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### Description of a new genus of Elaphidiini with two new species (Coleoptera, Cerambycidae, Cerambycinae)

ANTONIO SANTOS-SILVA<sup>1</sup> & MARIA HELENA M. GALILEO<sup>2</sup>

<sup>1</sup>Museu de Zoologia, Universidade de São Paulo, São Paulo, SP, Brazil. E-mail: [toncriss@uol.com.br](mailto:toncriss@uol.com.br)

<sup>2</sup>PPG Biologia Animal, Departamento de Zoologia, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil. (Fellow of the Conselho Nacional de Desenvolvimento Científico e Tecnológico). E-mail: [galileomh@yahoo.com](mailto:galileomh@yahoo.com)

Elaphidiini Thomson, 1864 is a large tribe of Cerambycidae composed of 92 genera with species distributed from Canada to southern South America. Lingafelter (1998) performed a generic level phylogenetic analysis of the tribe and provided a key to the known genera. According to Lingafelter, Elaphidiini is characterized as follows: mesally-spined antenna (lost in some taxa), narrow metepisternum with a centrally positioned keel, strongly sclerotized below and membranous above; prosternal process between procoxae slightly to strongly expanded at apex (rarely linear and unexpanded); terminal palpomeres much wider at apex than base; and coarsely faceted eyes (with few exceptions).

Martins & Galileo (2005) revised the South American species of Elaphidiini, and, with some exceptions, agreed with the characterization of the tribe by Lingafelter (1998). The authors also provided a key to South American genera and species. The new genus described here agrees well with the concept of Elaphidiini by both Lingafelter (1998) and Martins & Galileo (2005).

#### Materials and methods

Photographs were taken with 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 taken in “mm” using a micrometer ocular Hensoldt/Wetzlar—Mess 10 in the Leica MZ6 stereomicroscope, also used in the study of the specimens.

The collection acronyms used in this study are as follows:

CASC California Academy of Sciences, San Francisco, California, United States;

MNKM Museo de Historia Natural, Noel Kempff Mercado, Santa Cruz de la Sierra, Bolivia;

MZSP Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil.

#### Results

##### Elaphidiini Thomson, 1864

##### *Lingafelterellus* gen. nov.

**Type species:** *Lingafelterellus clarkei* sp. nov.

**Etymology.** The genus is named for Steven W. Lingafelter, for his contribution to knowledge of Elaphidiini (“Lingafelter” with the Latin suffix “ellus” = small, relating to the small size of the type species. Masculine gender.

**Diagnosis.** The finely granulated eyes, antennomeres III–VI with short spine at inner apex, prothorax unarmed laterally, procoxal cavities closed behind and closed and angulate laterally, and elytra coarsely and abundantly punctate distinguish this genus.

**Description.** Frons finely, abundantly punctate, depressed toward coronal suture (widely V-shaped). Fronto-clypeal sulcus well-marked. Postclypeus shiny, smooth, strongly projected centrally toward frons (triangularly shaped). Coronal suture distinct from clypeus nearly to area between antennal tubercles and upper eye lobes. Eyes finely granulated; lower eye lobes about 1.5 times longer than gena; distance between upper eye lobes nearly equal to entire length of one lobe (from lower eye lobes to its apex); upper eye lobes gradually and distinctly narrowed toward apex (subacute). Genal apex rounded. Last maxillary palpomere in male somewhat flattened dorsoventrally, slightly widened at midlength, with apex

truncate; cylindrical, fusiform in female. Last labial palpomere in male as last maxillary palpomere in female subfusiform, with apex narrowly truncate. Antennae 11-segmented, almost reaching distal third of elytra; scape gradually enlarged toward apex, slightly longer than antennomere III, with dorsally asperities on distal third (mainly in males); antennomeres III–VI (Figs 5–6) with short spine at inner apex. Prothorax cylindrical, longer than wide, laterally unarmed. Prosternal process centrally very narrow (laminiform). Width of mesosternal process about 1/3 of mesocoxa. Procoxal cavities from distinctly closed to open behind (variable including intraspecifically), and angulate laterally. Pronotum with short, decumbent, moderately abundant setae on basal quarter, with long, erect, sparse setae on remaining surface; without tubercles or gibbositities. Elytra parallel-sided; apex from rounded to slightly truncate (outer angle always rounded; sutural angle unarmed); coarsely, abundantly punctate throughout; with long, erect, sparse setae. Femora pedunculate-clavate (profemora less so). Metatarsomere I slightly longer than II–III together.

**Remarks.** Two of the characters of Elaphidiini pointed out by Lingafelter (1998) are present in the new genera: antennomeres with spine at apex and narrow metepisternum with longitudinal keel. However, the last palpomeres is not notably enlarged toward apex, although they are expanded. This latter character was also listed by Martins & Galileo (2005) as a character of the tribe. However, the shape of the last maxillary and labial palpomeres is quite variable in Elaphidiini. Frequently males have the last palpomeres distinctly securiform, while in females of the same species they are fusiform. Furthermore, even in males of the same genera the shape of the last palpomere could be strongly securiform, slightly securiform or very slightly widened toward apex.

*Lingafelterellus* belongs to a small group of Elaphidiini genera with eyes finely granulated (Lingafelter 1998): *Championa* Bates, 1880 (currently in *incertae sedis*, Lingafelter 1998); *Sphaerionillum* Bates, 1885; *Tropimerus* Giesbert, 1987; *Stenosphenus* Haldeman, 1847; and *Ironeus* Bates, 1872. It differs from *Championa* mainly by the absence of transverse ridges on pronotal disc. It differs from *Tropimerus*, *Stenosphenus* and *Ironeus* by the procoxal cavities closed behind (open in those genera). It can be separated from *Sphaerionillum* primarily by the cylindrical prothorax (distinctly widened laterally in *Sphaerionillum*) and the coarsely and abundantly punctate elytra (finely and sparsely punctate in *Sphaerionillum*).

Martins & Galileo (2005) considered the eyes in *Pseudomallocera* Zajciw, 1961 as finely granulated, while Lingafelter (1971) considered them coarsely granulated. We find the eyes in *Pseudomallocera* to be distinctly finely granulated, and the gena almost as long as the lower eye lobe. *Pseudomallocera* is notably different from *Lingafelterellus* (pubescence, elytral punctures, shape of the legs, etc.) (see photographs at Bezark 2017).

*Lingafelterellus* can be included in the alternative of couplet “28” from Martins & Galileo (2005) (translated; modified):

28(27). Antennomere III with long blunt spine .....	<i>Psyrrassa</i> Pascoe, 1866
- Antennomere III with short acute spine .....	28'
28'(28). Antennomere III longer than scape; pronotum with central tubercle; apex of metafemora nearly reaching elytral apex .....	<i>Iauca</i> Martins & Galileo, 2000
- Antennomere III shorter than scape; pronotum without central tubercle; apex of metafemora ending well short of from elytral apex .....	<i>Lingafelterellus</i> <b>gen. nov.</b>

And it can be included in the alternative of couplet “87” or “88” from Lingafelter (1998) (modified):

87(86). Posterior procoxal cavities open .....	88
- Posterior procoxal cavities closed .....	87'
87'(87). Median pronotal callus present; elytra with pattern of large, pale maculations .....	<i>Sphaerionillum</i> Bates, 1885
- Median pronotal callus absent; elytra without large, pale maculation .....	<i>Lingafelterellus</i> <b>gen. nov.</b>
88(87). Elytral apex rounded, at most subtruncate, without spine .....	88'
- Elytral apex from truncate to spinose at apices .....	89
88'(88). Elytral apex distinctly elongate and tapering toward apex .....	<i>Tropimerus</i> Bates, 1885
- Elytral apex not elongate and tapering toward apex .....	<i>Lingafelterellus</i> <b>gen. nov.</b>

### ***Lingafelterellus clarkei* sp. nov.** (Figs 1–5)

**Diagnosis.** The prothorax yellowish-white, with black macula on center of pronotum, elytra black laterally, gradually dark brown toward suture and apex, and femora distinctly bicolorous distinguish this species.

**Description. Female.** Vertex and tempora black; frons black laterally, dark reddish-brown centrally; postclypeus dark reddish-brown on large central area, black laterally; mandibles dark reddish-brown on base, black on remaining surface; ventral side of head yellowish-brown except dark brown central area of submentum; mouthparts mostly yellowish-brown with part of palpomeres brown; scape, pedicel and antennomere III black, remaining antennomeres gradually brown toward distal segments; prothorax yellowish-brown, except irregular black macula on center of



**FIGURES 1–10.** 1–5, *Lingafelterellus clarkei* sp. nov., holotype female: 1, dorsal habitus 2, ventral habitus 3, lateral habitus 4, head, frontal view 5, scape and basal antennomeres. 6–10, *Lingafelterellus birai* sp. nov., holotype male: 6, scape and basal antennomeres 7, head, frontal view 8, dorsal habitus 9, ventral habitus 10, lateral habitus.

pronotum, brown transverse area close to distal margin of pronotum (prolonged toward sides of prosternum), brown basal area of pronotum, brownish margins of procoxal cavities, and dark brown prosternal process; ventral side of meso- and metathorax black; abdominal ventrites black with some areas more dark brown; elytra black laterally, gradually dark brown toward suture and apex, with yellowish-brown area on vertical area of base; legs dark brown (almost black) except yellowish-brown femoral peduncles.

**Head.** Frons with short and moderately long, decumbent setae not obscuring integument, interspersed with long, erect, sparse yellow setae near eyes. Vertex finely, confluent punctate (punctures coarser than on frons), except smooth area centrally close to prothoracic margin; with short, sparse yellow setae interspersed with long, erect, sparse yellow setae laterally. Gulamentum with short and long, moderately abundant erect yellow setae, distinctly not obscuring integument on 2/3 closer to mentum, smooth, glabrous on third close to prothorax. Distance between upper eye lobes 0.8 times length of scape; distance between lower eye lobes in frontal view 0.9 times length of scape. Antennae 0.95 times elytral length; antennal formula (ratio) based on length of antennomere III: scape = 1.27; pedicel = 0.39; IV = 0.94; V = 1.00; VI = 0.89; VII = 0.83; VIII = 0.72; IX = 0.77; X = 0.67; XI = 0.83.

**Thorax.** Prothorax 1.4 times longer than wide. Pronotum finely, sparsely punctate except transversely striate basal area; with yellow pubescence on basal quarter, not obscuring integument, interspersed with long, erect, sparse yellow setae; remaining surface with long, erect, sparse yellow setae. Procoxal cavities from distinctly closed to slightly open behind (apex of hypomerion distinctly reaching apex of prosternal process or only surpassing middle of procoxa). Prosternum minutely, sparsely punctate; finely, transversely striate, mainly on basal 2/3; with short and long, erect, moderately sparse yellow setae throughout (slightly more abundant on basal third). Mesosternum with long, erect sparse grayish-white setae. Mesepimeron, mesepisternum and metepisternum with grayish-white pubescence partially obscuring integument, interspersed with long, erect yellowish-white setae. Sides of metasternum with decumbent, grayish-white pubescence not obscuring integument, interspersed with long, erect, grayish-white setae; remaining surface with long, erect, sparse grayish-white setae. Scutellum with yellowish-white pubescence partially obscuring integument. **Legs.** Femora and tibiae with long, erect, sparse yellow setae throughout.

**Abdomen.** Ventrites I–IV with grayish-white pubescence, not obscuring integument, distinctly denser laterally, interspersed with long, erect, sparse grayish-white setae; ventrite V with sparse grayish-white setae, denser laterally on basal third; apex of ventrite V subtruncate.

**Male.** It differs from female only by shape of the palpi.

**Color variation on males.** Head entirely black; antennae mostly dark brown, slightly lighter toward distal segments; pronotal black macula transversely elliptical; elytra mostly reddish-brown (usually with black areas); femoral club dark reddish-brown.

**Dimensions (mm)** Holotype female/paratype males. Total length, 6.40/4.90–5.65; prothorax: length, 1.25/1.00–1.10; anterior width, 0.85/0.70–0.80; posterior width, 0.80/0.65–0.70; widest width, 0.90/0.70–0.80; humeral width, 1.15/1.00–1.10; elytral length, 4.05/3.35–3.85.

**Type material.** Holotype female from **BOLIVIA**, Santa Cruz: 5 km SSE Buena Vista (Flora & Fauna Hotel; 17°29'96"S / 63°39'13"W; 440 m; on flying to flowers of "Ramoneo"), 11.VIII.2008, R. Clarke & S. Zamalloa col. (MNKM). Paratypes – **BOLIVIA**, Santa Cruz: 1 km W Calendaria village (Hotel Flora & Fauna; 5 km W Buena Vista; 440 m; on flying to flowers of *Gomphrenavaga* Mart.), 3 males, 11.VII.2008, R. Clarke & S. Zamalloa col. (MZSP).

**Etymology.** The new species is named for Robin O. S. Clarke, one of the collectors of the type series.

**Remarks.** *Lingafelterellus clarkei* sp. nov. can be separated from *L. birai* sp. nov. by the character differences pointed out in the key below.

### ***Lingafelterellus birai* sp. nov.** (Figs 6–10)

**Diagnosis.** The brown prothorax, without dark macula on pronotum, elytra dark brown, gradually light reddish-brown toward apex, and femora almost entirely reddish-brown distinguish this species.

**Description. Male.** Head dark brown; prothorax and ventral side of mesothorax brown; metathorax dark reddish-brown; antennae dark reddish-brown, gradually lighter toward apex; elytra dark brown on base, gradually light reddish-brown toward apex; femora reddish-brown, slightly yellowish-brown on base, with some areas slightly darker; abdominal ventrites reddish-brown.

**Head.** Frons with short, decumbent, yellow pubescence not obscuring integument, interspersed with long, erect, sparse, yellow setae near eyes. Vertex finely, shallowly, sparsely punctate (punctures coarser than on frons, denser between antennal tubercles and upper eye lobes); with short, sparse yellow setae interspersed with long, erect, sparse yellow setae laterally. Gulamentum with short and long, moderately abundant erect yellow setae on striate area, glabrous

on area closer to prothorax. Distance between upper eye lobes 0.80 times length of scape; distance between lower eye lobes in frontal view 1.05 times length of scape. Antennae 1.10 times elytral length; antennal formula (ratio) based on length of antennomere III: scape = 1.15; pedicel = 0.38; IV = 1.00; V = 1.15; VI = 1.07; VII = 1.00; VIII = 0.92; IX = 0.92; X = 0.84; XI = 1.15.

**Thorax.** Prothorax 1.25 times longer than wide. Pronotum finely, sparsely punctate except transversely striate basal area; with yellow pubescence on basal quarter, not obscuring integument, interspersed with long, erect, sparse yellow setae; remaining surface with long, erect, sparse yellow setae. Procoxal cavities open behind (apex of hypomeron reaching at about middle of procoxa). Prosternum minutely, sparsely punctate; finely, transversely striate, mainly on basal 2/3; with short and long, erect, moderately sparse yellow setae throughout (slightly more abundant on basal third). Mesosternum with long, erect sparse grayish-white setae. Mesepimeron and mesepisternum with short and long, grayish-white setae, slightly denser than on mesosternum. Metepisternum and sides of metasternum with grayish-white, abundant pubescence interspersed with long, erect grayish-white setae; remaining surface of metasternum with long, erect, sparse grayish-white setae. Scutellum with yellowish-white pubescence not obscuring integument, slightly denser distally. **Legs.** Femora and tibiae with long, erect, sparse yellow setae throughout.

**Abdomen.** Ventrites with grayish-white pubescence laterally, not obscuring integument, and long, erect, sparse, grayish-white setae throughout; apex of ventrite V truncate.

**Female.** It differs from male only by shape of the palpi.

**Color variation on paratype female.** Prothorax, ventral side of meso- and metathorax, antennae, entire elytra and legs dark-brown (femora slightly lighter on base); abdominal ventrites dark reddish-brown, with dark brown areas.

**Dimensions (holotype male/paratype female).** Total length, 4.15/5.00; prothorax: length, 0.75/0.95; anterior width, 0.60/0.65; posterior width, 0.55/0.65; widest width, 0.65/0.75; humeral width, 0.75/1.00; elytral length, 3.00/3.50.

**Type material.** Holotype male (CASC) and paratype female (MZSP) from COLOMBIA, *Valle del Cauca*: 6 miles W Cali (1630 m), 20.III.1955, E. I. Schilenger & E. S. Ross col.

**Etymology.** The new species is named after the late Ubirajara R. Martins de Souza (Bira).

**Remarks.** *Lingafelterellus birai* sp nov. can be separated from *L. clarkei* sp. n. by the character differences pointed out in the key below.

### Key to species of *Lingafelterellus*

- 1 Prothorax mostly yellowish-brown; pronotum with dark central macula; vertex with confluent punctures; femora distinctly bicolorous. Bolivia..... *L. clarkei* sp. nov.
- Prothorax from brown to dark brown; pronotum without dark central macula; vertex without confluent punctures; femora reddish-brown, slightly lighter on base. Colombia..... *L. birai* sp. nov.

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