

# NEW SPECIES OF DARKLING BEETLES FROM CENTRAL AMERICA WITH SYSTEMATIC NOTES (COLEOPTERA: TENEBRIONIDAE)

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**Abstract.**— A collection of Coleoptera Tenebrionidae from Central America has been studied and new species described and figured. The interest of this material principally consist in the method of sampling in the canopy and in the fact that for the first time the plant in which each specimen has been found was noted. Some systematic changes in the current classification of some genera, after Doyen and Tschinkel (1982) and Doyen et al. (1989) are introduced as results of morphological comparative study. *Rhyppasma* Pascoe, 1871 is transferred to the tribe Stenosini from the Belopini. A total of 16 new species and one new genus from Panama are described and figured. *Phymatestes agnei* **sp. nov.**, *Rhyppasma livae* **sp. nov.**, *Lenkous ibisca* **sp. nov.**, *Iccius monoceros* **sp. nov.**, *Othryoneus triplehorni* **sp. nov.**, *Paniasis kulzeri* **sp. nov.**, *Gonospa similis* **sp. nov.**, *Apsida simulatrix* **sp. nov.**, *Brosimapsida gonospoides* **gen. and sp. nov.**, *Epicalla elongata* **sp. nov.**, *E. pygmaea* **sp. nov.**, *E. aeneipes* **sp. nov.**, *Strongylium vikenae* **sp. nov.**, *Otocerus delicatus* **sp. nov.** and *O. angelicae* **sp. nov.** The genus *Paniasis* Champion, 1886 is found to be identical to *Pseudapsida* Kulzer, 1961, created by monotypy for a species from Brazil: *Paniasis brasiliensis* (Kulzer, 1961) **comb. nov.** The systematic position of the genera *Paratenetus* Spinola, 1844, *Rhyppasma* Pascoe, 1871, *Calydonella* Doyen, 1995, *Othryoneus* Champion, 1886, and *Otocerus* Mäklin, 1884 is commented.



**Key words.**— Coleoptera, Tenebrionidae, Central America, Panama, canopy.

## INTRODUCTION

A large part of the material presented in this study has been collected from two Panamanian tropical lowland forests. The first site, Parque Natural Metropolitano (8°59'N–79°33'W, ca. 30 m a.s.l.), consist of 264 ha dry tropical forest in Panama province, close to Panama City and 2 km from the Pacific coast. The vegetation at this site is characterised by dominance of deciduous trees (30–35 m height) and lianas in the canopy. The other site is located in an evergreen, wet forest in San Lorenzo Protected Area (9°17'N–79°59'W, ca. 130 m a.s.l.) in Colón Province, 4 km away from the Atlantic coast of the isthmus. This forest includes 9,600 ha of relatively old-growth tropical forest of trees of 35–45 m height, and with lianas and epiphytes occurring regularly in the canopy (Ødegaard in press). The beetles were collected by hand collecting and by beating 10–40 m above ground. The canopy was

accessed by two canopy cranes erected at the sites by the Smithsonian Tropical Research Institute (STRI). Besides the Panamanian material, there are a few smaller collections from Costa Rica, Nicaragua and Mexico.

The canopy sampling was focused on Chrysomelidae and Curculionioidea in order to estimate the host specificity for phytophagous beetles (Ødegaard 2000a, 2003, Ødegaard et al. 2000) as a contribution to the debate around the magnitude of global arthropod species richness (Ødegaard 2000b), that started as a consequence of Erwin's controversial and inspiring assessments around the observation of a hyper-diverse beetle fauna occurring in a single tree species (Erwin 1982). Darkling beetles was regularly collected in these canopy samples and thus, the plant species in which the beetles were recorded are available for most of species.

Nearly 50% of species diversity in tropical forests is probably restricted to the canopies (Ødegaard 2000b). This

percentage, however, is mainly based on phytophagous beetles, and it is unlikely that darkling beetles are hyperdiverse in the canopy based on observations during these studies. On the other hand, as the fauna of darkling beetles in the area is poorly known in general, it is not unexpected that several new species are to be found in this family.

## The study of Central American Tenebrionidae

The Central American components of the Family Tenebrionidae *sensu lato*, including old Lagriidae and Alleculidae has been studied systematically only by Champion (1886, 1913, 1917) with a classical work, the *Biologia Centrali Americana*, Heteromera, illustrating several species and permitting in many cases an immediate recognition *in visu* of most species at generic level. Champion was the first specialist studying the genitalia of special difficult groups, as the old Cistelids (=Alleculidae).

A check list of Tenebrionidae and other Coleoptera of Mexico, West Indies, Central and South America has been given by Blackwelder (1945). Another checklist of America, north of the Panama canal was published by Papp (1961). Listing 2483 taxa, this paper is an important contribution that gives the year and the page of the original description, but in some cases (Mäklin 1884) the number of the page is wrong.

Some factors explain current difficulties studying the Central American fauna: several numbers of taxa described by Colónel Casey and Maurice Pic are highly probably synonymies. For this reason and without examination of all available types of large genera such *Platydemus* Laporte de Castelnau (1831) or small species of *Strongylium* Kirby, creation of new names to add the already very long list of obscure taxa, seems to be premature and hazardous. However, the access to available literature is not easy, the books becoming very rare and exclusive; the types of many species are dispersed, preserved in many different Museums or lost. For natural reasons, most American specialists (Triplehorn 1965, Aalbu and Triplehorn 1985) first initiated the study of American taxa north of Mexico, or focused on systematic problems of the higher classification of Tenebrionoidea (Doyen 1989, Doyen and Tschinkel 1982, cladistic analyses of tribes and subfamilies) or most in nomenclatural problems (Spillman 1972, 1973). The German specialists studying the family (Freude 1967, 1968, Kulzer 1949, 1961, 1962, 1964) were concentrated to the South American representatives and the studies of Central American taxa were rare and sporadic. Marcuzzi (1953, 1991, 1994) studied the Caribbean and South American components, not the Central-American Tenebrionidae. Recently, Merkl and Maes (1991) published a current catalogue of Tenebrionidae for Nicaragua. The knowledge of the Central American Tenebrionidae is still waiting contributions after Champion standard work, *Biologia Centrali Americana*. Only local study from the vicinity of Jalisco, Mexico (Doyen 1988) and a few revi-

sions has been finished: revision of tribe Epitragini (Kulzer 1964); genus *Zopherus* (Triplehorn 1972), today moved to own family Zopheridae; genus *Doliema* (Ardoin 1977), and the genus *Phaleria* (Triplehorn and Watrous 1979) and genus *Liodega* (Triplehorn 1998).

## Conventional signs

The systematic list of subfamilies, tribes and current names follows Doyen and Tschinkel (1982) and Doyen et al. (1989) with some commented exceptions. Nomenclature is cited after Champion (1886), Gebien (1937–1939, 1940), Papp (1961). All specimens without indication of collector name are collected by Frode Ødegaard. All described material is deposited in Frode Ødegaard's collection at NINA, the Norwegian Institute for Nature Research, Trondheim. Dubious taxa have been compared with available type material or relevant authoritatively determined specimens, preserved in following Museums: Naturhistoriska riksmuseet, Stockholm (F. W. Mäklin, 1884); Naturhistorisches Museum, Basel (H. Gebien, H. Kulzer); The Natural History Museum, London (G. C. Champion, F. Bates), Muséum national d'Histoire naturelle, Paris (M. Pic, P. Ardoin), Collection Julio Ferrer, Haninge (J. T. Doyen, C. Triplehorn), Synoptic collection of the Smithsonian Tropical Research Institute, Panama.

## TAXONOMY

### *Phymatestes agnei* sp. nov. (Figs 1–4, Photo 7)

**Type material.** Holotype: ♂, Panama, Panama Prov., Gamboa, 12.VI.1995.

**Diagnosis.** Length: 9.5 mm, maximum of width: 3.1 mm.

The species of the genus *Phymatestes* has been recently revised by Ferrer and Moragues (1998, 2000, 2001). This species belongs to the *Phymatestes lamouri* group. Characterised by moderate size, absence of tubercles on elytra, unarmed legs and sub-parallel, elongate shape of body. This *Phymatestes* recall the habitus of *Goniadeta repanda* (Fabricius), but differ by strong bicolor aspect, pronotum blackish and dark, purpureous elytra and different shaped aedeagus (cf. Fig. 4 and 5).

**Description.** Shiny, glabrous, with some black, erected hairs, only conspicuous laterally, sparsely disposed on tempora, pronotal sides and elytra.

Head transverse, labrum rugose and pubescent, tegument irregularly and strongly punctured, epistome deeply impressed by a line, separating the raised supra-antennal zones and the front. Eyes separated dorsally by a distance superior to the diameter of an eye, measured dorsally. Antennae long, reaching the middle of elytra, the third joint longer than the following, which are subequal, the ultimate two times longer as the preceding.

Pronotum moderately transverse, 1.5 times as broad as long, the anterior margin broadly opened, the anterior and posterior angles sub-right, the base bisinuate at each side, the sides strongly carinated, converging from before the middle to the anterior board, constricted posteriorly. Tegument strongly and irregularly sculpted as head. The punctures here and there foveate and granuliferous. Elytra 2 times as long as broad, sub-parallel, the maximum of width after middle, rounded apically, depressed discally, strongly sculpted by irregular rows of foveate punctures, the intervals moderately convex, shoulders marked by humeral callus, the base straight, broader than pronotum.

Legs simple, femora subclaviform, protibia sub-right, the other subarcuate.

**Etymology.** Species named after Frode Ødegaard's son Agne.

*Paratenetus foveithorax* sp. nov.

(Figs 20–24, Photo 5)

**Type material.** Holotype: ♂, Panama, Panama Prov., Parque Natural Soberania, Plantation Road, 1.XII.2001.

**Description.** Length: 3.3 mm, maximum of width: 1.5 mm.

Castaneous brown, shiny, longely and sparsely covered with long yellowish hairs, normally winged.

Head microphthalmous, the epistoma broadly rounded, the antennal zones raised and convex, eyes small and round, very separated frontally. Tegument coarsely and sparsely punctured. Antennae pubescent, the 6 first joints shiny and lighter than the following, the 7–8 black and shiny, the three ultimate blackish, duller.

Pronotum sub-cordiform, constricted basally, the sides irregularly contoured, without serrate denticulation, the lateral margin broadly carinate and depressed, disc with two callose elevations at each side.

Elytra ovate, acuminate apically, the base straight, surpassing the width of the pronotum, with callose posthumeral elevation, the disc moderately gibbose, conspicuous laterally, epipleural zone very large, well separated from the lateral carina of the elytra by an impression. Sculpture sparse, consisting in vestigial rows of punctures, tegument longely and sparsely pilose, the hairs long and irregularly disposed here and there.

Legs without diagnostic characters except the dentate protibia of the male.

**Etymology.** Latin: *foveithorax*, alluding to the foveate depressions of the pronotum.

*Rhyasma livae* sp. nov.

(Figs 38–40, Photo 8)

**Type material.** Holotype: ♀, Panama, Panama Prov., Ancón, 16.II.2002, A. Ødegaard leg. Paratypes: Nicaragua,

Managua, Las Flores, 5.II.1995, J. M. Maes (Museo Entomológico de León, Nicaragua); Nicaragua, León, Carretera PoneLOYA-Chanchera, 29.I.1995, J. M. Maes and Collantes (coll. Julio Ferrer).

**Description.** Length: 5.8 mm, maximum of width: 1.8 mm.

Black dull, pruinose. Head transverse, the epistome rounded, the genal zones long and round, becoming sub-parallel before eyes. Eyes small and round, well separated and placed on the posterior half of the head, front moderately depressed, the tegument densely covered of round, shiny tubercles, concealing the cuticula. Antennae long, reaching the humeri, the third joint as long as the combined length of the two following joints, joints 4–8 sub-equal, quadrate, the following transverse, the 10 shorter than the 9, the apical longer and rounded apically.

Pronotum trapezoidal and strongly constricted backwards, the lateral zones broadly depressed, the anterior board and the base straight; tegument densely covered of shiny tubercles as the head. Scutellum small, transversally rounded.

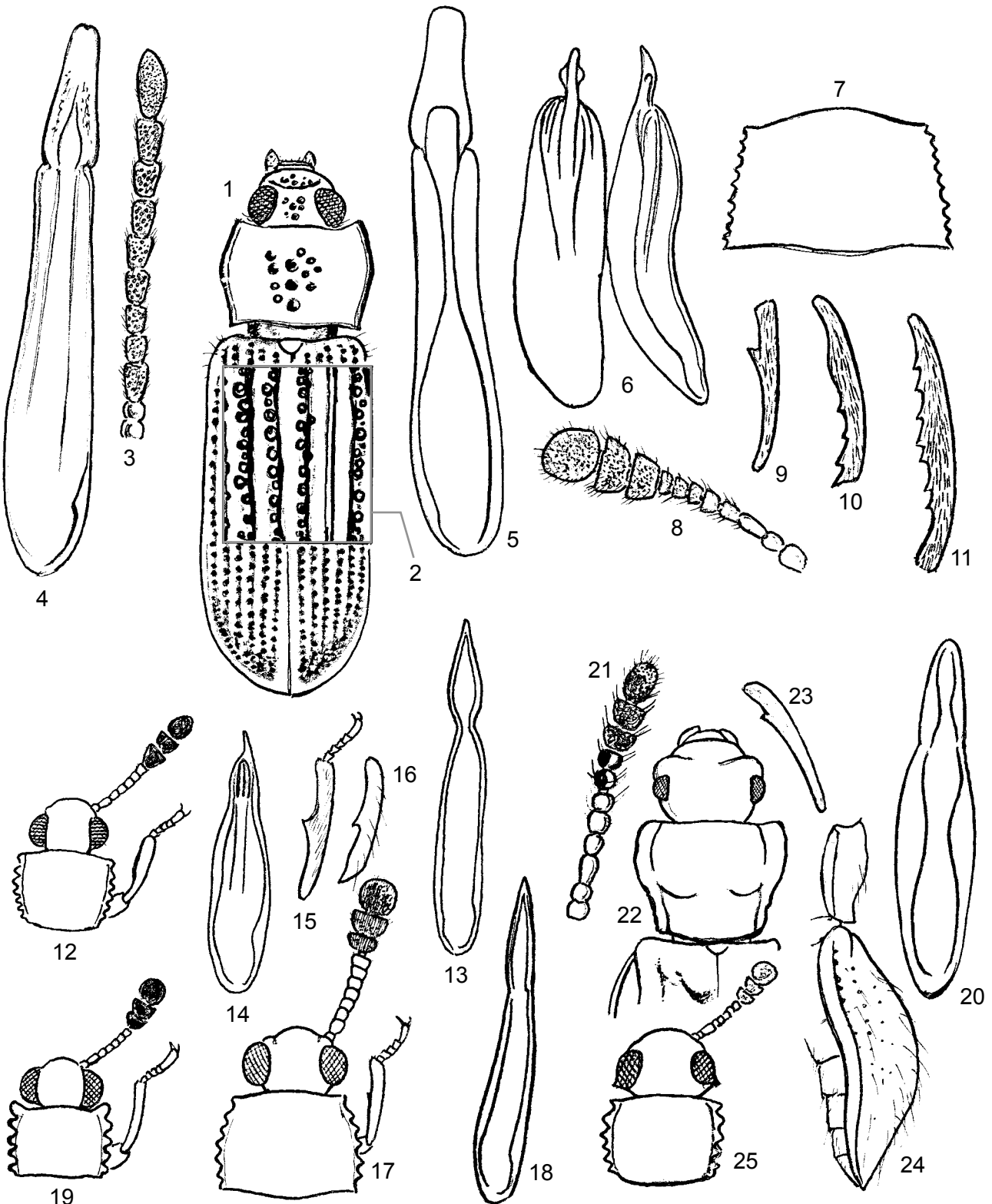
Elytra sub-parallel, about 2 times as long as broad, the base openly rounded, the shoulders not prominent, obtuse; with five finely carinate costae, included the lateral margin, the intervals flat and coarsely sculpted by two rows of quadrate, foveate, contiguous punctures,

Ventral surface shiny, coarsely punctured. Mentum very small, subtrapezoidal, finely punctured, the submentum large and transverse. Prosternal apophysis truncate; mesosternum sulcate by a fine medial longitudinally traced carina, apophysis of metasternum broadly rounded, elytral epipleura finely and scarcely punctured and finely margined on the interior board. Abdomen shiny, apophysis of the first ventral sternite largely truncate, tegument of sternites strongly and densely sculpted of tubercles, which are reclined and pointed backwards. The anal sternite unmargined.

Legs without diagnostic characters, the femora subclavate, the tibia straight.

**Etymology.** Species named after Frode Ødegaard's daughter Liv.

**Remarks.** The species of *Rhyasma* Pascoe (1871) has been recently revised by Marcuzzi (1953, 1994, 2002). The genus was transferred to the tribe Belopini in the subfamily Lagriinae, by Doyen and Tschinkel (1982). However, the characters of *Rhyasma*, indicated close relationship with the tribe Stenosini, a group which was totally unrepresented between the genera used for cladistic analysis by Doyen and Tschinkel (loc. cit.). *Rhyasma* has to be retransferred to the Stenosini *sensu* Gebien (1937). The species of *Rhyasma* occur in Haiti (1), in Venezuela (2), Trinidad (1), Bonaire (1), in the Amazonian region of Brazil (3), in Uruguay (1) and in Argentina (2). The genus and the species is new for Central America.



Figures 1–25. (1–4) *Phymatestes agnei* sp. nov. (1) Head and pronotum; (2) sculpture of elytra; (3) antenna; (4) aedeagus; (5) *Goniadera repanda* (F.); aedeagus. (6–11) *Paratenetus tibialis* Champion. (6) Aedeagus; (7) pronotum; (8) antenna; (9) protibia; (10) mesotibia; (11) metatibia. (12–13) *Paratenetus grandicornis* Motschoulsky. (12) Head and pronotum; (13) aedeagus. (14–17) *Paratenetus ruficornis* Champion. (14) Aedeagus; (15) protibia; (16) mesotibia; (17) head and pronotum. (18–19) *Paratenetus sexdentatus* Champion. (18) Aedeagus; (19) head and pronotum. (20–24) *Paratenetus foveithorax*. (20) Aedeagus; (21) antenna; (22) head and pronotum; (23) tibia; (24) profile; (25) *Paratenetus denticulatus* Champion; head and pronotum.

*Paniasis kulzeri* sp. nov.

(Figs 41–46, Photo 6)

**Type material.** Holotype: ♂, Panama, Panama Prov., Gamboa, 10-V.1995.

**Description.** Length: 6.2 mm, maximum of width: 2.8 mm.

Glabrous, dull, the elytra with a silky aspect, brownish with reddish buccal appendages, legs and four basal, shiny antennal joints, the following joints darker and duller. Normally winged.

Epistoma rounded, supra-antennal zones moderately raised and convex, the eyes reniform, separated frontally by a distance equivalent to the diameter of an eye, measured dorsally; tegument densely covered of punctures, separated by a distance equivalent to the diameter of a puncture. Antennae long, reaching the middle of elytra, the third joint as long as the fourth, the following becoming longer and progressively punctured.

Pronotum trapezoidal, the anterior board and the base bisinuate, sides feebly constricted anteriorly, sub-parallel backwards, anterior angles sub-right, posterior obtuse, base unmarginated, lateral carina finely traced from sides to anterior margin of pronotum. Tegument sculpted as head, the punctures fine, rounded, here and there contiguous, generally well separated.

Elytra sub-parallel, ovate apically, about 1.5 times as long as broad, the maximum of width at middle, Callus humeral distinct, lateral carina perfectly visible dorsally, sculpted with regular rows, finely incised with small, round, separate punctures, becoming superficial apically, intervals flattened, moderately convex on sides, finely and sparsely punctured.

Legs slender with characteristic dilated protarsi.

**Etymology.** Species named after Hans Kulzer, the late specialist of Tenebrionidae.

**Remarks.** The genus *Pseudapsida* Kulzer, 1961, separate from *Platydema* by strongly dilated protarsi, was created by monotypy by Kulzer (1961), to receive a 12 mm long new species from Brazil: *P. brasiliensis*. This second species from Panama is very similar in facies, but completely different by much smaller size, unmarginated pronotum, coarser pronotal punctures and uniform intervals of elytra.

The genus *Paniasis*, created by Champion 1886: 206, to receive a single species from Mexico, is a senior synonyme of *Pseudapsida* Kulzer, 1961 **syn. nov.**, created by monotypy, for a species from Brazil, characterized by strongly dilated protibia. We recommend the transfer of this species to the genus of Champion: proposing *Paniasis brasiliensis* (Kulzer, 1961) **comb. nov.**

*Iccius monoceros* sp. nov.

(Figs 48–49)

**Type material.** Holotype: ♂, Panama, Colón Prov., San Lorenzo Prot. Area, 13.X.2003, R. Kitching leg. (at

lights). Paratypes: Panama, Colón Prov., San Lorenzo Prot. Area, Flight intercepted trap, canopy, 21 m above forest floor, 25.V–4.VI.2004, R. Didham et al.; ídem, 1–13.X.2003, R. Didham and L. Fagan leg. Museum of Natural History, Budapest, ♂. ♀.

**Description.** Length: 2.8 mm, maximum of width: 0.7 mm.

Light castaneous, glabrous, somewhat translucent, normally winged. Very similar in shape to *Sicinus gutemalensis* Champion, 1886, but clearly different by proportionally more elongate body, not so broad, sub-quadrate shape of pronotum, shorter elytra and cephalic configuration, which in this new species lack the four characteristic tubercles of this species, the transversal callus on the vertex and the compact and dorsally sulcate mandibles.

This uniformly coloured species also seems to be closely related to *Iccius cylindricus* Champion, 1886: 148, which is bicoloured, ornated by reddish mandibles, castaneous legs and elytra, except apical third, with black head, antennae, pronotum and apex of the elytra, and presenting another cephalic sculpture, consisting in two small tubercles longitudinally disposed frontally.

Kulzer (1949) has described two new species of this genus: *I. elongatus* from Costa Rica and *I. brevipennis*, from Brazil. *I. elongatus* is darker, olive-green and the head is bicorne like in *brevipennis*. This new species is the only species of this genus orned by a single horn at middle of front. A more detailed description of this species has to be given in a revision of *Gnatocerus* and related genus.

**Etymology.** Greek: μονοκερος: with a single horn, alluding the peculiar cephalic configuration of this insect.

*Othryoneus triplehorni* sp. nov.

(Figs 74–76, Photo 1)

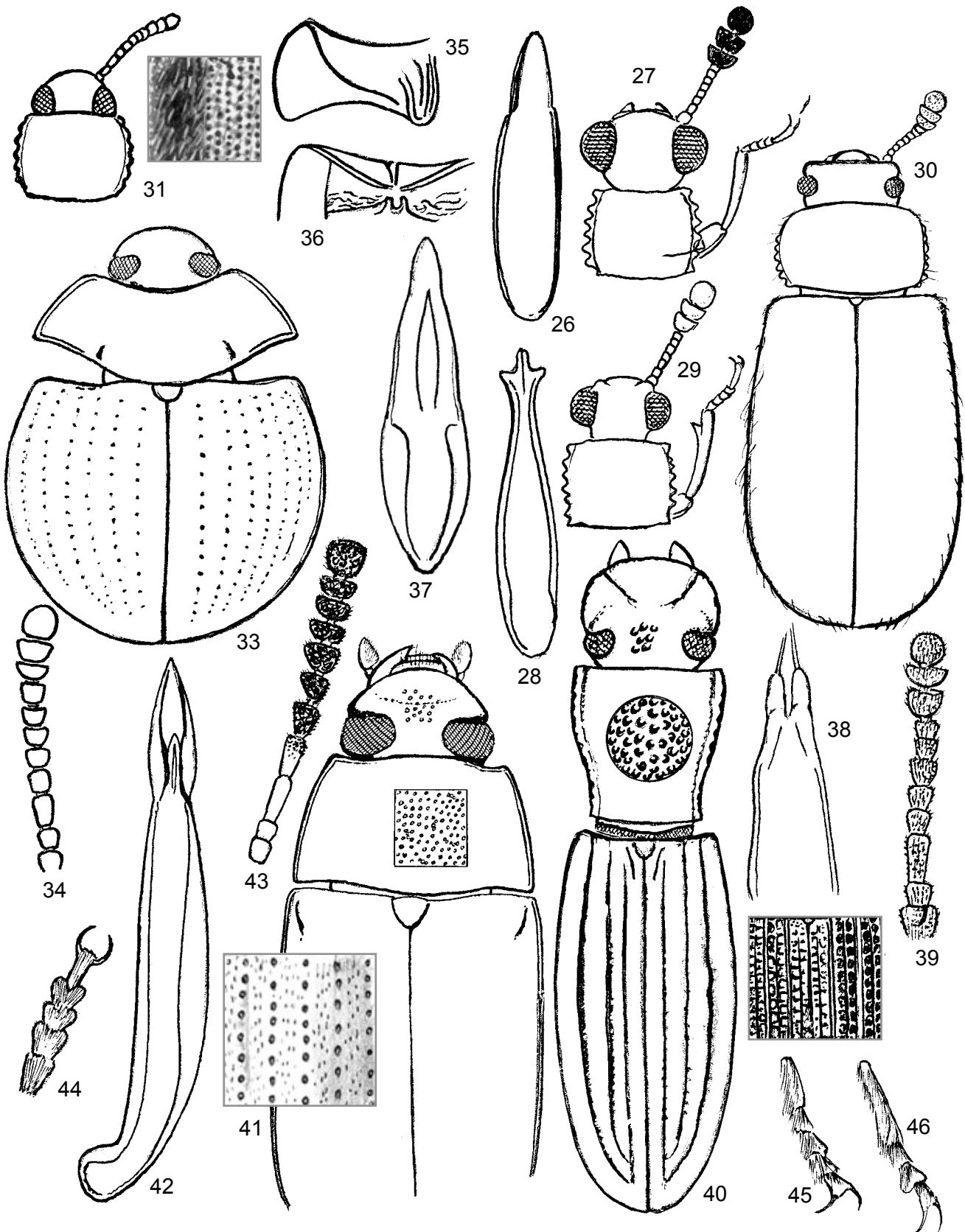
**Type material.** Holotype: ♂, Panama, Colón Prov., San Lorenzo Prot. Area, 11.V.2004. Paratype: ♀, Panama, Panama Prov., Gamboa, 13.VI.1995.

**Diagnosis.** Holotype – length: 5.1 mm, maximum of width: 3 mm. Paratype – length: 6.5 mm, maximum of width: 3.5 mm.

Similar in shape to a *Platydema*, but lacking the carinate surface of legs, characteristic of Diaperini.

**Description.** Body glabrous, head and pronotum, legs and the 5 basal joints of antennae, reddish orange, the following black and duller; elytra orange with four discal black patches. Normally winged.

Head strongly transverse, microphthalmic, antennae short, not reaching the base of pronotum, the third joint two times as long as broad, as long as the fourth, the following 4–6 joints subquadrate, the following becoming progressively dilated, the apical joint round. Eyes round, small and well separated, the epistoma truncate, the



Figures 26–46. (26–27) *Paratenetus* sp. (26) Aedeagus; (27) head and pronotum. (28–29) *Paratenetus constrictus* Champion. (28) Aedeagus; (29) head and pronotum; (30) *Paratenetus* sp. Habitus. (31–32) *Paratenetus* sp. cf. *crenulatus* Champion. (31) Head and pronotum; (32) elytral sculpture. (33–37) *Lenkous ibisca* sp. nov. (33) Habitus; (34) antenna; (35) prosternum; (36) meso- and metasternum; (37) aedeagus. (38–40) *Rhypasma livae* sp. nov. (38) Ovipositor; (39) antenna; (40) habitus. (41–46) *Paniasis kulzeri* sp. nov. (41) Habitus; (42) aedeagus; (43) antenna; (44) protarsi; (45) mesotarsi; (46) metatarsi.

labrum well separated by a cireous membrane, sparsely, yellowish pubescent.

Pronotum transverse, two times as broad as long, the anterior board and the base bisinuate, the anterior angles obtuse, the posterior sub-right, the sides regularly convergent from base to anterior board. Tegument strongly and densely covered of elongate punctures.

Elytra ovate, 1.5 times as long as broad, with strongly carinate shoulders and broadly semicircular scutellum. Each elytron maculate by a long irregular black patch occupying the 3–4 discal and 5–6 lateral intervals, at the first elytral third and two other transversally disposed and smaller in the posterior third.

Mentum rounded and finely punctured, contrasting with the extremely strongly and densely rugose punctures of the subgular zone. Gular zona moderately globose and punctured, unpunctured at middle. Propleura strongly punctured. Apophysis of prosternum finely reborded, rounded apically. Mesosternum roundly excavate, coarsely rugose punctate at each side, separated from metasternum by a stroge carina. Espisternal zones strongly punctured, as the elytral epipleura. Apophysis of first ventral sternite margined, triangulary rounded. Sternites I–III laterally margined and punctured, IV and V with membrana, obsolescently punctured and unmargined. Legs simple, without particular features, lacking lateral carina.

**Etymology.** Species named after Charles Triplehorn, eminent specialist of Tenebrionidae.

**Remarks.** The habitus of the female recall the shape of a *Platydemia*. The pronotum of the male holotype is more trapezoidal, not so large and strongly punctured (Fig. 74).

The species of *Othryoneus* (Champion, 1886: 245) has been placed in the old tribe Cnodalonini, formerly in the subfamily Coelometopinae. Before the description of this new species the types of all species described by Champion (loc. cit.) and Kulzer (1964) have been examined. A revision of this genus is under progress. This new species, one of the smallest of the genus, has to be placed after *O. serrivittatus* Kulzer, 1964.

***Lenkous ibisca* sp. nov.**  
(Figs 33–37, Photo 16)

**Type material.** Holotype: ♂, Panama, Colón Prov., San Lorenzo Prot. Area, extracted by Berlese-Tullgren from epiphytes collected in the canopy, 27.IX.2003, N. Winchester and K. Jordan leg. Paratypes: (sex not examined) Panama, Colón Prov. San Lorenzo Prot. Area, 8.X.2004, J. Bail leg. (canopy fogging) Museum of Natural History, Budapest and coll. J. Ferrer.

**Description.** Length: 2.2 mm, maximum of width: 1.3 mm.

Body shiny, glabrous, normally winged, completely rounded and convex, recalling the facies of a *Coccinella*

L., black with a brownish tint, with reddish, testaceous antennae, buccal appendages and legs.

Head rounded, the eyes separated at front by a distance equivalent to 1.5 times the diameter of an eye, measured dorsally, finely and sparsely punctured. Antennae with the third joint moderately long, the fourth shorter, a little longer than broad, the following becoming shorter and progressively dilated, the apical joint rounded.

Pronotum large, and short, strongly transverse, 2 times as broad as long, the anterior board broadly opened, with obtuse anterior and posterior angles. The lateral carina well traced into the lateral portion of the anterior board and the base, which is impressed at each side. Tegument sparsely and finely punctured. Scutellum small and triangular, depressed between elytra.

Elytra semi-sphaeric, globose, largely margined laterally, the base completely adapted to the shape of the base of pronotum, permitting hermetic closing of body, shoulders obtuse, convex discally, with fine, but conspicuous rows of well separated punctures.

Propleura lise and broadly excavate at each side to receive the anterior legs, prosternal apophysis reclined and strongly sulcated and margined.

Mesosternon very short, longitudinally carinate at middle and sculpted with two diagonally disposed at middle convergent carine at each side. Metasternon opened in “U” at middle, the episternes dull, coarsely and scarcely punctured, the discal zone rounded, strongly and densely punctured.

**Etymology.** IBISCA, acronym of the project: Investigating the Biodiversity of Soil and Canopy Arthropods.

**Remarks.** *Lenkous* Kaszab, 1973 is a myrmecophilous genus from Brazil described by monotypy to receive a species described by him at this occasion. Kaszab placed it in the tribe Cnodalonini after *Gonospa*. The systematic position of this genus, apparently similar *in facies* to the genera of the tribe Leiochrini and of the Nilioninae (sensu Doyen et al. 1989) is preliminary. Provisionally, we think that the place of this new genus is near the Leiochrini, probably exigit the creation of a new tribe. The genus and species are new for Central America.

***Gonospa similis* sp. nov.**  
(Figs 60–62, Photo 13)

**Type material.** Holotype: ♀, Panama, Panama Prov., Parque Natural Metropolitano, 24.IV.1995 (on *Bonamia marapoides*). Paratype: ♀, Panama, Panama Prov., Parque Natural Metropolitano, 2.II.1995 (on *Dioclea guianensis*); ídem, 15.I.1996; ídem: 5–6.IV.2004; San Lorenzo Forest, IBISCA, Teneb65, Museum of Natural History, Budapest.

**Description.** Length: 2.5 mm, maximum of width: 1.5 mm.

Glabrous, dark brownish aeneous, with a translucent red-brownish tint, with antennae, buccal appendages and legs brown. Normally winged.

Head hidden, concealed by pronotum, epistome broad, straight, truncate, well separated from the front by a transversal, well impressed line. Antennae slender reaching the shoulders, the club formed by 5 moderately progressively dilated joints.

Pronotum strongly transverse, broadly opened anteriorly, about 2 times as long as broad in semi-circle, lateral margins finely carinate, anterior angles broadly obtuse, sides regularly curved, posterior angles sub-right, base unmarginated and bisinuate at each side; tegument finely, sparsely and superficially punctured, finely sculpted by an isodiametrical web of transversal microscopic rides, only perceptible by high magnification, the prebasal zone largely depressed.

Elytra globose, becoming ovate apically, about 1.5 times as long as broad, lateral carina strong and hardly visible dorsally, forming with the lateral intervals a broadly depressed apical zone.

**Etymology.** Allusion to the similar aspect of this species with *Gonospa phaedonoides* Champion.

***Apsida simulatrix* sp. nov.**  
(Figs 63–65, Photo 15)

**Type material.** Holotype: ♀, Panama, Colón Prov., San Lorenzo Prot. Area, 4.V.2001 (on *Virola elongata*). Paratypes: Panama, Colón Prov., San Lorenzo Prot. Area, 3.IX.2003, H. Barrios and F. Ødegaard leg.; idem, 11.V.2002 (on *Arrabidaea verrucosa*); idem, 30.XI.2001, (on *Marila laxifolia*); idem, 24.I.2002.

**Description.** Length: 2.5 mm, maximum of width: 1,8 mm.

Shiny, glabrous, aeneous, with a strong, translucent, reddish brown tint, with antennae, buccal appendages and legs, yellowish reddish, more or less darker. Normally winged.

Head truncate anteriorly, hidden by the board of pronotum, epistome truncate, separated from the front by a transversal line, eyes well separated frontally by a distance superior to 3 times the diameter of an eye, measured dorsally.

Pronotum discally convex, anterior board broadly opened, anterior angles broadly obtuse, posterior angles sub-right, sides regularly curved, base unmarginated, bisinuate at each side, largely and transversally depressed; tegument extremely fine, sparsely and superficially punctured, finely sculpted by an extremely fine isodiametrical somewhat transversal reticulation, only perceptible by high magnification.

Elytra ovate, globose; shoulders rounded, lateral carina invisible dorsally, forming apically with the lateral interval a broad depressed zone.

**Etymology.** Latin: allusion to the similarity of this species with *Gonospa*.

**Remarks.** This species is another case of convergence, recalling the habitus of *Gonospa phaedonoides*. However, *Gonospa* are easily recognised by 6-joints dark club and massive metallic dark legs. This species differ by progressively incrassated antennae and very gracile, reddish light legs. Using Kulzer (1961: 218) key, this new species can be placed between *A. bucardi* Bates and *A. cubaensis* Kulzer (loc. cit.), using Triplehorn (1969), between *bucardi* and *terebrans* Champion.

***Brosimapsida* gen. nov.**  
(Figs 69–73, Photo 14)

**Diagnosis.** A new genus is necessary for the reception of a remarkable species, which will be recognized by strongly shiny, aeneous, glabrous, semi-hemisphaeric form as other species of *Apsida*, combined by the progressively dilated, asymmetrical, subserrate antennae (Fig. 69) and the peculiar obtusely serrate protibia (Fig. 71).

**Type species.** *Brosimapsida gonospoides* sp. nov. (by monotypy); gender feminine.

***Brosimapsida gonospoides* sp. nov.**

**Type material.** Holotype: ♀, Panama, Colón Prov., San Lorenzo Prot. Area, 21.XII.2001 (on *Brosimum utile*). Paratype: ♂, Panama, Colón Prov., San Lorenzo Prot. Area, IBISCA, flight-intercept trap, 35 meters above ground, 1–17.X.2003, R. Didham and L. Fagan leg. (Museum of Natural History, Budapest).

**Description.** Length: 3.3 mm, maximum of width: 2.5 mm.

Body semi-sphaeric, glabrous, shining aeneous, with buccal appendages, three basal joints of antennae and legs reddish brown, ventral surface shiny brown, with lighter epipleura. Normally winged.

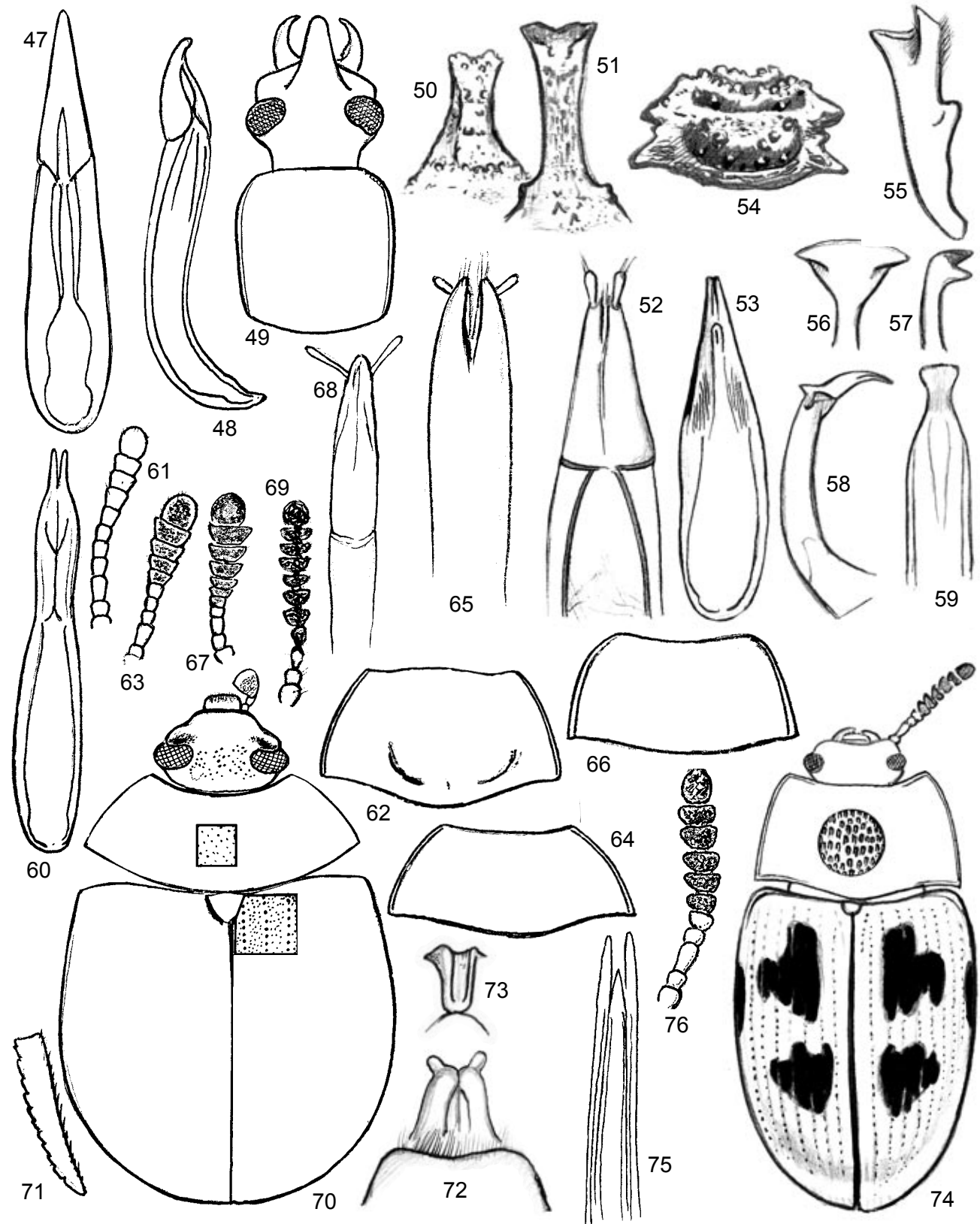
Head transverse, epistome truncate, genae sinuate and curved backward, the supra-antennal zone deeply foveate, eyes transverse, separated frontally by a distance equivalent to 1.5 times the diameter of an eye, measured dorsally; tegument finely, irregularly punctured.

Pronotum broadly transverse, 2 times as broad as long, broadly opened anteriorly and curved basally, anterior angles broadly obtuse, posterior angles sub-right, lateral sides regularly curved. Tegument finely and irregularly punctured, as the head.

Elytra globose and semi-sphaeric, shoulders broadly obtuse, elytral carina invisible dorsally.

Gular zone strongly convex, separated by a fine, impressed line from submentum, maxillar palpi dilated and securiform, the marginal board well separated and lighter, of a circous aspect. Propleura excavate to receive





Figures 47-76. (47) *Platydema* sp. of *sobrinum*-group. Aedeagus. (48-49) *Iccius monoceros* sp. nov. (48) Aedeagus; (49) head and pronotum. (50-53) *Calymmus cucullatus* Pascoe. (50) Pronotum ♀; (51) idem ♂; (52) ovipositor; (53) aedeagus. (54) *Ozolais elongata* Champion. Pronotum ♀. (55-59) *Antimachus coriaceus* Lacordaire. (55) Protibia; (56-57) cephalic horn; (58-59) aedeagus. (60-62) *Gonospa similis* sp. nov. (60) Aedeagus; (61) antenna; (62) pronotum. (63-65) *Apsida simulatrix* sp. nov. (63) Antenna; (64) pronotum; (65) ovipositor. (66-68) *Gonospa phaetonoides* Champion. (66) Pronotum; (67) antenna; (68) ovipositor. (69-73) *Brosimapsida gonospoides* gen. and spec. nov. (69) Antenna; (70) habitus; (71) protibia; (72) ovipositor; (73) apophysis of mesosternum. (74-76) *Othryoneus triplehorni* sp. nov. (74) Habitus; (75) aedeagus; (76) antenna.

the legs. Apophysis of prosternum recurved between coxae, broad, pointed apically. Mesosternon short, with a small open apophysis to receive the prosternal piece (Fig. 73), which is subrectangular, not U or V-shaped, as normal. Metasternum unpunctured, epipleura excavate to receive the legs.

**Etymology.** Composite name: alluding to the closely related genus and to the tree species *Brosimum utile* in which this insect was found.

*Epicalla aenipes* sp. nov.

(Fig. 84, Photo 10)

**Type material.** Holotype: ♀, Panama, Panama Prov., Parque Natural Metropolitano, 17.IV.1995.

Paratype: ♂, Panama, Colón Prov., San Lorenzo Forest, IBISCA, 12.V.2004 (Museum of Natural History, Budapest).

**Description.** Length: 10.0 mm, maximum of width: 4.2 mm.

Body shining metallic green, glabrous, aeneous, with a cupreous tint on legs, antennae black and dull.

Head transverse, macrophthalmic, the eyes oblongly globular, reniform on profile, separated by a distance equivalent to half diameter of the eye, measured dorsally. Epistome convex, truncate; labrum as short as the buccal membrana and pubescent; supra-antennal zones raised; canthus ocular rounded; front separated from the epistoma by a transversal line, deeply depressed between eyes; tegument strongly, irregularly and sparsely punctured. Antennae moderately long, reaching the shoulders.

Pronotum transverse, about 1.5 times as broad as long, anterior board convex, strongly margined at each side, anteriorly and basally, anterior angles broadly rounded, posterior angles sub-right, sides regularly curved forwards, abruptly constricted and sinuate basally; base strongly bisinuate at each side; tegument strongly and irregularly punctured, the punctures micrograniferous, here and there confluent, generally well separated; basal third with three impressions united by a transversal impressed zone.

Elytra 2 times as long as broad, the maximum of width after middle, sub-parallel becoming enlarged, ovate; shoulders prominent, surpassing the width of pronotum, basal zone depressed, tumefact, elytral carina strongly visible humerally, constricted apically; 8<sup>th</sup> interval finely carinate apically 5 discal intervals strongly lineate, the punctures only conspicuous laterally; lateral intervals strongly sulcate and punctured.

Ventral zone shiny, glabrous, apophysis of prosternum strongly reborded and pointed, the apex however, obtusely rounded. Mesosternon short, concave; metasternon shiny and convex, longitudinally impressed at middle, extremely fine and sparsely punctured at middle; propleural and epipleural zones strongly punctured.

**Etymology.** *Aeneipes*: latin alluding the cupreous aspect of legs of this insect.

*Epicalla elongata* sp. nov.

(Figs 77–78, 86, Photo 9)

**Type material.** Holotype: ♂, Panama, Colón Prov., San Lorenzo Prot. Area, 11.V.2001. (on *Dendropanax arboreus*).

**Description.** Length: 12 mm, maximum of width: 3.5 mm.

Epistoma truncate, supra-antennal zones raised in rapport to the level of the epistoma, but lower than the front, separated by a transversal impression, eyes large, transverse, subglobose, separated frontally by a distance equivalent to the combined length of the two first antennal joints, tegument irregularly punctured. Antennae reaching the shoulders, the first joints shiny, the following darker and duller, coarsely punctured.

Pronotum short, 1.5 times as long as broad, the anterior board straight, the base a little bisinuate at each side, anterior angles broadly rounded, posterior angles sinuate, just before the base and acute, strongly carinated laterally, anteriorly and basally, with a prebasal impression at each side, united by a prebasal, transverse impression. Tegument irregularly punctured. Scutellum very reduced.

Elytra elongate, two times as long as broad, sub-parallel in shape, rounded apically, the base broader than the width of the pronotum basally, the lateral carina strong and entirely visible dorsally, except at apex, rows strongly lineate, the scutellar striae strongly depressed forming a long postscutellar zone, intervals moderately convex and sparsely punctured.

Legs without diagnostic characters, except the mesofemora, which are orned by a short fringe of yellowish hairs ventrally.

**Etymology.** Allusion to the peculiar elongate form of this species.

*Epicalla pygmaea* sp. nov.

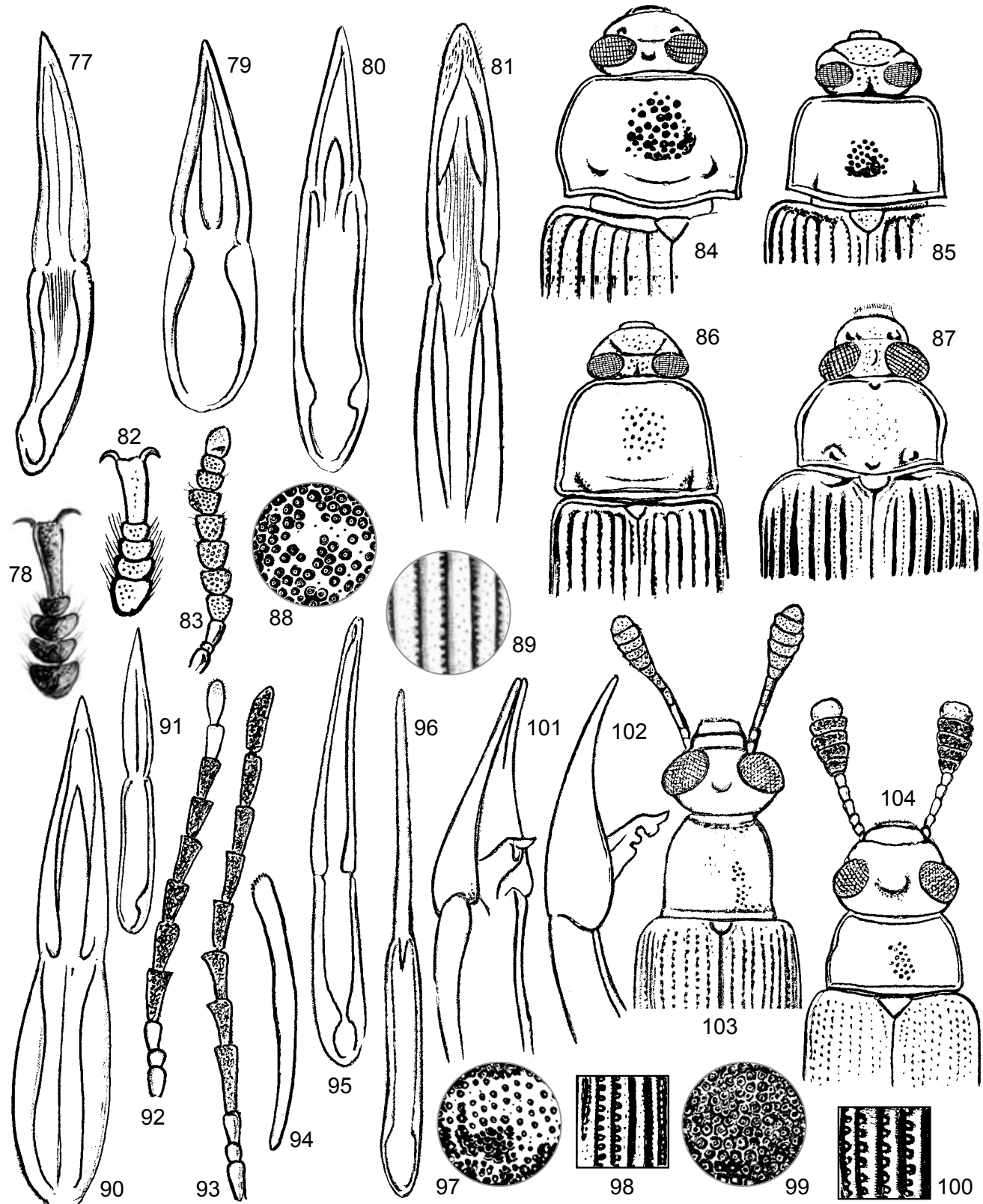
(Fig. 85, Photo 12)

**Type material.** Holotype: ♂, Panama, Panama Prov., Parque Natural Metropolitano, 4.VI.1995 (on *Luehea seemannii*). Paratype: ♀, idem, 1.V.1995 (on *Luehea seemannii*); idem, 5–6.V.2004.

**Description.** Length: 5.8 mm, maximum of width: 2.5 mm.

Body shining strongly metallic, dark, aeneous, with reddish cupreous disc on elytra. Normally winged.

Head oblong, strongly transverse, epistoma truncate, straight and deeply transversally depressed, supra-antennal zones deeply and transversally impressed and foveate before eyes, which are globose, separated frontally by a dis-



Figures 77-104. (77-78, 86). *Epicalla elongata* sp. nov. (77) Aedeagus; (78) protarsi; (86) habitus. (79) *Epicalla* sp. Aedeagus. (80) *Calydonella lisa* Doyen. Aedeagus. (81-83, 87) *Epicalla instriata* Pic. (81) Aedeagus; (82) protarsi; (83) antenna; (87) habitus. (84) *Epicalla aeneipes* sp. nov. Habitus. (85) *Epicalla pygmaea* sp. nov. Habitus. (88-90) *Strongylium vikenaes* sp. nov. (88) Sculpture of pronotum; (89) sculpture of elytra; (90) aedeagus. (91-92, 99-100) *Otocerus delicatus* sp. nov. (91) Aedeagus; (92) antenna; (99) sculpture of pronotum; (100) sculpture of elytra. (93-95, 97-98) *Otocerus angelicae* sp. nov. (93) Antenna; (94) protibia; (95) aedeagus; (97) sculpture of pronotum; (98) sculpture of elytra. (96) *Otocerus flavipennis* Mäklin. Aedeagus. (101-102) *Poecilesthes variipes* Champion. Aedeagus. (103) *Strongylium?* *clavicornis* Champion. Habitus. (104) *Strongylium?* sp. aff. *clavicornis* Champion. Habitus.

tance superior to the diameter of an eye, measured dorsally; front deeply impressed between eyes, tegument finely and sparsely punctured. Antennae short, reaching the humeri, the third joint short, as long as the fourth but smaller, the following becoming progressively transverse and sub-equal, the apical joint longer and rounded apically.

Pronotum transverse, two times as broad as long, trapezoidal, the sides rounded anteriorly and sub-parallel backwards, the margin deeply carinated, the anterior and basal board strongly margined, the anterior angles rounded, the posterior sub-right, the base bisinuate and with a little foveate impression at each side; tegument finely, superficially and sparsely punctured.

Elytra broader than the base of pronotum, strongly dilated after middle, about 1.5 times as long as broad, the shoulders prominent, strongly carinated, the lateral carina entirely visible dorsally, elytral rows lineate, the punctures obsolescent discally, the seventh interval finely carinated backwards and rounded apically.

**Etymology.** *Pygmaea*, latin: small, allusion to the reduced dimensions of this species.

***Strongylium vikenae* sp. nov.**  
(Figs 88–90, Photo 2)

**Type material.** Holotype ♂. Panama, Panama Prov., Barro Colorado Isl. 11–13.V.2004. Paratypes: 2 ♀♀: Panama Prov. San Lorenzo prot. Area, 9–28.V.2005, G. Curletti leg. (2 specimens in Museo Civico Storia Naturale, Carmagnola and coll. J. Ferrer, Haninge); same location, 22–31.V.2004 (one female collected at light).

**Diagnosis.** This beautiful species recalling the habitus of *Otocerus flavipennis* Mäklin, 1884, from Brazil, is one of the largest American *Strongylium*. However, the shape of the antennae and the aedeagus (cf. Figs 90 and 96) combined by other external characters, clearly indicate the convergence of both species. Morphologically, this new species is likewise similar to *Strongylium carinipenne* Champion, 1888: 374, which is much smaller and exhibiting a dark patch posterior on elytra.

**Description.** Length 31 mm, maximum of width: 5 mm.

Body metallic green with yellowish, shiny elytra. Normally winged.

Head coarsely punctured, the margin of the clypeus curved, front deeply foveate between the eyes, which are separated frontally by a distance equivalent to 0.5 times the diameter of an eye, measured dorsally. Antennae long, reaching the anterior third of the elytra, the third joint sub-equal to the following, shiny and finely punctured, the following darker and dull, covered of short black setae.

Pronotum feebly transverse, nearly quadrate and subcylindric, without lateral protuberances, strongly margined basally and anteriorly, the carina becoming larger at middle of the anterior board. Lateral zones unmargined, covered of coarse punctures as the head.

Elytra surpassing the width of the pronotum, deeply sulcate of darker striae, consisting of dense rows of black punctures, the alternate intervals larger than the others.

Ventral surface metallic green, shiny, strongly punctured, glabrous, except the apex of the anal sternite. Mentum small and finely punctured, pubescent. Maxillar palpi truncate and orned by a margin of cireous aspect apically; submentum subpentagonal and concave the pregular zone strongly sulcate, strongly rugose and transversally sulcate at middle. Gula convex and shiny. Eyes separated ventrally by a distance equivalent to 0.7 times the diameter of an eye, measured ventrally. Board anterior pf pronotum finelly margined and orned by a fringe of brownish-yellow hairs. coarsely and densely punctate, the punctures nearly contiguous. Apophysis of prosternum large, rounded apically and recurved between coxae, but visible laterally.

Mesosternon coarsely punctured, anteriorly and laterally, deeply excavated at middle, between coxae and transversally rugose. Metasternon anteriorly truncate and forming with the posterior zone of the mesosternum a deep excavate depression, probably to conserve humidity. Complete evaporation of water conserved in this natural recipient was obtained only after 35 minutes in a room temperature of 21°C. Epimeral zone densely and coarsely punctured, the punctures becoming sparse, smaller and feebly transverse at middle, forming a combination of superficial point and transverse rides, becoming obsolescent backwards; disc finely impressed longitudinally at middle, the impression becoming larger and excavated basally. Elytral episternes finely margined and rugose apically.

Abdomen shiny, irregular, sparsely and strongly punctured, the punctures well separated but sometimes confluent or contiguous, becoming almost isolate at middle of each sternite. Ventral apophysis lanceolate and strongly margined. Sides of sternites 1.2 and 4 depressed at each side. The anal sternite small, unmargined, depressed and finely pubescent apically.

**Etymology.** Species named after Åslaug Viken, the wife of Frode Ødegaard.

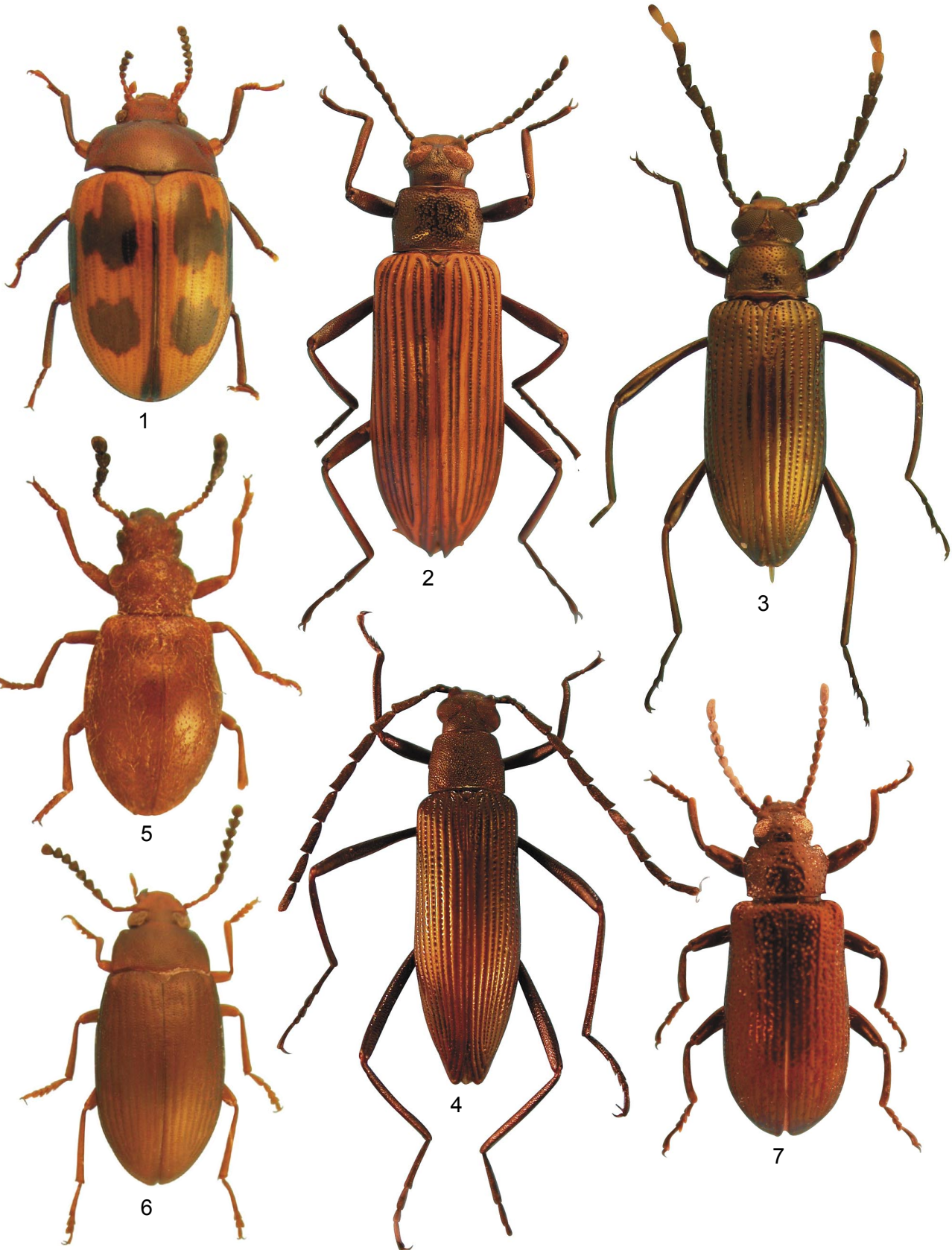
***Otocerus angelicae* sp. nov.**  
(Figs 93–94, 97–98, Photo 4)

**Type material.** Holotype: ♂, Panama, Panama Prov., Barro Colorado Isl., 11–13.V.2004.

**Description.** Length: 14 mm, maximum of width: 3 mm.

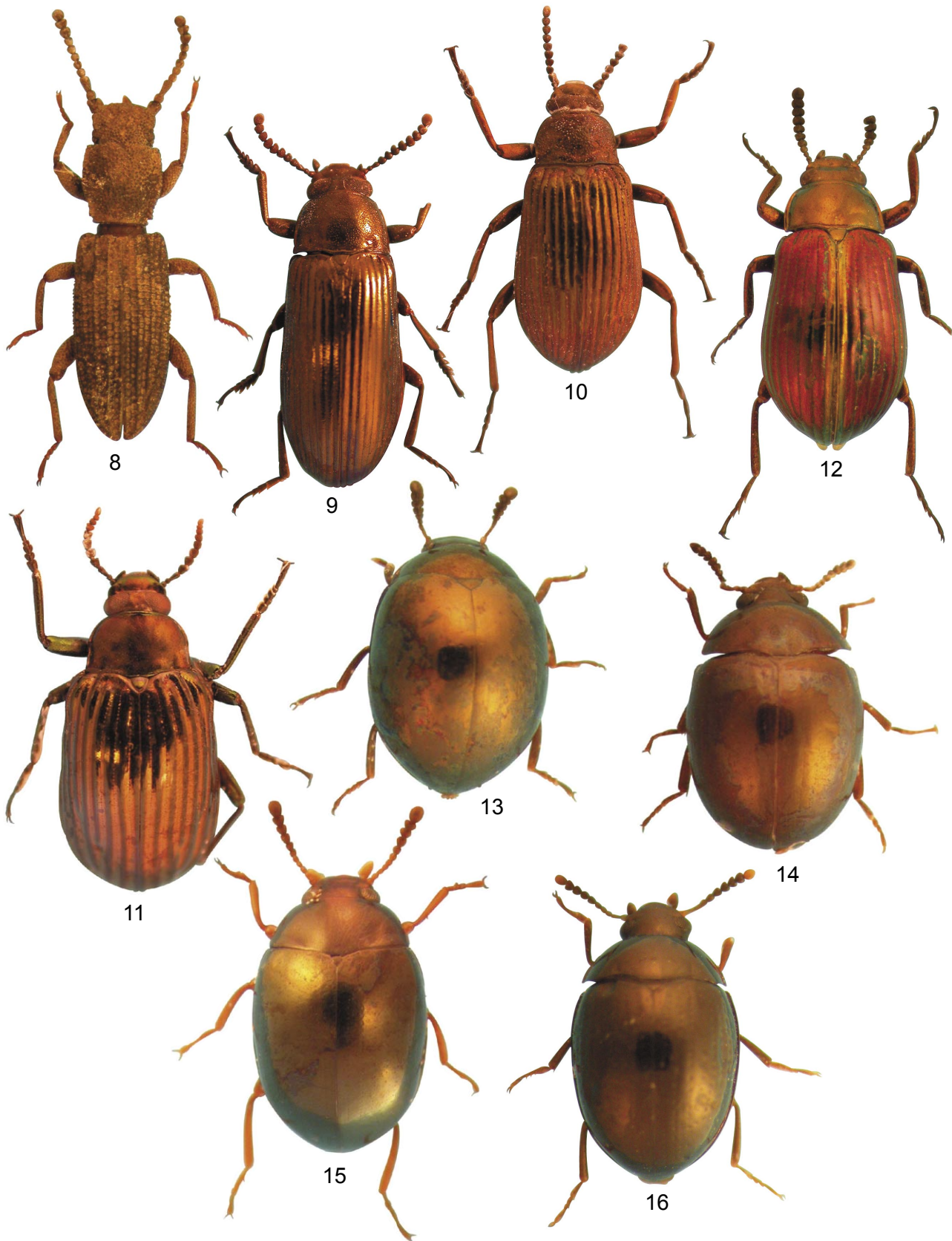
Body glabrous, metallic green, moderately shiny, with dull, black antennae. Normally winged.

Head strongly macrophthalmic, the board of the epistome rounded and punctured, the genal, supra-antennal zones strongly raised, brownish. Eyes large and nearly contiguous, separated frontally by a distance equivalent to an ocular facette, the separation backwards equivalent to the length of the first antennal joint.

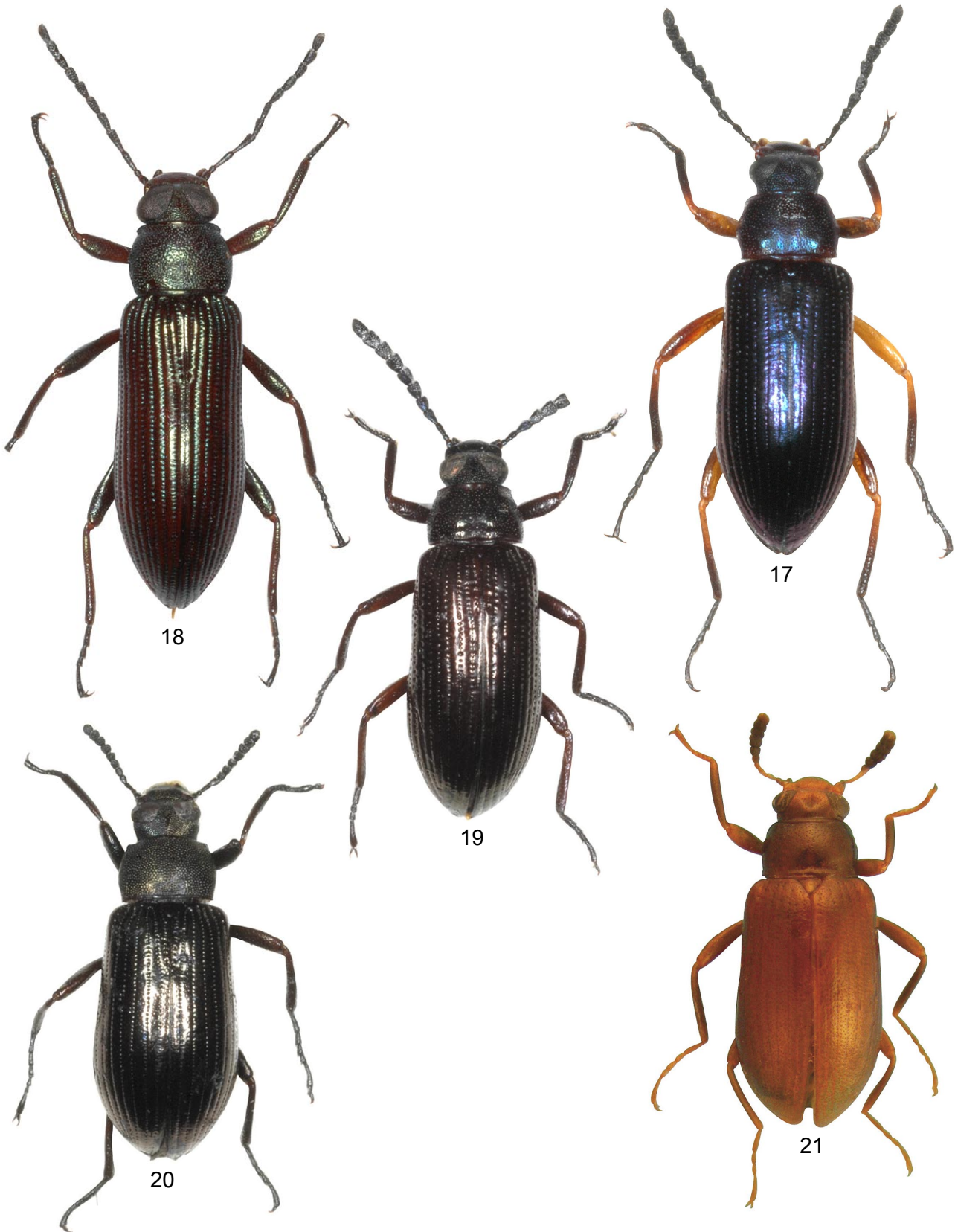


Photos 1–7. (1) *Othryoneus triplehorni* sp. nov., female; (2) *Strongylium vikenae* sp. nov.; (3) *Otocerus delicatus* sp. nov.; (4) *Otocerus angelicae* sp. nov.; (5) *Paratenetus foveithorax* sp. nov.; (6) *Paniasis kulzeri* sp. nov.; (7) *Phymatestes agnei* sp. nov.





Photos 8–16. (8) *Rhyasma livae* sp. nov.; (9) *Epicalla elongata* sp. nov.; (10) *Epicalla aeneipes* sp. nov.; (11) *Epicalla instriata* Pic; (12) *Epicalla pygmaea* sp. nov.; (13) *Gonospa similis* sp. nov.; (14) *Brosimapsida gonospoides* gen. and sp. nov.; (15) *Apsida simulatrix* sp. nov.; (16) *Lenkous ibisca* sp. nov.



Photos 17–21. (17) *Strongylium* sp. 1; (18) *Strongylium* sp. 2; (19) *Strongylium* sp. 3; (20) *Strongylium* sp. 4; (21) *Strongylium*? sp. aff. *clavicornis* Champion.

Vertex forming a sharply triangular zone between eyes, tempora constricted, Antennae very long and slender, reaching the apical third of elytra, the first joint as short as the third, which is much shorter than the following (a diagnostic character of gen. *Otocerus*). Joints 4–10 sub-equal, duller, finely dilated at the external apex, the last joint elongate and rounded apically.

Pronotum sub-cylindrical, nearly trapezoidal, the base a little larger than the anterior board, with a large, basal impression at middle and two at each side. Tegument coarsely punctured, each point micrograniferous, irregularly disposed, some times contiguous, the tegument isodiametrically reticulate. Scutellum round and very finely punctured.

Elytra elongate, three times as long as broad, the shoulders rounded, acuminate apically, with dehiscent apex, sulcate by nine striae, included the scutellar, convergent two and two basally and consisting in well incised rows of sub-quadrate, sub-foveate points, united by a continuous line. Legs very long and slender, the protibia shorter and curved, the meso and metatibia straight, the tarsi very long, without diagnostic characters.

**Etymology.** Species named after Julio Ferrer's daughter Angelica.

This species is closely similar to *Otocerus attenuatus* Champion. The following table permitting the separation of both species:

<i>O. attenuatus</i> Champion	<i>O. angelicae</i> sp. nov.
eyes widely separated frontally	eyes nearly contiguous
front finely punctured	front strongly punctured
joints 4 and following violaceous	joints 4 and following dull, black
pronotal protuberance unobscured	pronotal lateral protuberance conspicuous
apex of elytra pointed	apex of elytra dehiscent
elytral punctures oblong	elytral punctures round to subquadrate
intervals flat to beyond the middle	intervals convex
base of tibia and tarsi reddish	legs uniformly black
length: 11 mm	length: 14 mm

*Otocerus delicatus* sp. nov.  
(Figs 91–92, 99–100, Photo 3)

**Type material.** Holotype: ♂. Panama, Panama Prov., Parque Natural Metropolitano, 5–6.V.2004. Paratype: ♂. Panama, Colón Prov., San Lorenzo Prot. Area, 9.V.2001.

**Description.** Length: 7.5 mm, maximum of width: 1.8 mm.

Glabrous, metallic green, shiny, with a castaneous to reddish-brown tint, head, legs, anterior cephalic zone, buccal appendages and three first basal antennal joints, ventral zone of body, anterior and basal carina boarding the pronotum, lateral carina of elytra, strongly shiny castaneous-brown. Antennae black, with two apical joint lightly yellowish. Normally winged.

Epistoma truncate, labrum darker, brown, separated by a transversal membrane, maxillar palpi moderately dilated apically; head macrophthalmic, the eyes separated frontally by a distance inferior to the width of the first antennal joint, vertex pointly triangular, between eyes, tegument coarsely punctured, finer anteriorly, supra-antennal zones raised, the ocular canthons short, occupying about one third of the width of the eye, measured laterally; eyes strongly reniform, globose in dorsal view. Antennae long, reaching the apical third of elytra, the third joint about ½ the length of the following (diagnostic character of s. gen. *Otocerus*), the joints 4–9 sub-equal, but becoming progressively dilated, the 9 and 10 a little shorter, the last joint becoming elongate and rounded apically.

Pronotum sub-cylindrical, the sides becoming a little convergent to the anterior board, sub-parallel and orned with a little lateral protuberance after middle, irregularly coarsely and strongly punctured.

Elytra shining metallic green, with a brownish tint, sub-parallel, acuminate apically, coarsely sulcate by densely punctured rows, the intervals convex and finely punctured.

Legs very slender and long, without diagnostic characters.

**Etymology.** *Delicatus*, latin: gracious, alluding to the gracility of this species.

**Remarks.** *Otocerus* has been separated from *Strongylium* by third antennal joint reduced, and constantly shorter than following. However, dimorphical legs occur in some species of *Otocerus*.

## ANNOTATED CHECK-LIST OF SPECIES

### Subfamily Lagriinae

(except tribe Statirini, which will be studied in a separate paper)

#### Tribe Lagriini

*Lagria villosa* Fabricius, 1781 has been recently introduced in Brazil (Paraná, Foz de Iguazu, 21.VIII.2000, Sta Catherina, Florianopolis, Praia do Colón Prov. Santinho, 24.VIII.2000) and Argentina (Corrientes, Cataratas, 1.IX.2000). The presence of this African *Lagria* in Central America is probably a matter of time.

#### Tribe Lupropini

Currently, North American specialists after Doyen et al. (1989) ignored the tribe Lupropini sensu Ardoin (1961), including these insects in the tribe of Goniaderini or other tribal groups. The genus *Paratenetus* Spinola (1844: 116) has been transferred by Doyen et al. (1989) to the tribe Belopini. However this genus is closely related to the African genus *Enicmosoma* (sensu Ardoin 1959),



and belongs to *Lupropini*, *sensu* Ardoïn (1959, 1961) in all essential morphological characters. None adequate keys exists and the genus need a revision.

***Paratenetus denticulatus*** Champion, 1886  
(Fig. 25)

Panama, Colón Prov., San Lorenzo Prot. Area, 9.V.2001 (on *Nectandra purpurascens*); *idem*, 20.IX–30.X.2003; (on *Inga pezizifera*); *idem*, 27.X.2001 (on *Inga cocleensis*); Panama Prov., Parque Natural Metropolitano, 19.I.1996 (on *Luehea seemannii*).

***Paratenetus tuberculatus*** Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 17. IV. 1995 (on *Combretum fruticosum*).

Closely related to a syntype of *P. tibialis* Champion, 1886 (Figs 6–11), but smaller.

***Paratenetus ruficornis*** Champion, 1886  
(Figs 14–17)

Panama, Panamá Prov., Cerro Campana, 650 m a.s.l., 16.V.1996.

***Paratenetus sexdentatus*** Champion, 1886  
(Figs 18–19)

Panama, Chiriqui Prov., Palo Alto, 1400–1600 m a.s.l. 10.VIII.1995; Colón Prov., San Lorenzo Prot. Area, 27.VII.2001 (on *Nectandra purpuracens*); *idem*, 3.V.2001 (on *Cydista aequinoctialis*); *idem*, 2.VI.2001, (on *Clusia minor*); *idem*, 15.V.2003 (on *Tocoyena pittieri*); *idem*, 5.X.2003, (on dead branches of *Terminalia amazonica* in the canopy).

**Remark.** This species is closely related to *Paratenetus auritus* Mäklin (1875), from Amazonas (Brazil, Cabessa de Cuchorro, 27.VIII.2000).

***Paratenetus grandicornis*** Motschoulsky, 1868  
(Figs 12–13)

Panama, Panama Prov., Cerro Ancón, 13.I.2002; *idem*, 31.I.2002; Parque Natural Metropolitano, 21.III.2001 (on *Luehea seemannii*); Colón Prov., San Lorenzo Prot. Area, 6.III.2001 (on *Phryganocydia corymbosa*); *idem*, 10.III.2001 (on *Pourouma bicolor*); *idem*, 11.III.2001 (on *Tovomita longifolia*); *idem*, 18.III.2001 (on *Terminalia amazonica*); *idem*, 3.V.2001 (on *Cydista aequinoctialis*); *idem*, (on *Phryganocydia corymbosa*); *idem*, 21.V.2004 (on *Tapirira guianensis*); *idem*, 31.I.2002 (on *Oenocarpus mapora*); *idem*, 4.V.2001 (on *Tontelea ovalifolia*); *idem* (on *Forsteronia viridescens*); *idem*, 10.III.2001 (on *Brosimum utile*).

***Paratenetus constrictus*** Champion, 1892  
(Figs 28–29)

Costa Rica, Guanacaste Prov., Sta Elena, 10.II.1998; Panama, Panama Prov., Parque Natural Metropolitano, 18.III.1995; (on *Enterolobium cyclocarpum*) (3).

***Paratenetus* sp. cf. *crenulatus*** Champion, 1886  
(Figs 31–32)

Panama, Colón Prov., San Lorenzo Prot. Area, 12.V.2004 (on dead branches in the understory).

A species, characterised by serrate rows of elytral punctures (Fig. 32).

***Paratenetus nigricornis*** Champion, 1886

Panama, Colón Prov., San Lorenzo Prot. Area, 24.V.2001; *idem*, 12.IV.2002 (on *Tocoyena pittieri*); *idem*, 24.III.2004 (on *Tocoyena pittieri*, on dead branches in the canopy).

***Paratenetus foveithorax* sp. nov.**  
(Figs 20–24, Photo 5)

Panama, Panama Prov., Parque Natural Soberania, Plantation Road, 1.XII.2001.

***Paratenetus* sp.**  
(Figs 26–27)

Panama, Colón Prov. San Lorenzo Prot. Area, I.X.2003 (on *Terminalia amazonica*).

***Paratenetus* sp.**  
(Fig. 30)

Panama, Panama Prov., Parque Natural Metropolitano, 11.V.1995 (on *Pseudobombax septenatum*).

A single female characterised by strongly microphthalmic head. Probably a new species.

***Lorelus trapeziderus*** Champion, 1913

Panama, Colón Prov., San Lorenzo, Prot. Area, (on dead branches of *Poulsenia armata* in the canopy).

***Anaedus corvinus*** Boheman, 1858

Brazil, Paraná, Foz de Iguassu, 25–30.VIII.2000.

***Anaedus maculatus*** Champion, 1886

Panama, Panama Prov., Gamboa, 10–15.V.1995; Ancón, 4.XI.2001, *idem*, 5–9.V.2004.

*Anaedus marginatus* Champion, 1886

Panama, Panama Prov., Gamboa, 24.V.1995. Brazil, Paraná, Foz de Iguassu, 25–30.VIII.2000.

*Anaedus setulosus* Champion, 1886

Panama, Colón Prov., Colón Prov. San Lorenzo Prot. Area, 1.VI.2001.

*Anaedus villosus* Champion, 1892

Costa Rica, Guanacaste Prov., Sta Rosa, 11.II.1998; Panama, Colón Prov., San Lorenzo Prot. Area, 1.VI.2001; Panamá Prov., Barro Colorado Isl., 23–31.V.2001.

*Anaedus apicicornis* Champion, 1886

Panamá, Panama Prov., Gamboa, 4–9.V.1995; ídem, 28.V.1995; Summit Graden, 15.IV.1995; Ancón, 1–20.V.1996; ídem, 4.XI.2001; ídem, 5–9.V.2004; Brazil, Paraná, Foz de Iguassu, 21–23.VIII.2001.

*Anaedus* sp.

Panama, Panama Prov., Ancón, 4. XI. 2001

*Aesymnus nitidus* Champion, 1886

Panama, Panama Prov., Ancón, 5–9.V.2004; ídem, 4.V.2001; ídem, 2.I.2002.

## Tribe Goniaderini

*Goniadera* aff. *repanda* Fabricius, 1801  
(Fig. 5)

*Goniadera pseudorepanda* in litt.  
= *Goniadera repanda* Champion, 1886: 236, nec. Fabricius, 1801: 165.

Panama, Colón Prov., San Lorenzo Prot. Area, 17. X. 2003.

The examination of the syntypes of *Goniadera repanda* (Fabricius, 1801), described as *Melandrya*, and all available material inclusive types of the *Goniadera* material preserved in the Natural History Museum, London; Muséum national d'Histoire naturelle, Paris and other Europeans Museums, prove that this new species has been confused with *Goniadera repanda*. It will be described in the current revision of the genus *Goniadera* Perty, in preparation.

*Aemymone crenata* Champion, 1892

Panama, Colón Prov., San Lorenzo Prot. Area, 4.V.2001; Panama Prov., Gamboa, 10–15.V.1995; ídem, 24.VI.1995.

*Phymatestes agnei* sp. nov.  
(Fig. 1–4, Photo 7)

Panama, Panama Prov., Gamboa, 12.VI.1995.

## Tribe Belopini

*Adelonia quadricollis* (Champion, 1885)

*Rhacius quadricollis* Champion, 1885.

Panama, Colón Prov., San Lorenzo Prot. Area, 8.XI.2001 (on *Socratea exorrhiza*); ídem, 17.XI.2001 (on *Brosimum utile*); ídem, 26.IX.2003 (on *Poulsenia armata*); ídem, 1.XII.2001 (on *Socratea exorrhiza*); ídem, 28.IX.2003; Panama Prov., Ancón, IX.2001; ídem, 11.IX.2001; Gamboa, 10–15.V.1995.

## Tribe Nilionini

The knowledge of this group is in poor state. Pic (1918) named new species from Central America and Brazil, giving very short diagnosis. A study of all type material of this author is necessary before description of new species.

*Nilio* sp.

Panama, Colón Prov., San Lorenzo Prot. Area, 17.IV.2002 (on *Callophyllum longifolium*)

One of the smallest species from Central America, 2.5 mm. long, characterised by strong greenish aeneous colour and by orange-reddish antennae and legs.

*Nilio thomsoni* Champion, 1888

Panama, Colón Prov., San Lorenzo Forest, 17.IV.2002. (on *Callophyllum longifolium*); ídem, 28.XII.2001; ídem, 11.X.2003.

*Nilio villosus* (Fabricius, 1787)

Panama, Colón Prov., San Lorenzo Prot. Area, 24.IX.2003; Panama Prov., Parque Natural Metropolitano, 17.V.1996 (on *Anacardium excelsum*);

## Sufamily Pimeliinae

## Tribe Epitragiini

*Bothrotes canaliculatus* Say, 1824

Mexico, San Miguel Negandía, 2200 m a.s.l., 9–22. XII. 1999, Lars Ove Hansen leg.;

Nicaragua, 5 Km S of Granada direction towards Nindaime, XII.1999. ídem, Lars Ove Hansen leg.;

Nicaragua, Granada, 5 Km S of Granada, dirección Nindaline (netted) 1. XII.1999, Lars Ove Hansen leg.

The female of this species lack the conspicuous pronotal carina of the male.

***Cyrtomius plicatus*** Champion, 1884

Mexico, Estado de Mexico, San Miguel Nepantia, 2200 m a.s.l., 19–22.XI.1999. Lars Ove Hansen leg.

***Phegoneus viridis*** Champion, 1884

Costa Rica, Guanacaste Prov., Sta Rosa, 11.II.1998.

***Schoenicus panamensis*** Champion, 1884

Panama, Panama Prov., Parque Natural Metropolitano, 26.II.1996, (on *Luehea seemannii*); ídem, 18.I.1996 (on *Gouania lupuloides*); Ancón, 13.I.2002; Gamboa, 23.V.1995.

***Epitragus aurulentus*** Kirsch, 1866

Panama, Panama Prov., Parque Natural Metropolitano, 30.IV.1995, (on *Cordia alliodora*); ídem, 6.IV.1995.

**Tribe Evaniosomini**

***Ditaphronotus foveicollis*** (Champion, 1884)

Costa Rica, Guanacaste Prov., Santa Rosa, 11.II.1998; Panama, Colón Prov., San Lorenzo, 3.I.2002; Nicaragua, Managua, Carretera Masaya, 12.5 km, netted, XI–XII.1999, Lars Ove Hansen leg.

***Hylocrinus parallelus*** (Champion, 1884).

*Emmenastus parallelus* Champion 1884: 12

México, Estado de Mexico, San Miguel Nepantia, 19–22.XII.1999, 2200 m a.s.l., Lars Ove Hansen leg.

**Tribe Branchini**

***Branchus obscurus*** Horn, 1866

Nicaragua, 5 km S of Granada, direction to Nindaime, 1.XIII.1999 (netted) Lars Ove Hansen leg.

**Tribe Stenosini**

***Rhypasma livae*** sp. nov.  
(Figs 38–40, Photo 8)

Panama, Panama Prov., Ancón, 16.II.2002, A. Ødegaard leg.

**Tribe Cnemeplatini**

***Lepidocnemeplatia laticollis*** (Champion, 1884)

*Cnemeplatia laticollis* Champion, 1884: 136.

Mexico, Estado de Mexico, San Miguel Nepantia, 2200 m a.s.l., 19–22.XII.1999, Lars Ove Hansen leg.

**Remarks.** According to Kaszab (1938), *C. laticollis* Champion, from Panama and *C. sericea* Horn, from USA, are synonyms.

**Tribe Asidini**

***Bothrasida clathrata*** (Champion, 1884)

*Asida clathrata* Champion, 1884: 54.

Mexico, Estado de Mexico, San Miguel Nepantia, 2200 m a.s.l., 19–22.XII.1999, Lars Ove Hansen leg.

**Subfamily Opatrinae**

**Tribe Platynotini**

***Opatrinus gemellatus*** (Olivier, 1795)

Panama, Panama Prov., Ancón, 5–9.V.2004.

A widely distributed species in Central America and Antillas.

**Tribe Opatrini**

The numerous species of *Blapstinus* Sturm, 1826, lack an accurate revision, initiated by Davis (1970) and still in course. We include some undeterminable species, to attire the attention of specialists.

***Blapstinus metallicus*** (Fabricius, 1801)

Panama, Panama Prov., Gamboa, 30.XI.1995; Panama Prov., Ancón, 11.XI.2001.(3); ídem, 4.XI.2001; ídem.10.III.1995 (2).

***Blapstinus grandis*** Champion, 1885

Nicaragua, Granada, 2 km of Nindaime (netted at dry river bed) 1.XII.1999, Lars Ove Hansen leg.; Costa Rica, Sta Elena, 10.II.1995.

***Blapstinus buqueti*** Champion, 1885

Panama, Panama Prov., Gamboa, 3.XII.1995; ídem, 4.XI.2001; ídem, 4–9.V.1995; ídem, 9.I.1996, Panama Prov., Ancón, 4.XI.2001; ídem, 11.XI.2001.

***Blapstinus errabundus*** Champion, 1885

Panama Prov., Gamboa, 10–15.V.1995; ídem, 26.V.1995; Panama Prov., Ancón, 4.XI.2001 (3); the specimens are somewhat different and represent perhaps two local populations of same species.

***Blapstinus* sp. 1**

Costa Rica, Guanacaste Prov., Sta Rosa, 11.II.1998.

***Blapstinus* sp. 2**

Nicaragua, Granada, 2 km of Nindaime (netted at dry river bed) 1.XII.1999, Lars Ove Hansen leg.

***Blapstinus* sp. 3**

Panama, Panama Prov., Parque Natural Metropolitano, 7.V.1996 (on *Serjania mexicana*).

***Blapstinus* sp. 4**

Brazil, Paraná, Foz de Iguassu, 25–30.VII.2000 (3).

***Ulus hirsutus*** Champion, 1885

Costa Rica, Guanacaste Prov., Sta Elena, 10.II.1999.

***Ulus lineatulus*** Champion, 1885

Panama, Panama Prov., Gamboa, 20.I.1995; Cerro Ancón, 13.I.2002, F. and A. Ødegaard leg.

***Trichoton curvipes*** Champion, 1885

Panama, Panama Prov., Ancón, 10.III.1995; ídem, 4.II.2002, ídem, 5–9.V.2004.

**Subfamily Diaperinae****Tribe Dysantini*****Ozolais elongata*** Champion, 1886  
(Fig. 54)

Panama, Panama Prov., Parque Natural Metropolitano, 21.XII.2001; ídem, 14.V.1996; Barro Colorado Isl. 11–13.V.2004.

**Remarks.** According Doyen and Tschinkel (1982) this genus belongs to Toxicini.

***Calymmus cucullatus*** Pascoe, 1871  
(Figs 50–53)

= *Calymmus asperulus* Pascoe, 1871: 350.

A single male, Panama, Panama Prov., Parque Natural Metropolitano, 7.V.1996 (on *Enterolobium cyclocarpum*); a female: Panama, Panama Prov., Gamboa, 5.VI.1995.

Gebien (1939) and Papp (1961) considered *C. asperulus* Pascoe as a synonyme of *cucullatus*. However, Champion (1886) considered *asperulus* as a form or variety of *cucullatus* Pascoe, characterised by apically divergent precephalic horn, which is shortly truncate in the nominal form (Figs 50–51). In fact, *C. asperulus* is the male of *C. cucullatus*, which described by Pascoe after a female in an anterior page, is priority.

**Tribe Diaperini*****Liodema serricorne*** Bates, 1873

= *Liodema flavovariegatum* Champion, 1886: 208.

Panama, Colón Prov., San Lorenzo Prot. Area, 19.I.2002 (on *Brosimum utile*).

***Platydemia guatemalensis*** Champion, 1886

Panama, Colón Prov., San Lorenzo Prot. Area, 27.V.2004, Cornejo et al. leg.

***Platydemia undata*** (Chevrolat, 1878)

Panama, Panama Prov., Gamboa, 25.V.1995; ídem, 10–15.V.1995.

***Platydemia quinquedecimmaculatum*** Chevrolat, 1878

Panama, Panama Prov., Barro Colorado Isl. 20.IX–30.X.2003 (2).

***Platydemia tibiale*** Chevrolat, 1878

Panama, Panama Prov., Barro Colorado Isl. 20.IX–30.X.2003.

***Platydemia panamensis*** Champion, 1886

Panama, Panama Prov., Barro Colorado Isl. 20.IX–30.X.2003.

***Platydemia unicolor*** Champion, 1886

Panama, Colón Prov., San Lorenzo Prot. Area, 1.II.2002 (on *Brosimum utile*).

***Platydemia* sp. aff. *sobrinum*** Chevrolat, 1877  
(Fig. 47)

Panama, Colón Prov., San Lorenzo Prot. Area, 20.IX–30.X.2003 (2).

The numerous species of *Platydema* north of Mexico has been revised by Triplehorn (1965). Philips et al. (1998) described *P. woldai*, a new species from Panama, Guatemala and Honduras. The Central American relatives are still waiting for a review after the classical work of Champion (1886). This species is closely related to *P. nigratum* Motschoulsky, 1873 and *P. sobrinum* Chevrolat, 1877, but the aedeagus is different. It is impossible to key using Champion (1886) or Triplehorn (loc. cit.). The species is highly probably undescribed, however creating a new name to add to the list of 91 described Central American taxa of *Platydema*, before an accurate examination of available type material of at least all species exhibiting dark opaque body and more or less reddish legs and antennae, seems to be premature. We give a short diagnosis and figures of this species: dimensions: 7.4 mm × 4.5 mm; body ovate, dull, pruinous opaque, with reddish antennae and legs, dorsally practically unpunctured, except the head, which is unarmed in both sexes; the tegumen shiny and densely covered of nearly contiguous, round punctures. Ventral surface blackish, shiny and superficially punctured. Aedeagus small and pointed apically (Fig. 47).

*Paniasis kulzeri* sp. nov.  
(Figs 41–46, Photo 6)

Panama, Panama Prov., Gamboa, 10.V.1995.

*Cosmonota silphoides* (Laporte de Castelnau) **comb. nov.**

*Platydema silphoides* Laporte de Castelnau, 1831: 369.

Panama, Colón Prov., San Lorenzo Prot. Area, 21.XII.2001 (on *Cassipurea elliptica*).

This insect, abnormally large and depressed for the genus, has been described as *Platydema*, but exhibits the peculiar V-shaped metasternum and the shape of *Cosmonota*, claiming a transference to this genus.

**Tribe Phrenapatini**

*Phrenapaties bennetti* Kirby, 1837

Panama, Chiriqui Prov., 2 km north of Fortuna, 1100 m a.s.l., 19.VI.1995, A.R. Gillogly leg. Recorded from Mexico to Colombia.

The aedeagus of the specimen from Panama is practically identical to the nominal form, from Colombia. However, the cephalic horn is much shorter and massive.

**Tribe Ulomini**

*Uloma retusa* var. *dimidiata* Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 24.VIII.1995.

*Antimachus coriaceus* Lacordaire, 1859  
(Figs 55–59)

Panama, Panama Prov., Parque Natural Metropolitano, 6.V.1995 (male); ídem, 4.IX.1995.

This species recorded by Champion (1886), from Nicaragua to Brazil, has been overlooked by Gebien (1940) in his Catalogue.

*Peneta nuchicornis* Gebien, 1928

Panama. Colón Prov., San Lorenzo Prot. Area, 20. IX – 30. X. 2003, A. Tishechkin leg.

**Remarks.** *Peneta nuchicornis* Gebien (1928) has been described from Costa Rica and *P. nuchicornoides* Kaszab 1977, from Colombia, as figured in Kaszab (1977). New record for Panama.

*Sitophagus dilatifrons* Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 12.II.1995 (male).

*Hypogena tricornis* (Laporte de Castelnau, 1840)

Costa Rica, Guanacaste Prov., 11.II.1998 (male).

**Remark.** The old genus *Ulosonia* (Laporte de Castelnau 1840: 220), recently revised by Kulzer (1962) has been changed to *Hypogena*.

*Alegoria dilatata* (Laporte de Castelnau, 1840)

Panama, Panama Prov., Gamboa, 4–8.V.1995; Parque Natural Metropolitano, 1.V.1995, Panama Prov., Ancón, 5–9. XI.2001; Colón Prov, San Lorenzo Prot. Area, 18.V.2001.

*Iccius cephalotes* Champion, 1886

♂, Panama, Colón Prov., San Lorenzo Prot. Area, 22.IX–30.IX.2000, IBISCA team leg.;

♂, ídem, 6.III.2001 (on *Brosimum utile*); ♀, ídem, 24.V.2001; ♂, ♀, ídem, 19–X.2001; ♀, ídem, 22.IX.2001 (on *Poulsonia armata*); ♂, 24.XI.2001 (on *Brosimum utile*); ♂, ídem, 22.XII.2001 (on *Brosimum utile*); ♀, ídem, 24.I.2002 (on *Brosimum utile*); ♀, Mexico, Estado de Mexico, San Miguel Nepantia, 2200 m a.s.l., 19–22.XII.1999, Lars Ove Hansen leg.

*Iccius monoceros* sp. nov.  
(Figs 48–49)

♂, Panama, Colón Prov., San Lorenzo Prot. Area, 13.X.2003, R. Kitching leg. (at lights); ídem, Flight intercepted trap, canopy, 21 m above forest floor, 25.V–4.VI.2004, R. Didham et al.; ídem, 1–13.X.2003, R. Didham and L. Fagan leg. Museum of Natural History, Budapest, ♂. ♀.

## Tribe Triboliini

*Tribolium confusum* Jacquelin du Val, 1868

Panama, Panama Prov., Ancón, 5.IV.1995; ídem, 11.IX.2001; ídem, X.2001.

**Remark.** A cosmopolite, widely distributed pest of stored products.

## Subfamily Tenebrioninae

### Tribe Alphitobini

*Alphitobius laevigatus* (Fabricius, 1781)

*Helops laevigatus* Fabricius, 1781: 90.

Panama, Panama Prov., Ancón, 10.IV.1995.

A cosmopolite species.

**Remark.** According Doyen and Tschinkel (1982) *Alphitobius* belongs to Tenebrionini.

### Tribe Tenebrionini

According Doyen and Tschinkel (1982) the subfamily Tenebrioninae has to include the new tribe Coelometopini. The position of the genus *Nuptis* Motschoulsky 1872 and other genera cited here remain uncertain into comparative study.

*Zophobas opacus* (Sahlberg, 1923)

*Tenebrio opacus* Sahlberg, 1823: 17.

Panama, Panama Prov., Gamboa, 6.I.1995.

*Zophobas tridentatus* Kraatz, 1880

Panama, Panama Prov., Parque Natural Metropolitano, 22.V.1995 (male); Panama Prov., Barro Colorado Isl., 20:IX–30.X.2003 (female).

**Remark.** The taxonomy and synonymy of the genus *Zophobas* Blanchard, is one of the almost intricate. The recent discovery (Ferrer et al. 2004) of lost type material from Fabricius and Olivier, preserved in the William Hunter collection, of the Hunterian Museum of the University of Glasgow, facilitate the identification of these species, which has been compared with all types.

*Mylaris procera* (Champion, 1885)

*Nyctobates procera* Champion, 1885: 107.

Panama, Panama Prov., Parque Natural Metropolitano, 7.V.1995.

The genus *Nyctobates* Guérin, 1834: 33, has been found identical to *Mylaris* Pallas, 1781.

*Nuptis corticalis* Champion, 1885

Panama, Chiriqui Prov., Boquete, 1200 m a.s.l., 8.VIII.1995.

*Nuptis tenebrosa* Champion, 1885

Panama, Colón Prov., San Lorenzo Prot. Area, 16.XI.2001 (on *Brosimum utile*).

*Hesiodus* cf. *conspurcatus* Champion, 1885

Panama, Panama Prov., Gamboa, 21.V.1995; Colón Prov., San Lorenzo Prot. Area, 29.XII.2001 (on *Symphonia globulifera*); ídem, 25.IV.2002; ídem, 11.V.2004 (on *Pouroma bicolor*).

This species is similar, but not exactly corresponding to the characters, invoked by Champion (loc. cit.), to distinguish the five known species of *Hesiodus* inhabiting Central America. The body is black, pruinose, the striae of elytra strongly punctured, the intervals very finely and sparsely punctured and the humeri dentiform. The single male specimen examined is insufficient for a decision concerning the specific status of this insect.

*Hesiodus* cf. *longitarsis* Champion, 1885

Panama, Panama Prov., Barro Colorado Isl. 11–13.V.2004.

As in the precedent case, the identification of this species remains uncertain. It is impossible to assign this single female a specific or subspecific status.

*Choastes purpureus* (Champion, 1885)

*Choaspes purpureus* Champion, 1885: 119

Panama, Colón Prov., San Lorenzo Prot. Area, 10.XII.2001.

*Choastes angulicollis* (Champion, 1885)

*Choaspes angulicollis* Champion: 1885: 119

Panama, Panama, Colón Prov., San Lorenzo Prot. Area; ídem, 8.V.2001; ídem, 27.V.2001; ídem, 28.IX.2001; ídem, 14.X.2001; ídem, 23.XI.2001 (on *Brosimum utile*); ídem, 25.IV.2002 (on *Brosimum utile*)

This genus is unambiguous by the dentate underside of posterior femora. Kulzer (1964) has described two species from Peru.

### Tribe Coelometopini

[Doyen and Tschinkel (1982), *pars.* = Cnodalonini Gebien]

***Othryoneus triplehorni*** sp. nov.  
(Figs 74–76, Photo 1)

Panama, Colón Prov., San Lorenzo Prot. Area, 11. V. 2004.

***Lenkous ibisca*** sp. nov.  
(Figs 33–37, Photo 16)

Holotype: ♂, Panama, Colón Prov., San Lorenzo Prot. Area, extracted by Berlese-Tullgren from epiphytes collected in the canopy, 27.IX.2003, N. Winchester and K. Jordan leg. Paratypes: (sex not examined) Panama, Colón Prov. San Lorenzo Prot. Area, 8.X.2004, J. Bail leg. (canopy fogging) Museum of Natural History, Budapest and coll. J. Ferrer.

***Gonospa phaetonoides*** Champion, 1886  
(Figs 66–68)

Panama, Panama Prov., Parque Natural Metropolitano, 29.I.1996; ídem, 6.V.2004; Colón Prov., San Lorenzo Prot. Area, 21.X.2001; ídem, 3.IV.1995; ídem, 6.IV.1995.

***Gonospa similis*** sp. nov.  
(Figs 60–62, Photo 13)

Panama, Panama Prov., Parque Natural Metropolitano, 24.IV.1995 (on *Bonamia marapioides*); ♀, ídem: 2.II.1995 (on *Dioclea guianensis*); ídem, 15.I.1996; ídem: 5–6.IV.2004; San Lorenzo Forest, IBISCA, Teneb65, Museum of Natural History, Budapest.

***Apsida simulatrix*** sp. nov.  
(Figs 63–65, Photo 15)

Panama, Colón Prov, San Lorenzo Prot., Area, 4.V.2001 (on *Virola elongata*); ídem, 3.IX.2003, H. Barrios and F. Ødegaard leg.; ídem, 11.V.2002 (on *Arrabidaea verrucosa*); ídem, 30.XI.2001, (on *Marila laxifolia*); ídem, 24.I.2002.

***Apsida purpureomicans*** Bates, 1873

Panama, Panama Prov., Parque Natural Metropolitano, 5.II.1995 (on *Enterolobium cyclocarpum*); ídem, 21.VIII.1995 (on *Enterolobium cyclocarpum*); ídem, 27.IX.1995; ídem, 5–6.V.2001; Panama Prov., Cerro Ancón, 13.I.2002.

***Apsida boucardi*** Bates, 1873

Panama Prov., Parque Natural Metropolitano, 10.VI. 1995, (on *Mikania leiostachya*); ídem, 22.V.1995; Cerro Ancón, 13.I.2002.

***Brosimapsida gonospoides*** gen. et sp. nov.  
(Figs 69–73, Photo 14)

Panama, Colón Prov., San Lorenzo Prot. Area, 21.XII.2001 (on *Brosimum utile*); ídem, flight-intercept trap, 35 meters above ground, 1–17.X.2003, R. Didham and L. Fagan leg. (Museum of Natural History, Budapest).

***Cyrtosoma denticollis*** Chevrolat, 1878

Panama, Panama Prov., Gamboa, 3.X.1995; Colón Prov., San Lorenzo, 28.XII.2001; ídem, 6.V.2002, A. Tisechkin leg.; 5.IX.2002; ídem, 20.IX–30.X.2003.

***Cyrtosoma decimlineata*** Champion, 1886

Panama. Panama Prov., Ancón, 5.IV.1995.

***Cyrtosoma*** sp. cf. *decemlineata* Champion, 1886

Panama, Panama Prov., Barro Colorado Isl., 2. V. 2004. This species is similar to *decemlineatum*, but the disposition of entirely coloured intervals is different. In *decemlineatum* the suture and the alternate intervals are red to orange. In this single specimen the suture, the 3.4.5.7 and the lateral margin are black, however the black bands are interrupted basally and apically and the patch of the 5 interval is very reduced. Using Marcuzzi's key (1991) this specimen has to be placed between *lineatum* Laporte de Castelnau, 1831, from the Amazonas region and *decemlineatum*. However, the coloured bands of *lineatum* are limited to the lateral intervals, sometimes reduced: the South American var. *reductevittatum* Pic, 1935 of *lineatum*. A new revision, based in genital characters and comprehensive figures of this species and unfortunately poorly known genus, is necessary.

***Cyrtosoma*** sp.

Panama, Panama Prov., Gamboa, 4–9.V.1995, Colón Prov., San Lorenzo Prot. Area, 26.IV.2002 (on *Dussia munda*).

Another red banded species, exhibiting strongly carinate protibia. Probably a new species. As both specimens are females it seems premature to create new names before revision of the genus *Cyrtosoma*.

***Epicalla*** sp. nov.  
(Fig. 79)

Ecuador, Santo Domingo de Colorados, G. Onoré (male). Panama, Colón Prov., San Lorenzo Prot. Area, 23. XI. 2001.

The species of the genus *Epicalla* Champion, 1886, are recognised by 7–8 striae of elytra forming a strong

premarginal carina. This widely distributed species has to be described in a separate paper revising the Amazonian representatives of the genus *Epicalla* Gebien 1938.

*Epicalla aeneipes* sp. nov.  
(Fig. 84, Photo 10)

Panama, Panama Prov., Parque Natural Metropolitano, 17.IV.1995; San Lorenzo Forest, IBISCA, 12.V.2004, Museum of Natural History, Budapest).

*Epicalla elongata* sp. nov.  
(Figs 77–78, 86, Photo 9)

Panama, Colón Prov., San Lorenzo Prot. Area, 11. V. 2001 (on *Dendropanax arboreus*).

*Epicalla pygmaea* sp. nov.  
(Fig. 85, Photo 12)

Panama, Panama Prov., Parque Natural Metropolitano, 4. VI. 1995.

*Epicalla instriata* Pic, 1921: 28  
(Figs 81–83, 87, Photo 11)

Panamá, Colón Prov., San Lorenzo Prot. Area, 15. XII. 2001.

This species has been overlooked in the Gebien (1928) revision. The laconic diagnosis of Pic (1921) has to be completed as following.

Length: 14 mm, maximum of width: 6 mm.

Head broadly rounded anteriorly, macrophthalmic; epistome finely impressed, labrum subquadrate, punctured and pubescent, supra-antennal zones strongly foveate before eyes, which are strongly globose and separated frontally by a distance equal to two times the diameter of an eye measured dorsally, becoming equal posteriorly. The eyes are reniform in lateral view, as results of the insertion of the ocular canthus; tegument finely, sparsely and superficially punctured. Antennae reaching the shoulders, third joint a little longer than the 4<sup>th</sup>, the following becoming larger, but decreasing to the apex and becoming lighter apically as indicated in Fig. 83.

Pronotum feebly transverse, broadly rounded anteriorly, without conspicuous anterior angles, the sides becoming subsinuated and parallel before the base, posterior angles right, strongly carinate, with a little fovea at the middle of the anterior margin and the middle of the base, which exhibit two depressed fovea at each side; tegument finely and sparsely punctured. Scutellum triangular, metallic green, shiny, polished.

Elytra strongly convex, subglobose in profile, 1.5 times as long as broad, the shoulders strongly callose and carinate, the humeral carina surpassing the level of the base, which is profoundly depressed at each side; tegument flat-

tened discally, finely sculpted of superficial and fine rows of punctures becoming carinate at sides and posteriorly, the intervals separated by clearly traceable carinate elevations, between the rows of fine punctures.

Ventral zone, glabrous, except the coxae, shining green metallic, mentum strongly trapezoidal, shiny, convex, with some scarce hairs, gula convex, deeply separated by a transversal impression; propleura shiny, polished and concave; prosternum strongly punctured, prosternal apophysis triangular, flattened and finely impressed at middle. Mesosternum carinate at middle and rugose at sides. Metasternum broadly opened in "V", to receive the apophysis, concave at middle, forming a strongly depressed zone, epimeral, episternal and epipleural zones deeply, irregular and strongly punctured.

*Epicalla cupreonitens* Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 17.IV.1995, (2) (on *Cordia alliodora*); ídem, 6.V.1995 (2) (on *Antirrhoea trichantha*).

*Camaria parallela* Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 19.X.1995 (on *Arrabidaea corallina*); ídem, 29.I.1996 (on *Astronium graveolens*); Colón Prov., San Lorenzo Prot. Area, 9.III.2001; ídem, 1.IX.2001, (on *Socratea exorrhiza*); ídem, 5.XII.2001.

*Calydonella lisa* Doyen, 1995  
(Fig. 80)

Panama, Chiriqui Prov., Fortuna, 8.VIII.1995. A single male from the locus typicus.

**Remark.** Doyen (1995) never studied the genitalia of this monotypic genus. We have examined for first time the aedeagus of this insect (Fig. 80). He placed *Calydonella* near *Othryoneus* Champion, 1886. However, examination of type material of all species of this genus revised by Kulzer (1964), indicate that *Othryoneus* are vividly coloured recalling the decoration of *Diaperis boleti* (L.) and other Diaperini, *Calydonella* is a metallic insect and in all essential characters agree and has to be placed near the genus *Calydonis* Pascoe, 1882.

*Blapida alternata* Gebien, 1919

Panama, Colón Prov., San Lorenzo Prot. Area, 22.XII.2001 (on *Bromium utile*); ídem, 9.III.2001; ídem, 15.XII.2001.

*Acropteron belti* Champion, 1886

Panama, Panama Prov., Barro Colorado Isl. 20.I.2004; Parque Natural Metropolitano, 21.XII.2001.



This remarkable species is characterised by a post-genicular plaque covering the first third of the metatibia of the female. The metatibia of the male are subsinuate.

*Acropteron languroides* Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 21.XII.2001; Colón Prov., San Lorenzo Prot. Area, 9.V.2002 (on *Cassipourea elliptica*).

This species is hardly separable from the *A. belti*. Perhaps only a much finer punctured subspecies.

*Acropteron longipenne* Champion, 1886

Panama, Panama Prov., Cerro Campana, 650 m a.s.l., 16.V.1996 (2); Panama, Colón Prov., San Lorenzo Prot. Area, 15.V.2001.

*A. longipenne* is the only species exhibiting simple metatibia.

*Xenius scabripennis* Champion, 1886

Panama, Panama Prov., Parque Natural Metropolitano, 2.XII.1995; Panama Prov., Parque Natural Soberanía, Plantation Road, 9.XII.2001.

**Tribe Helopini**

*Nautes breviceps* Champion, 1886

Panama, Colón Prov., San Lorenzo Prot. Area, 22.XII.2001 (on *Brosimum utile*); ídem, 21.I.2002, (on *Brosimum utile*); ídem, 24.2002 (from dead branches of *Brosimum utile* in the canopy).

**Remarks.** Five species unfortunately only represented by female specimens. This specious, poorly known genus needs an accurate revision before description of new taxa.

*Nautes* sp. 1

Panama, Colón Prov., San Lorenzo Prot. Area, 22: XII.2001 (on *Brosimum utile*), ídem, 22.I.2002 (on *Clusia* aff. *longipetiolata*).

*Nautes* sp. 2

Panama, Panama Prov., Parque Natural Metropolitano, 11.XII.1995 (on *Pithecoctenium crucigerum*); Barro Colorado Isl. 20.IX.–30.X.2003.

*Nautes* sp. 3

Panama, Colón Prov., San Lorenzo Prot. Area, 31.I.2002 (on *Inga cocleensis*).

*Nautes* sp. 4

Panama, Panama Prov., Gamboa, 3.X.1995; Parque Natural Metropolitano, 4.X.1995 (on *Arrabidaea patellifera*).

**Tribe Talanini**

*Talanus neotropicalis* Champion, 1887

Panama, Panama Prov., Pipeline Road, 25.I.2002; Parque Natural Metropolitano, 8.VII.1995 (on *Gouania lupuloides*); ídem, 6.XI.1995 (on *Serjania rhombea*).

**Tribe Strongyliini**

*Strongylium vikenae* sp. nov.  
(Figs 88–90, Photo 2)

Panama, Panama Prov., Barro Colorado Isl. 11–13.V.2004 and 22–31.V.2004; San Lorenzo Prot Area, 9–28.V.2004, G. Curletti leg. (2) Museo Civico de Carmagnola and coll. J. Ferrer).

*Strongylium angustulum* Mäklin, 1864

Panama, Panama Prov., Cerro Campana, 650 m a.s.l., 16.V.1995.

*Strongylium aulicum* Mäklin, 1864

Panama, Colón Prov., San Lorenzo Prot. Area, 22.VIII.2002; ídem, 8.V.2001; ídem, 18.V.2001; ídem, 24.V.2004; Panama Prov., Gamboa, 28.V.1995.

*Strongylium* aff. *blandum* Mäklin, 1864

Panama, Colón Prov., San Lorenzo Prot. Area, 18.V.2001 (on *Vantanea depelta*).

*Strongylium brevipes* Champion, 1888

Panama, Colón Prov., San Lorenzo Prot. Area, 14.V.2002 (on *Dendropanax arboreus*); ídem, 8.V.2001; ídem, 11.V.2001; ídem, 24.V.2004; Panama Prov., Parque Natural Metropolitano, 24.IV.1995; ídem, 26.VI.1995.

*Strongylium decoratum* Mäklin, 1864

Panama, Panama Prov., Parque Natural Metropolitano, 26.VI.1995 (on *Cordia alliodora*);

Colón Prov., San Lorenzo Prot. Area, 29.V.2004, ídem, 4.V.2001; ídem, 8.V.2001; ídem, 11.V.2001; ídem, 25.V.2001; ídem, 25.IV.2002;

From Costa Rica to Bolivia.

*Strongylium delauneyi* Flétiaux et S., 1889

Panama, Colón Prov., San Lorenzo Prot. Area, 20–27.V.2004, Cornejo et al. leg.

A rare species described from Guadaloupe. New record for Panama.

*Strongylium exaratum* Champion, 1887

Panama, Colón Prov., San Lorenzo Prot. Area, 31.V.2004 (on *Apeiba membranacea*); ídem, 15.V.2004.

*Strongylium excavatum* Mäklin, 1864

Panama, Panama Prov., Gamboa, 10.V.1995; Barro Colorado Isl. 11–15.V.2004.; Panama Prov., Parque Natural Metropolitano, 8.V.1995, ídem, 9.V.2004.

*Strongylium ignitum* Champion, 1887

Panama, Colón Prov., San Lorenzo Prot. Area, 4.V.2001 (on *Symphonia globulifera*); ídem, 4.V.2001 (on *Apeiba membranacea*); ídem, 8.V.2001; ídem, 3.V.2002 (on *Brosimum utile*); ídem, 15.V.2004; ídem, 18.V.2001 (on *Guatteria dumetorum*).

Previously only recorded from Nicaragua.

*Strongylium* sp. aff. *interstitialis* Germar

Panama, Panama Prov., Gamboa, 30.XI.1995, Colón Prov., San Lorenzo Prot Area, 29.V.2004.

*Strongylium* aff. *leprosum* Mäklin

Panama, Colón Prov., San Lorenzo Prot. Area, 4.V.2002 (on *Dendropanax arboreus*); ídem, 2.VI.2004 (on *Terminalia amazonica*); ídem, 8.V.2001 (on *Pera arborea*).

*Strongylium panamense* Champion, 1888

Panama, Panama Prov., Gamboa, 27.V.1995; Colón Prov., San Lorenzo Prot. Area, 25.V.2001, ídem, 23.V.2004 (on dead branches in the canopy).

*Strongylium* sp.1  
(Photo 17)

Panama, Panama Prov., Parque Natural Metropolitano, 6.V.1996 (on *Ficus maxima*); ídem, 10.V.1996 (on *Ficus insipida*).

A purplish species, with orange femora and distal tibial zone, the rest and the tarsi black with a metallic tint. The antennae black, the ventral surface blackish brown.

*Strongylium* sp. 2  
(Photo 18)

Panamá, Colón Prov., San Lorenzo Prot. Area, 7.V.2004; Panama Prov., Parque Natural Metropolitano, 8.V.1995 (on *Cordia alliodora*), Barro Colorado Isl., 11–13.V.2004.

A macrophthalmic, green metallic, aeneous species, with alternate reddish brown tint on the shining intervals, only visible examining the insect from lateral view. 10.5 mm long, with slender antennae and legs.

*Strongylium* sp. 3  
(Photo 19)

Panama, Panama Prov., Gamboa, 11.VI.1995.

A cupreous-aeneous species with green metallic tint on the epistoma, the legs and antennae brownish black, the body relatively broad and short, 9.3 mm long.

*Strongylium* sp. 4  
(Photo 20)

Panama, Panama Prov., Parque Natural Metropolitano, 26.IV.1996 (on *Maeluta tinctoria*).

Another short and massive species, aeneous, with short antennae and legs. 7.3 mm long, well characterised by contiguous, superficially, but finely incised foveate, round circles, replacing punctures on pronotum.

**Remarks.** Many small species of the genus *Strongylium* sensu Mäklin 1884 can not be satisfactory studied, before an accurate examination of all available types of Mäklin, unfortunately dispersed in Stockholm, Helsinki, Vienna and Berlin Museums. As in the case of *Blapstinus*, we give a number and a short diagnose of four unnamed, highly probably new species of small *Strongylium* in order to attire the attention of future specialists.

*Otocerus angelicae* sp. nov.  
(Figs 93–95, 97–98, Photo 4)

Panama, Panama Prov., Barro Colorado Isl., 11–13.V.2004.

*Otocerus delicatus* sp. nov.  
(Figs 91–92, 99–100, Photo 3)

Panama, Panama Prov., Parque Natural Metropolitano, 5–6.V.2004.

*Cuphotes elongatus* (Thomson, 1859)

Panama, Panama Prov., Parque Natural Metropolitano, 25.IV.1995.

*Poecilesthus nigropunctatus* Champion, 1887

Panama, Colón Prov., San Lorenzo Prot. Area, 9.III.1995; Panama Prov., Barro Colorado Isl., 20.V.2001.

*Poecilesthus fragilicornis* Champion, 1887

Panama, Colón Prov., San Lorenzo Prot. Area, 15.V.2001 (on *Dendropanax arboreus*); ídem, 24.V.2004; ídem, 11.V.2002.

*Poecilesthus latus* Champion, 1887

Panama, Colón Prov., San Lorenzo Prot. Area, 11.V.2002 (on *Pourouma bicolor*); ídem, 20.IV.2002.

*Poecilesthus immaculatus* Champion, 1887

Panama, Colón Province, San Lorenzo Prot. Area, 29.V.2004.

*Poecilesthus cupripennis* Champion, 1892

Panama, Colón Prov., San Lorenzo Prot. Area, 11.V.2001 (on *Brosimum utile*); ídem, 18.V.2001 (on *Guatteria dumerorum*); ídem, 21.V.2004 (on *Terminalia amazonica*).

*Poecilesthus variipes* Champion, 1887  
(Figs 101–102)

Panama, Panama Prov., Gamboa, 11.VI.1998.

The characters of this species seem to be a combination of *Poecilesthus* and *Strongylium*. The aedeagus (Figs 101–102) of *P. variipes* is quite different from other African and Neotropical *Strongylium* and support a generic separation from *Poecilesthus* and from *Strongylium* when both speciose genera will be studied.

**Genus incertae sedis***Strongylium?* sp. *clavicornis* group  
(cf Figs 103 and 104, Photo 21)

Two females: Panama, Colón Prov., San Lorenzo Prot. Area, 2.VI.2001. Parque Natural Metropolitano, 13.V.1995 (on Bignoniaceae sp.).

A remarkable, highly probably new species, undoubtedly related to *Strongylium clavicornis* Champion, 1892, which according to the original description and figure is different from all the allied forms by the short and strongly clavate antennae. *S. clavipes* is greenish, metallic with black, feebly violaceous elytra. This species is smaller, 5 mm. long, shorter, shining castaneous brown with reddish appendages. Habitually it seems closer to

*Poecilesthus* sensu lat. It is premature to name this probably new species, before a revision of both extremely speciose genera.

**Subfamily Monommatinae**

The definitive position of this group is under study. The current place between Zopheridae is questionable.

*Hyporrhagus emarginatus* Champion, 1888

Panama, Colón Prov., San Lorenzo Prot. Area, 15.V.2001 (on *Dendropanax arboreus*); ídem, 29.X.2001, (on ídem).

*Hyporrhagus suturalis* Champion, 1888

Panama, Colón Prov., San Lorenzo Prot. Area, 30.XI.2001 (on *Carapa guianensis*); Costa Rica, Estación de Biología, La Selva, VIII–IX.1994, K. Thunes leg.

*Hyporrhagus ferrugineus* Champion, 1888

Panama, Gamboa, 4–9.V.1995; Colón Prov., San Lorenzo Prot. Area, 20.II.2001 (on *Virola elongata*).

*Hyporrhagus nitidus* Champion, 1888

Panama, Colón Prov., San Lorenzo Prot. Area, 4.V.2001 (on *Apeiba membranacea*); Panama, Prov., Parque Natural Metropolitano, 11.V.1995 (on *Enterolobium cyclocarpum*).

*Hyporrhagus* sp.

Panama, Panama Prov., Gamboa, 7.VI.1995; Parque Natural Metropolitano, 8.V.1995 (on *Astronium graveolens*).

*Aspathines ovatus* Champion, 1888

Panama Prov., Parque Natural Metropolitano, 31.VI.1995 (on *Arrabidaea patillifera*); Brazil: Paraná, Foz de Iguassu, 2–IX.2000.

**DISCUSSION**

As this is one of the first studies of a broad collection of Tenebrionidae in tropical forests of Central America for about hundred years, it is expected that several undescribed species of the beetles appear even in samples achieved with commonly used collecting methods. However, the investigation of canopy habitats is obviously an additional important source for discovery of new species of Tenebrionidae in the present study. Species like *Lenkous ibisca*, *Iccius monoceros*, *Gonospa similis*, *Apsida*

*simulatrix*, *Brosimapsida gonopoides*, *Otocerus delicatus* and *O. angelicae*, the three new *Epicallia* species, as well as many *Strongylium* and *Poecilasthus* species are all most likely restricted to habitats more frequently occurring in the canopy than on ground. A significant component of canopy dwellers is constituted by Tenebrionidae although not as prominent as in phytophagous taxa. For this reason also future studies should be focused on canopy habitats.

Regarding host relationships, the Tenebrionidae show low degree of preference for certain host plants. This is expected for detritivorous and fungivorous species, although some species may be strongly associated with particular species of fungi. The fungi themselves, however, tend to be generalists in the tropics (Ødegaard 2000b). Based on large samples just a few beetle species show preferences to host plants in this study: *Iccius cephalotes* on Moraceae and *Blapida alternata* on *Brosimum utile*.

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