. R. / Westerduijn. Understory of altered forest", "♀♀ 1272" (GGC).

Remarks. *Diomus nicholas* has been previously reported from Brazil and Guyana (Gordon 1999).

Diomus chiriqui González & Větrovec, **new species**
(Figs. 6a-6l)

Holotype ♂ "Panamá, Chiriqui / La Fortuna. 7.9.2010 / Cont. Divide Trail 1 / Pavel leg. 1153m", "N 08°47'06.7" W 082°12'51.2"", "♂ 2040" (NMP).

Paratypes (total 15 specimens): PANAMÁ: 4 ♂ same data as holotype (2 NMP, 2 JVC); 1 ♂ and 3 ♀ "Panamá, Chiriqui / La Fortuna. 16.9.2010 / Cont. Divide Trail # 2 / Pavel leg. 1099m", "N 08°46'37.1" W 082°12'16.8"" (JVC); 1 ♂ "Panamá, Veraguas prov., / Santa Fé - CerroMariposa, 800- / 1170m, 08°30.375'N, 81°07.218'W, / 30.v.2015, individual collecting, / L. Sekerka & K. Štajerová" (NMP); 6 ♀♀ same data as holotype (4 NMP, 2 JVC).

Diagnosis. Males of *Diomus chiriqui* **n. sp.** have a yellow head and thorax and black elytra (Fig. 6a), while the female is entirely black (Fig. 6e). This combination of colors is quite common in the genus, although most of the species that possess it have a narrow yellow or reddish border at the elytral apex. The male genitalia are the only sure character to identify this species. The species is characterized by the presence of two sclerotized areas (teeth) near the penis guide apex, and apex not strongly inclined to one side (Fig. 6i), penis with a short apical filament no more than 1/5 of the length of the penis tube, penis capsule with well-differentiated arms (Figs. 6j-6k), characters that assign it to group "C" of Gordon (1999). They are complemented by the presence of a dorsal keel, absence of hairiness in the penis guide and absence of inner hairiness in the parameres (Figs. 6g-6h), a unique combination

in the group. Also, the very divergent sides of the penis guide, which is more than twice as wide apically than at the base, does not occur in any other species of the genus.

Description. Color pattern (Figs. 6a-6d). Male with head entirely yellow, including antennae and mouthparts. Pronotum yellow. Scutellar shield black. Elytra black, including epipleuron. Ventral side black, except on the yellow head and prothorax, abdomen brown, ventrite 1 and anterior half of ventrite 2 black. Legs yellow, except brown coxa. Pubescence yellow white, translucent. Female entirely black. **Morphology.** Body oval, elytra with regularly curved sides, widest at middle (Fig. 6a). Frons about twice the width of an eye. Eyes oval, slightly longer than wide, eye canthus 1/3 the width of an eye. Clypeus with apical margin slightly convex (Fig. 6c). Antenna with eleven antennomeres, club weakly defined. Apical maxillary palpomere securiform. Prosternum Y-shaped, short. Abdominal postcoxal lines complete, extended to hind margin of ventrite, evenly rounded (Fig. 6f). Tarsus trimerous. Head punctures small, not very apparent, space between punctures about twice the diameter; pronotum punctures slightly larger than those on head, separated by a diameter on average; elytra punctures larger than the pronotum, separated by half a diameter on average; ventral side punctures small, on metaventrite separated by three times their diameter; abdomen punctures fine, scant in the middle part, densely punctured on the lateral 1/4 of the ventrites. Pubescence decumbent, dense, associated with punctures; head hairs very short, pronotal and elytral hairs larger than on head about 3/4 of length of scutellar shield; abdominal pubescence long and quite dense on the lateral borders of ventrites 2 to 5. **Male terminalia.** Apex of ventrite 5 wavy, slightly concave in the center. Apex of ventrite 6 similar to 5, with a slightly more pronounced notch (Fig. 6f). Tegmen little more than twice as long as wide, phallobase as long as wide, with rounded posterior border. Tegminal strut as long as tegmen. Penis guide asymmetric, 2 ½ times longer than wide, divergent sides somewhat concave from the base to 4/5 of the length, where it is more than twice as wide as the base, then rounded up to the apex where there is a nipple-shaped projection, on the right side the upper border has two large teeth on a membranous area; in lateral view the penis guide presents a dorsal keel at the base, then it tapers slightly into an acute triangle, somewhat sinuous near apex, inner side with membranous areas, without dorsal pubescence. Parameres exceed the penis guide by 1/5 of the length, paddle-shaped, they finish in a rounded apex, pubescence in the apical half at the borders and apex, exceeding the paramere in length, without pubescence in the inner area (Figs. 6g-6i). Penis curved in a semicircle in the basal half, then slightly curved up to the apex, at 2/3 of the length it tapers considerably, very narrow sinuous apex, on the inner side some membranous projections before the apex; penis capsule with long inner arm, twice as long as wide, outer arm slightly displaced outwards, wide, rhomboid, outer margin with a wide concavity, accessory piece present, large (Figs. 6j-6k). **Female terminalia.** Apex of ventrite 5 convex, almost truncate at middle, ventrite 6 with rounded apex (Fig. 6f). Spermatheca in S-shape, with the side of the cornu of greater diameter, of constant width and rounded apex with a little nipple-shaped projection at apex, ramus with a short beak. Infundibulum large, oval, with sclerosed tubes at both ends, coxites transversely triangular (Fig. 6l).

Measurements (mm): TL 2.4-2.6; PL 0.7; PW 1.3; EL 1.8; EW 1.8; GD 1.1.

Geographic distribution. Panama, Chiriquí province.

Remarks. The genus *Diomus* Mulsant, 1850 has a worldwide distribution, but the vast majority of the species are concentrated in South America, with about 283 species (Gordon 1999; González and Honour 2011; González 2015a, 2016) and Australia, with an estimated 150 species (Pang & Ślipiński 2009, 2010). For this study, the new species was compared in

their habitus and genitalia with the South, Central, North American and Caribbean species (Gordon 1985, 1999; Vandenberg and Hanson 2019). *Diomus chiriqui* **n. sp.** presents the characters of the genus, including the descending incomplete postcoxal lines, the trimerous tarsi, the short antenna of eleven antennomeres and the apical maxillary palpomere securiform, as well as the asymmetric male penis guide and the somewhat transverse triangular coxites of the female.

Diomus panamensis González & Větrovec, **new species**
(Figs. 6m-6x)

Holotype ♂ "Panamá, Chiriqui prov., / Boquete – El Pianista Trail. / 08°49.228'N 82°25.220'W, 1400- / 1700m, 28.v.2015, indiv. collecting, / L. Sekerka & K. Štajerová lgt", "♂ 2046" (NMP).

Paratypes: 1 ♂ same data as holotype (NMP).

Diagnosis. The head and thorax are yellow, the pronotum has five diffuse brown spots and the elytra are brown with a broad black lateral border, along with a narrow black basal border and a very narrow black sutural border (Fig. 6m); this combination of colors seems enough to identify the species, except that there are specimens that have entirely brown elytra. The male genitalia present the only sure characters to identify this species, which is characterized by the presence of two sclerosed areas (teeth) near the apex of the penis guide and apex not strongly inclined to one side (Figs. 6u-6v), penis with a short apical filament no more than 1/10 of the length of the penis tube and penis capsule with well differentiated arms (Figs. 6w-6x), characters that assign it to group "C" of Gordon (1999). (Fig. 6j), They are complemented by the absence of a dorsal keel (Fig. 6t) (this feature immediately differentiates it from *D. chiriqui* **n. sp.**), absence of hairiness in the penis guide and presence of inner hairiness in the paramere (Figs. 6s-6t), features that are only shared with two species, *D. caius* Gordon, 1999, from Bahía, Brazil, only 1.8 mm long and elytra background color yellow (against 2.6 mm and elytra background color brown in the present species), and *D. castilloi* González & Honour, 2011 from Perú, of 1.6 to 1.7 mm and elytra background color black with yellow spots.

Description. Color pattern (Figs. 6m-6p). Head entirely yellow, including antennae and mouthparts. Pronotum yellow with five small light brown spots, little noticeable, one in the center of the base and the others in a semicircle around the first. Scutellar shield black. Elytra brown with black borders, lateral border 1/3 as wide as the elytron, somewhat separated from the lateral margin in the posterior 1/3, widened at the humeral angle to cover the humerus, tapering towards the scutellar shield, from where it projects very narrowly as a vitta by the suture up to the apex (Figs. 6m-6n). Epipleuron black. Ventral side black, except head and prothorax yellow, prosternum and abdomen brown, with ventrite 1 and anterior middle area of ventrite 2 black. Legs yellow except brown coxa. Pubescence yellow. **Morphology.** Body oval, elytra with regularly curved sides, widest anterior to middle of elytra (Fig. 6m). Frons shorter than twice the width of an eye. Eyes oval, slightly longer than wide. Eye canthus one quarter the width of an eye. Clypeus apex weakly convex (Fig. 6o). Antennae with eleven antennomeres, club weakly defined. Apical maxillary palpomere securiform. Prosternum Y-shaped, short. Abdominal postcoxal lines incomplete, extended to hind margin of ventrite, evenly rounded (Fig. 6q). Tarsus trimerous. Head punctures small, not very apparent, separated by a diameter; pronotum punctures slightly larger and dense than those on head, separated by less than a diameter; elytra punctures somewhat larger than on the pronotum, separated by 1 ½ diameters on average; ventral

side punctures sparse, more abundant on the prosternum, separated by four times their diameter on the metaventrite; abdominal punctures fine, fairly regular, scant near ventrite 5 apex and on postcoxal plates. Pubescence decumbent, dense, associated with punctures; pronotum and elytra hairs approximately 1/2 longer than scutellar shield, abundant but not very visible due to its translucent color; abdominal pubescence short and sparse, long and quite dense on the lateral borders of ventrites 3 to 5. **Male terminalia.** Apex of ventrite 5 slightly notched in the center, apex of ventrite 6 truncate medially, notched in the center (Fig. 6q). Tegmen more than twice as long as wide, phallobase as long as wide, apically rounded. Tegminal strut shorter than the rest of the tegmen. Penis guide asymmetric, more than three times longer than wide, sides parallel in the basal two-thirds then converging, ending in a rounded apex turned to one side, shortly before the apex two very large teeth united at the base and loose, separated from the rest of the penis guide; in lateral view in a very regular triangle, without dorsal keel and ending in a rather sharp point, inner side membranous without pubescence. Parameres exceeding the penis guide by 1/4 of the length, with a lateral widening at the base, then thinned to continue in the shape of a paddle, broad and rounded apex. Pubescence around the outer border in the apical 1/6, as long as the paramere, additionally an oblique row of long bristles arising in the middle of the paramere shortly after middle, angled toward the border in the anterior lateral angle (Figs. 6s-6v). Penis curved in a semicircle in the basal half, tube thinning smoothly in all its extension, slightly curved in the distal half, in the apical 1/6 it forms a sinuous curve ending in a thin filament, the inner part very membranous with some isolated spines; penis capsule with the inner arm 1 ½ times as long as wide, perpendicular to the penis tube, almost sub-square outer arm of the same length as the inner but wider, slightly inclined outwards with respect to the penis tube, very concave basal margin, accessory piece present (Figs. 6w-6x). **Female.** Unknown. **Variation.** A second male specimen of this species has entirely brown elytra, including epipleuron, without traces of black spots, which makes the habitus indicated in the holotype useless for the identification of the species in specimens with this color design.

Measurements (mm): TL 2.4-2.6; PL 0.55-0.6; PW 1.25-1.35; EL 1.8-2.0; EW 1.6-1.8; GD 1.2-1.3.

Geographic distribution. Panama, Chiriquí province.

Remarks. For an analysis of the taxonomic status of the genus *Diomus*, see discussion under *D. chiriqui* sp. n. *Diomus panamensis* **n. sp.** presents the characters of the genus, including the descending incomplete postcoxal lines, the trimerous tarsi, the short antenna of eleven antennomeres and the apical maxillary palpomere securiform, as well as the asymmetric male penis guide.

Etymology. The species is named after Panama, the country where the known specimens of the species were collected.

Diomus sekerkai González & Větrovec, **new species**
(Figs. 7a-7l)

Holotype ♂ "PANAMA, Panamá prov., / Cerro Campana, 850-1030m, / 08°41.324'N 79°55.314'W, / 12.v.2015, individual collecting, / L. Sekerka & K. Štajerová lgt", "♂ 2050" (NMP).

Diagnosis (male). *Diomus sekerkai* **n. sp.** has a yellowish brown head and thorax, and entirely black elytra (Fig. 7a). This combination of colors is quite common in the genus.

The male genitalia are the only sure character to identify this species. It is characterized by a single lateral tooth near the penis guide apex (this character immediately differentiates it from *D. chiriqui* **n. sp.** and *D. panamensis* **n. sp.**), penis guide slightly shorter than the paramere, absence of a dorsal keel in the penis guide, short and sparse pubescence in its inner distal part, and long and dense pubescence in the inner distal 1/3 of the paramere, a unique combination of characters in *Diomus*.

Description. Color pattern (male) (Figs. 7a-7d). Head entirely yellow, including antenna and mouthparts. Pronotum yellow. Scutellar shield and elytra black with dark brown epipleuron. Ventral side yellow, except mesoventrite, metaventrite and abdomen brown. Legs yellow. Pubescence whitish. **Morphology.** Body oval, wide, elytra with sides regularly curved, widest anterior to middle of elytra (Fig. 7a). Frons about 1.5 times the width of an eye. Eyes oval, 1.5 times longer than wide. Very small eye canthus. Clypeus apex slightly convex (Fig. 7c). Antennae with eleven antennomeres, club weakly defined. Apical maxillary palpomere securiform. Prosternum Y-shaped, short. Abdominal postcoxal lines incomplete, extended to hind margin of ventrite, evenly rounded (Fig. 7e). Tarsus trimerous. Head punctures small, not very apparent, space between punctures about twice the diameter; on the pronotum greater than those of the head, separated by 1.5 diameters on average; elytra punctures similar in size to those on pronotum, separated by 1/2 diameter on average; ventral side punctures abundant in the metaventrite, separated by about a diameter; abdominal punctures notorious at middle of ventrites 1 and 2, smaller towards the borders and posterior ventrites, very sparse in the postcoxal plate. Pubescence short, abundant, decumbent; on pronotum and elytra short, 1/3 of the length of the scutellar shield; on ventral side scarce, present mainly at the borders on mesoventrite and metaventrite; on abdomen long and quite dense on the lateral borders of ventrites 3 to 5, very short over ventrite 6, little perceptible in the rest of the abdomen. **Male terminalia.** Apex of ventrite 5 almost straight in the central 2/3, apex of ventrite 5 convex, slightly truncate medially (Figs. 7e-7f). Tegmen twice as long as wide, phallobase shorter than wide, transverse. Tegminal strut slightly shorter than the rest of the tegmen. Penis guide asymmetric, 2.5 times longer than wide, sides divergent and concave from the base to 3/4 of the length, where it is almost twice as wide as basally, apex rounded, the left side very curved especially in the distal third, concave right side, where it has a small tooth separated from the rest of the penis guide; in lateral view like a regular acute triangle with only a small curvature at the apex, it does not have a dorsal keel, scant and short dorsal pubescence. Parameres the same length as the penis guide, very elongated paddle-shaped, quite straight, with long inner hairs in the apical half, also abundant lateral pubescence, exceeding the paramere by 3/4 of the length (Figs. 7g-7j). Penis curved in a semicircle in the basal half, then almost straight up to the apex, which occupies the apical 1/6, spindle-shaped, in the very narrow outer part it remains sclerosed, while the inner side is membranous; penis capsule subrectangular, outer arm at 45 ° with respect to the penis tube, very large, sub-square, inner arm very small, hook-shaped, inclined towards the tube, basal margin sinuous, accessory piece absent (Figs. k-l). **Female.** Unknown.

Measurements (mm): TL 1.6; PL 0.4; PW 0.95; EL 1.2; EW 1.25; GD 0.9.

Geographic distribution. Panama, Panama province.

Remarks. For an analysis of the taxonomic status of the genus *Diomus* in America, see discussion under *D. chiriqui* **sp. n.** The characters mentioned there for the genus are found in the present species, including the descending incomplete postcoxal lines, the trimerous tarsi, the short antenna of eleven antennomeres and the apical maxillary palpomere

securiform, as well as the asymmetric male penis guide. This species is placed in species group "C" as defined in Gordon (1999) by the presence of a tooth in the penis guide (Figs. 7i-7j).

Etymology. The species is dedicated to Lukas Sekerka, specialist in Chrysomelidae of the Department of Entomology, National Museum, Prague, Czech Republic, collector of this and other new species that are described in this study.

Tribe EPILACHNINI Mulsant, 1846

Epilachna bistrisignata (Mader, 1950)

Solanophila bistrisignata Mader, 1950: 39.
Epilachna bistrisignata Gordon, 1975: 108; Jadwiszczak & Wegrzynowicz 2003: 43.
First record for Peru.

Specimens examined. PERU: 1 ♀ "Peru, Cusco / Agnas [Aguas] Calientes / 18.1.2009 / lgt. M. Krejčíř" "♀ 1935" (JVC).

Remarks. *Epilachna bistrisignata* was described from Bolivia. The specimen from Peru has the elytral spots slightly larger than in Gordon's (1975) illustration, while the female genitalia are entirely coincident. Both characters separate it from other species with three elytral spots, which have a very different arrangement of spots.

Epilachna dives Erichson, 1847

Epilachna dives Erichson, 1847; 184; Mulsant 1853: 165; Crotch 1874: 55; Korschefsky 1931: 61; Blackwelder 1945: 441; Gordon 1975: 52; Jadwiszczak & Wegrzynowicz 2003: 58.
First record for Bolivia.

Specimens examined. BOLIVIA: 1 ♂ "Villa Tunari / 18.9.2005 / Bolivie / lgt. Kondler", "♂ 1990" (JVC). PERU: 1 ♀ "Peru, Cusco / Agnas [Aguas] Calientes / 18.1.2009 / lgt. M. Krejčíř", "♀ 1935" (JVC).

Remarks. *Epilachna dives* is a highly variable species, both in habitus and in the genitalia of males and females. Described from Peru, Gordon (1975) states that it could be a variation or a subspecies of *Toxotoma flavofasciata* (Laporte, 1840) (as *Epilachna flavofasciata*), but indicates that specimens with transverse bands as in the latter species have not been found in *Epilachna dives*. As Gordon (1975) stated for *T. flavosfasciata*, *E. dives* is a fluid group in which each locality has variations of habitus and distinctive appearance, while the genitalia also vary within each locality, not being possible to detect geographical trends, and that it is prudent to treat or as a single species until there are more antecedents. The specimen from Bolivia is entirely coincident both in the habitus and in the female genitalia with specimens from Peru.

Toxotoma venezuelae González & Větrovec, **new species**
(Figs. 7m-7w)

Holotype ♂ "Venezuela / Est. Barinas / V. Tichý lgt.", "Santo Domingo / 22.1.1996 / 2200 m. n. m.", "♂ 1915" (NMP).

Paratypes (total 2 specimens): 2 ♂ same data as holotype (NMP).

Diagnosis. This species can be distinguished by the male genitalia which presents a very long, parallel-sided penis guide, abruptly narrowed in the distal apex, with a small nipple-shaped projection in the center, while the penis is smoothly curved in the basal half, then bent upward to apex, as only occurs in the *Epilachna angustata* species group as defined by Gordon (1975); there are also characters of this species group present in *Toxotoma venezuelae* **n. sp.**, the strongly bilobed labrum and the mandibles with the teeth grouped in the distal third. The color black with a blue glow on dorsal and ventral sides, occasionally with two little yellow spots on each elytron, distinguishes this species from any other in the group, where the yellow spots are larger and cover most of the elytral surface.

Description. Color pattern (Figs. 7m-7p). Head black. Antenna yellow with four last antennomeres brownish-black, maxillary palpi yellow with apical palpomere brown, mandibles and other mouthparts reddish brown to black. Pronotum black, anterior half of lateral borders and anterior angles light yellow. Scutellar shield black. Elytra black with blue dorsal luster, epipleuron black. Ventral side black, except anterior angles of hypomeron yellow, abdomen black. Legs black. Pubescence whitish. **Morphology.** Body oval elongate, elytra with regularly curved sides, widest at 1/5 the length of the elytra, narrowing at apical 1/3 (Fig. 7m). Frons more than twice width of an eye. Eyes oval, about 1.5 times longer than wide, inner border of the eye concave around the antennal insertion, without eye canthus. Clypeus apex slightly concave with rounded corners (Fig. 7o). Antenna with eleven antennomeres, the last three forming a club. Labrum strongly bilobed. Apical maxillary palpomere weakly securiform. Mandibles with three major teeth grouped in apical one-third, first tooth bidentate, their surfaces without tubercles. Prosternum Y-shaped, short and wide, without carinae. Metaventrite postcoxal lines transverse, not descending at lateral border. Abdominal postcoxal lines closed, slightly angulate, extended 2/3 the distance to apical margin of ventrite (Fig. 7q). Head punctures small but noticeable, disordered, space between punctures about ½ diameter; pronotum punctures larger than those of the head and dense, separated by ½ diameter on average; elytra densely punctured, of two types, the smallest similar to those of the pronotum, the largest twice as big, separated by 1/3 of the diameter on average; ventral side with few punctures, more abundant on the prosternum, separated by four times its diameter on the metaventrite; abdomen punctures heavy and coarse in the middle of ventrites 1 and 2, smaller towards the borders and posterior ventrites, very sparse in the postcoxal plate. Pubescence long, abundant, decumbent, dorsal hairs half the length of the scutellar shield; ventral side pubescence long and quite dense on the lateral borders of ventrites 3 and 5, very short over ventrite 6, faint in the rest of the abdomen. **Male terminalia.** Ventrite 5 with a regularly concave apex. Ventrite 6 almost triangular, with a strong notch in the central 1/3 of the apex, which has borders with long and regular hairs (Figs. 7q-7r). Tegmen more than four times longer than wide, phallobase transverse, a little longer than wide. Tegminal strut shorter than half the length of the rest of the tegmen. Penis guide symmetrical, five times as long as wide, sides slightly divergent in the basal quarter, then parallel to four-fifths of the length, where they converge smoothly, in the apex they converge sharply and present a short nipple-shaped projection in the center; in lateral view penis guide curved towards the parameres and slightly tapering from base to apex, where it curves sharply ending in an acute point. Parameres almost the length of penis guide, slightly curved towards it, widened at the base and paddle-shaped tip, with short hairs on the outer side and apical border, hairs 1/6 the length of the paramere (Figs. 7s-7u). Penis curved in a quarter circle in the basal half, then almost straight to the apex where it curves in the opposite direction, very short apex ending in a slightly noticeable hook towards the inner

side; penis capsule with outer arm in the direction of the penis tube, twice as wide as it, subtriangular and 1 ½ times longer than wide, the inner one somewhat oblique, short, with a small curved projection towards the tube, basal margin concave, short accessory piece trapezoidal (Figs. 7v-7w). **Female.** Unknown. **Variation.** One of the specimens has two little noticeable yellow spots, longitudinally elongated, 1/5 as long as elytra, near the scutellar shield and at the elytral apex**.**

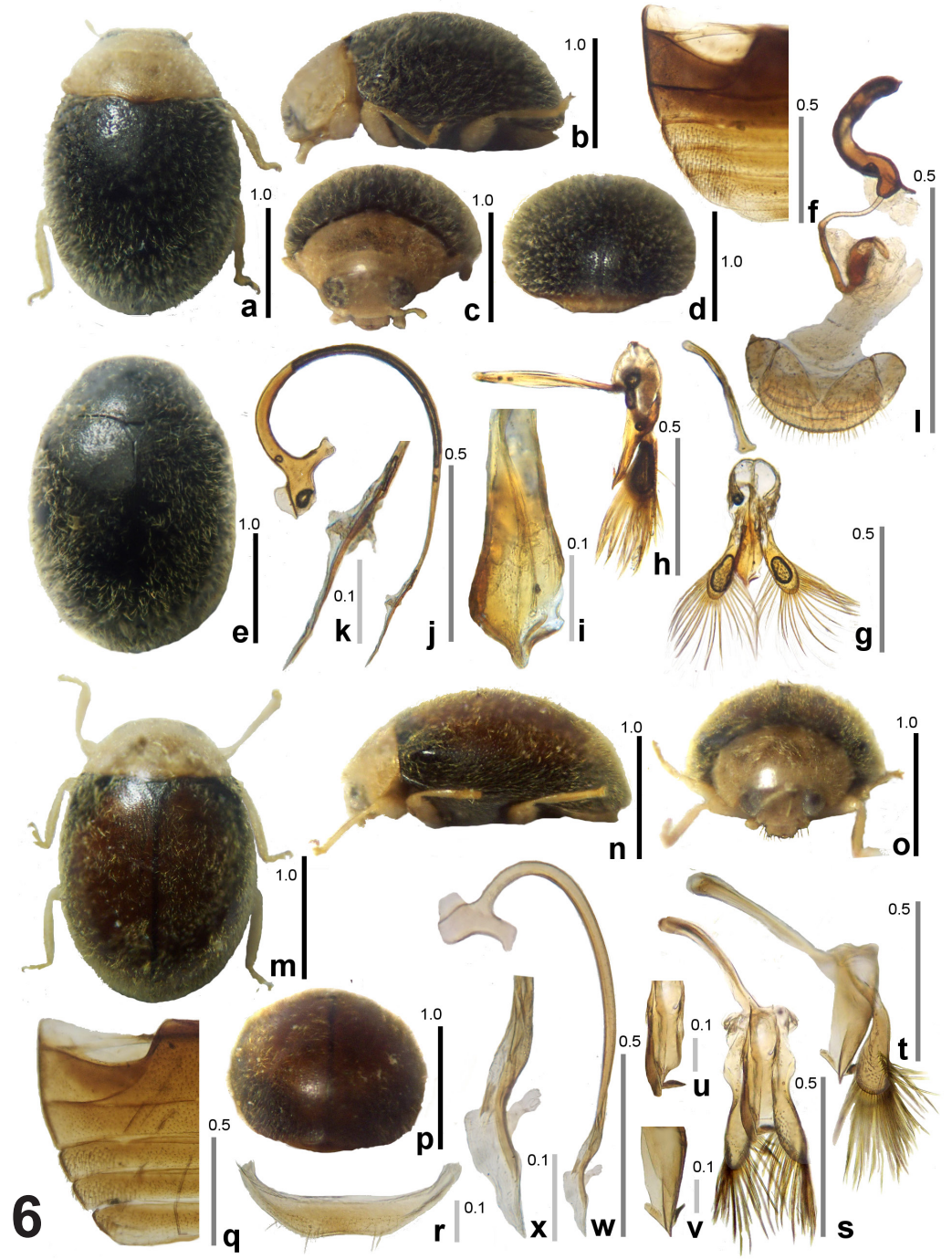
Measurements (mm): TL 6.6-7.0; PL 1.4-1.5; PW 2.9-3.2; EL 5.2-5.5; EW 4.5-4.7; GD 2.9-3.0.

Geographic distribution. Venezuela, state of Barinas.

Remarks. The genus *Toxotoma* Weise, 1899, was described to include some species that had been originally described under *Epilachna* Chevrolat, 1837, whose main character was having a concave clypeus and free mandibles, ending in a few short and blunt teeth, which distinguished them from the other *Epilachna* species, which have the mandibles partially covered by the clypeus and labrum, and have relatively sharp teeth. The appearance of these species is also very different from most *Epilachna* species, having a more cylindrical shape and sparser pubescence. Gordon (1975) adopted Weise's concept when reviewing the genus, also noting that in the bifid apex of the mandibles the upper tooth was shorter than the lower one, unlike in *Epilachna*, and that they never had little teeth on the borders of the teeth. With this concept, Gordon (1975) included 33 species in the genus, 24 of them new; he concluded that the genera are very similar but can be distinguished by the characters mentioned above. Szawaryn *et al.* (2015) studied the phylogeny of the Epilachnini tribe, reaching a different conclusion for the *Toxotoma* and *Epilachna* species; they included a phylogenetic analysis of 153 species of the tribe, including all known genera, using four DNA markers and 104 morphological characters with maximum likelihood algorithms, parsimony and Bayesian inference. All analyses recognized two separate clades, reducing *Epilachna* to species from only eight of the 34 species groups considered by Gordon (1975) for this genus and excluding from *Epilachna* all non-American species; they left the previously defined species of *Toxotoma*, and included species from eight other groups defined by Gordon for *Epilachna*. These authors also indicated that it was highly probable that all the species of the indicated groups also correspond to *Toxotoma*. Species of the remaining 18 *Epilachna* groups defined by Gordon were not studied. Coinciding with Gordon (1975) the authors indicated that while *Epilachna sensu novo* was a genus with relatively homogeneous species, *Toxotoma* species formed a very heterogeneous clade with quite variable characters. The following year Tomaszewska & Szawaryn (2016) studied Epilachnini's genera, characterizing them in detail and including a key. According to this study, *Toxotoma sensu novo* can be separated from *Epilachna* by its mandibles with incisors with smooth borders and no tubercles on their surface, the semi-circular or straight metaventral postcoxal lines, rarely descending and always complete, and the abdominal postcoxal lines sometimes reduced and barely visible. These authors transferred 12 species of *Epilachna* to *Toxotoma*, including 10 of those studied in Szawaryn *et al.* (2015), characterizing them in detail and including a key.

Toxotoma venezuelae **n. sp.** presents the characters indicated by Tomaszewska & Szawaryn (2016) for the *Toxotoma*, although the abdominal postcoxal lines are clearly visible and well formed, as in many species of the genus. It should be noted that *E. paracuta* Gordon, 1975, from the same species group as the present species (*Epilachna angustata* species group, Gordon, 1975) had already been transferred to *Toxotoma* by Tomaszewska & Szawaryn (2016).

Etymology. The species is named after Venezuela, where the holotype was collected.



Figures 6a-6x. a-l: *Diomus chiriqui* **n. sp.**; a-d: habitus male (dorsal, lateral, frontal, posterior); e: habitus female (dorsal); f: abdomen; g-h: tegmen; i: penis guide; j-k: penis and detail; l: female terminalia. m-x: *Diomus panamensis* **n. sp.**; m-p: habitus (dorsal, lateral, frontal, posterior); q: abdomen; r: ventrite 6; s-t: tegmen; u-v: penis guide; w-x: penis and detail. Scale bars in mm. / a-l: *Diomus chiriqui* **sp. n.**; a-d: habitus del macho (dorsal, lateral, frontal, posterior); e: habitus de la hembra (dorsal); f: abdomen; g-h: tegmen; i: guía del penis; j-k: penis y detalle; l: terminalia de la hembra. m-x: *Diomus panamensis* **sp. n.**; m-p: habitus (dorsal, lateral, frontal, posterior); q: abdomen; r: ventrito 6; s-t: tegmen; u-v: guía del penis guide; w-x: penis y detalle. Escalas en mm.

Figures 7a-7w. a-l: *Diomus sekerkai* **n. sp.**; a-d: habitus male (dorsal, lateral, frontal, posterior); e: abdomen; f: ventrite 6; g-h: tegmen; i-j: penis guide; k-l: penis and detail. m-w: *Toxotoma venezuelae* **n. sp.**; m-p: habitus (dorsal, lateral, frontal, posterior); q: abdomen; r: ventrite 6; s-t: tegmen; u: penis guide; v-w: penis and detail. Scale bars in mm. / a-l: *Diomus sekerkai* **sp. n.**; a-d: habitus del macho (dorsal, lateral, frontal, posterior); e: abdomen; f: ventrito 6; g-h: tegmen; i-j: guía del penis; k-l: penis y detalle. m-w: *Toxotoma venezuelae* **sp. n.**; m-p: habitus (dorsal, lateral, frontal, posterior); q: abdomen; r: ventrito 6; s-t: tegmen; u: guía del penis; v-w: penis y detalle. Escalas en mm.

Toxotoma aguascalientes González & Větrovec, **new species**
(Figs. 8a-8o)

Holotype ♂ "Perú-Cusco / Agnas [Aguas] Calientes / 18.1.2009 / lgt. M. Krejčíř" "♂ 1954" (NMP). **Paratypes** (total 5 specimens.): 2 ♀ same data as holotype except "18.1.2009" (NMP); 3 specimens. same data as holotype except "12.1.2009" (s/g) (JVC).

Diagnosis. This species can be distinguished by the male genitalia which presents a long penis guide exceeding the paramere and with a tuft of hairs in the middle of the lateral border, with a small hook at the apex (Figs. 8g-8h), the genital plate of the female with transverse coxites and the stylus not visible (Fig. 8o), the feebly bilobed labrum, the mandibles with the teeth grouped in the distal half, and a minor projection below the third mandible tooth, all characters which correspond to the *Epilachna vittigera* species group as defined by Gordon (1975). In this species group, the habitus with two elytral yellow and well separated spots, allows recognizing the new species, since other species in the group have two spots which cover most of the elytron, except for *E. conjuncta* Gordon, 1975, from Bolivia, whose genitalia has a penis guide with an acute apex, while *T. aguascalientes* **n. sp.** has a penis guide with a rounded tip.

Description. Color pattern (Figs. 8a-8c). Head black. Antennae and maxillary palpi yellow, four last antennomeres and last palpomere brown. Mouthparts reddish brown with black areas. Pronotum black, with a narrow yellow border at anterior angles. Scutellar shield black. Elytra black, each with two yellow oval spots (1:1) on disc, the first very close to the scutellar shield, occupying one-quarter of the length of the elytra and slightly shorter than half the width, the second about the same size but somewhat more transverse, close to lateral border, on the elytral declivity. Epipleuron black. Ventral side black, except anterior angles of hypomeron yellow. Legs black. Pubescence white. **Morphology.** Body oval with shield-shaped elytra, widest at 1/3 the length of the elytra, narrowing to the apex (Fig. 8a). Frons more than three times width of an eye. Eyes oval, 1/3 longer than wide, inner border of the eye somewhat concave around the antennal insertion, without eye canthus. Clypeus apex concave with rounded corners (Fig. 8c). Antennae with eleven antennomeres, the last three forming a club. Labrum feebly bilobed. Apical maxillary palpomere weakly securiform. Mandibles with three major teeth grouped in apical one-third, first tooth bidentate, surfaces without tubercles. Prosternum Y-shaped, short and wide, without carinae. Metaventrite postcoxal lines transverse, slightly curved, not descending to lateral border. Abdominal postcoxal lines complete, evenly rounded, extended 2/3 of the distance to apical margin of ventrite (Fig. 8e). Head punctures notorious, disordered, space between the punctures about 1.5 times the diameter; pronotum punctures greater than those on head and thick, separated by a diameter on average; elytra punctures of two types, the smaller similar to those of the pronotum, the largest twice as large, separated by half a diameter on average; ventral side punctures tiny, more abundant on the prosternum, separated by four times their diameter on the metaventrite; abdominal punctures notorious, smaller towards the borders and posterior ventrites. Pubescence at each puncture abundant, decumbent; pronotum hairs long, 3/4 the length of the scutellar shield, elytra pubescence short, 1/3 the size of the scutellar shield, abdominal hairs short and quite dense on the lateral borders. **Male terminalia.** Ventrite 5 with a regularly convex apex. Ventrite 6 with semicircular apex, with a strong semicircular notch medially (Figs. 8e-8f). Tegmen three times as long as wide, phallobase as long as wide. Tegminal strut 2/3 as long as the rest of the tegmen. Penis guide symmetrical, four times as long as wide, sides slightly divergent in the basal two fifths, then slightly convergent until ending in a rounded wide apex, a tuft of erect, long hairs on each side at half of the length, in lateral

view regularly curved towards the parameres and slightly thinning from the base to 3/4 of the length, then abruptly in the apical 1/10 where it presents a very small hook towards the outer side. Parameres 9/10 the length of the penis guide, slightly curved towards it, widened at the base and at the tip where they are paddle-shaped, with erect hairs on the borders of the distal half, which exceeds the length of the paramere by one quarter at the apex (Figs. 8g-8h). Penis curved in a semicircle in the basal 2/3, then slightly wavy up to the apex where it has a very small hook towards the outer side, where it also has a small membranous area; penis capsule double-walled, the outer arm oval, in the direction of the penis tube, short inner arm, somewhat trapezoidal with rounded tip, basal margin fairly emarginate, accessory piece present (Figs. 8i-j). **Female terminalia.** Tergite 6 apex barely notched in the central 1/3 (Fig. 8k), ventrite 6 deeply notched in a triangle in the center (Fig. 8l), tergite 10 trapezoidal, posterior border slightly convex (Fig. 8m), genital plate with slightly transverse oval coxites, somewhat concave posterior border, slightly rounded anterior border, very hairy, little apparent stylus, very reduced spermatheca (Figs. 8n-8o).

Measurements (mm): TL 6.5-7.0; PL 1.0-1.1; PW 2.7-3.0; EL 5.4-5.7; EW 4.8-5.2; GD 2.8-3.0.

Geographic distribution. Peru, Department of Cusco.

Remarks. For an analysis of the taxonomic status of the genera *Toxotoma* and *Epilachna*, see discussion under *Toxotoma venezuelae* **sp. n.** The new species presents the characters indicated by Tomaszewska & Szawaryn (2016) for the genus, although the abdominal postcoxal lines are clearly visible and well formed, as in many *Toxotoma* species. It should be noted that *Toxotoma monovittata* (Gordon, 1975) and *T. univittata* (Crotch, 1874), assigned by Gordon (1975) in the same species-group as *Epilachna vittigera* (Crotch, 1874), had already been transferred to *Toxotoma* by Tomaszewska & Szawaryn (2016).

Etymology. The name is named after the collection locality, Aguas Calientes, in the Department of Cusco, Peru.

Tribe HYPERASPIDINI Mulsant, 1846

Hyperaspis pseudodonzeli Gordon & Canepari, 2008

Hyperaspis pseudodonzeli Gordon & Canepari, 2008: 320.
First record for Ecuador and French Guiana.

Specimens examined. FRENCH GUIANA: 1 ♂ "Fr. Guyana 5.-18.12. / Kkourou env. / Guatemala / Leg. L. David 2006", "♂ 1957" (JVC); ECUADOR: 1 ♂ and 2 ♀ from "Ecuador, Pichincha, La / Union des Toachi, carretera / Chiriboga km 4, 1083m, 21-V- / 2011a, 1083m, 0°18'57" *S 78°54'*57" / W, leg. R. Constantin. / Flowering toad side", "♂♀ 1462" (GGC); 1 ♂ "Ecuador, Pastaza, Santa / Clara 5 km NW, 560m, 17-V- / 2011d, 1°14'52" S 77°53'20" / W, leg. R. Constantin. Tropical / forest, 16h30-17h45", "♂ 1511" (GGC).

Remarks. *Hyperaspis pseudodonzeli* was described from Colombia, Venezuela, Guyana and the Caribbean (Trinidad, Curaçao) (Gordon & Canepari 2008). The species is quite variable, especially the pattern of the pronotum, which can be black with yellow lateral spots or yellow with five small brown spots, both forms represented in the specimens examined.

Menoscelis saginata Mulsant, 1850

Menoscelis saginata Mulsant, 1850: 508; Crotch 1874: 209; Gordon & Canepari 2008: 272; Correa *et al*. 2011: 34; Santos *et al.* 2016: 256.
Thalassa (*Menoscelis*) *saginata* Korschefsky, 1931: 208; Blackwelder 1945: 449.
Thalassa (*Monoscelis*) [sic!] *saginata* Orivel *et al*. 2004: 97.
First record for Bolivia.

Specimens examined. BOLIVIA: 1 ♀ "Bolivia 20.9.2005 / Incachaca / 10 km NE from La Paz / Kondler Lgt." (NMP).

Remarks. *Menoscelis saginata* was described from French Guyana (Mulsant 1850), and later reported by Gordon & Canepari (2008) from Peru. The specimen from Bolivia is a female that fully matches the description of the species.

Tribe SCYMNILLINI Casey, 1899

Zagloba beaumonti Casey, 1899

Zagloba beaumonti Casey, 1899: 169; Korschefsky 1931: 172; Blackwelder 1945: 445; Gordon 1970: 481; González & Aguilera 2009: 60.
First record for Bolivia and Venezuela.

Specimens examined. BOLIVIE: 1 ex. "Santa Cruz / Bolivie", "Coll. Achard / Mus. Pragense" (NMP). BRAZIL: 1 ex. "[Brasil] PE: Recife, UFRPE / em *Malpighia emarginata* / 24.ix.2010 / JA Giorgi col." (UFRPE); 4 ♀♀ "Brasil, MG, / Volta Grande /05-II-2008, Leg. / L.C. Torres" (GGC). VENEZUELA: 1 ♂ "Venezuela, Lara / Sanare, Parador Turístico / La Rosa 1330m / 04/V/2010 / E. Arcaya, J. Morales, B. / Carrero", "Coccinellidae depredando / *Chrysomphalus* sp. en *Agave* / *cocuy*" (GGC); 2 specimens, same data (GGC).

Remarks. *Zagloba beaumonti* was described from Colombia (Casey 1899), later Lima *et al.* (1992) reported it from Brazil, and González (2014b) from Argentina and Paraguay. The species is easily identifiable, although it presents color variations from pale yellow to reddish brown to black, with or without stripes on the elytra and light spots on the lateral third of the pronotum.

Tribe SCYMNINI Mulsant, 1846

Scymnus hamatus Gordon, 2000

Scymnus hamatus Gordon 2000: 75; González 2010: 246, 2015b: 232.
First record for Panama.

Specimens examined. PANAMA: 1 ♂ "Panamá, Darién, 31.viii.2017 / Cerro Chucanti Reserve to Pavo / 08°47.734'N, 78°25.746'W, 430m, / vegetation along river, individual collecting / Fikáček, Háyek, Seidel & Sekerka lgt", "♂ 2053" (NMP); 1 ♀ same data except "♀ 2053" (NMP).

Remarks. *Scymnus hamatus* was described from Colombia, Venezuela, Ecuador and Suriname (Gordon 2000), and was later mentioned from Peru by González (2010). The species is highly variable, identifiable only by the male genitalia.

Tribe STICHOLOTIDINI Weise, 1801

Nexophallus panamensis González & Větrovec, **new species**
(Figs. 8p-8ac)

Holotype ♂ "¨Panamá, Panamá Prov., / Cerro Jefe, 770-1100m, / 09°13.700'N, 79°23.000'W, / 15.v.2015, individual collecting, / L. Sekerka & K. Štajerová lgt", "♂ 2045" (NMP). **Allotype** ♀ same data as holotype (NMP).

Diagnosis. This species can be identified by the black shiny dorsal color (Fig. 8p), and the male genitalia with a long and symmetrical penis guide, about six times longer than wide (Fig. 8z). *N. semiglobus* Gordon, 1969 from Ecuador has a similar dorsal color, but the penis guide is asymmetric and only three times longer than wide, while *N. rufoglobus* Gordon, 1969 from Bolivia present a rust-red dorsal color.

Description. Color pattern (Figs. 8p-8s). Head black, antennae and other mouthparts yellow or reddish-brown to piceous. Pronotum, scutellar shield and elytra shiny black, epipleuron black. Ventral side black except abdomen dark brown. Legs black, except reddish brown tarsal claws. Pubescence white. **Morphology.** Body almost circular, very convex, elytra with regularly curved sides, widest at middle of elytra (Figs. 8p-8q). Frons flat, about three times width of an eye. Eyes small, oval. Eye canthus triangular, more than one third the width of an eye. Clypeus apex concave with rounded corners (Fig. 8r). Antenna with ten antennomeres, the last three forming a club. Maxillary palpi nearly as long as antenna, apical maxillary palpomere elongated, strongly narrowing apically (Fig. 8t). Pronotum laterally finely margined. Prosternum flat, apex slightly expanded, concealing mouthparts in repose, without prosternal carina. Abdominal postcoxal lines complete, evenly rounded, extended 2/3 the distance to apical margin of ventrite (Fig. 8u). Head punctures notorious, disordered, space between punctures smooth, about one and a half times the diameter; pronotum punctures slightly larger than those of the head, disordered, separated by two diameters on average, elytra punctures very disordered, shallow large punctures, some grouped in apparently longitudinal rows in the middle disc area, in other areas almost non-existent; very few punctures on the ventral side, more abundant on the prosternum, separated by four times their diameter on the metaventrite; abdominal punctures very irregular, separated by four or five times their diameter. Head pubescence very short and fine, hardly noticeable, pronotum and elytra pubescence absent, abdomen pubescence short, isolated, associated with punctures, more abundant on the lateral borders of the last ventrites. **Male terminalia.** Ventrite 5 long, apex regularly convex, apex of ventrite 5 rounded, slightly truncate in the central third (Figs. 8u-8v). Tegmen four times longer than wide, phallobase wider than long. Tegminal strut 3/4 the length of the rest of the tegmen. Penis guide symmetrical, six times longer than wide, sides barely convergent in the basal 2/3, then parallel until ending in a rounded apex, without pubescence, in lateral view sides slightly convergent and curved to the inner side until ending in a rounded tip. Parameres 7/8 of the length of the penis guide, very narrow and of constant width, with scant pubescence in the distal half and long at the apex, exceeding the length of the paramere by 1/3 (Figs. 8w-8y). Penis curved in ¾ of a circle, then a straight section to the apex, where it presents a long straight filament, half the length of the penis tube, penis capsule single-walled, with short outer arm sloping outward, subtriangular, inner arm twice as long and perpendicular to the tube, basal margin emarginate (Figs. 8y-8aa). **Female terminalia**. Ventrites 5 and 6 with rounded apex. Coxites very elongated, four times longer than wide, with hairy stylus (Fig. 8ab), spermatheca curved in "C", cornu globose (Fig. 8ac). **Variation.** Female with ventral side brown except head, metaventrite and outer borders of epipleuron black.

Figures 8a-8ac. a-o: *Toxotoma aguascalientes* **n. sp.**; a-d: habitus male (dorsal, lateral, frontal, posterior); e: abdomen; f: ventrite 6; g-h: tegmen (ventral, lateral); i-j: penis and detail; k-o: female terminalia: k: tergite 6; l: ventrite 6; m: ventrite 10; n: genital plate; o: coxite. p-ac: *Nexophallus panamensis* **n. sp.**; p-s: habitus (dorsal, lateral, frontal, posterior); t: maxillary palp; u: abdomen; v: ventrite 6; w-x: tegmen; y: penis guide; z-aa: penis and detail; ab-ac: female terminalia; ab: coxitos; ac: spermatheca. Scale bars in mm. / a-o: *Toxotoma aguascalientes* **sp. n.**; a-d: habitus del macho (dorsal, lateral, frontal, posterior); e: abdomen; f: ventrito 6; g-h: tegmen (ventral, lateral); i-j: penis y detalle; k-o: terminalia de la hembra: k: tergito 6; l: ventrito 6; m: ventrito 10; n: placa genital; o: coxito. p-ac: *Nexophallus panamensis* **sp. n.**; p-s: habitus (dorsal, lateral, frontal, posterior); t: palpo maxilar; u: abdomen; v: ventrito 6; w-x: tegmen; y: guía del penis; z-aa: penis y detalle; ab-ac: terminalia de la hembra; ab: coxitos; ac: espermateca. Escalas en mm.

Measurements (mm): TL 1.4-1.6; PL 0.3; PW 0.8-0.9; EL 1.1-1.2; EW 1.1-1.2; GD 0.8-0.9.

Geographic distribution. Panama, Panama province.

Remarks. The genus *Nexophallus* Gordon, 1969, was established to include two species from Ecuador and Bolivia and placed in the tribe Sticholotidini (as Sticholotini) by Gordon (1969). The genus is distinguished by the wide head with a short clypeus, antenna consisting of ten antennomeres with last three forming a club, maxillary palpi nearly as long as antenna, terminal palpomere strongly narrowed apically, prosternum slightly lobed at front, abdominal postcoxal lines complete, not touching the posterior border of the ventrite, tarsi cryptotetramerous with tarsal claw weakly toothed basally, and female coxites very elongated. Apart from presenting all the characters of the genus mentioned above, *Nexophallobase panamensis* **n. sp.** has male and female genitalia very similar to the species *N. rufoglobus*.

Etymology. The species is named after Panama, the country where the specimens were collected.

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