Dugesiana, Año 22, No. 2, Julio-Diciembre 2015, es una publicación Semestral, editada por la Universidad de Guadalajara, a través del Centro de Estudios en Zoología, por el Centro Universitario de Ciencias Biológicas y Agropecuarias. Camino Ramón Padilla Sánchez # 2100, Nextipac, Zapopan, Jalisco, Tel. 37771150 ext. 33218, http://dugesiana.cucba.udg.mx, glenus-mx@gmail.com. Editor responsable: José Luis Navarrete Heredia. Reserva de Derechos al Uso Exclusivo 04-2009-062310115100-203, ISSN: 2007-9133, otorgados por el Instituto Nacional del Derecho de Autor. Responsable de la última actualización de este número: Coordinación de Tecnologías para el Aprendizaje, Unidad Multimedia Instruccional, M.B.A. Oscar Carbajal Mariscal y José Luis Navarrete Heredia. Fecha de la última modificación 14 de diciembre 2015, con un tiraje de un ejemplar.

Dugesiana 22(2): 171-178
Fecha de publicación: 14 de diciembre 2015

ISSN 1405-4094 (edición impresa)
ISSN 2007-9133 (edición online)

New Brazilian species of *Liogenys* Guérin-Méneville (Coleoptera: Melolonthidae: Melolonthinae) and redescription of two related species

Nova espécie brasileira de *Liogenys* Guérin-Méneville (Coleoptera: Melolonthidae, Melolonthinae) e redescrição de duas espécies relacionadas

Mariana Alejandra Cherman*, Lúcia Massutti de Almeida*

***** Laboratório de Sistemática e Bioecologia de Coleoptera, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, PR, Brasil

ABSTRACT

The new species *Liogenys moroni* **n. sp**., collected in the Cerrado of central Brazil, is described. Two related species, *L. pilosipennis* Moser, 1918 and *L. hirtipenni*s Frey, 1969 are redescribed, based on characters of the external morphology and male genitalia. Figures of every species including diagnostic characters are provided. Differences between the new *Liogenys* and the two related species reported from Brazil are discussed.
Key words: *Liogenys pilosipennis*, *Liogenys hirtipennis*, taxonomy, Cerrado, Neotropical.

RESUMO

Uma nova espécie de *Liogenys*, *L. moroni* **n. sp**., coletada do Cerrado é descrita. São também redescritas duas espécies relacionadas, *L. pilosipennis* Moser,1918 e *L. hirtipenni*s Frey, 1969, com base em caracteres morfológicos externos e da genitália masculina. São fornecidas ilustrações de cada espécie que incluem caracteres diagnósticos. São discutidas as diferenças entre a nova espécie e as duas redescritas.
Palavras-chave: *Liogenys pilosipennis*, *Liogenys hirtipennis*, taxonomia, Cerrado, Neotropical.

Liogenys Guérin-Méneville, 1831 is the major genus among the Neotropical Diplotaxini (Evans & Smith 2009). It currently includes 78 described species (Evans & Smith 2009) from Panama to Southern Chile and about 50 species are in the process of description (Cherman 2015). Twenty-three species are known from Brazil and most of them are from the Cerrado (savanna) ecoregion (Cherman 2015). *Liogenys suturalis* (Blanchard, 1851), *L. fusca* Blanchard, 1851 and *L. bidenticeps* Moser, 1919 are the most common species of *Liogenys* and ocurr mainly in this region (Costa et al. 2009; Rodrigues et al. 2011, 2014). The two former species are important rhizophagous pests in Brazilian Cerrado and Central Argentina (Fava et al. 2008; Rodrigues et al. 2008; Santos et al. 2008; Cherman et al. 2014). The habits of many *Liogenys* species remain unknown, however, adults occurrence were recorded in shrubs causing damage in fruits and being attracted to light at night (Gutiérrez 1951; Silva et al. 1968; Cherman et al. 2011). *Liogenys* is distinguished by the clypeus concave with two or four teeth in the anterior margin and sinuous lateral margins; maxilla four or five dented and maxillary palpi with a rounded or elongated sensorial fovea in distal palpomere; elytra glabrous or hairy, with five ribs including the sutural one; metasternum hairy or with bristles; pygidium subangled wider as longer, punctured. In males, metatibia slender, elongate, with an inconspicuous transverse carina, sometimes absent, more conspicuous in females; pro and mesotarsi with the first three tarsomeres flattened, widened and ventrally densely covered with hair; cilindric tarsi in females (Gutiérrez 1951; Frey 1969; Cherman 2015). Until now, only two Brazilian species with hairy vestiture on the elytra have been described, *Liogenys pilosipennis* Moser, 1918 and *Liogenys hirtipennis* Frey, 1969. Those species occur from the states of Maranhão to Mato Grosso do Sul, mainly in the Cerrado and also in a transition zone with the Pantanal wetland (Mato Grosso and Mato Grosso do Sul) and Thorny Scrub or "Caatinga" (Bahia and Piauí). Despite the high number of described species and agricultural importance of *Liogenys*, adults' identification is difficult by the lack of detailed descriptions, including dimorphic characters or illustrations. Thus, in *Liogenys*, males are more helpful for identifying species, as there is more interespecific variation among them. In the case of *L. hirtipennis*, the original description was based on a female. Also, the characters used for distinguishing both hairy species (Moser 1918, Frey 1969) are inadequate. Here we provide a description of a new species of *Liogenys* with hairy elytra, collected in northern Mato Grosso do Sul, and a redescription of the other two species with hairy elytra from Brazil. Also, the lectotype of *L. hirtipennis* is designated. The differences between the new and the two previously described species are discussed.

MATERIAL AND METHODS

For this study, 22 specimens of *Liogenys* were examined from collections of the following institutions:

CEMT Coleção Entomológica da Universidade Federal do Mato Grosso, Cuiabá (Fernando Vaz de Mello).

CMNC Canadian Museum of Nature, Ottawa (François Génier).

DZUP Coleção Entomológica Pe. J.S. Moure, Universidade Federal do Paraná, Curitiba, (Lucia Massutti de Almeida).

NHMB Naturhistorisches Museum, Basel (Eva Sprecher).

ZMHB Museum für Naturkunde der Humboldt-Universität, Berlin (Joachim Willers).

Observations were made with a WILD M5 stereomicroscope. The measurements were obtained using AxioVision SE64 V 4.8.3.0 for Windows. Male genitalia were dissected, studied and mounted beneath the specimen. The photographs were taken with a Leica DFC 500 digital camera, using Auto-Montage Pro (Syncroscopy) software and a Leica MZ16 stereomicroscope.

Labels of the type material are arranged in sequence from top to bottom, where the data for each label are within double quotes (“”), a slash (/) separates the rows, and information between brackets ([]) provides additional details written on the labels.

The terminology used in the descriptions follows Moser (1918), Frey (1969) and Cherman (2015). The following standards were used for characters:

Measurements: Length was measured from the apex of the clypeus to the apex of the elytra, and the greatest width was measured across the elytra.

Puncture size: Punctures were defined as large or coarse if they were 0.04 mm or larger, and fine if they were less than 0.02 mm (Ruiz-Manzanos 2006).

Puncture density: Punctures were considered dense if they were nearly confluent or if the maximum space between punctures was two times the diameter of one puncture; sparse if the minimum space between punctures was two times the diameter of one puncture, and very sparse if the minimum space between punctures was more than two times the diameter of one puncture.

Distance between clypeal teeth: Teeth were considered separated if the distance between them was more than half the distance between the eyes; and close together, if the distance between them was less than half the distance between the eyes.

Shape of clypeal lateral margin: In dorsal view, the lateral margin of the clypeus could be straight or provided with a more or less rounded or sharp tooth-like projection.

Fovea depth on last palpomere surface: Fovea was considered deep if the entire margin was distinct, and shallow if part or all of the margin was indistinct.

Shape of pygidium: Pygidium was considered subtrapezoidal if the basal margin was more than two times the apical margin; and subquadrate if the basal margin was less than two times the apical margin. The prefix “sub” indicates rounded angles.

Basal portion of parameres (RB): Comprises the part of the parameres between the base and their split point.

New distribution records are in boldface.

RESULTS AND DISCUSSION

Liogenys pilosipennis Moser, 1918

(Figures 1 – 7)

Liogenys pilosipennis Moser 1918: 101 (original description); Blackwelder 1944: 228 (checklist); Frey 1969: 38 (identification key); Evans 2003: 213 (checklist); Evans & Smith 2005: 178 (checklist).

Redescription. Length: 12.5-13.0 mm; width 5.9-6.1 mm. Reddish. *Head*: distance between eyes more than three times width of one eye; frons length equal to or less than clypeus length; anterior margin of clypeus vestite with bristles; deeply and sharply emarginate, teeth close together, margin produced laterally, angle between external side of anterior tooth and projection of lateral margin obtuse, in female sharper; maximum width of distal maxillary palpomere more than two times apical width; fovea deep and rounded, extending past midlength of total palpomere; labium transversely carinate, as wide as long; antenna 10-articulated, lamella lighter-collored than flagellum, in males club longer than flagellum. *Prothorax:* maximum length of pronotum longer than length of tarsomeres I, II and III together; anterior margin with flange; straight; lateral margins sparsely haired; posterior surface with short bristles; pronotal disc punctures very sparse; proepisternum with long bristles; mesepisternum and sides of metasternum with bristles and scales; distance between meso- and metacoxae less than two times metacoxa length; scutellum triangular, with punctures at base. *Elytra*: shiny, uniform reddish-brown; covered with longitudinal rows of bristles; elytral length more than three times maximum pronotal length; elytral suture with same color as elytron, not elevated; four elytral ridges barely noticeable, internal ridges more marked than outer ones. *Legs:* procoxa, scales on infra-carinal and external surface; visible punctures or sculptures at lowest zoom level; protibia with basal tooth smaller than others, three teeth on protibial external margin, equal lengths among them; apical internal spur present; mesofemur disc haired, and row of long bristles on anterior margin; mesotibia quadrate in cross section, coarse sculpturing, in males mesotibial apical transverse carina with intraspecific variation (partial or complete), in females always complete; basal lobe of metacoxa produced beyond external margin of trochanter and facing femur; metafemur with rigid bristles on posterior margin and haired disc, in males posterior margin medially produced; metatibia with coarse sculpturing; posterior surface with transverse carinae in both sexes; in males internal margin with longitudinal carina and sub-basally or medially produced, up to apex; internal surface covered with bristles; metatibial apical spurs of different lengths, longest spur equal in length to metatibial apical width; basal metatarsus length equal to or slightly longer than tarsomere II; both equal in width; bifid claw with external tooth longer than internal and equally wide, distance between teeth less than the length of internal tooth; in males protarsomere II wider than long; pro- and mesotarsomeres I to IV enlarged, protarsomeres

wider than mesotarsomeres, protarsi more than two times wider than metatarsi. *Abdomen*: band of scales visible at lowest 6x zoom level below external margin of elytra; disc and sides of ventrites with long and short bristles; visible surface of propygidium with bristles; pygidium straight in lateral view, apex with angled margin in dorsal view, wider than long, basal width of pygidium not exceeding level of propygidium spiracle, subquadrate, in males apex angled and disc flat in lateral view, in females apex rounded and disc convex in lateral view; umbilical fine punctures; surface with bristles. *Parameres*: RB short; wider than parameres combined at their midlength, parameral split at 2/3; apex rounded; laterally produced with an acute angle; internal margin straight, concave at height of split in lateral view.

Diagnosis. Body reddish, sides of elytra parallel, clypeus produced laterally and forming approximately 90° angle with external side of tooth-like projection; pronotum disc shiny, punctures fine and very sparse, lateral margin of pronotum with medial convexity located in distal half; scutellum triangular. In males, internal margins of metafemur and metatibia medially produced. Male genitalia with paramere apex rounded and lateral projection with oblique acute angle; paramere internal margins straight, parallel.

Type locality: BRAZIL, Bahia.

Type material studied: *L. pilosipennis* male syntype (ZMHB): [white printed] "Brasília/[handwritten]Bahia", [white handwritten] "Liogenys/pilosipennis/Mos/Typen M", [white printed] "Liogenys/pilosipennis/Mos.", [red printed] "SYNTYPUS/Liogenys/pilosipennis Moser, 1918/labelled by MNHUB 2013". Genitalia dissected and mounted. As according to Moser description there is only one type specimen, it is considered the holotype.

Non type material: BRAZIL: Maranhão (1): "Brasil (MA), Mirador/Parque Est. Mirador/Base da Geraldina" "Armadilha Luminosa/21 – 25. viii. 2006, F./Limeira-de-Oliveira" (CEMT); Bahia (1): "Barreiras/Bahia, Brasil/XI. 1955/E. Barbosa" (DZUP/401104).

Geographic distribution. Brazil (**MA**, BA).

Remarks. *Liogenys pilosipennis* differs from *L. hirtipennis* in having a straighter and reddish body; anterior teeth of clypeus closer together; pronotum shinier than elytra, and disc punctures sparser; lateral margin of pronotum with medial convexity located in distal third; triangular scutellum, if punctate, located basally; white scales on lateral surface of metasternum and abdominal ventrites. Male metafemur with internal margin produced medially.

Liogenys pilosipennis is related phylogenetically to *L. hirtipennis* (Cherman, unpublished data).

***Liogenys hirtipennis* Frey, 1969**

(Figures 8 – 14)

Liogenys hirtipennis Frey 1969: 53 (original description); Frey 1969: 38, 53 (identification key and description); Evans 2003: 210 (checklist); Evans & Smith 2005: 178 (checklist).

Redescription. Length: 13.3-14.3 mm; width 6.8-6.9 mm. Dark reddish. *Head*: distance between eyes more than three times width of one eye; frons length equal to or less than clypeus length; anterior margin of clypeus vestite with bristles, flatly and subacutely emarginate, teeth close together; margin produced laterally, angle between external side of anterior tooth and projection of lateral margin obtuse; distal maxillary palpomere, maximum width more than two times apical width; fovea deep and rounded, extending past midlength of total palpomere; labium transversely carinate, as wide as long; antenna 10-articulated, lamella clearer than flagellum, club length equal to flagellum. *Prothorax:* maximum length of pronotum longer than tarsomeres I, II and III combined; sulcate longitudinally; anterior margin flange-like, straight; pronotal disc sparsely haired, bristles grouped at both sides of pronotum, posterior surface with short bristles; punctures sparse; proepisternum with long bristles; mesepisternum and sides of metasternum with scales; distance between meso- and metacoxae less than two times metacoxa length; scutellum subtriangular, with punctures extending from base to center. *Elytra*: shiny, uniform dark reddish, covered with longitudinal rows of bristles; elytral length more than three times maximum pronotal length; elytral suture darker than elytron, not elevated; four elytral ridges barely noticeable, internal ridges more marked than outer ones. *Legs:* procoxa, scales on infra-carinal and external surface; punctures or sculpturing visible at lowest zoom level; protibia with basal tooth smaller than others, three teeth on protibial external margin, equal lengths among them; apical internal spur present; mesofemur disc haired and row of long bristles on anterior margin; mesotibia, subquadrate in cross section; coarse sculpturing; basal lobe of metacoxa produced beyond external margin of trochanter and facing femur; in males mesotibial apical transverse carina with intraspecific variation (partial or complete), in females always complete; metafemur with rigid bristles on posterior margin and haired disc, in males posterior margin medially produced; metatibia with coarse sculpturing; posterior surface with transverse carinae in both sexes; in males internal margin with longitudinal carina and sub-basally or medially produced, up to apex; internal surface covered with bristles; metatibial apical spurs of different lengths, the longest equal in length to width of metatibial apex; basal metatarsus length equal to or slightly longer than tarsomere II; both equal in width; bifid claw with external tooth longer than and as wide as internal claw, distance between teeth less than the length of internal tooth; in males protarsomere II wider than long; pro- and mesotarsomeres I to IV enlarged, protarsomeres wider than mesotarsomeres, protarsi more than two times wider than metatarsi. *Abdomen*: band of scales visible at lowest zoom level below external margin of elytra; disc and sides of ventrites with long and short bristles; visible surface of propygidium with bristles; pygidium convex in lateral view, apex with angled margin in dorsal view, wider

than long, basal width of pygidium not exceeding level of propygidium spiracle, subtrapezoidal, in males base larger and disc flat in lateral view; umbilical punctures coarse; surface covered with bristles. *Parameres*: RB short, wider than parameres combined at their midlength, parameral split at distal third of RB; apex rounded and enlarged, with obtuse angle laterally; internal margin convergent; in lateral view, concave since the split level; apex partially curved.

Diagnosis. Body dark reddish; elytra slightly widened posteriorly; clypeus laterally produced and forming wide obtuse angle with tooth external side; pronotum with bristles scattered over surface, grouped laterally; scutellum subtriangular, with punctures extending to center or completely punctate. Pygidium convex in lateral view, subtrapezoidal. In males, metafemur and metatibia internal margins medially produced. Male genitalia with parameral split almost in midline; parameres apex rounded and enlarged, with shallow obtuse angle laterally; parameral internal margin convergent; in lateral view, parameral apex partially curved.

Type locality: BRAZIL, Piauí, Terzina [Teresina].

Type material studied: *L. hirtipennis* female syntype (NMHB): [white, printed] "Terzina [sic], Piaui/Brasil, I. 1953", [white, handwritten] "Type/ [printed]Liogenys/ hirtipennis/ n.spec./ [printed] det. G. Frey, 1968", [red, printed] "Typus". This type is here designated as the lectotype [white, outlined in red, printed] "LECTOTYPE/ *Liogenys hirtipennis*/Frey, 1969/des. M. A. Cherman 2015".

Only one of the two types mentioned by Frey (1969) was found. The type locality in the original description is "Mato Grosso, Brasil". However, in the specimen examined, the locality written by Frey on the label is "Terzina [correct:Teresina], Piauí". Article 73.2.3 of the ICZN (1999) states that "if the syntypes originated from two or more localities and the lectotype is subsequently designated, the type locality is the place of origin of the lectotype". The specimen from NMHB was deposited by Frey in the museum, as mentioned in the original description, and it is therefore considered here as a syntype. Therefore, according to article 73.2.3 (ICZN, 1999), the species type locality is Teresina, Piauí, according to the label of the lectotype. However, the distribution map of *L. hirtipennis* (Figure 22) shows that Piauí does not seem to be a correct point of collection, as it is the only point outer Cerrado region. Taking into account that Frey did not mention Teresina in the original description, this locality remains dubious.

Non type material: BRAZIL: Bahia (1): "Brasil. Bahia. Barreiras/100 km W Barreiras. Faz. Girasol/(Distr. Placas) 11°51'S,46°10'W/I-2003 P. Schmidt" (CEMT); Distrito Federal: Planaltina (13): BRASIL Distrito Federal/Planaltina. Embrapa ESEC Águas/Emendadas. 15º32'31''S, /47º36''49''W. 15-30-XI-2010/ Pitfall. M. R. Frizzas" (CEMT); Planaltina(1): "BRASIL Distrito Federal/Planaltina. Embrapa Cerrados./Cerrado Nativo 15º36'16''S/ 47º44'16''W. 03-XI-2006. light./C. Oliveira" (CEMT).

Geographic distribution. Brazil (**BA, DF,** PI).

Remarks. *Liogenys hirtipennis* differs from *L. pilosipennis* in the darker body color; scutellum more rounded; pronotal lateral convexity on transverse midline, disc with coarser and deeper, densely distributed punctures; elytral ridges less noticeable and surface as shiny as the pronotum. According to Frey (1969), *L. hirtipennis* also differs from *L. pilosipennis* in having the clypeus roundly emarginate. After examining type and non-type material, we confirm that this character is variable in *L. hirtipennis,* and therefore the clypeus may have a rounded or angled emargination.

Liogenys moroni Cherman, new species

Figs. 15 – 21

Type material: Holotype labeled. "Me/75/♂/10.63 [verse] Brasil – MGr./Rio Verde/400m" "DZUP/401105". Female paratype with the same data of the holotype "DZUP/401106". Male paratype with the following data: "BRASIL/Mato Grosso/Rio Verde/A. Maller- leg./Coll. Martinez/oct.-955" "H. & A. HOWDEN/COLLECTION/ ex. A. Martinez coll." (CMNC).

Holotype and female paratype deposited at DZUP, Universidade Federal do Paraná. Male paratype deposited in CMNC, Ottawa.

Holotype. Male. Length: 11.2 mm; width 6.5 mm. *Head*: distance between eyes more than three times width of one eye; frons length equal to or less than clypeus length; anterior margin of clypeus with sparse bristles; shallow rounded emargination; teeth separated, lateral margin straight; distal maxillary palpomere, maximum width equal to or slightly wider than apex; fovea deep, extending to more than midlength of palpomere; labium transversely carinate, as wide as long; antenna 10-articulated, lamellae clearer and longer than flagellum. *Prothorax*: maximum length of pronotum exceeding length of tarsomeres I, II and III together; surface haired, hairs denser on pronotum sides; posterior surface with short scales; lateral corners of posterior margin forming obtuse angle; disc punctures coarse and sparse; proepisternum with abundant long bristles and few short ones and scales; mesepisternum covered with scales; sides of metasternum with abundant scales and few long bristles on anterior margin; distance between meso- and metacoxae slightly exceeding metacoxa length; scutellum triangular in male, subtriangular in female, abundantly and coarsely punctate. *Elytra*: shiny, dull on posterior margins, uniformly reddish brown; surface covered with bristles, on ridges arranged in longitudinal rows, and abundant in intervals; elytral length more than three times maximum pronotal length; elytral suture with same color as elytron, not elevated; four elytral ridges barely noticeable. *Legs:* procoxa, scales on infra-carinal and external surface; visible punctures or sculpturing at 12x

zoom level; protibial basal tooth smaller than others, three teeth on protibial external margin, equal lengths among them; apical internal spur present; mesofemur disc haired and anterior and posterior margins with long bristles; mesotibia quadrate in cross section; coarse sculpturing, apical transverse carina discontinuous; metacoxae, basal lobe produced beyond external margin of trochanter and facing femur; metatibia with fine sculpturing; posterior surface with transverse carina; internal margin with longitudinal carina; internal surface covered with bristles; metatibial apical spurs of different lengths, longest spur as long as width of metatibial apex; protarsomere II wider than long; pro- and mesotarsomeres I to IV enlarged, the protarsomeres wider than the mesotarsomeres, protarsi more than two times wider than metatarsi; basal metatarsus length equal in length and width to tarsomere II; claw bifid, with external tooth longer and narrower than internal tooth, distance between teeth less than length of internal tooth. *Abdomen*: band of scales visible at lower zoom level below external margin of elytra; disc and sides of ventrites with long and short bristles; visible surface of propygidium with scales and bristles; pygidium straight in lateral view, apex with rounded margin in dorsal view, wider than long, basal width of pygidium not exceeding level of propygidium spiracle, subtrapezoidal, umbilical punctures shallow; surface covered with fine brownish bristles. *Parameres*: RB short; width equal to that of parameres combined at midlength, parameral split at 2/3; apex laterally produced, apical and lateral corners rounded; internal margins concave at transverse midline; in lateral view, concave at height of split; apex straight.

Variation: Female paratype. Length: 12.0 mm; width 7.3. As holotype except in the clypeus laterally subconvex and pronotum punctuation slightly coarser. Male paratype. Length: 11.5 mm; width 6.7 mm. The paratype does not differ significantly from the holotype.

Type locality: BRAZIL, Mato Grosso do Sul, Rio Verde de Mato Grosso.

Diagnosis. Body reddish brown, elytra brown, darker on base, dull yellowish brown toward posterior margin; widened posteriorly; clypeus lateral margin straight, not produced; visible surface of propygidium with scales and bristles. In males, metafemur and metatibia simple, not produced medially. Male genitalia with apex of parameres laterally produced, projection with apical and lateral corners rounded; parameral internal margins concave at transverse midline.

Geographic distribution: Brazil (MS).

Etymology. The species name is a tribute to Dr. Miguel Angel Morón, in appreciation for his contributions to the study of New World melolonthids, as well as his participation in the taxonomic revision of *Liogenys*.

Remarks. *Liogenys moroni* shares with *L. hirtipennis* and *L. pilosipennis* the presence of haired elytra. *L. moroni* differs from them in being smaller, lighter in color, gradually more yellowish-brown toward the posterior margin; clypeus lateral margin straight, not produced; in males, metafemur margin simple with no projection at midlength, or on metatibia. Shape of parameres similar to *L. pilosipennis*, differing in having a rounded corner on the lateral projection of the apex. Similar to *L. hirtipennis* in the abundant bristles on the pronotal surface.

ACKNOWLEDGMENTS

We thank Drs. Fernando Vaz de Mello (CEMT), François Génier (CMNC), Eva Sprecher (NHMB) and Joachim Willers (ZMHB) for the loan material. We also thank anonymous reviewers for critically evaluating the manuscript and providing their valuable suggestions. We acknowledge Programa de Estudantes–Convênio de Pós–Graduação (PECPG–CAPES IEL Nacional - Brasil) for the PhD fellowship MAC (5731100) and research fellowship LMA (306772/2006–0) and Taxonline Rede Paranaense de Coleções Biológicas, Departamento de Zoologia, UFPR. This is the contribution number 1929 of Department of Zoology, Universidade Federal do Paraná.

LITERATURE CITED

Blackwelder, R.E. 1944. Checklist of the Coleopterous Insects of Mexico, Central America, the West Indies, and South America. *Bulletin United States National Museum*, 185(3): 343-550.

Cherman, M.A. 2015. *Relações filogenéticas em Diplotaxini e revisão taxonômica das espécies brasileiras de Liogenys Guérin-Méneville, 1831 (Coleoptera: Melolonthidae)*. PhD Thesis, Universidade Federal do Paraná, Curitiba.

Cherman, M.A., J.V.C. Guedes, M.A. Morón, E. Dal Prá, C.R. Perini and A.H. Jung. 2011. First record of species of *Liogenys* (Coleoptera, Melolonthidae) associated with winter grain crops in Rio Grande do Sul (Brazil). *Revista Brasileira de Entomologia*, 55(4): 618-620.

Cherman, M.A., M.A. Morón, E. Dal Prá, I. Valmorbida and J.V.C. Guedes. 2014. Ecological Characterization of White Grubs (Coleoptera: Melolonthidae) Community in Cultivated and Noncultivated Fields. *Neotropical Entomology*, 43(3): 282-288.

Costa, R.B., P.M. Fernandes, F.S. Oliveira, M. R. da Rocha, M.A. Morón, and L.J. Oliveira. 2009. Captura de adultos de *Liogenys fuscus* (coleoptera: melolonthidae) com armadilha luminosa em área sob sistema de plantio direto. *Bioscience Journal*, 25(3): 3-8.

Evans, A.V. 2003. A checklist of the New World chafers (Coleoptera: Scarabaeidae: Melolonthinae). *Zootaxa*, (211): 1-458.

Evans, A.V. and A.B.T. Smith. 2005. An electronic checklist of the New World chafers (Coleoptera: Scarabaeidae: Melolonthinae). *Papers in Entomology*, electronically published, version1. http://digitalcommons.unl.edu/entomologypapers/2/.

Evans, A.V. and A.B.T. Smith. 2009. An electronic checklist of the New World chafers (Coleoptera: Scarabaeidae:

Melolonthinae). *Papers in Entomology*, electronically published, version3 <http://museum.unl.edu/research/entomology/SSSA/nwmelos.htm>.

Fava, F.D., J.M. Imwinkelried, E.V. Trumper. 2008. Nuevo gusano blanco en la soja. Recomendaciones preliminares para su manejo. p. 37-39. In: *Jornada Técnica "Soja – Maíz 2008". Serie de capacitación Técnica N° 3*.INTA, EEA. Manfredi.

Frey, G. 1969. Bestimmungstabelle und Revision der Gattung *Liogenys* Guérrez. (Coleoptera-Melolonthinae-Macrodactylini). *Entomologischen Arbeiten aus dem Museum G. Frey*, 20: 36-64.

Guérin-Méneville, F.E. 1831. *Crustacées, arachnides det insectes. In L.J. Duperry. Voyage autor du monde. Exécuté par ordre du Roi, sur la Corvette de sa Majesté La Coquille. Pendant les années 1822, 1823, 1824, et 1825. Histoire Naturelle, Zoologie. Atlas*. Paris. Plates 3-12: 18-59.

Gutiérrez, R. 1951. El género *Liogenys* en Chile. *Revista Chilena de Entomologia*, 1: 129-145.

International Commission on Zoological Nomenclature (ICZN). 1999. *International Code of Zoological Nomenclature, Fourth Edition. International Commission on Zoological Nomenclature*, The Natural History Museum, London, U.K. www.nhm.ac.uk/hosted-sites/iczn/code/.

Moser, J. 1918. Neue Amerikanische Melolonthiden (Col.). *Stettiner Entomologische Zeitung*, 79: 95-167.

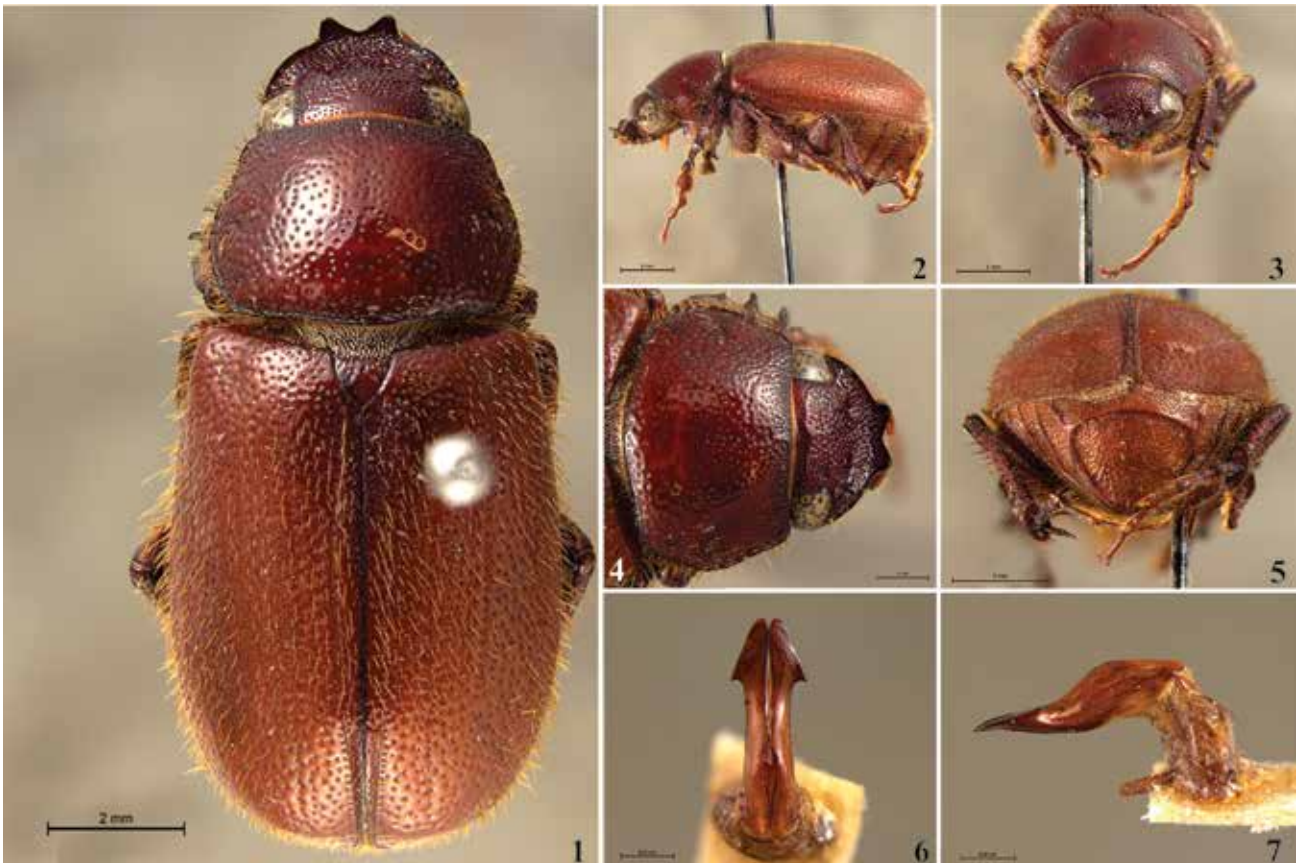
Rodrigues, S.R., C.L. Barbosa, A.Puker, A.R. Abot and S. Ide. 2008. Occurrence, biology and behavior of *Liogenys fuscus* Blanchard (Insecta, Coleoptera, Scarabaeidae) in Aquidauana, Mato Grosso do Sul, Brazil. *Revista Brasileira de Entomologia*, 52(4): 637–640.

Rodrigues, S.R., J.I. Carmo, V.S. Oliveira, E.F. Tiago and T.L. Taira. 2011. Ocorrência de larvas de Scarabaeidae fitófagos (Insecta: Coleoptera) em diferentes sistemas de sucessão de culturas. *Pesquisa Agropecuária Tropical*, 41(1): 87-93.

Ruiz-Manzanos, E. 2006. Redescription and first record of *Diaphylla granulata* for Argentina (Coleoptera: Scarabaeidae: Melolonthinae). *Revista de la Sociedad Entomologica Argentina*. 65 (3-4): 79-86.

Silva, A.G.A., C.R. Gonçalves, D.M. Galvão, A.J.L. Gonçalves, J. Gomes, M.N. Silva and L. Simoni. 1968. *Quarto catálogo dos insetos que vivem nas plantas do Brasil. Seus parasitos e predadores. Parte 2, Tomo 1o, insetos, hospedeiros e inimigos naturais*. Ministério da Agricultura, Rio de Janeiro.

Recibido: 20 de julio 2015
Aceptado: 2 de octubre 2015



Figures 1-7. *Liogenys pilosipennis* Moser: (1) dorsal view (2) lateral view, (3) frontal view (4) clypeus and pronotum, dorsal view (5) pygidium. Male genitalia, parameres (6) dorsal view, (7) lateral view. Scale: Figs. 1–3, 5 = 2mm, Fig. 4 = 1mm, Figs. 6-7=500 µm.

Figures 8-14. *Liogenys hirtipennis* Frey: (8) dorsal view (9) lateral view, (10) frontal view (11) clypeus and pronotum, dorsal view (12) pygidium. Male genitalia, parameres (13) dorsal view, (14) lateral view. Scale: Figs. 8-9 = 5mm, Figs. 10-11 = 2mm, Figs. 12-13 = 1mm, Fig. 14 = 500 µm. 15-21. *Liogenys moroni* **new species.** (15) dorsal view (16) lateral view, (17) frontal view (18) clypeus and pronotum, dorsal view (19) pygidium. Male genitalia, parameres (20) dorsal view, (21) lateral view. Scale: Fig. 15 = 5mm, Fig. 16 = 2mm, Figs. 17-19, 21 = 1mm, Fig. 20 = 500 µm.

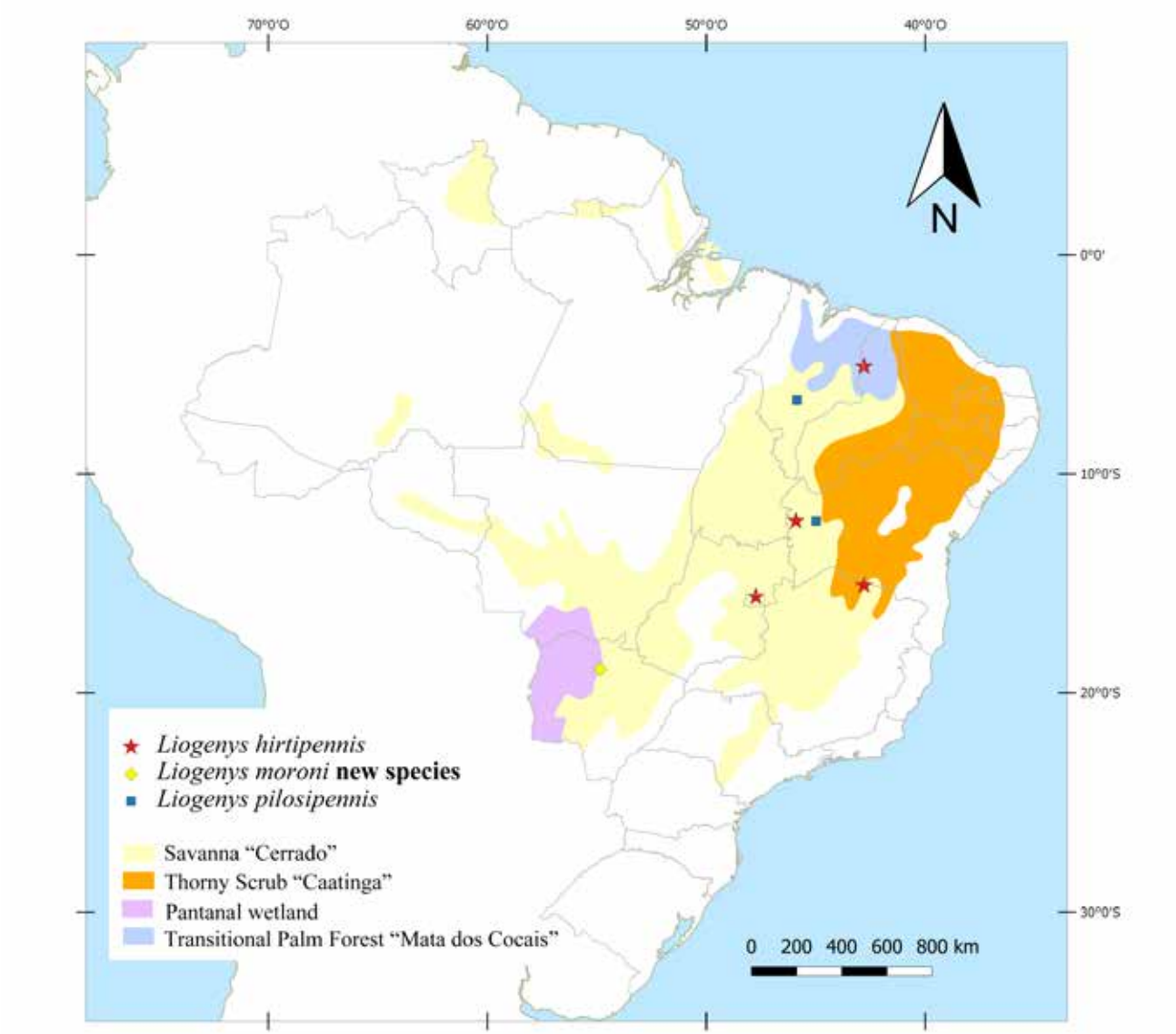


Figure 22. Geographic distribution of *Liogenys hirtipennis*, *Liogenys pilosipennis* and *Liogenys moroni* **new species**. Legend includes ecoregions of species occurrence. Map scale 1: 20.000.000.