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SHORT COMMUNICATION

# Elaphidiini (Coleoptera: Cerambycidae) from the Neotropical Region: new species, updated key, new synonym, and new records

Francisco E. de L. NASCIMENTO

Departamento de Entomologia, Museu de Zoologia, Universidade de São Paulo, São Paulo, SP, Caixa Postal 42.494, 04218-970, Brazil; e-mail: eribnascimentofl@gmail.com

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Published online: 4<sup>th</sup> June 2018 Abstract. Two new species of Neotropical Elaphidiini (Cerambycidae: Cerambycinae) are described and illustrated: *Anelaphus flavofasciatus* sp. nov. from Colombia and *Stizocera wappesi* sp. nov. from Bolivia. Additionally, an updated key to South American species of *Anelaphus* Linsley, 1936 is provided. *Anelaphus fasciatus* Martins, 2005, syn. nov. and *A. martinsi* Monné, 2006, syn. nov., are synonymized with *A. cerussatus* (Newman, 1841).

**Key words.** Coleoptera, Cerambycinae, morphology, taxonomy, South America, Neotropical Region

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## Introduction

Elaphidiini is one of the few tribes in Cerambycinae where a phylogenetic study has been done (LINGAFELTER 1998). The tribe is currently composed of 613 species placed in 92 genera (TAVAKILIAN & CHEVILLOTTE 2017). The genera occurring in South America were recently revised by MARTINS (2005). Among the Neotropical genera, *Stizocera* Audinet-Serville, 1834 and *Anelaphus* Linsley, 1936 are both among the largest and most widely distributed.

Currently, 57 species are included in *Anelaphus* (MONNÉ 2018). According to LINGAFELTER & IVIE (2004), *Anelaphus* is characterized as follows: elytral apices rounded or with small spines; antennomeres with small spine; in male, antennomere III about half length of pronotum; prosternal process not angular between procoxae; mesosternum with lateral projection toward mesocoxa; apex of femora rounded; tibiae and antennae without carina. In MARTINS (2005), the South American species were reviewed and a key for the seven species known from the region at that time was provided.

*Stizocera* in the Neotropical Region has currently 52 species assigned to it (TAVAKILIAN & CHEVILLOTTE 2017, MONNÉ 2018). The difficult delimitation of *Stizocera* was

mentioned by several previous authors (e.g. GOUNELLE 1907, 1909; WILLIAMS 1931; LINSLEY 1961; ZAJCIW 1967; LINGAFELTER 1998; MARTINS 2005). The task of distinguishing *Stizocera* from genera such as *Psyrassa* Pascoe, 1866 is rather problematic as, in general, the characteristics used are based on variable inter- and infraspecific features.

In this contribution, two new species, *Anelaphus fla-vofasciatus* sp. nov. and *Stizocera wappesi* sp. nov., are described, while one new subjective synonymy is proposed. An updated key for the nine South American species of *Anelaphus* is also provided.

## Material and methods

Photographs were prepared using a Canon EOS Rebel T3i DSLR camera, Canon MP-E 65mm f/2.8 1-5X macro lens, controlled by Zerene Stacker AutoMontage software. Measurements were made with a Hensoldt / Wetzlar-Mess 10 eyepiece in a Leica MZ6 stereomicroscope. The keys by LINGAFELTER (1998), MARTINS (2005) and LINGAFELTER & IVIE (2004) were used for generic identifications. The morphological terms used follow LAWRENCE et al. (2010). The geographic occurrences and taxonomic history follow MONNÉ (2018).





The collection acronyms used in this study are:

- ACMT American Coleoptera Museum (James Wappes), San Antonio, Texas, USA;
- FSCA Florida State Collection of Arthropods, Gainesville, Florida, USA;
- MCNZ Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil;
   MZSP Museu de Zoologia, Universidade de São Paulo, São Paulo, São Paulo, Brazil;
- SWLC Steven W. Lingafelter Collection, Hereford, AZ, USA.

### Results

#### Anelaphus flavofasciatus sp. nov. (Figs 1–6)

**Type material**. HOLOTYPE: ♀, **COLOMBIA: ANTIOQUIA:** Yarumal (07°04'15"N, 75°26'59"W, 2020 m), 23.–30.v.2016. V. Sinyaev & C. Pinilla leg. (MZSP).

**Description.** *Female.* General integument brownish; mouthparts except mandibles, legs and antennae reddish brown.

Head. Frons coarsely, densely, confluently punctate; with abundant, decumbent yellow setae obscuring integument laterally (Fig. 4); median groove distinct frontally, from clypeus to level of antennal sockets. Genae slightly angular at apex; surface coarsely punctate; with short, decumbent yellowish setae. Maxillary palpomere IV slightly securiform; labial palpomere III distinctly securiform. Mandibles coarsely punctate dorsally; proximal two-thirds with subdecumbent setae interspersed with long setae; distal third smooth and glabrous. Area between antennal tubercles coarsely punctate, punctures more distant from each other than those on frons; with short, abundant, decumbent yellow setae near margins of upper eye lobes. Antennal tubercles not elevated; area behind upper eye lobes coarsely, densely, confluently punctate. Gulamentum coarsely punctate, with sparse, subdecumbent whitish setae between lower eye lobes; remaining areas smooth and glabrous. Upper eye lobes with four rows of ommatidia; distance between upper eye lobes about twice width of upper eye lobe. Antennae reaching elytral apex at about middle of antennomere XI. Scape gradually widened distally; surface coarsely punctate; punctures evenly distributed; with subdecumbent yellowish setae evenly distributed; apex smooth and glabrous. Antennomeres with subdecumbent whitish setae, and long yellowish setae interspersed (especially along inner side). Antennomers V-XI longitudinally flattened at outer margin; antennomeres III-VI with apical spine on inner side; length of spine compared with distal diameter of respective antennomere: III - 1.0; IV - 0.6; V -0.4; VI-0.3; antennomeres V-X with spicule at apex of both inner and outer sides. Antennal formula (ratio) based on antennomere III (spines not included): scape = 1.25; pedicel = 0.20; IV = 0.90; V = 1.1; VI = 1.10; VII = 1.05; VIII = 0.95; IX = 0.90; X = 0.75; XI = 0.90.

*Thorax.* Prothorax 1.1 times longer than wide; mostly parallel-sided with anterior fifth visibly constricted towards anterior margin. Pronotum coarsely punctate, puctures evenly distributed, except on slightly elevated, narrow, smooth and glabrous longitudinal median area; surface

with short, decumbent yellowish setae. Anterior third of prosternum sparsely punctate; with a few transverse, slightly elevated carinae; margin of procoxal cavity and prosternal process with abundant, decumbent setae (not obscuring integument); prosternal process 0.18 times as wide as procoxal cavity, widened at apex, about three--quarter procoxal width; procoxal cavity closed behind. Mesoventrite with abundant, subdecumbent whitish setae (not obscuring integument); mesoventral process abruptly elevated; width about half diameter of mesocoxal cavity; widened and notched at apex. Mesanepisternum and mesepimeron with abundant, subdecumbent whitish setae (not obscuring integument). Metaventrite coarsely punctate except close to metathoracic discrimen; with abundant, subdecumbent whitish setae laterally, gradually sparser towards middle; metathoracic discrimen not reaching metaventral process; metanepisternum and metepimeron with short, less abundant, decumbent whitish setae. Scutellum length 0.7 its width; with abundant, decumbent yellowish setae (obscuring integument). Elytra coarsely, abundantly punctate on anterior two-thirds, punctures gradually sparser towards apex; surface with irregular area of short, decumbent whitish setae, with long yellowish setae interspersed; apex transversely truncate. Legs. Coxae with short, subdecumbent whitish setae, evenly distributed; femora with decumbent whitish setae, with long setae interspersed; tibiae with short, decumbent whitish setae, with yellowish long setae interspersed, yellowish setae more abundant on distal half. Femora slightly clavate, largest diameter about twice the basal diameter; apex transversely truncate. Proand mesotarsomere I slightly shorter than II-III together; metatarsomere I about as long as II-III together.

*Abdomen.* Ventrites with short decumbent whitish setae, with long setae interspersed, especially laterally; longest length of ventrite I about twice the length of II; II–IV slightly decreasing in length, V 1.3 longer than IV, truncate at apex.

*Dimensions* (in mm). Total length 14.60; prothorax length 3.00; greatest width of prothorax 2.25; anterior width of prothorax 2.00; posterior width of prothorax 2.25; humeral width 3.70; elytral length 9.70.

Differential diagnosis. Anelaphus flavofasciatus sp. nov. is similar to A. sparsus Martins & Galileo, 2003 and A. subseriatus (Bates, 1885) (Figs 7–8) in procoxal cavities closed behind. The new species differs from both in less dense pubescence pattern, with subdecumbent setae on the pronotum and elytra, metaventrite densely, coarsely punctate with subdecumbent setae, scape more elongate, and antennae in females reaching the elytral apex. In A. sparsus and A. subseriatus (Figs 7-8) the pronotum and elytra are densely pubescent, the metaventrite is densely pubescent, sparsely and finely punctate, the scape is shorter and the antennae in females do not reach the elytral apex. Additionally, the new species can be differentiated by the anterior margin of the mesoventral process being slightly elevated, nearly forming a tubercle. Anelaphus sparsus and A. subseriatus have the upper margin of the mesoventral process not elevated. In the integument color and pubescence pattern, A. flavofasciatus sp. nov.

resembles *A. colombianus* Martins & Galileo, 2003 and *A. souzai* (Zajciw, 1964), but can be differentiated from both primarily by the antennae of the females reaching the elytral apex and by the sparse pubescence of pronotum, without areas of obscured integument. In *A. colombianus* and *A. souzai* the antennae of females reach the posterior

third of elytra and the pronotum has areas of integument obscured by pubescence.

**Etymology.** The species name is composed Latin adjective *flavofasciatus* (*-a*, *-um*), meaning 'yellow-striped'; the name refers to the abundant areas of yellowish setae on the frons. **Distribution.** Colombia: Antioquia.



Figs 1–7. 1–6 – *Anelaphus flavofasciatus* sp. nov., holotype, female: 1 – dorsal view, 2 – ventral view, 3 – lateral view, 4 – frontal view, 5 – head in lateral view, 6 – metaventrite. 7– *Anelaphus subseriatus* (Bates, 1885), female, metaventrite.

# Anelaphus cerussatus (Newman, 1841)

(Figs 24–25)

*Elaphidion cerussatum* Newman, 1841: 111; WHITE (1853: 103); PROSEN (1947: 322).

Hypermallus cerussatus: GEMMINGER (1872: 2817); BRUCH (1912: 190).

Anelaphus cerussatus: DI IORIO (2004: 22); MONNÉ (2005: 190); MARTINS (2005: 307); WAPPES et al. (2011: 3); PACINI (2011: 25); WAPPES et al. (2013: 5); MONNÉ (2018: 271).

Anelaphus fasciatus Martins, 2005: 308 [preoccupied, not Anelaphus fasciatus (Fisher, 1932)]. New synonym.

Anelaphus martinsi Monné, 2006: 166 [new substitute name for Anelaphus fasciatus Martins]; MONNÉ (2018: 274). New synonym.

**Material examined. ARGENTINA:** La Rioja, 1  $\bigcirc$ , 1933, E. Giacometti leg. (MZSP); Santiago del Estero, x.1939, 1  $\bigcirc$  (MZSP); Campo Gallo, iii.1943, 2  $\Im$  $\Im$ , A.F.P. leg. (MZSP).

**Distribution.** Venezuela (Aragua) (MARTINS 2005, as *Anelaphus fasciatus* Martins), Bolivia (Santa Cruz, Tarija), Paraguay, northern and central Argentina (Santiago del Estero, Córdoba, Chaco, Buenos Aires).

**Remarks.** MONNÉ (2006) replaced the name *Anelaphus fasciatus* Martins, 2005, which was preoccupied by *A. fasciatus* (Fisher, 1932), renaming the species *A. martinsi* Monné, 2006. In the original description, MARTINS (2005) compared *A. martinsi* with *Anelaphus albopilus* Chemsak & Noguera, 2003, and *A. yucatecus* Chemsak & Noguera, 2003 based on their pubescent elytral pattern. *Anelaphus martinsi* was differentiated from both species by dense pronotal pubescence, and by palpi not elongate-triangular. MARTINS (2005: 308, Figs 239 and 240)



Figs 8–14. 8–9 – *Anelaphus flavofasciatus* sp. nov., holotype, female: 8 – detail of prosternal process, 9 – pronotum; 10 – *Anelaphus subseriatus* (Bates, 1885), dorsal view; 11–12 – *Anelaphus souzai* (Zajciw, 1964), paratype: 11 – dorsal view, 12 – labels. 13 – *Anelaphus cerussatus* (Newman, 1841), male, dorsal view. 14 – *A. fasciatus* Martins, 2005, holotype, male [= *A. martinsi* Monné, 2006], dorsal view.(adopted from MARTINS 2005).

illustrated A. martinsi and A. cerussatus, side by side, demonstrating their rather similar pubescence patterns on the elytra and pronotum. Because it was not possible to examine the holotype of A. martinsi (which belongs to the MZSP but has unfortunately disappeared), the species was studied only through the photograph of the holotype and the original description (published in the descriptive paper as Anelaphus fasciatus Martins from Venezuela). Comparing the original description (including photograph) of A. martinsi with specimens of A. cerussatus studied by MARTINS (2005), no characteristics to differentiate those species were found. Hence, A. martinsi is placed in synonymy with A. cerussatus. In the key proposed by MARTINS (2005), A. cerussatus is discriminated at dilemma (1) by the antennae in both the sexes longer than the body (= exceeding the elytral apex). However, A. martinsi is known only by the holotype male whose antennae are the same length as those of A. cerussatus males.

Based on this synonymy the distribution of *A. cerussatus* is expanded to include Venezuela (cited as the type locality for *A. fasciatus* Martins – see MARTINS 2005).

### Key to Anelaphus species from South America (modified and translated from MARTINS 2005)

- Elytral pubescence evenly distributed, but may have small pubescent spots or glabrous punctures interspersed.
- 2(1) Pronotum densely pubescent with two small glabrous spots, or other shaped areas, anteriorly; antennae in both sexes may exceed elytral apex. Bolivia (Santa Cruz, Tarija), Paraguay, Argentina (Santiago del Estero, Córdoba, Chaco, Buenos Aires), Venezuela (Aragua). ...... A. cerussatus (Newman, 1841) Pronotum moderately pubescent, without anterior glabrous spots; antennae in females not attaining elytral apex. Brazil (Bahia). ..... A. bravoi Galileo & Martins, 2010 3(1) Elytral apex rounded. ..... 4 Elytral apex transverse or obliquely truncate ...... 5 4 (3) Elytral apex individually rounded. elytra with uniform whitish pubescence. Colombia (Magdalena).
- *A. sparsus* Martins & Galileo, 2003
   Elytral apex rounded together and near the sutural angle slightly emarginate; elytral punctures surrounded by glabrous area. Bolivia (Santa Cruz). ....
   *A. erakyra* Galileo, Martins & Santos-Silva, 2015
- 5 (4) Elytra with small spots of whitish pubescence; French Guiana, Brazil (Amazonas, Pará, Rondônia, Mato Grosso, Maranhão). *A. robi* Hrabovsky, 1987
  Elytra without spots of whitish pubescence.
- apex. Colombia (Antioquia).
   *A flavofasciatus* sp. nov.

- Antennae of females do not exceed the elytral apex.
   7
- Frons with yellowish pubescence restricted to the anterior margin of eye lobes.
- Pronotum sparsely pubescent; elytral setae long, especially near apex. Panamá (Chiriquí), Costa Rica, Colombia (Magdalena).
   *A. subseriatus* (Bates, 1885)

Remarks. MARTINS & GALILEO (2005) separated the latter two species as follows [translated]: "Anelaphus colombianus sp.nov is similar to A. subseriatus (Bates, 1885) for which we have examined a specimen from Cundinamarca: Fusagasug (MCNZ). It differs in the antennae as long as the body (in both sexes); pronotum densely pubescent with narrow central band glabrous and punctures feebly visible only in the lateral glabrous areas and the elytral setae very short. In A. subseriatus (female) the antennae reach the elytral apex in posterior quarter; the pronotum is sparsely pubescent (allows you to see the punctures); the pronotal glabrous area is larger, shorter and reaches the middle of the pronotum; the elytral setae, especially near the apex, are longer than the pedicel". The type series of A. colombianus is composed of a male (holotype) and a female; however, when examining what would be the paratype female, it turned out to be another male. In a female identified as A. colombianus (MZSP) the antennae are short (as in A. subseriatus) and the other characteristics used to differentiate these species are variable and do not separate them. If these species can be differentiated, the characteristics used so far do not allow this; the two species will probably be synonymized.

### *Stizocera wappesi* sp. nov. (Figs 9–17, 20, 22)

**Type material**. HOLOTYPE: ♂, **BOLIVIA:** SANTA CRUZ: Cord. Prv., Rd to Itai, 19°20'S, 63°28'W, 83 Km N. Camiri, 890 m, 17.–18.xii.2011, Wappes, Lingafelter & Woodley leg. (FSCA). PARATYPES: ♀, same data as holotype (ACMT); ♂, N of Camiri, 19°20.547'S, 63°28.879'W, 890 m, 17.xii.2011, Steven W. Lingafelter leg. (SWLC).

**Description.** *Male* (holotype). Integument generally yellowish brown; meso- and metaventrite, distal half of legs (club), and abdominal ventrites dark reddish brown; mouthparts except mandibles, proximal half (peduncles) of femora, tarsi, elytra, and tibiae yellowish brown. Setae and pubescence mostly whitish.

*Head.* Frons finely, sparsely punctate; setae evenly distributed, more abundant and close together near frontoclypeal suture, gradually glabrous towards median gro-



Figs 15–21. *Stizocera wappesi* sp. nov. 15–20 – holotype, male: 15 – dorsal view, 16 – ventral view, 17 – lateral view, 18 – frontal view, 19 – mesoventrite in lateral view, 20 – prosternum, 21 – paratype, female, prosternum.

ove and antennal tubercles; median groove distinct from clypeus to level of antennal tubercles; mandibular condyle well-marked; anterior margin of eye lobes with short, dense yellowish setae; area between antennal tubercles finely, sparsely punctate; with short, sparse, decumbent setae between upper eye lobes. Antennal tubercles slightly elevated, smooth and glabrous at apex; area behind upper eye lobes finely, sparsely punctate. Gulamentum transversely striate between lower eye lobes; with subdecumbent setae and long, erect setae interspersed. Genae slightly angular at apex; surface with short, decumbent setae. Mandibles slightly longitudinally striate; outer side with punctures and short decumbent setae evenly distributed. Upper eye lobes with five rows of ommatidia; distance between upper eye lobes about three times width of upper eye lobe. Antennal length about 1.5 times body length, reaching elytral apex at midlength of antennomere VII. Scape gradually widened distally; with longitudinal dorsal depression at base; surface coarsely punctate, punctures close to each other at base, gradually more separated distally, deeper



Figs 22–28. 22–23 – *Stizocera wappesi* sp. nov., paratype female: 22 – dorsal view; 23 – ventral view. 24–25, 27 – *S. armigera* (White, 1853), male: 24 – dorsal view, 25 – mesofemora, 27 – elytral apex. 26, 28 – *S. wappesi* sp. nov., holotype, male: 26 – mesofemora, 28 – elytral apex.

in the proximal quarter; with long, erect setae (length similar to diameter of scape) interspersed among sparsely distributed short setae. Antennomeres III with long, erect setae (length about twice diameter of antennomere) evenly distributed throughout; remaining antennomeres with long setae primarily distributed on inner surface; antennomeres V–XI with short, moderately abundant, decumbent setae; antennomeres III–VI with interior spine at apex; length of spine compared with distal diameter of the respective antennomere: III – 1.4; IV – 1.3; V – 1.0; VI – 0.25. Antennal formula (ratio) based on antennomere III: scape = 1.30; pedicel = 0.20; IV = 0.90; V = 1.10; VI = 1.05; VII = 1.00; VIII = 0.95; IX = 0.90; X = 0.80; XI = 1.00.

Thorax. Prothorax 1.25 times longer than wide; anterior fifth, slightly transversely elevated; generally parallel-sided, with anterior margin distinctly constricted, and slightly narrowed towards posterior margin; sides with sexual dimorphic punctation. Pronotum longitudinally depressed laterally; anterior third smooth, with sparse setae; posterior two-thirds shallowly, sparsely punctate, with sparse decumbent setae evenly distributed; posterior third with shallow transverse carinae; posterior margin transversely striate. Prosternum with anterior fifth smooth; remaining surface with well-marked sexual punctation; margin of procoxal cavities and prosternal process with abundant decumbent setae (not obscuring integument); prosternal process 0.2 times procoxal cavity width, widened at apex; procoxal cavities open behind. Mesoventrite pubescent laterally, smooth centrally; mesoventral process with elevated tubercle facing forward; mesoventral process about three-quarters mesocoxal cavity width, widened and notched at apex; mesanepisternum and mesepimeron pubescent (not obscuring integument). Metaventrite with short, abundant, decumbent setae, with sparse long, erect setae interspersed; central area near metathoracic discrimen with sparse setae; metathoracic discrimen not reaching metaventral process; metanepisternum and metepimeron with short, decumbent, abundant setae. Scutellum length 0.6 times its width; with short, decumbent, abundant setae (not obscuring integument). Elytra. Coarsely, abundantly punctate on anterior two-thirds, punctures gradually sparser distally; surface with short, decumbent setae, with long setae interspersed; apex transversely truncate, with spine at outer angle and spicule at sutural angle. Legs. Femora pedunculate-clavate; diameter of club about twice diameter of peduncle; profemoral apex with small, triangular projection at inner side; mesofemoral apex with flap on outer side and short spine on inner side; metafemoral apex with two elongate, subequal spines. Femora and tibiae with long, erect setae, more abundant on tibiae. Metatarsomere I as long as II–III together.

*Abdomen.* Ventrites with short, decumbent setae, more abundant laterally; ventrite I about 1.5 times length of II, II–IV slightly decreasing, V about as long as IV, apex truncate.

*Female.* Differs from male in shorter antennae, reaching elytral apex in middle of antennomere X, and in the absence of sexual punctation on prothorax.

**Dimensions** (in mm),  $\mathcal{J}$  (holotype) /  $\mathcal{Q}$  (paratype): Total length, 10.3/10.5; prothorax length, 2.3/2.3; greatest width of prothorax, 1.8/1.9; anterior width of prothorax, 1.4/1.4; posterior width of prothorax, 1.7/1.6; humeral width, 2.3/2.4; elytral length 6.8/7.3.

**Remarks**. *Stizocera wappesi* sp. nov. is similar to *S. armigera* (White, 1853) (Figs 18–19, 21) in the integument color pattern, metafemoral apex with inner and outer spines subequal in length, mesofemora with inner flap longer than outer flap, and in tuberculate mesoventral process. The new species differs from *S. armigera* in femoral apices not blackened, mesofemora visibly more clavate, mesofemoral inner flap triangular (Fig. 20), prothorax elongated, parallel-sided, outer spine of elytral apices much shorter (Fig. 22), less than half length of the spine of antennomere III and concolorous with elytra. In *S. armigera*, the femoral apices are black, mesofemoral inner spine is distinctly longer (Fig. 19), prothorax is shorter with the sides slightly rounded, elytra with outer apical spine black, and as long as the spine of antennomere III.

The new species also resembles *S. armata* Audinet-Serville, 1834 and *S. consobrina* Gounelle, 1909 in the integumental color, and in the shape of inner flap of the metafemora. *Stizocera wappesi* sp. nov. differs from both species in elongate spines at the metafemoral apex, and in tubercle on the mesoventral process (Fig. 13). In *S. consobrina* and *S. armigera*, the spines of metafemora are shorter, and the mesoventral process lacks a tubercle. **Etymology.** Named for James E. Wappes who collected the holotype and paratype and provided the specimens for study.

Distribution. Bolivia: Santa Cruz.

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