Iheringia
Série Zoologia

e-ISSN 1678-4766
www.scielo.br/isz

Museu de Ciências Naturais

Article

A new synonymy in *Neoptychodes* (Coleoptera, Cerambycidae, Lamiinae) and notes on *Neoptychodes cosmeticus* with a revised key to species of the genus

Antonio Santos-Silva[1] & Juan Pablo Botero[2]

1. Museu de Zoologia, Universidade de São Paulo, São Paulo, SP, Brazil. (toncriss@uol.com.br)
2. Grupo de Sistemática Molecular, Laboratorio de Entomología, Pontificia Universidad Javeriana, Bogotá, Colombia. (jp_bot@yahoo.com)

Received 20 March 2023
Accepted 10 July 2023
Published 23 October 2023
DOI 10.1590/1678-4766e2023014

ABSTRACT. *Neoptychodes hondurae trivittatus* (Taschenberg, 1870) is synonymized with *N. hondurae* (White, 1858). The holotype of the former is illustrated for the first time. The identity of the holotype of *N. cosmeticus* Martins & Galileo, 1996 is commented. All species of *Neoptychodes* Dillon & Dillon, 1941 are illustrated and a key to species of the genus is provided.

KEYWORDS. Longhorn beetles, Neotropical Region, taxonomy.

Neoptychodes was proposed by Dillon & Dillon (1941) for four species previously allocated in *Ptychodes*: *Neoptychodes candidus* (Bates, 1885); *N. cretatus* (Bates, 1872); *N. hondurae* (White, 1858); *N. trilineatus* (Linnaeus, 1771). In the same work, the authors designated *Cerambyx trilineatus* as type species. Later, Martins & Galileo (1996) described *N. cosmeticus* from Colombia and Ecuador. *Neoptychodes trivittatus* (Taschenberg, 1870) is considered a subspecies of *N. hondurae* since Breuning (1943). Currently, the genus is composed of five species, and it is widely distributed in Neotropical Region, from south of United States of America to north of South America (Colombia, Venezuela, Ecuador, Peru), and Caribbean (Tavakilian & Chevillotte, 2022; Monné, 2023).

In this work, a key to the species of *Neoptychodes* and a synonymy are proposed and the identity of the holotype of *N. cosmeticus* is discussed. Additionally, all the species currently know in the genus are illustrated.

MATERIAL AND METHODS

Except when indicated, photographs were taken at MZSP (see below) 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 an ocular Hensoldt/Wetzlar - Mess 10 in the Leica MZ6 stereomicroscope, which was also used in the study of the specimens.

The references on the known species are restricted to the original description and the catalog by Monné (2023).

The collection acronyms used in the text are as follows: CMNC – Canadian Museum of Nature, Ottawa, Canada; MLUH – Martin-Luther-Universität, Wissenschaftsnbereich Zoologie, Halle a. S., Germany; 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.

RESULTS

Neoptychodes hondurae (White, 1858)

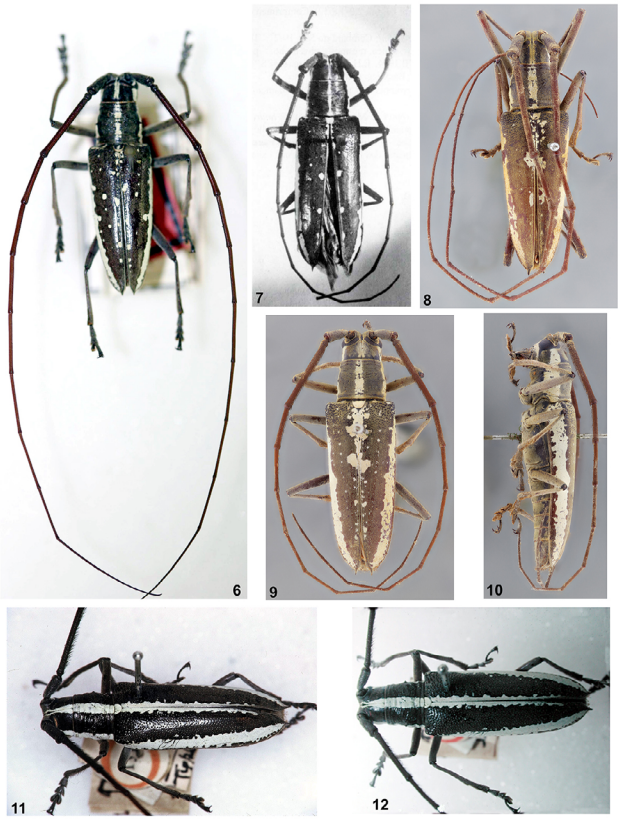
(Figs 1–5, 8–12)

Ptychodes hondurae White, 1858:412.
Neoptychodes hondurae hondurae (White, 1858); Monné, 2023:791 (cat.).
Taeniotes trivittatus Taschenberg, 1870:194. ***Syn. nov.***
Neoptychodes hondurae trivittatus (Taschenberg, 1870); Monné, 2023:791 (cat.).

Remarks. White (1858) described *Ptychodes hondurae* (Figs 11, 12) based on a single specimen from Honduras. Later, Taschenberg (1870) described *Taeniotes trivittatus* (Figs 1–4) based on a single male from Ecuador. Bates (1880) synonymized *T. trivittatus* with *P. hondurae*, and reported the species from Mexico (Oaxaca), Honduras, Panama, Colombia, and Ecuador; Bates (1885) added Guatemala as a country where the species occurs.

Figs 1–5. *Neoptychodes hondurae* (White, 1858). Holotype male of *Taeniotes trivittatus* Taschenberg, 1870, by Karla Schneider: 1, dorsal habitus; 2, dorsal habitus showing the entire antennae; 3, lateral habitus; 4, label; 5, *Neoptychodes hondurae* (White, 1858), elytron, by DILLON & DILLON (1941).

DILLON & DILLON (1941) described *Neoptychodes* and included *N. hondurae*; in this work, *Taeniotes trivittatus* was kept in the synonymy of *N. hondurae*. A few years later, BREUNING (1943), evidently not knowing the work by DILLON & DILLON (1941), transferred White's species from *Ptychodes* Audinet-Serville, 1835 to *Taeniotes* Audinet-Serville, 1835, and considered *T. trivittatus* as a subspecies of *T. hondurae*. According to him on *T. hondurae trivittatus* (translated): "The light longitudinal median band on the vertex and pronotum wider; the sutural band of the elytra wider, but dissolved in a quantity of isolated spots; the lateral pubescent band less regular, widened in places; the anterior border of the forehead and the genae as well as a macula on the sides of the prosternum also covered with light pubescence". Examining photographs of the holotype of *T. trivittatus* (Figs 1–4), it is possible to see that some information by BREUNING (1943) is not true: the longitudinal pubescent band on the vertex and on the pronotum are distinctly narrower than in the holotype of *P. hondurae* (Figs 11, 12). However, this is a variable feature in *Neoptychodes hondurae*; therefore, cannot be used as a differential feature. In the same way, the lateral pubescent band on the elytra is very similar in the holotypes of both species. However, this is another variable characteristic in *N. hondurae*, and also cannot be used to separate the two forms of the species. It is true that the sutural pubescent band on the elytra is somewhat wider and is not complete in the holotype of *T. trivittatus*. However, it is just a variation and not due to loss of part of the pubescence, as suggested by TASCHENBERG (1870) (translated): "… and those at the suture are completely interrupted in places, but decided only by rubbing, as the irregularity proves". The width and length of the elytral pubescent band along elytral suture is very variable in *N. trilineatus* (Linnaeus, 1771) (Figs 18–23). Therefore, there is no reason to suppose that it is not also variable in *N. hondurae*. In fact, specimens with the sutural pubescent band of the elytra as in the holotype of *T. trivittatus* are much more common than those with this pubescence as in the holotype of *P. hondurae*.

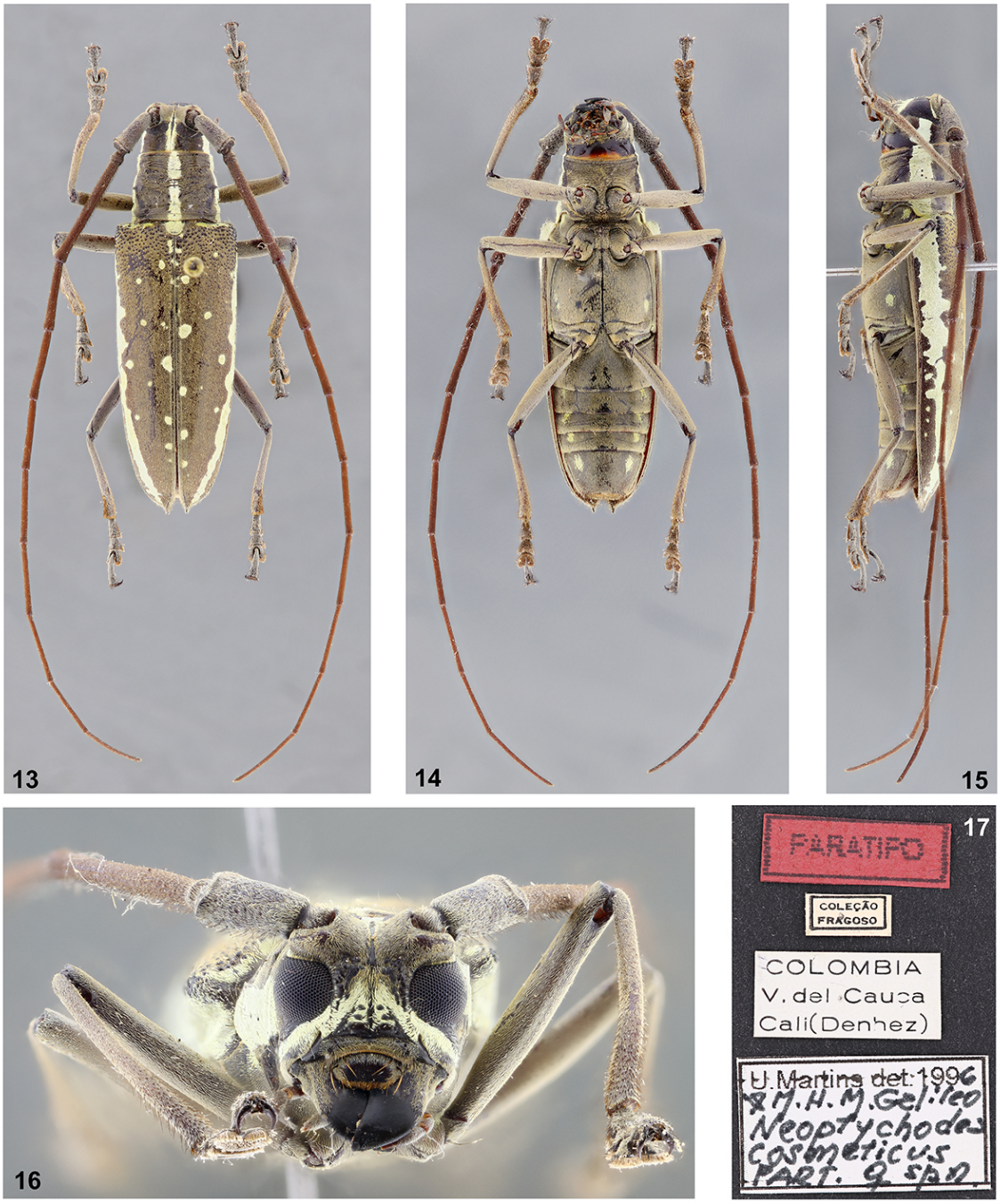


Figs 6–12. *Neoptychodes* spp. *Neoptychodes cosmeticus* Martins & Galileo, 1996: 6, paratype male from Colombia (Valle del Cauca), which was deposited at the MNRJ as being the holotype, by Steven W. Lingafelter; 7, paratype female from Ecuador belonging to the CMNC, illustrated by MARTINS & GALILEO (1996) as the holotype. 8–12, *Neoptychodes hondurae* (White, 1858): 8, male from Honduras, dorsal habitus; 9, female from Panama, dorsal habitus; 10, female from Panama, lateral habitus; 11, holotype of *P. hondurae*, by Jesus Santiago Moure; 12, holotype of *P. hondurae*, by John Chemsak.

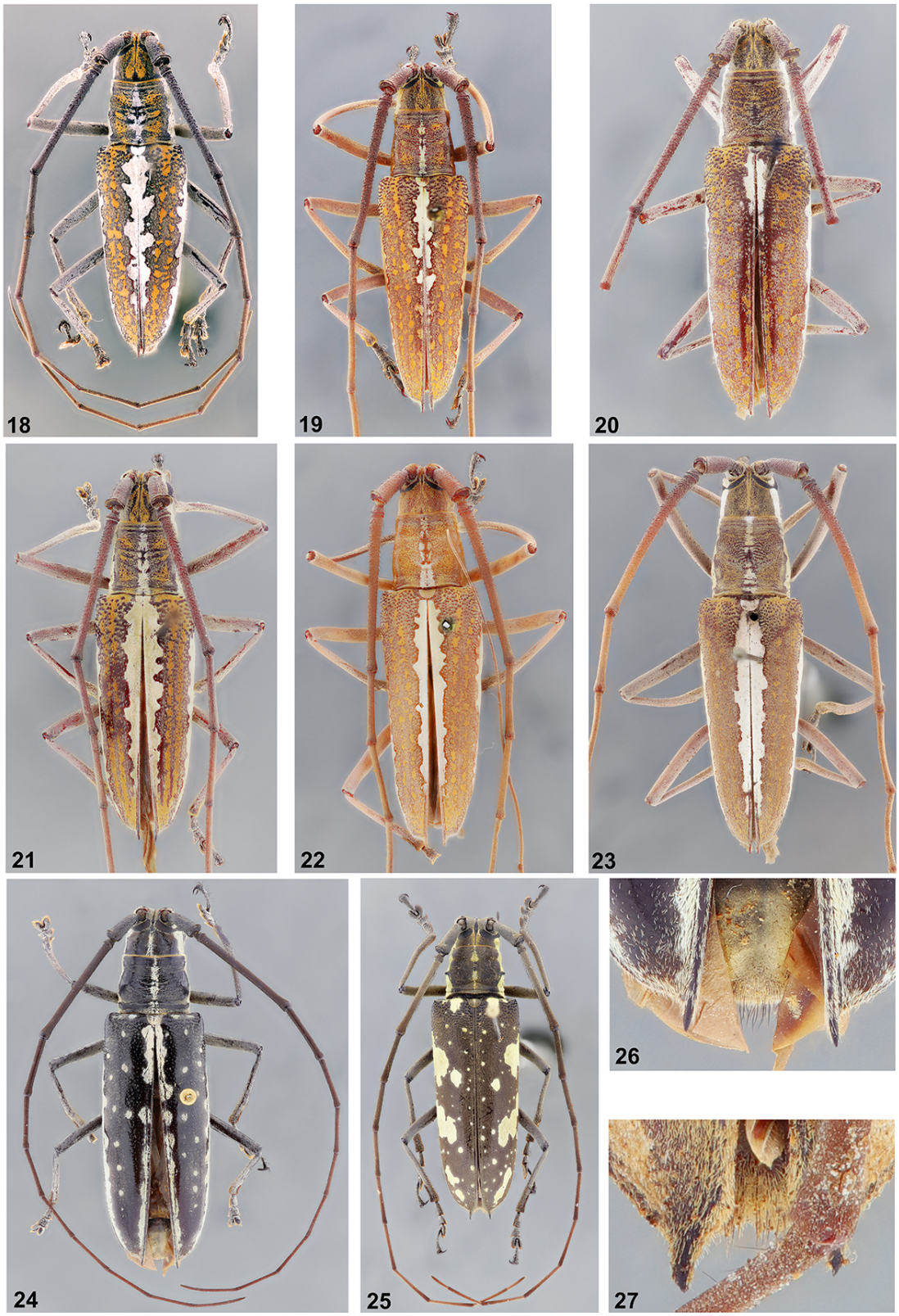
Breuning (1961) listed Taschenberg's species as *Neoptychodes hondurae* ssp. *trivittatus*, status maintained until today in catalogs and checklists (Tavakilian & Chevillotte, 2022; Bezark, 2023; Monné, 2023).

Comparing photographs of the holotypes of *P. hondurae* and *P. trivittatus*, we were not able to find a reliable difference. Furthermore, we examined a specimen from Honduras (Fig. 8), agreeing with the holotype of *P. trivittatus*, what reinforce that it is just a variation of the species. We have seen photographs of some specimens of *N. candidus* (Bates, 1885) identified as *N. hondurae.* This makes the identification of these species very problematic and suggests that the geographical distribution of the two, indicated in the catalogs and checklists, is doubtful.

Dillon & Dillon (1941) provided a key to species of *Neoptychodes*:



Figs 13–17. *Neoptychodes cosmeticus* Martins & Galileo, 1996, holotype female: 13, dorsal habitus; 14, ventral habitus; 15, lateral habitus; 16, head, frontal view; 17, labels.



Figs 18–27. *Neoptychodes* spp., dorsal habitus. 18–23, *N. trillineatus* (Linnaeus, 1771): 18, male from Colombia (La Guarida); 19, male from Mexico (Chiapas, Motozintla); 20, male from Mexico (Durango); 21, male from Panama (Barro Colorado); 22, male, specimen 2, from Mexico (Chiapas, Motozintla); 23, male from Mexico (Veracruz, San Andrés Tuxtla). 24, *N. candidus* (Bates, 1885), female from Colombia (El Diviso). 25, *N. cretatus* (Bates, 1872), female from Costa Rica (Limón, Guácimo). 26, 27, elytral apex: 26, *N. candidus*, female; 27, *N. hondurae*, male.

"1. Elytra with small, distinct, rounded, orange spots, as well as white vittae ..... *trilineatus*

– Elytra without distinct orange markings 2

2. Elytra without sutural vitta..... *cretatus*

– Elytra with a sutural vitta 3

3. Sutural vitta broken ..... *hondurae*

– Sutural vitta entire, attaining apex ..... *candidus*"

In the redescription of *N. hondurae*, DILLON & DILLON (1941) reported: "elytra with a sutural vitta to middle, widened at both ends, remainder of suture with small, irregular dots to apex." The figure provided by them (Fig. 5) reflects this description exactly. However, both the figure and the description do not agree with the holotype of *T. hondurae* and agree very well with the holotype of *T. trivittatus*. Thus, the less frequent form of the species, that of the holotype of *P. hondurae*, could not be recognized by the key or the redescription. Furthermore, it may easy conduct to misidentification of some specimens of *N. hondurae* as *N. candidus* (Bates, 1885). This is especially because, probably, the sutural pubescent band on the elytra may be somewhat variable in *N candidus* too.

Therefore, we believe that the key needs to be adjusted to separate these two species, and also include *N. cosmeticus* Martins & Galileo, 1996:

Key to the species of *Neoptychodes*

1. Elytra with small, distinct, rounded, orange spots, as well as whitish sutural pubescent band (Figs 18–23). United States of America (Arizona), Mexico (Baja California, Colima, Tamaulipas, Nayarit, Guerrero, Puebla, San Luís Potosí, Mexico, Morelos, Yucatán, Sonora, Oaxaca, Durango), Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Caribbean .... *N. trilineatus* (Linnaeus, 1771)

– Elytra without distinct orange markings 2

2(1). Elytra without sutural pubescent band 3

– Elytra with sutural pubescent band 4

3(2). Sides of the elytra with longitudinal pubescent band from base to apex, not or slightly reaching dorsal surface on anterior half (Figs 6, 7, 13–17). Panama, Colombia, Ecuador ..... *N. cosmeticus* Martins & Galileo, 1996

– Sides of the elytra with large pubescent maculae, sometimes partially fused, at least some of them distinctly reaching dorsal surface on anterior half (Fig. 25). Nicaragua, Costa Rica, Panama ..... *N. cretatus* (Bates, 1872)

4(2). Sutural pubescent band of the elytra not attaining apex, entire or fragmented; spine on the elytral apex not located on sutural angle (Fig. 27), often inclined sideward (Figs 1–5, 8–12). Mexico (Oaxaca), Guatemala, Honduras, Costa Rica, Panama, Colombia, Ecuador .... *N. hondurae* (White, 1858)

– Sutural pubescent band of the elytra usually reaching apex; spine on the elytral apex (Fig. 26) located on sutural angle, straight (Fig. 24). Costa Rica, Panama, Colombia, Peru ..... *N. candidus* (Bates, 1885)

***Neoptychodes cosmeticus* Martins & Galileo, 1996**

(Figs 6, 7, 13–17)

Neoptychodes cosmeticus MARTINS & GALILEO, 1996:293.

Remarks. According to MARTINS & GALILEO (1996): "Holótipo fêmea [Holotype female], COLÔMBIA, *Valle del Cauca*: Cali, VIII.1969, L. Denhez *leg.* (MNRJ). Parátipos [Paratypes]: macho [male], mesmos dados do holótipo [same data as holotype], 1970 (MZSP). Fêmea [Female], EQUADOR [ECUADOR], *Pichincha*: Santo Domingo (Tinalandia 16km S, 680m), 15-28.VI.1975, S. & J. Peck *leg.* (CMNC)."

The specimen photographed by Steven W. Lingafelter (Fig. 6) at MNRJ and labeled as holotype, which was destroyed by fire, is a male, and not a female and does not agree with the photograph of the holotype in the original description (Fig. 7). The paratype "male" photographed by Steven W. Lingafelter (Figs 13–17) at MZSP is a female, and has the correct label of the holotype locality as indicated in the original description (Fig. 17) ("COLÔMBIA, *Valle del Cauca*: Cali"). Without a doubt, the paratype male (destroyed in fire) that belonged to the MZSP was wrongly sent to the MNRJ and, probably, had a holotype label; the holotype female that belonged to the MNRJ remained at MZSP and has a paratype label. To complicate matters, the photograph in the original description (Fig. 7), indicated as being of the holotype, is actually of the female paratype deposited in the CMNC. There is no doubt about this because the female holotype, as per the original description, was the only specimen of that sex in the type series from Colombia, and this specimen is in the MZSP and does not agree with the photograph in the original description.

According to MARTINS & GALILEO (1996): "Dimensões holótipo fêmea [Dimensions of the holotype female – in mm]. Comprimento total [Total length] 25,2. Protórax [Prothorax]: comprimento [length] 4,1; maior largura [largest width] 5,0. Comprimento elitral [Elytral length] 18,2; largura umeral [humeral width] 7,0." However, the true dimensions are: Total length, 27.2 mm; prothoracic length, 4.6 mm; largest width of the prothorax, 5.8 mm; humeral width, 8.0; and elytral length, 19.5 mm.

Acknowledgments. We express our sincere thanks to Karla Schneider (MLUH) for sending the photos of the holotype of *Taeniotes trivittatus*. Thanks also to Robert Perger (Bolivia) for intermediating the sending of the photographs of *Taeniotes trivittatus*, and Taxonline Project (*Projeto Taxonline—Rede Paranaense de Coleções Biológicas*) for sending some slides used in this work, which belong to the *Coleção de Imagens de material-tipo J. S. Moure* (CITIMOURE) of the entomological collection Pe. J. S. Moure (DZUP).

REFERENCES

BATES, H. W. 1880. Longicornia, pp. 17–152. *In*: GODMAN, F. D. & SALVIN, O. eds. **Biologia Centrali-Americana, Insecta, Coleoptera.** Vol. 5. London, Taylor and Francis, xii + 525p. [1879–1885].

BATES, H. W. 1885. Supplement to Longicornia, pp. 249–436. *In*: GODMAN, F. D. & SALVIN, O. eds. **Biologia Centrali-Americana, Insecta, Coleoptera**. Vol. 5. London, Taylor and Francis, xii + 525 pp [1880-1885].

BEZARK, L. G. 2023. **Checklist of the Oxypeltidae, Vesperidae, Disteniidae and Cerambycidae, (Coleoptera) of the Western Hemisphere.** 2022 Edition (updated through 31 December 2021). Available at <http://bezbycids.com/byciddb/wdefault.asp?w=n/>. Accessed 9 July 2023.

BREUNING, S. 1943. Études sur les Lamiaires (Col., Cerambycidae). Douzième tribu: Agniini. **Novitates Entomologiques** (89–106):137–280.

BREUNING, S. 1961. *Catalogue des Lamiaires du Monde* (Col., Cerambycidae). **Museum G. Frey, Tutzing bei München 5**:287–382.

DILLON, L. S. & DILLON, E. S. 1941. The tribe Monochamini in the Western Hemisphere (Coleoptera: Cerambycidae). **Scientific Publications of the Reading Public Museum 1**:1–135.

MARTINS, U. R. & GALILEO, M. H. M. 1996. Descrições e notas sobre Cerambycidae (Coleoptera) sul-americanos. **Revista Brasileira de Zoologia 13**(2):291–311.

MONNÉ, M. A. 2023. **Catalogue of the Cerambycidae (Coleoptera) of the Neotropical region. Part II. Subfamily Lamiinae.** Available at <https://cerambycids.com/catalog/>. Accessed 13 February 2023.

TASCHENBERG, E. L. 1870. Neue Käfer aus Colombien und Ecuador. **Zeitschrift für Gesammten Naturwissenschaften 36**(1):177–199.

TAVAKILIAN, G. L. & CHEVILLOTTE, H. 2022. **Titan: base de données internationales sur les Cerambycidae ou Longicornes.** Available at <http://titan.gbif.fr/. Accessed 13 February 2023.)

WHITE, A. 1858. Descriptions of *Monohammus Bowringii*, *Batocera Una* and other longicorn Coleoptera, apparently as yet unrecorded. **Proceedings of the Zoological Society of London 26**:398–413.