

A new synonymy in *Anisopodus* White (Coleoptera, Cerambycidae, Lamiinae, Acanthocinini)

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Abstract. *Anisopodus subarmatus* Melzer, 1931 is synonymized with *A. jaculus* (Gyllenhal, 1817) and a discussion about the type-locality of the latter is provided. Photographs of the lectotype of the former and of the holotype of the latter are provided.

Keywords. Longhorned woodboring beetle; Neotropical region; Taxonomy.

INTRODUCTION

Anisopodus White, 1855 is part of an informal specious group of Acanthocinini called “Podus Complex,” which comprises: *Anisopodus* White, 1855, *Paranisopodus* Monné & Martins, 1976, and *Tropanisopodus* Tippmann, 1960 (Nascimento & Santos-Silva, 2019). The same authors argue that this is a problematic genus, which groups several species that apparently do not follow the current generic diagnosis.

According to Nascimento *et al.* (2020), *Anisopodus* can be distinguished from closely related genera by the following character set: “metafemora distinctly surpassing elytral apex in male (rarely not so); metafemoral club not strongly enlarged; metatarsomere I longer than II-V together.” Additionally, in the key proposed by Monné *et al.* (2020), *Anisopodus* is included in the group of genera with the elytra without centrobasal crest, or at most slightly gibbous on this area, or with a small tubercle (alternative of couplet “2”).

In order to reduce and elucidate the problematic situation of *Anisopodus*, we have been trying to obtain photographs of the types of various species of this genus, especially those that have never been illustrated. Unfortunately, in some cases the types were destroyed or missing for various reasons. As many descriptions do not allow the species to be identified with certainty, especially those described in the 18th and 19th centuries, we

often find errors in current identifications or encounter synonyms. It is also not uncommon for species described from other parts of the world to actually be from the New World. Studying the holotype of *Lamia jaculus*, currently *Anisopodus jaculus*, we were able to verify that the species is actually from Brazil, and is a senior synonym of *A. subarmatus* Melzer, 1931.

MATERIAL AND METHODS

Photographs of *Anisopodus subarmatus* Melzer, 1931 were taken in the MZSP with a Canon EOS Rebel T3i DSLR camera, Canon MP-E 65 mm f/2.8 1-5X macro lens, controlled by Zerene Stacker AutoMontage software. Measurements were taken in “mm” using measuring ocular Hensoldt/Wetzlar – Mess 10 in the Leica MZ6 stereomicroscope, also used in the study of the specimens.

Photographs of the holotype of *Lamia jaculus* were taken with a Canon 6D DSLR and Sigma 50 mm EX DG macro lens (UUZM – see acronym below).

The terminology used herein for morphological structures follows Lawrence *et al.* (2010).

The acronyms used in the text are as follows:

MZSP – Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil;

UUZM – Uppsala University, Museum of Evolution, Zoology section, Uppsala, Sweden.

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RESULTS

Anisopodus jaculus (Gyllenhal, 1817)

(Figs. 1, 2, 3A-3B)

Lamia jaculus Gyllenhal, 1817: 162; Fairmaire, 1901: 230; Wallin, 2001: 9 (cat.).

Anisopodus jaculus; Aurivillius, 1923: 396 (cat.); Melzer, 1931: 65; Gilmour, 1965: 569 (cat.).

Anisopodus subarmatus Melzer, 1931: 65; Blackwelder, 1946: 613 (checklist); Zikán & Wygodzinsky, 1948: 49 (type); Gilmour, 1965: 568 (cat.); Zajciw, 1974: 73 (distr.); Monné & Giesbert, 1994: 241 (checklist); Monné, 1995: 67 (cat.); Monné, 2005: 21 (cat.); Monné & Hovore, 2006: 176 (checklist); Nascimento et al., 2016: 558, 566 (distr.); Nascimento et al., 2017: 88 (distr.); Monné et al., 2017: 40 (lectotype); Monné, 2022: 23 (cat.). **Syn. nov.**

Redescription: Lectotype male of *A. subarmatus*

(Fig. 2): General integument from brown to dark brown; head capsule blackish on frons, vertex, and area behind eyes; anteclypeus brownish, with anterior margin yellowish brown; anterocentral area of labrum reddish brown; palpomeres blackish with yellowish-brown apex; scape dark brown on anterior half, slightly lighter on posterior half of dorsal surface, except blackish apex; pedicel dark reddish brown; antennomeres III-VII orangish brown on basal third, gradually darker toward posterior area, with dark brown apex, dark brown region gradually shorter toward VII; antennomeres VIII-X reddish-brown with brownish apex; antennomere XI reddish brown. Basal half of tibiae dark reddish brown with dark brown base; basal $\frac{2}{3}$ of tarsomeres I dark reddish brown. Apex of abdominal ventrites 1-4 from orangish brown to reddish brown.

Head (Fig. 2D): Frons very finely, abundantly punctate; with abundant pale yellowish-brown pubescence partially obscuring integument, close to eyes pubescence yellowish white with a few long, erect brown setae. Area between antennal tubercles with yellowish-brown pubescence almost obscuring integument, pubescence shorter than on frons. Area between antennal tubercles and upper eye lobes with transverse, glabrous sulcus, U-shaped centrally. Vertex and area behind upper eye lobes minutely, abundantly punctate, posterocentrally with sparse, minute punctures; with dense orangish-brown pubescence obscuring integument, posterocentral area of vertex mostly glabrous. Area behind lower eye lobes finely, sparsely punctate close to eye, finely, densely punctate on superior area close to prothorax, finely, sparsely punctate toward ventral surface; with dense yellowish pubescence close to eye, sparse yellowish pubescence superiorly close to prothorax, glabrous toward ventral surface close to prothorax. Genae finely, sparsely punctate, transversely striate-punctate toward ventral surface, apex smooth; with yellowish-white pubescence not obscuring integument on punctate area, glabrous on smooth area; with a few long, erect,

dark brown setae interspersed toward ventral surface. Antennal tubercles finely, densely punctate, apical area with minute, sparse punctures; with yellowish-brown pubescence not obscuring integument on wide basal area, glabrous near apex and with fringe of pale yellow pubescence apically. Wide central area of postclypeus with abundant pale yellow pubescence partially obscuring integument, bristly close to anteclypeus, central area close to anteclypeus almost glabrous and with one long, erect dark brown seta on each side; sides of postclypeus glabrous. Labrum finely, abundantly punctate on posterior $\frac{2}{3}$, punctures distinctly sparser on anterior third; with yellowish-brown pubescence not obscuring integument and long, erect yellowish-brown setae interspersed on posterior third, mostly glabrous on anterior third, except dense fringe of yellow setae on anterior margin. Gulamentum smooth, glabrous on wide posterior area, depressed with sparse yellowish-brown pubescence and a few long, erect dark setae on narrow anterior area. Distance between upper eye lobes 0.26 times distance between outer margins of eyes; in frontal view, distance between lower eye lobes 0.56 times distance between outer margins of eyes. Antennae 3.25 times elytral length, reaching elytral apex at middle of antennomere V. Scape with dense yellowish-white pubescence on anterior half, yellowish-brown, not obscuring integument on posterior half; with short, erect, thick setae on posterior third of ventral surface. Pedicel with dense yellowish-brown pubescence basally, abundant, mostly yellowish-white on remaining surface; with a few short, erect, thick dark setae ventrally. Antennomeres III-IV slightly widened apically; III with dense yellowish-white pubescence on basal $\frac{2}{3}$ of dorsal surface, almost reaching apex ventrally, sparser on IV, yellowish-brown, not obscuring integument on remaining surface; with short, erect, sparse, thick dark setae ventrally. Antennomere V (Fig. 2E) with distinct projection on inner apex, superior margin of projection oblique; with yellowish-brown pubescence not obscuring integument dorsally and laterally, abundant, yellowish-white ventrally and a few short, erect, thick dark setae on posterior third. Antennomere VI with distinct projection on inner apex, superior margin almost forming right angle with the antennomere, larger than on V and VII; pubescence as on V; with a few short, erect, thick dark setae, including the apical projection. Antennomere VII with pubescence and inner apical projection as on V, but yellowish-white pubescence sparser and apical projection slightly shorter. Antennomeres VIII-XI mostly with yellowish-white pubescence not obscuring integument and short, erect yellowish-brown setae interspersed. Antennomeres III-X with a few long, erect yellowish setae on dorsal apex. Antennal formula based on length of antennomere III: scape = 1.17; pedicel = 0.15; IV = 1.26; V = 1.17; VI = 1.08; VII = 0.94; VIII = 0.94; IX = 0.94; X = 0.82; XI = 0.76.

Thorax: Prothorax wider than long; sides slightly rounded, gradually widened from anterolateral angles to lateral tubercles, then convergent toward posterolateral angles; lateral tubercles moderately large, conical, located

on posterior quarter. Pronotum coarsely, abundantly punctate close to anterior and posterior margins, mostly smooth centrally from anterior third to posterior quarter, coarsely, less densely punctate on sides of smooth central area, almost smooth on transverse band on apex of anterior third, coarsely, sparsely punctate on sides of posterior $\frac{3}{4}$, except smooth area of lateral tubercles; with dense orangish-brown pubescence on anterior quarter, this area extended toward center, except for a non-prominent and somewhat rounded brownish pubescent spot on each side of center, dense, yellowish-white pubescence on remaining surface. Sides of prothorax coarsely, sparsely punctate; with yellowish-brown pubescence partially obscuring integument and yellowish-white pubescence interspersed. Prosternum coarsely, sparsely punctate laterally, almost smooth centrally; with dense yellowish-brown pubescence laterally, yellowish-white centrally. Prosternal process with yellowish-white pubescence on basal half, sparser, yellowish-brown on posterior half; narrowest area 0.16 times procoxal width. Sides of ventral surface of meso- and metathorax with dense yellowish-brown pubescence, central area with abundant yellowish-white pubescence not obscuring integument. Scutellum with dense yellowish-brown pubescence and one large, subcircular brownish pubescent spot on each side of middle. **Elytra (Figs. 2A, 2C):** Centrobasal area with non-prominent gibbosity; humeral carina well-marked on anterior $\frac{2}{3}$, non-prominent from this point toward apex; dorsal surface with two moderately well-marked longitudinal carinae from base to posterior quarter, innermost as a continuation of the basal gibbosity; with area between them slightly depressed; area between anterior quarter and posterior third depressed;

apex obliquely emarginate, with outer and sutural angles forming triangular projection; coarsely, abundantly punctate on anterior half, punctures gradually finer and sparser toward apex; from middle of dorsal surface to near suture with a moderately narrow and slightly oblique brownish pubescent band on anterior quarter; with wide, slightly oblique brownish pubescent band on beginning of posterior third, posterior margin strongly sinuous from humeral carina to suture; dorsal surface on anterior half and area between humeral carina and epipleural margin with dense yellowish-brown pubescence obscuring integument, carinae with irregular, longitudinal whitish pubescent band and circular brownish pubescent spots forming longitudinal rows close to humeral carina, outermost dorsal carina and close to suture, spots close to humeral carina larger and posterior ones partially fused; area between orangish-brown pubescence and wide brownish pubescent band with dense whitish pubescence; area between wide brownish pubescent band and apex with whitish pubescence, near suture with a longitudinal orangish-brown pubescent band, not reaching apex and abundant brownish pubescent spots, lateral ones larger. **Legs:** Pro- and mesofemora strongly pedunculate-clavate; metafemora distinctly surpassing elytral apex with femoral club not distinctly differentiated from peduncle; pro- and mesofemora with dense yellowish-white pubescence partially obscuring integument, except middle of femoral club with a wide, brownish pubescent ring and a narrow pubescent ring on apex; metafemoral peduncle and base of club with dense whitish pubescence, remaining surface of club with abundant brownish pubescence not obscuring integument. Protibiae with dense whitish pubescence on

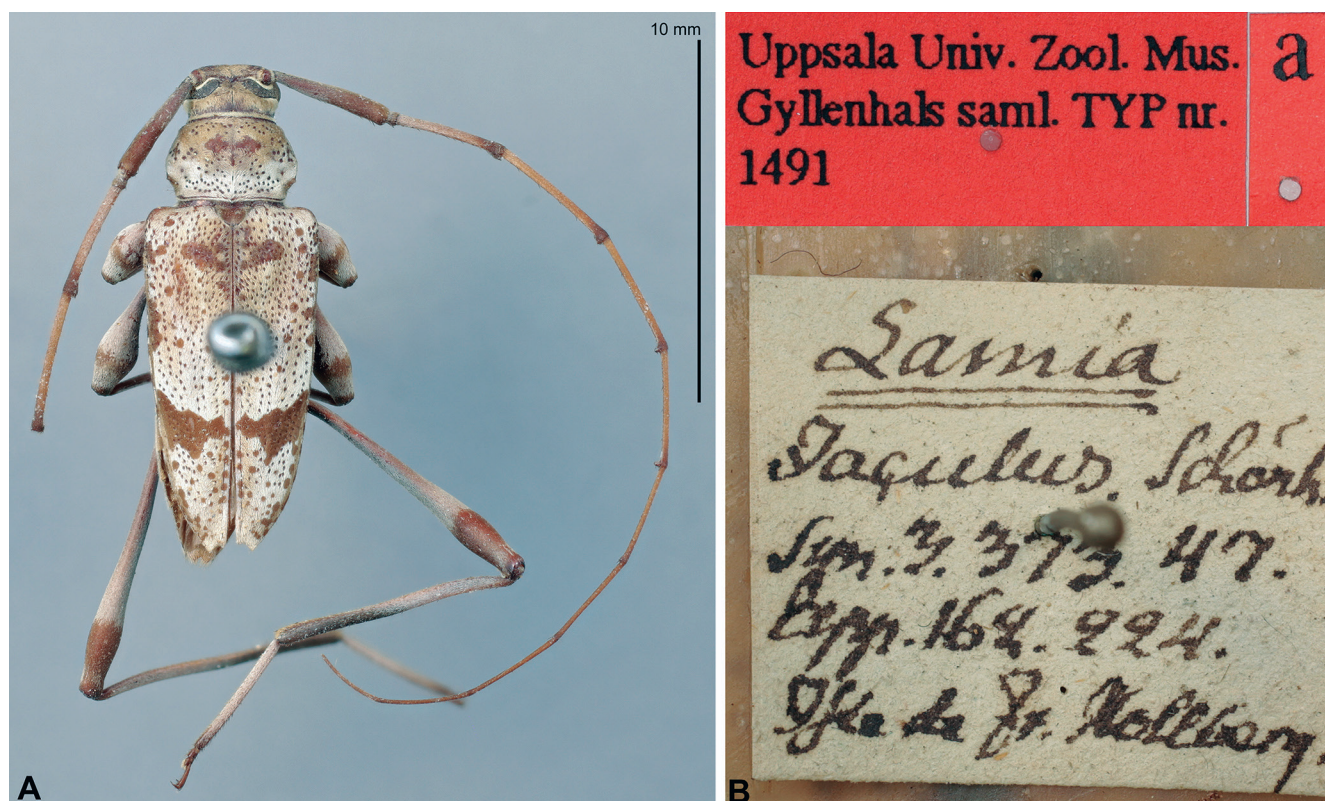


Figure 1. *Lamia jaculus* Gyllenhal, 1817, holotype male: (A) Dorsal habitus; (B) Labels.

dorsal and lateral surfaces of basal half, yellowish brown on remaining surface, pubescence longer and bristly on posterior third of ventral surface; mesotibiae with dense

whitish pubescence on anterior half, dark brown, bristly on posterior half of dorsal surface and mostly yellowish brown on remaining surface, bristly ventrally; anterior $\frac{2}{3}$



Figure 2. *Lamia jaculus* Gyllenhal, 1817, lectotype male of *Anisopodus subarmatus* Melzer, 1931: (A) Dorsal habitus; (B) Ventral habitus; (C) Lateral habitus; (D) Head, frontal view; (E) Apex of antennomeres VI-VII.

of metatibiae with dense, whitish pubescence, yellowish brown on remaining surface, bristly ventrally. Tarsomere I with dense whitish pubescence dorsally, apex with brown pubescence; remaining tarsomeres with brown pubescence dorsally; metatarsomere I 5.45 times longer than II-III together.

Abdomen (Fig. 2B): Ventrites with abundant yellowish-white pubescence partially obscuring integument, yellower apically on 1-4; ventrite 5 shorter than 3-4 together; apex of ventrite 5 strongly, triangularly emarginate centrally.

Variation: We found some male specimens with pedicel brown; antennomeres III-VII orangish brown on basal third; dark apical area on antennomeres III-VII with

variable length; pubescence between upper eye lobes pale yellow; posterocentral area of vertex with pubescence shorter than on remaining surface of vertex, but not obscuring integument; inner apical projection on antennomere V subequal to that on VI; inner apical projection on antennomere VII non-prominent; lateral tubercles of prothorax small; orangish-brown pubescence on pronotum reaching posterior quarter centrally; with long, erect, sparse dark brown setae laterally, between lateral tubercles of prothorax and posterolateral angles; brownish pubescent spot on pronotum from large to almost absent; elytral pubescence between base and brownish pubescent band on posterior third mostly whitish.

Female (Figs. 3A-3B): Similar to male; differs by the shorter antennae 2.35 times elytral length, from base of

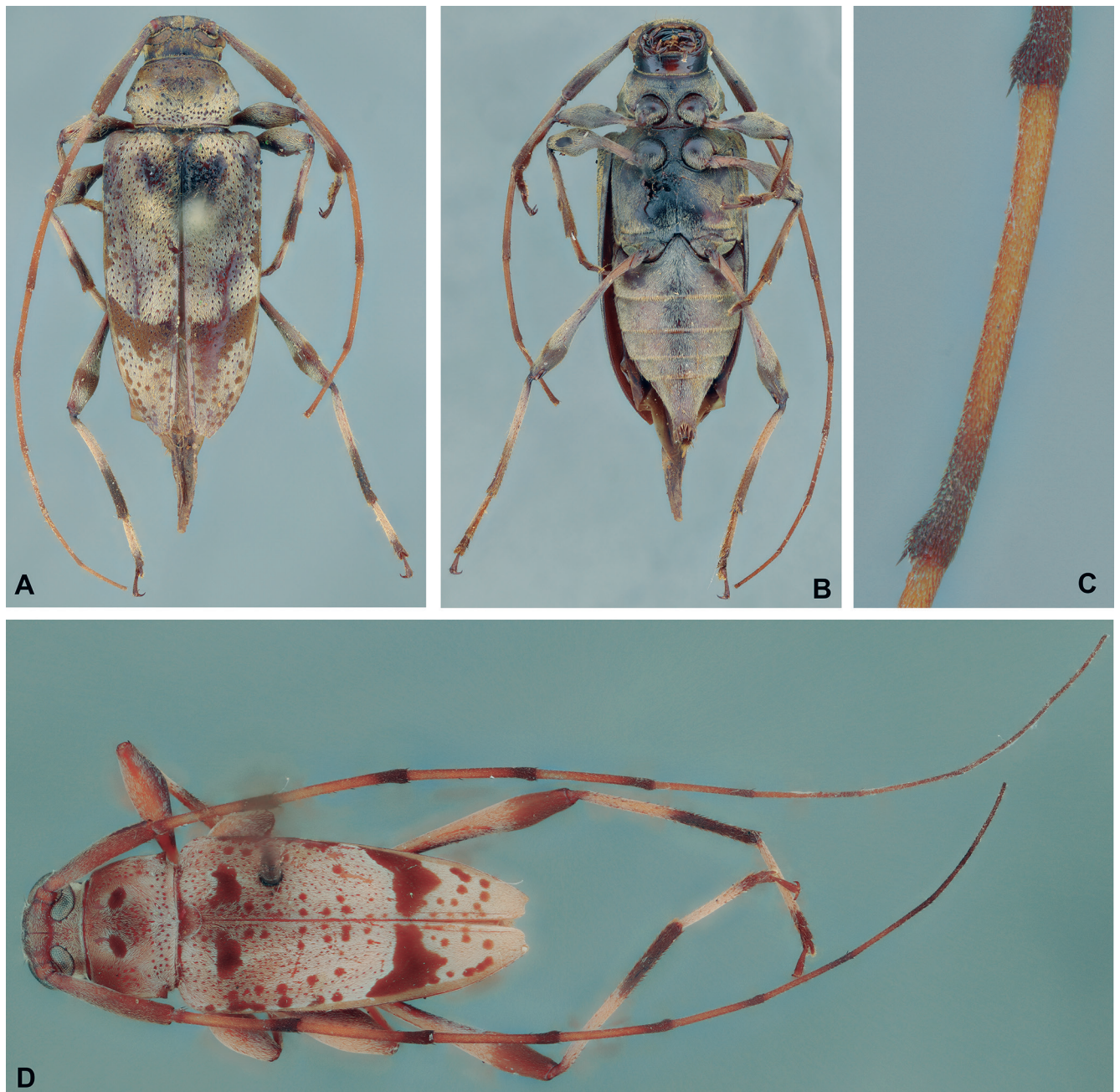


Figure 3. (A-B) *Lamia jaculus* Gyllenhal, 1817, paralectotype female of *Anisopodus subarmatus* Melzer, 1931: (A) Dorsal habitus; (B) Ventral habitus. (C-D) *Anisopodus sparsus* Bates, 1863, male from Brazil (Santa Catarina): (C) Apex of antennomeres V-VI; (D) Dorsal habitus.

scape to part of antennomere X (antennomere X broken, and missing antennomere XI of right antenna, and missing antennomeres VIII-XI of left antennae in a female; missing antennomeres X-XI in the left antenna and VII-XI in the right antenna in the paralectotype female), reaching elytral apex at about middle of antennomere VI, absence of projection on inner apex of antennomeres, metafemora not reaching elytral apex, and abdominal ventrite 5 slightly longer than 3-5 together.

Dimensions (mm), males (6)/females (2): Total length, 9.45-12.90/14.05-15.90; prothoracic length, 1.55-2.30/2.10-2.25; anterior prothoracic width, 1.70-2.50/2.60-2.60; posterior prothoracic width, 2.15-3.15/3.10-3.25; maximum prothoracic width, 2.45-3.90/3.60-3.90; humeral width, 3.20-4.55/4.65-5.15; elytral length, 6.85-9.20/9.40-10.20. The largest dimensions of males correspond to those of the lectotype of *A. subarmatus*.

Material examined: BRAZIL, holotype male of *A. jaculus* (UUZM). BRAZIL, 1 ♂, XII.1929, no more data (MZSP). Rio de Janeiro: Petrópolis, 1 ♂, XI.1936, collector name unreadable (MZSP). São Paulo: Assis, paralectotype male of *A. subarmatus*, 1918, O. Newman leg. (MZSP); "Pae Mathias" [São Vicente, Pai Matias train station], 1 ♀, XII.1935, Halik leg. (MZSP); Boraceia [place in Bertioğa], 1 ♂, date and collector not indicated (MZSP). Santa Catarina: Joinville, lectotype of *A. subarmatus*, 1919, C. Schmith leg. (MZSP); paralectotype female of *A. subarmatus*, XI.1912, C. Schmith leg. (MZSP); Hansa Humboldt [Corupá], 1 ♂, III.1931, A. Maller leg. (MZSP).

Remarks: Gyllenhal (1817) described *Lamia jaculus* (Fig. 1) and reported it as being from "Isle de France" [The isle of France]. Currently, this place corresponds to Mauritius, an island in the Indian Ocean. Aurivillius (1923) transferred *L. jaculus* to *Anisopodus* White, 1855. After Gilmour's (1965) catalog, the species was listed only in Tavakilian & Chevillotte (2022). Currently, the holotype is deposited at the UUZM.

Melzer (1931) described *Anisopodus subarmatus* (Figs. 2, 3A-3B) from the Brazilian states of São Paulo and Santa Catarina, and reported (translated): "This species is closely related to *A. sparsus* Bates from Amazonas and *A. jaculus* Gyllenh. (Mauritius?). The small nodules, however, at the apex of the fifth and seventh antennomeres, and the obtuse denticle at the apical nodule of the antennomere VI of males, clearly differentiate the species, bringing it closer to the genus *Pattalinus* Bates." In fact, Gyllenhal (1817) only discussed the antennomeres from III (translated): "... following elongate, cylindrical, dark testaceous, the apex slightly thicker and black." Currently, *A. subarmatus* is also known from the Brazilian states of Bahia, Espírito Santo, and Rio de Janeiro (Monné, 2022; Tavakilian & Chevillotte, 2022).

Comparing the holotype of *Lamia jaculus* (Figs. 1A-B) with the lectotype male of *A. subarmatus*, it is possible to see that there are no differences between them. The rules of Article 23.9 of the Code (ICZN, 1999) do not

allow us to consider *A. subarmatus* as *nomen protectum*. Therefore, *A. subarmatus* is here considered a junior synonym of *A. jaculus* and the latter is considered the valid name of the species.

Interestingly, there is a small island off the coast of the Brazilian state of Santa Catarina, state of the lectotype of *A. subarmatus*, called "Ilha do Francês" [French's Island]. It is possible that this is the origin of the error in the reported type locality of *Lamia jaculus*. As there are no new citations of the occurrence of *Anisopodus jaculus* in Mauritius, we believe that the type locality is wrong. Unfortunately, it is not possible to assign an exact type locality for the species, but we believe it is correct to indicate Brazil as the type locality. *Anisopodus jaculus* is formally excluded from the fauna of Mauritius. According to Johansson (2008) on Lars Hollberg, to whom the holotype of *Anisopodus jaculus* belonged at the time of the species description (translated): "Lars Hollberg's colleague Adolf Fredrik Alfort (1780-1854), city doctor in Eskilstuna, had made trips to Brazil and the East Indies where he collected plants, fossils and insects. He left parts of his collections to various institutions and private individuals, including Hollberg. When it came to additions to the Hollberg collection, in Alfort's case it was mainly insects." Thus, probably, the true collector of the holotype of *A. jaculus* was A.F. Alfort, when he was in Brazil.

It is important to note that this is not the first case of a species listed by Gyllenhal as being from "Isle de France," belonging to Doct. Hollberg that, in fact, was from Brazil: see *Cerambyx abdominalis* Gyllenhal, 1817 = *Orthostoma abdominale*.

Currently, *Anisopodus jaculus* is known from Brazil (Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Santa Catarina) (Monné, 2022; Tavakilian & Chevillotte, 2022). Although Monné (2022) listed the Brazilian state of Rio de Janeiro, we do not know who formally listed this state. It was probably an inference based on the previous distribution that listed the species being present from Espírito Santo to Santa Catarina.

As reported by Melzer (1931), *A. subarmatus* (now synonym of *A. jaculus*) is similar to *A. sparsus* Bates, 1863 (Figs. 3C-3D), but differs by the presence of a projection on the inner apex of antennomeres V-VII of males (absent in *A. sparsus*). Melzer (1931) also compared this species with *A. phalangodes* (Erichson, 1847) and *A. curvilineatus* White, 1855 (see photographs on Bezark, 2022), but these species differ considerably from *A. jaculus*, not only by the presence of the projection on some antennomeres (absent in both), but also by the distinctly different elytral pubescent pattern and the outer elytral apex not being spiniform (distinctly spiniform in *A. phalangodes*). Finally, he also compared it with *Anisopodus canus* Bates, 1863 (currently *Hyperplatys cana*), a species with marked morphological differences (see photographs on Bezark, 2022), with which it should not have been compared.

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