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New synonymies and notes in *Criodion* Audinet-Serville (Coleoptera: Cerambycidae: Cerambycinae)

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Abstract. *Criodion angustatum* Buquet, 1852 and *C. pilosum* Lucas, 1857 (Coleoptera: Cerambycidae: Cerambycinae) are synonymized with *C. tomentosum* Audinet-Serville, 1834. The holotypes of *C. angustatum* and *C. hirsutum*, and syntypes of *C. pilosum* and of *C. tuberculatum* Gahan, 1892 are illustrated for the first time. One of the type localities of *C. tuberculatum* is corrected.

Key words. Cerambycini, longhorned woodboring beetles, Neotropical region, Sphallotrichina, taxonomy.

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Introduction

Currently, *Criodion* Audinet-Serville, 1834 includes 13 species distributed from Guatemala to southern South America (Monné 2021; Tavakilian and Chevillotte 2021). Despite the relatively small number of species, they encompass several problems with their identification. For example, the specimens often identified as *C. murinum* Nonfried, 1895 from Costa Rica (e.g. Maes et al. 2010), does not differ from specimens of *C. cinereum* (Olivier, 1795). This suggests that the specimens have been misidentified or that *C. murinum* is a junior synonym of *C. cinereum*. As at least most species of the genus are intraspecifically highly variable morphologically, this is likely the reason for misidentifications.

Herein we solve part of the problems in the species of the genus, synonymizing two species with *C. tomentosum* Audinet-Serville, 1834. Furthermore, we are correcting a mistake regarding one of the type localities of *C. tuberculatum* Gahan, 1892.

Materials and Methods

Photographs of the specimens belonging to SDPC (see below) were taken with a Canon EOS 5D Mark III DSLR camera equipped with a Canon MP-E 65mm f/2.8 1–5× macro and the EF 100mm F/2.8L Macro IS USM lens, controlled by Cognisys Stackshot; photographs were stacked using Zerene Stacker AutoMontage software and processed with Capture One 21 software. Photographs of specimens belonging to MZSP (see below) were taken with a Canon EOS Rebel T3i DSLR camera, Canon MP-E 65 mm f/2.8 1–5× macro lens, controlled by Zerene Stacker AutoMontage software.

The references on the species are restricted to the original descriptions. For complete references, see Monné (2021) and Tavakilian and Chevillotte (2021).

The acronyms used in the text are as follows:

CMNH Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, USA

DZUP Coleção de Entomologia Pe. Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná, Brazil

FSCA Florida State Collection of Arthropods, Gainesville, Florida, USA
MNHN Muséum national d'Histoire naturelle, Paris, France
MNRJ Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil
MZSP Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil
SDPC Sergio Devesa Private Collection, Pontevedra, Spain

Results

Criodion tomentosum Audinet-Serville, 1834

(Fig. 1–5, 7–26)

Criodion tomentosum Audinet-Serville 1834: 572.
Criodion angustatum Buquet 1852: 358. **New synonym**
Criodion pilosum Lucas 1859: 188. **New synonym**
Criodion hirsutum Bates 1870: 206.

Audinet-Serville (1834) described *Criodion tomentosum* (see photograph of the holotype on Bezark 2021) as follows (translated): "(Length almost two inches.) Body of a shiny blackish brown, all covered with lying, yellowish pubescence, those of the elytra longer than the others. Antennae and legs with same color of the body and with dense yellowish pubescence. Mesofemora having their posterior external angle extended into a distinct spine. Male. From Brazil." Additionally, he included the species in his first division of the genus, which has the elytral apex rounded, with only the sutural angle with a small spine.

Buquet (1852) described *Criodion angustatum* (Fig. 4) as follows (translated): "Narrow, dark, setose. Elytra parallel-sided, apex rounded. Abdomen reddish. Length, 32 mm; width, 8 mm. Body very elongated, dark brown, entirely covered with dense gray setae. Head fairly strong, with a small longitudinal carina not very prominent at the top, behind the antennae. These [antennae] also covered with gray setae, are a little shorter than the body, and punctate on base. Prothorax longer than wide, uneven and wrinkled dorsally. Scutellum large, acute apically. Elytra very long, slightly wider basally than the prothorax, rounded apically, with a short spine at sutural angle. Ventral surface of the body and legs dark brown; abdominal segments reddish. This insect is from Brazil; it was given to me by Mr. H. Jekel."

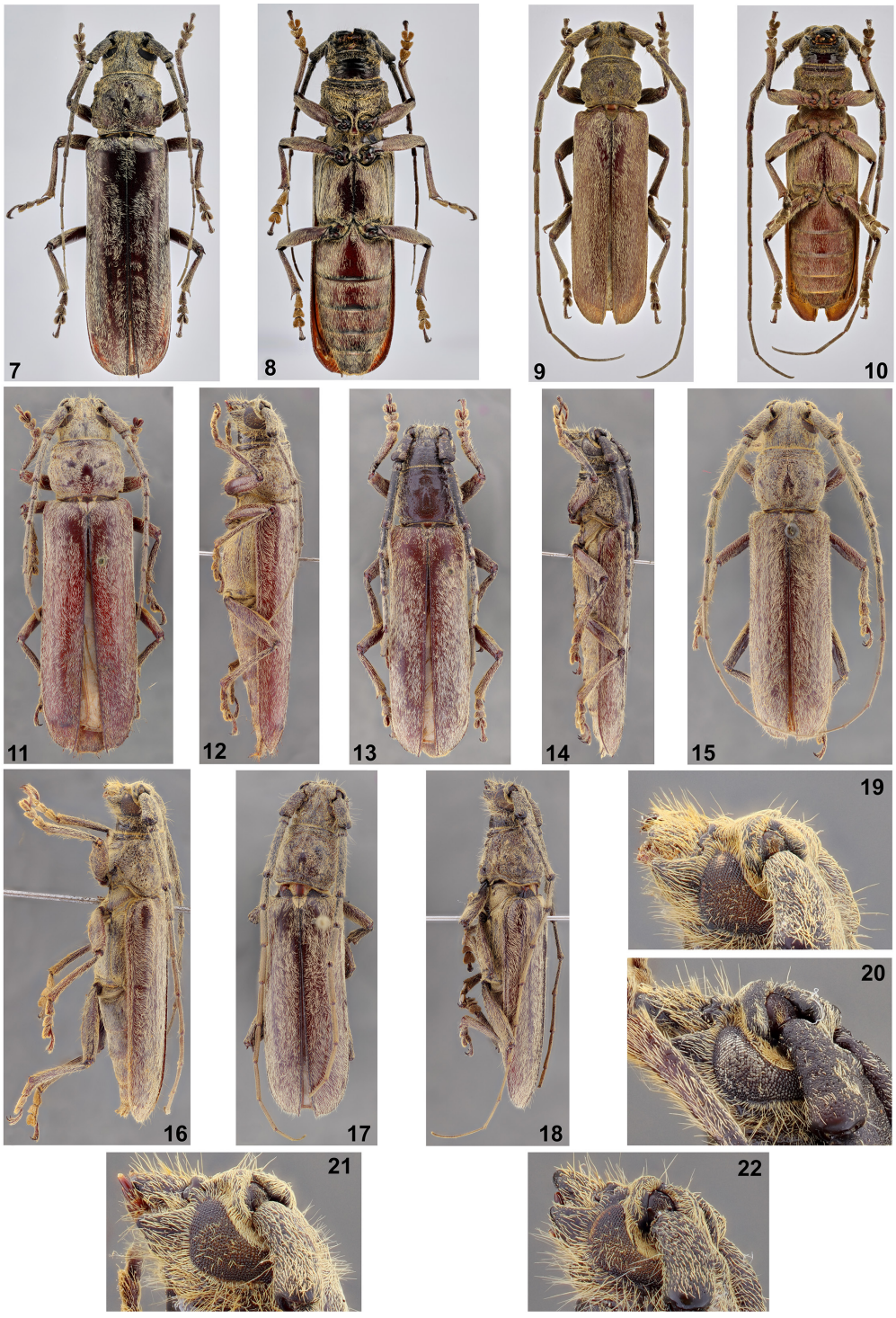
Later, Lucas (1859) described *Criodion pilosum* (Fig. 1–3) as follows (translated): "Length, 38 mm; width 10 mm (male). Length, 56 mm; width 11 to 13 mm (female). It is smaller and especially narrower than *C. tomentosum*, Dej.; reddish brown, and entirely covered with grayish-yellow pubescence. The head is quite elongated and strongly punctate. The antennae in male are slender and slightly longer than the body. The thorax, a little wider than long, is covered with roughness which forms transverse folds on sides. The scutellum is triangular and completely smooth. The elytra, wider than the thorax, with protruding shoulders, are elongate and slightly narrowed in their middle part; they are covered by fine and slightly dense; at apex, they are rounded, with the sutural spine stronger and more elongated than in *C. tomentosum*. The entire ventral surface and the legs are dark brown. The female differs from the male not only by the antennae, which are much shorter, but also by its size, which is larger and above all rougher. Brazil interior."

Finally, Bates (1870) described *Criodion hirsutum* (Fig. 5) as follows (translated): "Elongate, narrow, brown, with yellowish-grey pubescence, decumbent on thorax and elytra. Head rugose, with elongate tubercle between the eyes. Thorax square, sides slightly rounded and wrinkled-tuberculate, dorsally almost smooth with coarse punctures and three distinct smooth tubercles. Elytra abundantly punctate, rounded at the apex, with only the suture spined, clothed with sparse decumbent pubescence. Meso- and metafemora with apex unispinose, tibia distinct spined at the apex externally. Mesocoxal cavities slightly open laterally. Length 36.05 mm; elytral width 9.55 mm. From Brazil. Collected by Read."

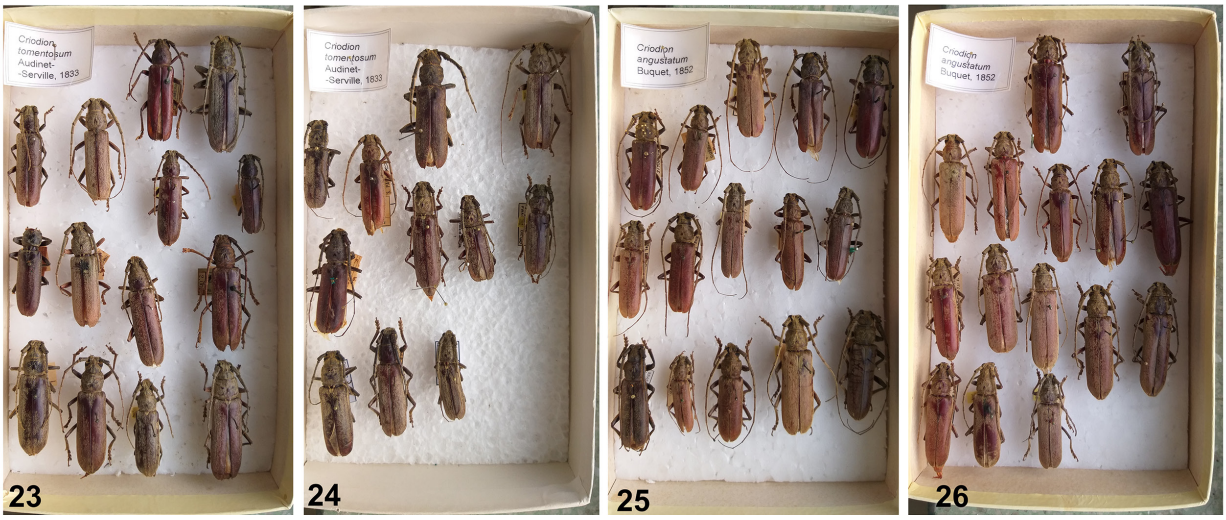
According to Martins and Monné (2005) on *Criodion tomentosum* Audinet-Serville, 1834 (translated): "Specimens identified by Melzer as *Criodion tomentosum* do not agree with the slide of the holotype taken by J. S. Moure at BMNH (former collection Chevrolat), which shows the elytral apex with distinct sutural spine. This feature, moreover, corresponds to the divisions of the genus *Criodion* proposed by Audinet-Serville (1833: 572). The first division united species with «Elytres arrondies au bout et munies d'une petite épine a leur angle

Figures 1–6. *Criodion* spp. **1–3)** *Criodion pilosum* Lucas, 1859, syntype female: **1)** Dorsal habitus. **2)** Ventral habitus. **3)** Labels. **4)** *Criodion angustatum* Buquet, 1852, holotype female, dorsal habitus. **5)** *Criodion hirsutum* Bates, 1870, holotype female, dorsal habitus. **6)** *Criodion tuberculatum* Gahan, 1892, syntype male, dorsal habitus.

sutural». This division included *Criodion tomentosum* and *Criodion corvinum* Germar, 1824, now placed in *Coleoxestia* […] The material from former Melzer collection and the specimens identified by J. F. Zikán (also in the former collection Melzer) is now at the MZSP. In the species identified by Melzer as *C. tomentosum*, the elytra are completely unarmed and the elytral pubescence has no setae interspersed. In the specimens that agree with the holotype of *C. tomentosum*, the elytra have sutural spine and the elytral pubescence has white setae interspersed,



Figures 7–22. *Criodion tomentosum* Audinet-Serville, 1834: **7–8)** Female (SDPC), from Brazil (Nova Friburgo, Rio de Janeiro): **7)** Dorsal habitus. **8)** Ventral habitus. **9–10)** Male (SDPC), from Brazil (Corupá, Santa Catarina): **9)** Dorsal habitus. **10)** Ventral habitus. **11–12)** Female (MZSP), from Brazil (Rio de Janeiro city, Rio de Janeiro): **11)** Dorsal habitus. **12)** Lateral habitus. **13–14)** Female (MZSP), from Brazil (Laranjal, São Paulo): **13)** Dorsal habitus. **14)** Lateral habitus. **15–16)** Male (MZSP), from Brazil (no further data): **15)** Dorsal habitus. **16)** Lateral habitus. **17–18)** Male (MZSP), from Brazil (Caxias, Maranhão): **17)** Dorsal habitus. **18)** Lateral habitus. **19–22)** Lower eye lobes: **19)** Male. **20)** Female. **21)** Female. **22)** Male.



Figures 23–26. *Criodion tomentosum* Audinet-Serville, 1834, from MZSP collection: **23)** Specimens identified as *C. tomentosum*. **24)** Specimens identified as *C. tomentosum*. **25)** Specimens identified as *C. angustatum*. **26)** Specimens identified as *C. angustatum*.

longer and distinct especially close to suture on posterior half. The specimens identified by Melzer and Zikán correspond to *C. angustatum*, which slide of the holotype was examined. The identification did by us seems correct and, in this case, *C. hirsutum* Bates, 1870 is a synonym. *C. hirsutum* was based on a specimen from Bahia, with the elytral pubescence quite damaged, from which we examined the slide of the holotype taken by J. S. Moure at MHNH. The holotype is a female and also has the sutural spine on the elytra, but the longer setae of the elytra are not visible because the surface is damaged […] Melzer identified specimens of *C. tomentosum* as *Criodion pilosum* Lucas, which holotype we did not examine and, therefore, we cannot decide about the status only based in the original description and figures."

In their key to species of *Criodion*, Martins and Monné (2005) separated *C. tomentosum*, *C. angustatum*, and *C. pilosum* as follows (translated):

7(6). Elytra with long setae between pubescence. Brazil (Goiás, Pernambuco to Rio Grande do Sul) ..... ***C. tomentosum* Audinet-Serville, 1833** [*sic*]

— Elytra with uniform pubescence, practically without setae interspersed **8**

8(7). Lower eye lobes with setae between ommatidia, especially on posterior area (*C. pilosum* was not examined) **9**

— Lower eye lobes without or with rare setae between ommatidia **10**

9(8). Antennae in female reaching the apical quarter of the elytra; elytral apex unarmed or with minute sutural spine. Brazil (Minas Gerais to Santa Catarina), Paraguay, Argentina (Misiones) ..... ***C. angustatum* Buquet, 1852**

— Antennae in female slightly surpassing the middle of the elytra; elytral apex with distinct sutural spine. "Brasil interior" ..... ***C. pilosum* Lucas, 1857**

The first thing that is possible to see is that the geographic distribution of the three species is overlapped. Examining several specimens identified as *C. tomentosum* (Fig. 23–24) and *C. angustatum* (Fig. 25–26) in the MZSP collection, it is possible to see that all of these features used in the key are highly variable: the quantity of erect setae on the elytra is variable in the specimens identified as *C. tomentosum*, from somewhat abundant to almost absent; although the sutural angle of the elytra is always projected, the projection is very variable, from minute to forming a distinct spine (never long); the body shape is also very variable, from somewhat slender to distinctly wider, including the proportions between prothorax and elytra. On the other hand, a considerable number of specimens identified as *C. angustatum* also have these features very variable, not rare, with distinct

erect setae on posterior area of the elytra, and with distinct projection on the sutural angle. Furthermore, all specimens of *C. tomentosum* and *C. angustatum* have distinct setae between the ommatidia (Fig. 19–22), and the width of the lower eye lobes is variable; the body shape is variable, from distinctly narrow to stout; the size of the specimens is very variable, with specimens somewhat small to distinctly large; the length of the antennae is variable in both sexes, especially in females (Fig. 1, 7, 11, 13), from slightly surpassing middle of the elytra to reaching about posterior quarter; the apex of the meso- and metafemora is variable, with a projection only on inner side or on both sides (projection from small to distinctly spiniform); and the shape of the prothorax is variable, from somewhat narrow to wide. Corroborating the observation of these variations, unrelated to geographic distribution, it is possible to see that the holotype female of *C. hirsutum*, synonymized with *C. tomentosum* by Martins and Monné (2005) has the antennae reaching about the posterior quarter of the elytra (a feature pointed out by them as present in *C. angustatum*), and the elytral sutural angle with a distinct projection (a feature pointed out by them as present in *C. tomentosum*). Therefore, even this feature cannot be used to separate the species. Also, although the holotype of *C. pilosum* has the eyes dirty, it is possible to see that the setae between the ommatidia are also present. Finally, the antennal length is too variable in specimens of *C. tomentosum* and *C. angustatum*, and therefore, cannot be used to separate them.

Based on the high variability of features currently used to separate these three species, examination of several specimens identified as *C. angustatum* and *C. tomentosum*, comparison of photographs of the holotypes, original descriptions and redescriptions, our conclusion is that *C. pilosum* and *C. angustatum* are junior synonyms of *C. tomentosum*.

The list of specimens present in the MZSP collection (*C. tomentosum* and *C. angustatum*) can be seen in Martins and Monné (2005). After this publication, a few specimens were incorporated to the collection. Two specimens are present in SDPC collection, both from Brazil: Rio de Janeiro, Nova Friburgo, 1 female (44.2 mm), XII.2016, local collector (Fig. 7–8); and Santa Catarina, Corupá, 1 male (40.1 mm), V.1975, local collector (Fig. 9–10).

The syntype female of *Criodion pilosum* has a label (Fig. 3) indicating that the specimen is a lectotype. However, a lectotype of the species was never designated.

Criodion tuberculatum Gahan, 1892

(Fig. 6)

Criodion tuberculatum Gahan 1892: 25.

Although the pronotal sculpturing and shape of the elytral apex with two spines in *C. tuberculatum* allow easily recognizing the species, we are taking the opportunity to illustrate a syntype for the first time. Martins and Monné (2005) commented that males of *C. tuberculatum* were similar to those of *C. rhinoceros* Bates, 1870, but cannot be confused due to the mandibles without a distinct dorsal projection, which is present in *C. rhinoceros*, especially in large males.

Gahan (1892) reported: "*Hab*. Peru, Sarayacu; and (?) Cayenne." According to Martins and Monné (2005) (translated): "The original localities, "Peru, Sarayacu; and (?) Cayenne" (Gahan, 1892: 26), encloses a misunderstanding because Sarayacu is located in Ecuador, and the hitherto dubious occurrence in Cayenne was recently confirmed (Tavakilian *in* Hequet, 1996)." However, this information about Sarayacu is wrong. Sarayacu is placed in the region of Loreto, province of Ucayali in Peru. It is true that there is a place in Ecuador named Sarayacu in the province of Pastaza. But there is no reason to suppose that the information on the original description was a mistake. Therefore, one of the type localities is restored to Peru.

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Literature Cited

Audinet-Serville JG. 1834. Nouvelle classification de la famille des longicornes (suite). Annales de la Société Entomologique de France 2(4): 528–573.

Bates HW. 1870. Contributions to an insect fauna of the Amazon Valley (Coleoptera: Cerambycidae). The Transactions of the Entomological Society of London 1870: 243–335.

Bezark LG. 2021. A photographic Catalog of the Cerambycidae of the World. New World Cerambycidae Catalog. Available at http://bezbycids.com/byciddb/wdefault.asp?w=n/ (Last accessed 15 September 2021.)

Buquet JBL. 1852. Notice monographique sur le genre *Trachysomus*, de la tribu des lamiaires, suivie de la description de cinq espèces nouvelles de Criodions. Annales de la Société Entomologique de France (2)10: 349–358.

Gahan CJ. 1892. Notes on longicorn Coleoptera of the group Cerambycinae, with descriptions of new genera and species. The Annals and Magazine of Natural History (6)9: 19–32.

Lucas PH. 1859. Entomologie. In: Laporte F. Animaux nouveaux ou rares recueillis pendant l'expédition dans les parties centrales de l'Amérique du Sud, de Rio de Janeiro a Lima, et de Lima au Pará, exécutée par ordre du Gouvernement Français pendant les années 1843 a 1847, sous la direction du Comte F. de Castelnau. Bertrand; Paris. 204 p. + 16 plates.

Maes J-M, Berghe E, Dauber D, Audureau A, Nearns E, Skillman F, Heffern D, Monné MA. 2010. Catalogo ilustrado de los Cerambycidae (Coleoptera) de Nicaragua. Parte II - Cerambycinae. Revista Nicaraguense de Entomologia 70(Suplemento 1–2): 1–640.

Martins UR, Monné MA. 2005. Tribo Cerambycini, Subtribo Sphallotrichina. p. 1–218. In: Martins, U.R (org.). Cerambycidae Sul-Americanos (Coleoptera). Volume 5. Editora da Universidade de São Paulo; Sao Paulo. v + 284 p.

Monné MA. 2021. Catalogue of the Cerambycidae (Coleoptera) of the Neotropical region. Part I. Subfamily Cerambycinae. Available from: https://cerambycids.com/catalog/ (Last accessed 15 September 2021.)

Tavakilian GL. 1996. 19 plates, legends, and index. In: Hequet V. Longicornes de Guyane. ORSTOM; Cayenne. 36 p.

Tavakilian GL, Chevillotte H. 2021. Titan: base de données internationales sur les Cerambycidae ou Longicornes. Available at http://titan.gbif.fr/ (Last accessed 15 September 2021.)

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