



<https://doi.org/10.11646/zootaxa.4216.4.7>

<http://zoobank.org/urn:lsid:zoobank.org:pub:3E800FFB-E26C-4AAD-BEE4-DD0E1E4A9BE8>

***Neolinoptes* gen. n., a replacement name for the net-winged beetle genus *Linoptes* Gorham, 1884 and a new species of *Lycomorphon* from Guyana (Coleoptera: Lycidae)**

ELYNTON ALVES DO NASCIMENTO¹ & MILADA BOCAKOVA^{2,3}

¹Departamento de Engenharia Ambiental, Universidade Estadual do Centro-Oeste, PR 153, Km 7, Riozinho, Irati, PR, Brazil - CEP 84500-000. E-mail: elynton@yahoo.com

²Department of Biology, Faculty of Education, Palacky University, Purkrabska 2, CZ-77140 Olomouc, Czech Republic. E-mail: milada.bocakova@upol.cz

³Department of Zoology, Faculty of Sciences, Palacky University, Tr. 17. listopadu 50, CZ-77146 Olomouc, Czech Republic

Abstract

Neolinoptes gen. n. is erected to replace *Linoptes* Gorham, 1884, preoccupied by *Linoptes* Menge, 1854 (Arachnida: Araneae). Consequently, *Neolinoptes imbrex* (Gorham, 1884) **comb. n.**, *N. amazonicus* (Pic, 1923) **comb. n.**, *N. atronotatus* (Pic, 1922) **comb. n.**, *N. atripennis* (Pic, 1932) **comb. n.** are proposed. *Calocladon rubidum* Gorham, 1884 is transferred to *Neolinoptes*. *Lycomorphon iwokrama* sp. n. is proposed as new to science and the genus is recorded from Guyana for the first time. Additionally, *Falsocaenia irregularis* var. *germaini* Pic, 1931 is elevated to species rank and past confusion on *F. irregularis* discussed. New data on geographical distribution of *Falsocaenia paranana* (Pic, 1922) are presented.

Key words: taxonomy, Calopterini, Eurrhacini, new species, Neotropical Region

Introduction

The net-winged beetle genera *Lycomorphon* Pic, 1922 and *Falsocaenia* Pic, 1922 are South American groups of the tribe Calopterini (Lycinae). Both *Lycomorphon* and *Falsocaenia* were previously (Pic 1922) considered to be subgenera of *Idiopteron* Bourgeois, 1905. Nevertheless, an analysis of morphological characters challenged their placement in *Idiopteron*, which was shown to be a member of different clade, the subtribe Calopterina, while *Lycomorphon* and *Falsocaenia* belong to Acroleptina clade. Therefore, *Lycomorphon* and *Falsocaenia* were raised to generic rank (Bocakova 2003, 2005). Although externally similar, these two genera are substantially disparate, e.g. apex of phallus is circularly enlarged in *Falsocaenia*, terminal maxillary palpomere of *Lycomorphon* is apically pointed (Nascimento & Bocakova 2009, Bocakova *et al.* 2012). Among other differences probably belong morphological characters of females, which are fully winged in *Falsocaenia* while females of *Lycomorphon*, as those of other Acroleptina, are unknown and probably neotenic. The occurrence of neoteny, formerly considered to be a rare phenomenon, was demonstrated in many soft-bodied elateroids (Bocakova & Bocak 2016, Bocak *et al.* 2016). Within the net-winged beetles 3 neotenic lineages were identified (Masek *et al.* 2015, Bocakova 2014, Takahashi *et al.* 2016) including the Acroleptina, a crown clade of the American tribe Calopterini (Bocak *et al.* 2008, Miller 1991). *Lycomorphon* was recently reviewed and five new species were described (Nascimento & Bocakova 2009). All eleven *Lycomorphon* species are restricted to Colombia, Peru, Bolivia and Brazil. Recently, Constantin (2010) registered the genus from French Guyana (specimen identified as *L. amazonicum* Nascimento & Bocakova, 2009 and confirmed by the first author). Another individual of *Lycomorphon* recently collected in Guyana presented general resemblance to *L. bimaculatum* Nascimento & Bocakova, 2009. A detailed examination revealed that the specimen represents an unknown species proposed here as new to science. Additionally, nomenclatural changes and new distributional data on *Falsocaenia* are presented.

Other taxonomic uncertainties were recognized when working on revisions of *Calocladon* Gorham, 1881 and

Linoptes Gorham, 1884. Both genera belong in the Eurrhacini lineage (Bocakova 2005) that was recently shown to be the sister group of the Asiatic Conderini (Bocak *et al.* 2008, Bocak & Bocakova 2008). We detected that the generic placement of *Calocladon rubidum* Gorham, 1884 from Panama is unjustifiable and has to be revised. Furthermore, we recognized *Linoptes* Gorham, 1884 (Lycidae) is a junior homonym of *Linoptes* Menge, 1854 (Arachnida), so a new replacement name is proposed here for species of *Linoptes* Gorham, 1884.

Material and methods

All specimens were examined under a Zeiss SteREO V8 stereoscopic microscope and were illustrated using digital photographs taken with an Axiocam ERc 5s camera. The eye diameter was measured at the widest point, interocular distances at the narrowest point. Dissection of genitalia was carried out after boiling the abdomen in 10% KOH solution.

Collection acronyms used:

BMNH The Natural History Museum, London, United Kingdom.
MNHN Muséum National d'Histoire Naturelle, Paris, France.
ZMPA Museum and Institute of Zoology of the Polish Academy of Sciences, Warsaw, Poland.
CECO Coleção Entomológica da Universidade Estadual do Centro-Oeste, Irati, Brazil.

Taxonomy

Lycomorphon iwokrama sp. n.

Type material. Holotype: male, GUYANA, Region 8; Iwokrama Research Centre, N4°40' W58°41', ca. 60m; 17–21.vi.2014, general collecting; Michael Geiser & Roy Canty leg. Secondary label: BMNH {E} 2014-131 Biodiversity Initiative; BMNH(E) 1499603. (BMNH)

Diagnosis. Antennomere 3 slightly longer than 4, pronotum wider than long, each elytron with 3 strong costae, costa 3 reaching apical 1/4, parameres slightly shorter than half of phallus.

Description. Body and pronotum dark brown. Elytra dark brown with almost circular yellow spot at midlength. Antennae dark brown except for the light brown terminal antennomere (Fig. 4). Trochanter yellow, femur dark brown with proximal 1/10 yellow.

Interocular distance 1.2 times longer than eye diameter. Antennomere 3 1.2x longer than 4 and 2.7x longer than antennomere 2. Mandibles curved. Labial palpi short. Maxillary palpi elongate, ultimate palpomere pointed apically, palpomere 2 1.1x longer than 4 and 1.8 times longer than palpomere 3. Labrum slightly rounded distally. Pronotum trapezoidal, 1.3 times wider medially than pronotal length medially, median longitudinal carina simple in anterior half, forming longitudinal groove posteriorly. Elytra elongate, 3.6 times longer than humeral width; each elytron with 3 strong costae, costa 3 weak and absent at apical 1/4, costa 1 strong at basal half, reticulate cells regular, largely rectangular. Tibia 1.2x longer than femur and 2.8 times longer than trochanter. Abdominal sternum 8 with deep median emargination distally. Sternum 9 elongate, constricted at basal 1/3, rounded distally, and proximally rounded with pointing end. Phallus straight in lateral view, apex rounded, teary orifice in distal 2/3. Parameres slightly shorter than half of phallus length, rounded apically in lateral view (Figs. 1–3). Body length: 6.4mm, humeral width: 1.5 mm.

Etymology. The name in a nom in apposition, and refers to the species occurrence site.

Distribution. Guyana.

Genus *Falsocaenia* Pic, 1922

Falsocaenia Pic, 1922: 24 (subgenus of *Idiopteron*). Type species: *Idiopteron (Falsocaenia) meridanum* Pic, 1922 (original designation).

***Falsocaenia germaini* (Pic, 1931) stat. n.**

Idiopteron (*Falsocaenia*) *irregularis* var. *germaini* Pic, 1931: 94.

Type material. Syntype, male, 'Bolivia', without other data (MNHN).

Other specimens examined. Bolivia: Yungas, Germain, 2 spec. (ZMPA).

Diagnosis. Close to *F. meridanum*, differs in body coloration having whole maxillary and labial palpi dark brown, lateral margins and posterior angles of pronotum yellow, elytra mostly yellow, each elytron having a dark median dot (while *F. meridanum* has a transverse black stripe) and black apex, and in the shape of male genitalia (parameres almost as long as phallus, reaching considerably over distal phallic constriction).

Comments. Recently, Bocakova *et al.* (2012) revised the genus *Falsocaenia* and redescribed "*Falsocaenia irregularis* Pic, 1931" based on the Bolivian syntype of *Falsocaenia irregularis* var. *germaini*. Unfortunately, these authors overlooked that *Falsocaenia irregularis* was transferred (Nascimento & Bocakova 2009) to *Lycomorphon*, based on the type from Peru—the original type locality of *Lycomorphon irregularis* (Pic, 1931). Consequently *Falsocaenia irregularis* var. *germaini* Pic, 1931 is elevated to species rank, as the holotype of the subspecies represents an undescribed species of a different genus.

***Falsocaenia paranana* (Pic, 1922)**

Idiopteron paranana Pic, 1922: 24.

Specimens examined. BRAZIL. Jundiaí-SP (Res. Biológica Serra do Japi), 29.vi.2007; Nascimento, E.A. col. (male, CECO); same locality, 08.v.2008; Lecci, L.S. col. (male, CECO); PARAGUAY. Dep. Canindeyu: Curuguaty, S24°25' W55°42', leg. U. Drechsel (male, CECO).

Comments. Bocakova *et al.* (2012) recognized twelve species of *Falsocaenia*, only *F. incognitus* Kleine, 1942 being recorded from Brazil. Later, Nascimento (2013) added *F. paranana* (Pic, 1922) to Brazilian fauna. Here, we present new precise records increasing the distributional range of this species for Brazil and Paraguay.

***Neolinoptes* gen. n.**

Linoptes Gorham, 1884: 247- **syn. n.** [preoccupied by *Linoptes* Menge, 1854: 94 (Arachnida: Araneae)].

Type species. *Linoptes imbrex* Gorham, 1884.

Etymology. derived from the Greek word "neo" (new) and the generic name *Linoptes*. The gender is masculine.

Distribution. Central and South America (Nicaragua, Panama, Peru and Brazil)

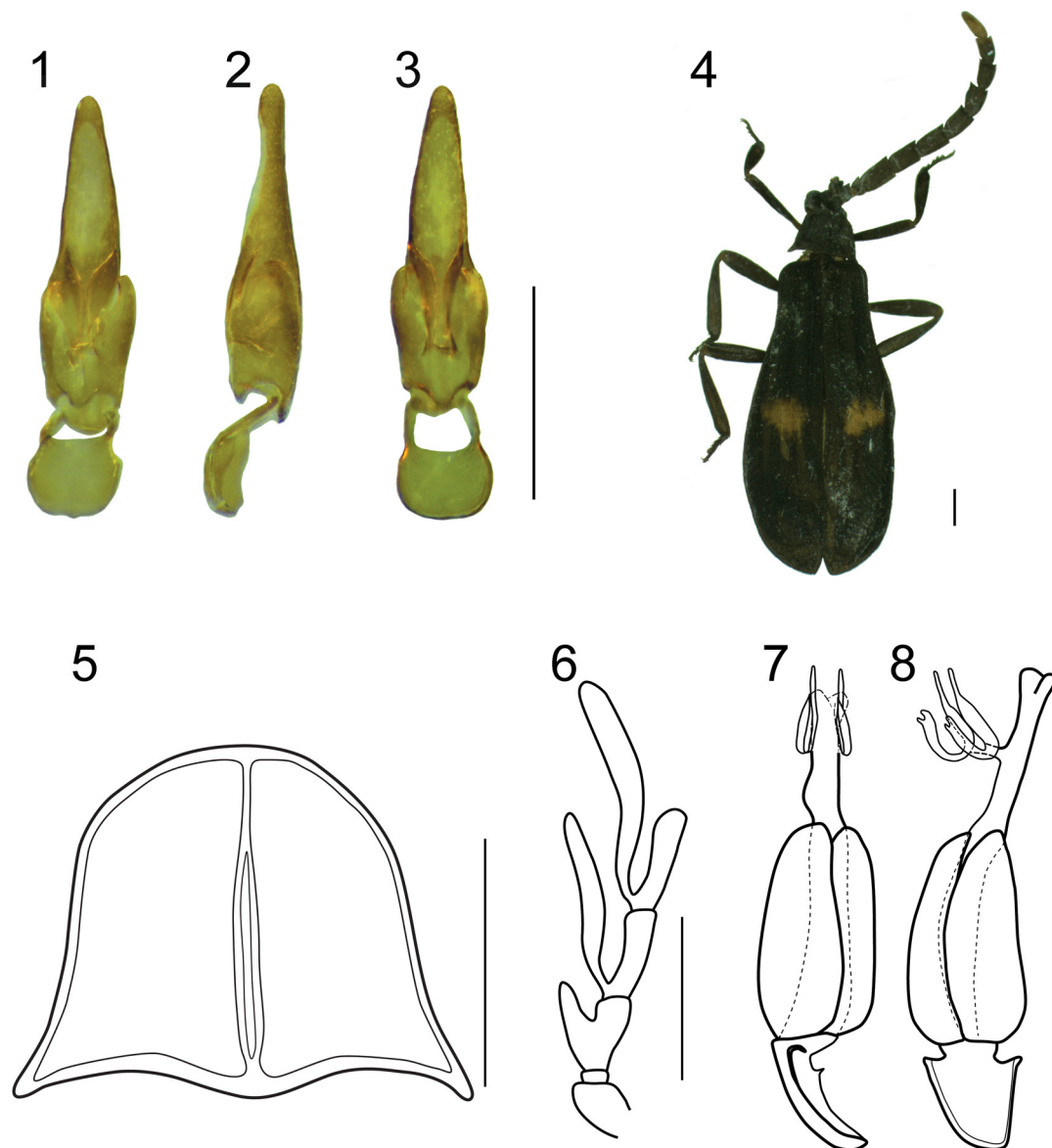
Comments. Menge in Koch & Berendt (1854) proposed a new spider genus, *Linoptes* Menge, 1854 from Baltic Amber in a footnote. Wunderlich (1986) synonymized *Linoptes* Menge, 1854 to *Deinopsis* MacLeay, 1839, but later Wunderlich (2004) considered *Linoptes* Menge, 1854 as *nomen nudum*. Although Menge's (1854) definition of the spider genus *Linoptes* is extremely brief, the name satisfies the provisions of the Article 12.1. of the ICZN (1999). Consequently, *Linoptes* Gorham, 1884 was discovered to be a junior homonym and therefore, here we propose a new replacement name for the lycid genus *Linoptes* Gorham, 1884. Additionally, all 4 species of the lycid genus *Linoptes* Gorham, 1884 and *Calocladon rubidum* Gorham, 1884 are transferred to *Neolinoptes*.

***Neolinoptes imbrex* (Gorham, 1884)—comb. n.**

Linoptes imbrex Gorham, 1884: 247.

***Neolinoptes amazonicus* (Pic, 1923)—comb. n.**

Linoptes amazonicus Pic, 1923: 1.



FIGURES 1–8. 1–4. *Lycomorphon iwokrama* sp. n. 1–3: male genitalia in ventral, lateral and dorsal view, 4: habitus. 5–8. *Neolinoptes rubidus*. 5: pronotum, 6: antennomeres 1–5, 7–8: male genitalia in ventral and lateral view. Scales: 0,5mm.

Neolinoptes atronotatus (Pic, 1922)—**comb. n.**
Linoptes atronotatus Pic, 1922: 21.

Neolinoptes atripennis (Pic, 1932)—**comb. n.**
Linoptes atripennis Pic, 1932: 5.

Neolinoptes rubidus (Gorham, 1884)—**comb. n.**
Calocladon rubidum Gorham, 1884: 246.
 Figs. 5–8

Type material. Holotype, male, PANAMA: “V. de Chiriqui, 3–4000 ft., Champion” (BMNH).

Diagnosis. This species is easily distinguishable from the other species by the coloration and genitalia shape.

Redescription. Eyes medium, interocular distance 1.5 times longer than eye diameter. Antennomere 5 as long as 4, 1.3 times longer than 3 (Fig. 6). Mandibles stout, curved. Labial palpi small, terminal palpomere broad. Maxillary palpi elongate, palpomere 2 as long as 4 and 2.5x longer than 3, palpomere 4 obliquely truncate apically. Labrum slightly rounded distally. Anterior thoracic spiracles short. Pronotum dark brown with lateral sides testaceous, as long as wide medially, arcuately produced anteriorly, widest at basal margin, posterior angles sharp. Pronotum presenting strong median longitudinal carina with slender lenticular areola at basal $\frac{3}{4}$, posterior margin bisinuate (Fig. 5). Scutellum with median emargination apically. Elytra testaceous, elongate, 4 times longer than humeral width. Each elytron presenting 9 longitudinal costae with irregular cells, costae 2 and 4 strong, secondary costae weak. Prosternum triangular, mesosternum transverse, trapezoidal. Abdominal sternum 8 with median rounded emargination distally. Abdominal sternum 9 elongate proximally, pointed. Trochanters dark brown, elongate, conical, as long as third of femur length. Femur dark brown, tibiae dark brown, as long as femur. Male genitalia: Phallus bent laterally in dorsal view, with shallow emargination at apex, with two hooked sclerites. Parameres half of phallus length, broad basally and gradually tapered to apex in ventral view, rounded apically in lateral view. Phallobase quite trapezoidal. (Figs. 7–8). Body length: 7.0 mm, humeral width: 1.5 mm.

Distribution. Panama.

Composition. *Neolinoptes* is now composed of five species: *Neolinoptes imbrex* (Gorham, 1884) **comb. n.**, *N. rubidus* (Gorham, 1884) **comb. n.**, *N. atronotatus* (Pic, 1922) **comb. n.**, *N. atripennis* (Pic, 1932) **comb. n.**, and *N. amazonicus*, (Pic, 1922) **comb. n.**

Aknowledgements

We would like to thank M. Barclay and M. Geiser (BMNH), U. Drechsel (Paraguay Biodiversidad), T. Deuve and A. Taghavian (MNHN) and T. Huflejt (ZMPA), for providing material to this study. We also acknowledge to Joerg Wunderlich and Theo Blick, who provided literature on *Linoptes* Menge, 1854, and the two reviewers for the valuable comments. This study has been supported by grants 480372/2013-6 (CNPq, Brazil) and IGA_PdF_2016_018 (Palacky University Olomouc, Czech Republic).

References

- Bocak, L. & Bocakova, M. (2008) Phylogeny and classification of the family Lycidae (Insecta: Coleoptera). *Annales Zoologici*, 58, 695–720.
<https://doi.org/10.3161/000345408X396639>
- Bocak, L., Bocakova, M., Hunt, T. & Vogler, A.P. (2008) Multiple ancient origins of neoteny in Lycidae (Coleoptera): consequences for ecology and macroevolution, *Proceedings of the Royal Society, B*, 275, 2015–2023.
<https://doi.org/10.1098/rspb.2008.0476>
- Bocak, L., Kundata, R., Andujar Fernandez, C. & Vogler, A.P. (2016) The discovery of Iberobaeniidae (Coleoptera: Elateroidea): a new family of beetles from Spain, with immatures detected by environmental DNA sequencing. *Proceedings of the Royal Society B: Biological Sciences*, 283, 20152350.
<http://dx.doi.org/10.1098/rspb.2015.2350>
- Bocakova, M. (2003) Revision of the Tribe Calopterini (Coleoptera, Lycidae). *Studies on Neotropical Fauna and Environment*, 38, 270–234.
<https://doi.org/10.1076/snfe.38.3.207.28169>
- Bocakova, M. (2005) Phylogeny and classification of the tribe Calopterini (Coleoptera, Lycidae). *Insect Systematics and Evolution* 35, 437–447.
<https://doi.org/10.1163/187631204788912472>
- Bocakova M. (2014) *Lolodorfus*, a new genus of net-winged beetles (Coleoptera: Lycidae: Dexorinae) from Cameroon. *Zootaxa*, 3811 (3), 374–380.
<http://dx.doi.org/10.11646/zootaxa.3811.3.8>
- Bocakova M., Baciakova B. & Nascimento E.A. (2012) Revision of the genus *Falsocaenia* (Coleoptera: Lycidae). *Zootaxa*, 3478, 282–296.
- Bocakova M. & Bocak, L. (2016) A new genus of otoretine firefly endemic to Indian subcontinent (Coleoptera: Lampyridae). *Annales Zoologici*, 2016, 66 (3), 371–380.
<https://doi.org/10.3161/00034541ANZ2016.66.3.003>
- Bourgeois, J. (1905) Les Lycides du Muséum d’Histoire Naturelle de Paris. *Annales de la Société Entomologique de France*,

- Constantin, R. (2010) Les genres de Cantharidae, Lampyridae, Lycidae et Telegeusidae de Guyane française, *In*: Touroult, J. (coord.), *Contribution à l'étude des Coléoptères de Guyane, Tome II*. Supplément au Bulletin de Liaison d'ACOREP-France, *Le Coléoptériste*, pp. 32–45. [87 pp.]
- Gorham, H.S. (1881) *Biologia Centrali-Americana*. Insecta. Coleoptera. Malacodermata. Lycidae. London. Vol 3, Pt. 2, 25–29.
- Gorham, H.S. (1884) *Biologia Centrali-Americana*. Insecta. Coleoptera. Malacodermata. Lycidae. Supplement. London. Vol 3, Pt. 2, 225–272.
- ICZN (1999) *International Code of Zoological Nomenclature*, 4th edition. London, The Natural History Museum, 305 pp.
- Masek, M., Palata, V., Bray, T.C. & Bocak, L. (2015) Molecular phylogeny reveals high diversity and geographic structure in Asian neotenic net-winged beetles *Platerodrilus* (Coleoptera: Lycidae). *PLOS ONE*, 10 (4), e0123855.
<https://doi.org/10.1371/journal.pone.0123855>
- Menge, A. (1854) Footnotes. *In*: Koch, C.L. & Berendt, G.C.: Die im Bernstein befindlichen Myriapoden, Arachniden und Apteren der Vorwelt.—*In*: Berendt, G.C. (ed.): Die in Bernstein Befindlichen Organischen Reste der Vorwelt, 1 (2), 124–124. [Berlin.]
- Miller, R.S. (1991) *A revision of the Leptolycini (Coleoptera: Lycidae) with a discussion of paedomorphosis*. PhD Thesis. The Ohio State University, U.S.A.
- Nascimento, E. A. (2013) The current status of knowledge on Lycidae Laporte, 1836 from Brazil (Insecta: Coleoptera). *Check List* 9(2): 323–328.
- Nascimento, E.A. & Bocakova, M. (2009) A revision of the genus *Lycomorphon* (Coleoptera: Lycidae). *Zootaxa*, 2132, 40–52.
- Pic, M. (1922) Contribution à l'étude des Lycides. *L'Echange*, pp. 407–410, 13–28 hors texte.
- Pic, M. (1923) Nouveautés diverses. *Mélanges exotico-entomologiques*, 38, 1–32.
- Pic, M. (1932) Nouveautés diverses. *Mélanges exotico-entomologiques*, 60, 1–36.
- Pic, M. (1931) Malacodermes exotiques. *L'Echange*, 443, 34 hors texte.
- Takahashi, N., Bocak, L. & Ghani, I.A. (2015) Discovery of a new species of the brachyelytrous net-winged beetle genus *Alyculus* (Coleoptera: Lycidae) from Peninsular Malaysia. *Zootaxa*, 4144 (1), 145–150.
<http://doi.org/10.11646/zootaxa.4144.1.11>
- Wunderlich, J. (1986) *Spinnenfauna Gestern und Heute*. Fossile Spinnen in Bernstein und ihre heute lebenden Verwandten. Erich Bauer Verlag bei Quelle & Meyer, Wiesbaden, 283 pp.
- Wunderlich, J. (2004) Fossil spiders of the family Pisauridae (Araneae) in Baltic and Dominican amber. *In* Wunderlich, J. (ed.). *Beiträge zur Araneologie*, 3, 1532–1541.