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New species of *Phoebe* (Hemilophini) and *Amphicnaeia* (Apomecynini) from South America (Coleoptera, Cerambycidae)

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ABSTRACT

Six new species of Lamiinae are described: Phoebe birai sp. nov. from Bolivia, and P. magisterbira sp. nov. from Ecuador (Hemilophini); Amphicnaeia birai sp. nov. and A. martinsi sp. nov. from Bolivia, A. ubirajarai sp. nov. from Brazil (Amazonas), and A. amicusbira sp. nov. from French Guiana (Apomecynini). Phoebe spegazzinii is formally excluded from the fauna of Bolivia and Ecuador.

KEY-WORDS: Distribution; Lamiinae; Neotropical; Morphology; Taxonomy.

INTRODUCTION

Currently, *Phoebe* Audinet-Serville, 1835 includes 16 species (Monné, 2015). Martins & Galileo (2014) reviewed the South American species, and provided a key to species of the region.

In the original description of *P. spegazzinii*, Bruch (1908) figured the male, mentioned the differences between male and female and pointed out: "He visto varios exemplares de esta especie, coleccionados por el señor F. Schulz, cerca de Córdoba".

Bachmann & Di Iorio (2002: 81) only recorded two specimens in MACN: the "typus" and one "syntypus". The female syntype was photographed by the first author in MACN. Di Iorio (2005) recorded *P. spegazzinii* from Santiago del Estero and Cordoba (Argentina) and figured a specimen with small variation of white pubescence spots, mainly on elytral base which is larger.

Based on specimens with elytral color pattern very different from that in Bruch (1908), Martins & Galileo (1998) included *P. spegazzinii* in the alternative of couplet "13", and illustrated the left elytron (432, fig. 8). Those specimens, from the MZSP collection, are herein described as *Phoebe birai* sp. nov.

Martins & Galileo (2003) expanded the distribution of *P. spegazzinii* from Argentina to Bolivia and Paraguay, photographed a male from Paraguay and commented: "Os élitros na série sintípica e no exemplar do Paraguai são iguais, mas, no exemplar boliviano, o padrão de colorido é como aquele representado em Martins & Galileo (1998: 432, fig. 8)". The specimen figured from Paraguay is herein considered as the true *P. spegazzinii*. However, the specimen from Bolivia, that agrees with the figure 8 in Martins & Galileo (1998), is *Phoebe birai* sp. nov. Thus, *P. spegazzinii* is formally excluded from the fauna of Bolivia.

Galileo & Martins (2013), based on a specimen from Ecuador (Manabi), erroneously redescribed and figured *P. spegazzinii*, considering the very different pattern as chromatic variation. The specimen figured is now described as *P. magisterbira* sp. nov.

In the key to species of *Phoebe* from Martins & Galileo (2014), the true *P. spegazzinii* (figure 2.119)

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can be included in the alternative of couplet "4", while *P. spegazzinii* in the alternative of couplet "14" corresponds to *Phoebe birai* sp. nov., and *P. magisterbira* sp. nov.

The genus *Amphicnaeia* was described by Bates (1866) and currently includes 30 species (Monné, 2015). Breuning (1971) provided a key to the species known at that time.

The acronyms used in the text are as follows: **CASC** = California Academy of Sciences, San Francisco, USA; **ACMT** = American Coleoptera Museum (James E. Wappes), San Antonio, Texas, USA; **MNKM** = Museo de Historia Natural Noel Kempff Mercado, Santa Cruz, Bolivia; **MZSP** = Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil.

The new species epithets honor Ubirajara Ribeiro Martins legacy to the knowledge of Cerambycidae, and for his friendship and example of life.

Hemilophini

Phoebe birai sp. nov. (Fig. 1)

Phoebe spegazzinii; Martins & Galileo, 1998: 432 (fig. 8), 433 (key); Martins & Galileo, 2003: 617 (part); Martins & Galileo, 2014: 147 (key, part), 158 (part).

Description: Head dark-brown with dense, whitish pubescence interspersed with dark spots as follows: one small at center of declivity between antennal tubercles; one at center of vertex, elongate, from posterior margin of eyes to anterior margin of pronotum; one rounded, on each side behind upper eye lobe. Coarsely, sparsely punctate on dark spots. Frons (male) concave, expanded, with inferior margin bilobate; superior margin with two horn-like branches, laminar and curved upwards, about as long as one-third of length of scape. Connection between ocular lobes with two rows of ommatidia; distance between superior ocular lobes equal to 1.50 times width of one lobe, and 0.22 times length of scape; inferior ocular lobe as long as 4.25 times length of gena, and 0.22 times length of scape. Antennae attaining elytral apex at basal third of antennomere VI; antennal formula (ratio) based on antennomere III: scape = 0.69; pedicel = 0.05; IV = 0.92; V = 0.77; VI = 0.69; VII-XI missing. Scape and pedicel black; flagellomeres brownish-orange; internal surface of scape with dense, white pubescence; internal margin of scape, pedicel and antennomeres II-V with fringe of setae.

Prothorax dark brown, covered with dense, white pubescence, wider than long (1.2 times). Pronotum with three longitudinal black spots, not attaining anterior and posterior margins; central one enlarged at basal third. Sides of prothorax with two rounded spots, one near anterior margin and another near posterior margin. Prosternal process convex, narrow between procoxae and enlarged at apex. Width of mesosternal process equal to 2.2 times width of prosternal process between procoxae. Coarsely, sparsely punctate on dark spots of prothorax, elytra, and sides of metasternum. Scutellum with dense, whitish pubescence. Prosternum, mesosternum and center of metasternum with sparse, whitish pubescence; mesepimera, metepimera, mesepisterna, and metepisterna with dense, whitish pubescence. Legs reddish-orange; tarsomeres thickened.

Elytra dark brown, with dense, white pubescence obscuring integument, interspersed on each elytron with seven brown spots with variable shape, as follows: two at basal quarter; one at middle; one at apical three-fourths; one at apical end of carina; and two close together, sometimes fused, before elytral apex. Elytral carina and lateral declivity reddishbrown, with narrow longitudinal band with white pubescence. Elytral apices rounded, sides sub-parallel.

Urosternites laterally with dense, white pubescence, extending closely to center along posterior margin.

Female: Frons less projected, rounded at top, with yellow pubescence on edges; tarsomeres not thickened.

Dimensions in mm (male/female): Total length, 14.0-17.3/17.2-16.7; length of prothorax at center, 2.3-3.0/2.5-3.1; largest width of prothorax, 2.8-3.8/2.9-4.0; humeral width, 3.4-4.5/3.7-4.8; ely-tral length, 10.5-12.5/11.4-13.9. The largest dimensions of male are those of the holotype.

Type material: Holotype male, BOLIVIA, *Santa Cruz:* Buena Vista (3.7 km SSE Hotel Flora & Fauna, 430 m), 15-22.XI.2001, B.K. Dozier col., blacklight trap, transition Forest (MNKM). Paratypes: BOLIV-IA, *Santa Cruz:* Buena Vista (Hotel Flora & Fauna), male, 14-20.XI.2008, Galileo, Vanin & Martins col. (MZSP); (4-6 km SSE Hotel Flora & Fauna), female, 16-30.XI.2002, R. Clarke col. (MZSP); Huaico (17°40'S/63°24'W, 430 m), female, 21.XI.2013, Skillman & Wappes col. (ACMS); Potrerillos del Guendá, (63°27.44'W/17°14.26'S), female, 09-28.XI.2006, B.K. Dozier & F. & J. Romero col. (ACMT); (Rio Ichilo), female, II.1950, Steind. col. (MZSP); Rosario

(L. Rocagua), female, XI, William M. Mann, Mulford Biological Exploration 1921-1922, F. Lane determined as *P. spegazzinii*) (MZSP).

Remarks: Phoebe birai sp. nov. differs from *P. spegazzinii* by the elytra with white pubescence obscuring the integument, interspersed with dark maculae (absent in *P. spegazzinii*). Differs from *P. goiana* by each elytron having seven dark maculae interspersed with white pubescence. In *P. goiana*, each elytron has four smaller dark maculae. Differs from *P. mafra* Martins & Galileo 1998 by the scape and pedicel black, flagellomeres brownish-orange and elytra without sutural black maculae. In *P. mafra*, the antennae is black and the elytra, just below the middle, have narrow sutural black maculae.

Phoebe magisterbira sp. nov. (Fig. 3)

Phoebe spegazzinii; Galileo & Martins, 2013: 35, fig. 7.

Description: Head with dark brown integument, covered with dense, white pubescence, sparser on frons; dorsum with concave area between superior ocular lobes and antennal tubercles, with shallow tubercle on each side. Connection between ocular lobes with two rows of ommatidia; distance between superior ocular lobes equal to 1.6 times width of one lobe, and 0.25 times length of scape; inferior ocular lobe as long as 0.22 times length of scape. Genae short, as long as 0.38 times length of inferior lobe, and 0.14 times length of scape. Scape and pedicel with black integument; with dense, white pubescence; antennomeres III-IX orange. Antennae attaining elytral apex about base of antennomere VII.

Prothorax reddish-brown; with white pubescence, laterally denser, except on small macula. Prosternal process convex, narrow between procoxae, enlarged at apex. Width of mesosternal process about three times width of prosternal process between procoxae. Sides of metasternum finely, sparsely punctate. Legs orange. Tarsomere I shorter than II + III.

Elytra reddish-brown, covered with white pubescence, not obscuring integument; dense, shallow punctures, partially covered by pubescence. Each elytron with white, dense pubescence as follows: (1) at anterior one-sixth, transverse band, slightly curved and distinct; (2) just above middle, triangular maculae, larger and coalescent to carina, not attaining suture; (3) at apical one-sixth, semicircular band attaining suture; (4) apex entirely occupied by macula. Elytral apex rounded.

Abdomen impunctate, with whitish pubescence.

Dimensions in mm (female): Total length, 13.37; length of prothorax, 2.25; largest width of prothorax, 2.62; elytral length, 10.0; humeral width, 3.37.

Type material: Holotype female, ECUADOR, *Manabi:* vicinity of Montecristi (01.01534°S/30.68195°W, 350 m), 17-26.II.2006, F.T. Hovore & Swift col. (CASC).

Remarks: Phoebe magisterbira sp. nov. can be included in the alternative of couplet "4" from Martins & Galileo (2014), with *P. spegazzinii* Bruch, 1908. Differs by the pronotum covered with white pubescence more concentrated in two white bands; and elytra with triangular macula with dense, white pubescence near the middle, not reaching the suture. In *P. spegazzinii* the pronotum has four longitudinal bands with dense, white pubescence, not attaining the anterior margin, and each elytron has spot with white and dense pubescence near the middle reaching the suture.

Apomecinini

Amphicnaeia ubirajarai sp. nov. (Fig. 2)

Description: General integument dark-brown; yellowish-brown as follows: clypeus, maxillae and labium; basal center of gula; elongated oval macula between humerus and scutellum at basal quarter of elytra; proand mesosternum; coxae, trochanters; profemora, mesofemora except for apical edge brownish; metafemora with apical one-fifth gradually more brownish towards apex. Center of metasternum more reddish.

Head sub-coarsely, equally-spaced punctate; short yellowish-brown pubescence, not obscuring integument, more abundant in band below inferior ocular lobes and genae. Gula glabrous, smooth, shiny. Distance between superior ocular lobes equal to 0.66 times width of one lobe, 0.16 times length of scape; distance between inferior ocular lobes equal to 0.16 times length of scape. Genae short, as long as 0.31 times length of scape. Antennomeres with dark, thick, dense setae. Antennae attaining elytral apex about base of antennomere VII.

Prothorax sub-quadrangular; sides moderately coarse, abundantly punctate. Pronotum densely punctate with coarse punctures, closer to each other and transversely oval, more visible on posterior half; middle of basal declivity smooth; with short, yellowish-brown pubescence not obscuring integument; longitudinal band with silky white pubescence on each side. Prosternal process enlarged towards apex, sides of mesosternal process parallel. Prosternum, mesosternum, and mesepimera sparsely punctate. Metasternum and metepisternum smooth.

Elytra densely, coarsely punctate; with long, brown setae on dorsum of each elytron in three longitudinal rows. Each elytron with two longitudinal bands with silky, whitish pubescence near and parallel to suture, fused at apical one-fifth, innermost band larger. Elytral sides sub-parallel, apex rounded.

Urosternites reddish-brown, with basal band dark-brown; shallowly, sparsely punctate, and with white, silky pubescence.

Dimensions in mm (female): Total length, 5.85; length of prothorax at center, 1.20; widest width of prothorax, 1.25; humeral width, 1.75; elytral length, 4.10.

Type material: Holotype female, BRAZIL, Amazonas: Rio Tarumã Mirim, 20 km NW Manaus (02°53'S/60°W), 02.III.1979, Montgomery, Erwin, Schimel, Date & Bacon col., black water innundation Forest canopy fogged with Pyrethrum, sample 27 (ACMT).

Remarks: Amphicnaeia ubirajarai sp. nov. is mainly characterized by an elongated oval yellowish-brown macula between humerus and scutellum at basal quarter of elytra. It can be compared with *A. antennata* Galileo & Martins, 2001, *A. lyctoides* Bates, 1866, and *A. vitticollis* Breuning, 1940. It differs by having a smooth metasternum (punctate in these three species). *Amphicnaeia ubirajarai* differs from *A. armata* Galileo & Martins, 2001 by the prothorax without spine at sides (armed in *A. armata*).

Amphicnaeia birai sp. nov. (Fig. 4)

Description: Integument dark-brown.

Head with yellow pubescence, denser between superior ocular lobes, around ocular lobes, and on sides below ocular lobes; punctures moderately coarse and sparse. Distance between superior ocular lobes equal to width of one lobe, 0.27 times length of scape. Distance between inferior ocular lobes in frontal view equal to 1.14 times length of one lobe, 0.72 times length of scape. Genae short, as long as 0.42 times length of inferior ocular lobe, 0.27 times length of scape. Antennae attaining elytral apex at middle of antennomere IX. Scape thickened to apex, densely punctate. Antennomeres II-IX with dark, thick, sparse setae.

Prothorax as long as wide, sides with dense, yellowish pubescence. Pronotum moderately coarsely, abundantly punctate, with three longitudinal bands with dense, yellowish pubescence: one central, narrowed, and one on each side. Scutellum, mesepisterna, mesepimera, metepisterna and narrow band on sides of metasternum with dense, yellowish pubescence. Legs pubescent.

Elytra with moderately long, sparse dark-brown setae; dense, yellowish-white pubescence as follows: (1) sub-quadrangular macula before middle, close to suture; (2) large sutural band from scutellum to posterior margin of sub-quadrangular spot; (3) longitudinal band on each side, from base to apical third, convergent towards base of sub-quadrangular spot, divergent from apex of sub-quadrangular spot; (4) between lateral and sutural band, fine longitudinal band (pubescence not dense); (5) on each side, fine longitudinal band behind middle, less distinct anteriorly and posteriorly; (6) apical third with longitudinal band on each side of suture, not attaining apex, with a short lateral branch directed forward on apical third. Elytral base with ferruginous pubescence near humeri. Elytra sub-coarsely, sparsely punctate, punctures gradually smaller, sparser towards apex, sub-aligned in rows. Side of elytra sub-parallel; rounded apex.

Urosternites with silky, yellowish-brown pubes-cence.

Dimensions in mm: Total length, 4.55; length of prothorax, 0.90; largest width of prothorax, 0.90; ely-tral length, 3.20; humeral width, 1.35.

Type material: Holotype male? BOLIVIA, *Santa Cruz:* road to Amboro above Achira, 27-28.X.2011, Wappes & Skillman col. (MNKM); paratype male?, above Achira Rd to Floripondo, 18°09'S/63°47'W, 1900 m, 10.12.2011, Wappes, Bonaso & Morris col. (ACMT).

Remarks: Amphicnaeia birai sp. nov. resembles *A. lineata* Bates, 1866, and *A. affinis* Breuning, 1940 by the sub-quadrangular macula before middle of elytra, close to suture. It differs from *A. lineata* by having a more elongate body and elytra with shorter sub-quadrangular macula, as well as apical third of elytra with elongate band with yellowish pubescence. In *A. lineata* the body is shorter, and the elytra have a sub-quadrangular whitish pubescent macula that is twice as long, and the apical quarter of the elytra is entirely occupied by a macula with yellowish pubescence.

Amphicnaeia birai differs from A. affinis by having a shorter transverse central band of pubescence before the middle of the elytra, and the apical third with longitudinal band. In A. affinis the central band is longer, and one-fourth of each elytron has subrounded maculae.

It also can be compared with *A. lepida* Melzer, 1933, but differs by the sutural band with yellowish-white pubescence of the elytra attaining the scutellum, and antennomeres with dark, thick, sparse, short setae. In *A. lepida* the sutural yellow band does not attain the scutellum, and the antennomeres have abundant long setae.

Amphicnaeia martinsi sp. nov. (Fig. 5)

Description: Integument dark-brown, except for basal half of elytra, which is orange-brown, with circumscutellar reddish-brown macula, and apical half darkbrown, extending anteriorly by suture to basal third; clypeus and palpomeres yellowish-brown.

Head with yellowish-brown pubescence not obscuring integument; bands with dense pubescence between antennal tubercles and between superior ocular lobes; vertex below superior ocular lobes with narrow band at middle and at each side. Genae and around inferior ocular lobes with dense pubescence. Punctures coarse, equidistant. Distance between superior ocular lobes equal to width of one ocular lobe, 0.33 times length of scape; distance between inferior ocular lobes (in frontal view) equal to 1.23 times length of one lobe, 0.70 times length of scape. Genae short, as long as 0.35 times length of inferior ocular lobe, and 0.2 times length of scape. Antennae attaining elytral apex at base of antennomere IX.

Prothorax cylindrical; sides with dense, silky, yellowish pubescence. Pronotum coarsely, moderately abundantly punctate; with three longitudinal bands with dense, yellowish-brown pubescence as follows: narrow at center, wider on each side. Proand mesosternum, mesepisterna, mesepimera, metepisterna with dense, silky yellowish pubescence. Metasternum with two basal tubercles, rounded at tip, near metasternal suture; sides sub-coarsely punctate. Scutellum covered with dense, yellowish pubescence.

Each elytron with lateral band with dense, silky, yellowish pubescence from base to apical one-third, extending to suture on basal third forming with the other elytron a dorsal, sub-quadrangular macula. Large, longitudinal band with dense, silky, yellowish pubescence on apical one-fifth. Coarse punctures aligned in rows with long setae.

Urosternites with silky, yellowish-brown pubescence; sides sub-coarsely punctate.

Dimensions in mm (male): Total length 4.65; length of prothorax at center, 0.90; largest width of prothorax, 0.95; humeral width, 1.30; elytral length, 3.40.

Type material: Holotype male, BOLIVIA, *La Paz:* Madidi National Park, (Caciguara trail, along Tuichi river, 14°34.875'S/17°36.731'W), 24-30.IX.2007, Nearns, Swift & Miller col. (ACMT).

Remarks: Amphicnaeia martinsi sp. nov. resembles *A. binai* sp. nov. and *A. lineata* Bates, 1866 by the pattern of yellowish pubescence of the elytra. It differs by the metasternum with two basal tubercles and a circum-scutellar area without sutural band with yellowish pubescence. In *A. martinsi* sp. nov. and *A. lineata*, the sutural yellowish band attains the scutellum, and the metasternum have no tubercles.

Amphicnaeia amicusbira sp. nov. (Fig. 6)

Description: Integument dark-brown, with brownishyellow areas as follows: basal center of gula, sub-triangular spot at base of each elytron from humeri to circum-scutellar region; basal half of profemora, basal ring of meso- and metafemora, and basal one-third of tibia.

Head moderately coarsely punctate, punctures equidistant. Pubescence short, silky, yellowish-brown, more yellowish and abundant at sides and around posterior ocular lobes and genae; fine longitudinal band along coronal suture. Gula glabrous, smooth, shiny. Eyes laterally protruding. Distance between superior ocular lobes equal to 0.80 times width of one lobe, 0.14 length of scape; distance between inferior ocular lobes equal to 0.75 times length of scape. Genae short, as long as 0.34 length of scape. Antennae attaining elytral apex about apical one-third of antennomere X; antennomeres III-X with abundant, long, dark setae.

Prothorax as wide as long; moderately coarsely, abundantly punctate. Sides of pronotum with dense, short, whitish-yellow pubescent band; center with narrow, longitudinal, yellow band of pubescence. Thoracic sterna with distinct, silky, whitish pubescence. Scutellum without contrasting pubescence. Legs pubescent; tibia with long setae on internal margin. Elytra coarsely, equidistantly punctate; covered with brownish pubescence, interspersed with long setae, and yellowish pubescence on brownish-yellow integument, longer on sides basally, dorsally silky grayish, slightly conspicuous (depending on angle of light incidence). Elytral apices rounded. Urosternites uniformly pubescent.

Dimensions in mm (male): Total length, 5.60; length of prothorax at center, 1.20; widest width of prothorax, 1.20; humeral width, 1.60; elytral length, 3.90.



FIGURE 1-6: Dorsal view. (1) *Phoebe birai* sp. nov., holotype male; (2) *Amphicnaeia ubirajarai* sp. nov., holotype female; (3) *Phoebe magisterbira* sp. nov., holotype female; (4) *Amphicnaeia birai* sp. nov., holotype male?; (5) *Amphicnaeia martinsi* sp. nov., holotype male; (6) *Amphicnaeia amicusbira* sp. nov., holotype male.

Type material: Holotype male, FRENCH GUIANA, 21 km SE Roura on Kaw Road, (04°36,115'N/52°15,972'W), 06-07.II.2010, J.E. Eger col., MV light (ACMT).

Remarks: Amphicnaeia amicusbira sp. nov. resembles A. ubirajarai sp. nov. by the appearance of the elytra. It differs by the sides of elytral base and humeri with yellow sub-triangular maculae covered with long yellowish pubescence, head laterally with protruding eyes, and antennomeres with long, abundant setae. In A. ubirajarai the yellowish macula at base of elytra is more central and long, extending to basal quarter, the eyes are less prominent and the antennomeres have shorter and sparser setae. Amphicnaeia amicusbira differs from A. armata Galileo & Martins, 2001 by the prothorax without lateral spicule, and metasternum with shallow and sparse punctures. In A. armata, the sides of prothorax have a lateral spicule and the punctures of metasternum are coarser and dense. It differs from A. antennata Galileo & Martins, 2001 by the unicolored antennae, by the dark-brown elytra with yellowish macula on humeral area, by the dorsum of elytra with uniform silky, grayish pubescence, and by the laterally protruding eyes. In A. antennata, the antennomeres IV-VIII (IX) are reddish-brown with yellowish basal ring, the reddish integument of elytra is darker towards apex and the silky yellowish pubescence forms designs. It differs from A. lyctoides Bates, 1866 and A. vitticollis Breuning, 1940 by having humeral area with yellowish integument and pubescence contrasting with the dark-brown integument of elytra, and the metasternum distinctly more sparsely punctate. In A. lyctoides and A. vitticollis the elytra are entirely dark-brown and the metasternum is densely punctate. Amphicnaeia amicusbira sp. nov. also differs from all other species by having long, abundant setae on antennomeres (short and less abundant in the other species).

RESUMO

Seis espécies novas de Lamiinae são descritas: Phoebe birai sp. nov. da Bolivia, e P. magisterbira sp. nov. do Equador (Hemilophini); Amphicnaeia birai sp. nov. e A. martinsi sp. nov. da Bolívia, A. ubirajarai sp. nov. do Brazil (Amazonas) e A. amicusbira sp. nov. da Guiana Francesa (Apomecynini). Phoebe spegazzinii é formalmente excluída da fauna da Bolívia e Equador.

PALAVRAS-CHAVE: Distribuição; Lamiinae; Morfologia; Neotropical; Taxonomia.

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