Taxonomic revision of the South American genus *Polynoncus* Burmeister, 1876 (Coleoptera: Scarabaeoidea: Trogidae)

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Abstract

The South American genus *Polynoncus* Burmeister encompasses 38 valid species that are considered to be endemic to South America. In this work, we provide a comprehensive revision to this genus. *Polynoncus seymourensis* (Mutchler, 1925) with only insular occurrence (Galapagos Islands) is now recorded for the continent. We describe *Polynoncus pseudogemmifer* **sp. n.** from Argentina to accommodate a species previously considered as "*P. gemmifer*". *Polynoncus furcillifer* Pittino 1987 and *P. argentinus* (Harold, 1872) are both reinstated as valid species, and *P. haafi* (Vaurie

1962) is synonymised with *P. gemmifer* (Blanchard, 1847). Lectotypes were designated for the following names: *Trox hemisphaericus* Burmeister, 1876, *T. pampeanus* Burmeister, 1876, *T. gemmiferus* Blanchard, 1847, *T. gemmifer* Blanchard, 1847, *T. leprosus* Blanchard, 1847, *T. argentinus* Harold, 1872, *T. gemmingeri* Harold, 1872, *T. pedestris* Harold, 1872 and *T. globulatus* Fairmaire, 1884. We provide high-quality images of the type specimens and their labels, a differential diagnosis, synonyms, chresonomy and known geographical distributions. A key for the accurate identification of species of *Polynoncus* is given.

Keywords: Omorginae, identification key, Neotropical Region, taxonomy, South America, keratin feeding

Running title: Revision of the genus *Polynoncus*

Introduction

The coleopteran genus *Polynoncus* Burmeister, 1876 is one of four extant genera in the family Trogidae MacLeay, 1819 (Scholtz 1986a; Nikolajev 2016; see also Strümpher *et al*. 2016) and encompasses 36 species (Scholtz 1986a, 1990; Strümpher *et al*. 2014; Costa-Silva & Diéguez 2020). Like all trogids, *Polynoncus* species are primarily keratinophagous (*i.e*., skin, tendon, and cartilage feeders), consuming animal remains and are often reported in forensic studies as the last coleopteran fauna found in the carcass (Smith 1986; Almeida & Mise 2009; Byrd & Castner 2010; Costa-Silva *et al*. 2017).

The genus is endemic to the South American continent (Vaurie 1962; Scholtz 1990; Strümpher *et al*. 2014, 2016). The majority of species are restricted to the southern one-third of the continent, with no fewer than 25 species recorded from the Patagonian sub-region (Gómez 2008; Costa-Silva & Diéguez 2020). These species occupy areas primarily situated in cooler southern climates and high Andean regions, with five species occurring in the tropics and islands (Vaurie 1962; Scholtz 1990).

The genus *Polynoncus* is related to the worldwide genus *Omorgus* Erichson, 1847. The phylogenetic studies conducted by Scholtz (1986a) and Strümpher *et al*. (2014) hypothesized that both *Polynoncus* and *Omorgus* shared a common ancestor at

117 million years ago, after the separation between South America and Africa in the Lower Cretaceous (Scholtz 1986a; also see Strümpher *et al*. 2014). *Polynoncus* can be diagnosed by the following characters: antennae with the pedicel attachment at the apex of the scape and sixth antennomere with a single seta ventrally (Fig. 1A); clypeus deflexed, forming a right angle with the front; scutellum elongate (Fig. 1D) or shield-shaped (Fig. 1F – for those species with reduced or absent wings), but never constricted at base (as in Fig. 1E); aedeagus with a dorsal piece of median lobe usually asymmetrical.

Taxonomic history

Polynoncus was described by Hermann Burmeister (1876: 264; Fig. 2) originally as a subgenus of *Trox* Fabricius, 1775 to allocate six species of Trogidae from Argentina. After reviewing c. 60 species of trogids from different continents and housed in his private collection (currently at the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" – Horn *et al*. 1990a-b), Burmeister (1876) proposed the first classification of trogid species based on morphological similarity, splitting them into five subgenera, and providing a synoptic and annotated key.

Burmeister (1876) assigned all South American species with peculiar hemispheric elytra (flightless species) and ciliate metatibiae under the subgenus *Polynoncus*: *Trox patagonicus* Blanchard, 1847, *T. argentinus* Harold, 1872, *T. pedestris* Harold, 1872, *T. tenebrosus* Harold, 1872, and the two species described by him, *T. hemisphaericus* and *T. pampeanus*.

The remaining South American species (*i.e.*, those with subparallel elytral margins – winged species) were separated according to the shape of the scutellum: "*clearly hastate*" (as in Fig. 1E) for *Lagopelus* Burmeister, 1876 and *Omorgus* (both currently synonymized) and "*not hastate*" (as in Figs. 1A and 1F) for the *Trox* species (strict sense) (Burmeister 1876). The South American representatives of the latter group, as cited by Burmeister (1876), included *Trox aeger* Guérin-Meneville, 1830, *T. gemmifer* Blanchard, 1847, *T. pilularius* Germar, 1823, *T. brevicollis* Eschscholtz, 1822 and *T. peruanus* Erichson, 1847; all these species allocated to *Polynoncus* by Scholtz (1986a). Burmeister's (1876) classification was later followed and translated from German to French by Preudhomme de Borre (1886), but no new morphological information was added for the South American groups.

The first comprehensive taxonomic revision of South American species of Trogidae was conducted by Vaurie (1962), who provided an innovative and refined synopsis for each species group and an identification key for all South American *Trox*, rearranging Burmeister's (1876) proposals made 86 years earlier. According to Vaurie (1962), species with apical portion of clypeus bent downwards abruptly and "*male genitalia complex, median lobe usually very narrow and tongue-like*" (Vaurie 1962: 115) are classified into two subgroups of species: *brevicollis*, for those species with large eyes and well-development hind wings (including eight new species described by the author), and *bullatus*, for species with reduced or vestigial hind wings and small eyes.

The morphological study by Vaurie (1962), with its detailed species descriptions and illustrations, was a milestone in the study of the South American trogids, serving as the basis for future systematic studies about Trogidae species (*e.g.*, Scholtz 1986a; Pittino 1987; Scholtz 1990; Gómez 2008; Strümpher *et al*. 2014, 2016; Huchet & Costa-Silva 2018; Costa-Silva & Diéguez 2020).

The classification of species groups by Vaurie (1962) was followed until the mid-1980s, when Scholtz (1986a) proposed the first revised classification for the family based on cladistic framework, inferring the systematic relationships of these taxa. As a result of Scholtz's (1986a) study, *Polynoncus* was elevated to the genus level, supported by the same characteristics (interpreted as synapomorphies) previously cited by Vaurie (1962) as diagnostic for *brevicollis* and *bullatus* species groups. One year later, following the Scholtz's (1986a) proposal of classification, Pittino (1987) describes six species and one subspecies of *Polynoncus*, based on the detailed study of male genitalia for the separation of species extremely similar considering the external morphology.

The second, and last, major taxonomic revision of South American Trogidae was carried out by Scholtz (1990). In this study, Scholtz, following his own generic and subgeneric classification proposed in 1986a, provided a concise redescription, an update of the geographical distribution, an identification key and an illustration of dorsal habitus and male genitalia for all South American species of Trogidae. In addition to the description of two new species (*Polynoncus erugatus* and *P. gibberosus*), Scholtz (1990) proposed four new synonyms: *P. furcifer* Pittino 1987 = *P. bifurcatus* (Vaurie 1962); *P. parafurcatus occidentalis* Pittino 1987 and *P. furcillifer* Pittino 1987 = *P. parafurcatus* Pittino 1987; and *Polynoncus argentinus* (Harold, 1872) = *Polynoncus gemmifer* (Blanchard, 1847).

Since the last taxonomic revision of the family conducted by Scholtz (1990), three decades have passed and little attention has been given to the genus since then. A large number of specimens have been collected across the Neotropical region and subsequently deposited in collections, but no other authors have reviewed *Polynoncus* since then. With exception of single descriptions of species (*i.e.*, Huchet & Costa-Silva 2018; Diéguez 2019; Costa-Silva & Diéguez 2020), no observations have been published on any of the species in the group. The identification key provided by Scholtz (1990), even though helpful, is outdated and some species could not be correctly identified without dissection of male specimens.

The bibliography of *Polynoncus* also needs attention, mainly regarding the year of publication referred to some species. With the exception of Smith (2017), no attention was given to this subject and some species of *Polynoncus* have been are historically misquoted. Based on specialized literature (*i.e.*, Sherborn & Woodward 1901; Sherborn & Griffin 1934; Evenhuis 1997; Bousquet 2016) we also noticed that the species of *Polynoncus* described by E. Blanchard (*i.e.*, *Polynoncus gemmifer*; *P. gemmiferus*; *P. patagonicus*, *Trox leprosus*, *T. denticulatus* [=*Polynoncus pedestris*]), F. Guérin-Meneville (*Polynoncus aeger*) and E. Germar (*Polynoncus pilularius*) were erroneously cited in the literature since their respective year of description (see results section of each species), not follow the rules defined by ICZN (1999) even after his implementation in 1931.

In this work, we update the knowledge of the genus based on a taxonomic revision, presenting an updated identification key based on new and additional morphological features, followed by a differential diagnosis and map of geographical distribution for each species based on additional examined material. Images of all type specimens and their respective labels are presented for the first time. Corrections of dates of original descriptions and type localities are presented following the Recommendation 21F and 76A.2, respectively (ICZN, 1999). Lectotypes of *Trox hemisphaericus* Burmeister, 1876, *T. pampeanus* Burmeister, 1876, *T. gemmiferus* Blanchard, 1847, *T. gemmifer* Blanchard, 1847, *T. leprosus* Blanchard, 1847, *T. argentinus* Harold, 1872, *T. gemmingeri* Harold, 1872, *T. pedestris* Harold, 1872 and *T. globulatus* Fairmaire, 1884 are designated following Article 74.1 of the ICZN (1999).

The process of recognizing *Polynoncus* species is highly important for the study and mapping of biodiversity. We hope that this study provides the ability to identify

species of *Polynoncus* for the future taxonomic, biodiversity and conservation studies in South America and instigate new studies about Trogidae fauna.

Materials and Methods

During this study a total of 5,205 specimens were examined including all type-specimens for each available name. The material studied is deposited in the following organizations (with curator's name in parenthesis):

AMNH American Museum of Natural History, New York, NY, USA (Lee Herman).

BMNH The Natural History Museum, London, United Kingdom (Maxwell Barclay).

CASC California Academy of Sciences, San Francisco, CA, USA (Christopher C. Grinter).

CEMT Coleção Entomológica de Mato Grosso Eurides Furtado (former Seção de Entomologia, Coleção Zoológica da Universidade Federal de Mato Grosso), Cuiabá, Mato Grosso, Brazil (Fernando Z. Vaz-de-Mello).

CERPE Coleção Entomológica da Universidade Federal Rural de Pernambuco, Recife, Pernambuco, Brazil (Paschoal Grossi).

CJBH Collection of Jean-Bernard Huchet [Private Collection], Bordeaux, France (Jean-Bernard Huchet).

CJEB Collection of Juan Enrique Barriga [Private Collection], Los Niches, Coricó, Chile (Juan Enrique Barriga).

CJME Collection of José Mondaca Escudero [Private Collection], Quilpúe, Valparaíso, Chile (José Mondaca).

CMNC Canadian Museum of Nature, Ottawa, Canada (Robert Anderson and Andrew Smith).

CMNH Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, USA (Robert Androw).

CVMD Collection of Víctor Manuel Diéguez [Private Collection], Peñalolén, Santiago, Chile (Víctor Manuel Diéguez).

DZUP Museu de Entomologia “Pe. Jesus Santiago Moure”, Universidade Federal do Paraná, Curitiba, Paraná, Brazil (Cibele Stramare Ribeiro-Costa).

EMAC Collection of Eder Mora Aguilar [Private Collection], Xapala, Mexico (Eder Mora).

HNHM Hungarian Natural History Museum, Budapest, Hungary (Győző Szél).

IADIZA Instituto Argentino de Investigaciones de Zonas Áridas, Mendoza, Mendoza, Argentina (Gustavo Flores and Sergio Roig).

IEXA Instituto de Ecología, Xalapa, Mexico (Gonzalo Halffter).

IFML Instituto Fundación Miguel Lillo, Tucumán, Argentina (Emília Perez).

INPA Instituto Nacional de Pesquisas Amazônicas, Manaus, Amazonas, Brazil (Marcio Oliveira and José Albertino).

JZPC Collection of Jiri Zídek [Private Collection], Prague, Czech Republic [currently in BMNH].

MACN Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina (Pablo Mulieri).

MCNZ Museu de Ciências Naturais da Secretaria Estadual do Meio Ambiente e Infraestrutura do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil (Luciano Moura).

MCZ Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA (Crystal Maier).

MGAP Museu Anchieta de Ciências Naturais, Porto Alegre, Rio Grande do Sul, Brazil (José Francisco Flores).

MLPA Museo de La Plata, La Plata, Argentina (Nora Cabrera and Adriana Marvaldi).

MFNB Museum für Naturkunde, Leibniz Institut für Evolutions und Biodiversitätsforschung, Berlin, Germany (Bernd Jaeger).

MNHN Muséum national d'Histoire naturelle, Paris, France (Olivier Montreuil and Antoine Mantilleri).

MNNC Museo Nacional de Historia Natural, Santiago, Chile (Mario Elgueta).

MUSM Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru (Diana Silva).

MZLU Museum of Zoology, Lund University, Lund, Sweden (Christoffer Fägerström)

MZSP Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (Sônia Casari and Carlos Campaner).

MZUC Museo de Zoología de la Universidad de Concepción, Concepción, Chile (Myriam Angélica Ramirez)

OUMNH Oxford University Museum of Natural History (Hope Entomological Collection), Oxford, United Kingdom (Darren Mann and Amoret Spooner)

RBINS Royal Belgian Institute of Natural Sciences, Brussels, Belgium (Alain Drumont and Wouter Dekoninck)

RPMI Collection of Riccardo Pittino [Private Collection], Milan, Italy (Riccardo Pittino).

SAMC Iziko South African Museum, Cape Town, South Africa (Simon van Noort).

TMSA Ditsong National Museum of Natural History, Pretoria, South Africa (Werner P. Strümpher).

UPTC Museo de Historia Natural Luis Gonzalo Andrade, Universidad Pedagógica y Tecnológica de Colombia, Tunja, Colombia (Irina T. Morales Castaño).

UNALM Museo de Entomología Klaus Raven Buller, Universidad Nacional Agraria La Molina, Lima, Peru (Clorinda Vergara).

USNM United States National Museum, Washington, DC, USA (Floyd Shockley).

ZMUC Zoological Museum, University of Copenhagen, Copenhagen, Denmark (Alexey Solodovnikov).

ZMUM Zoological Museum, Moscow Lomonosov State University, Moscow, Russia (Aleksey A. Gusakov).

ZSM Bavarian State Collection of Zoology, Munich, Germany (Michael Balke and Lars Hendrich).

ZUEC Museu de Zoologia da Universidade Estadual de Campinas "Adão José Cardoso", Campinas, São Paulo, Brazil (André Victor Lucci Freitas and Artur Nishibe Furegatti).

All specimens of *Polynoncus* housed in the aforementioned collections were examined considering the external morphology and male genitalia. Because of their life

habits, adult trogids are commonly found in the field or in collections covered with a layer of dirt. These obscured important structures making the identification process difficult and sometimes impossible. For this reason and for better visualization of morphological structures, most of the materials examined were cleaned following the guidelines outlined in Diéguez (2008) and Costa-Silva & Diéguez (2020).

Male genitalia of South American species of *Polynoncus* possess reliable characters for accurate species identification. A series of male specimens for each species were selected for extraction of genitalia to be examined for confirmation of taxonomic identify. The selected specimens were placed in warm water with detergent for 5–8 minutes, following the protocol of Cristóvão & Vaz-de-Mello (2020). Once specimens were relaxed the aedeagus and spiculum gastrale were carefully extracted from the last abdominal segment with tweezers. The extracted structures were plunged in a solution of 10% potassium hydroxide (KOH) for 10 minutes to clarify the sclerotize structures and remove the unneeded soft tissues. All extracted aedeagi were glued on a cardboard platform set on the pin below the respective specimen. In some cases, the abdomen was totally removed to avoid any damage of the genial parts (usually in old specimens). After the extraction procedure, the abdomen was replaced in the anatomical position using water soluble glue.

Terminology related to external morphology follows Vaurie (1962) and Scholtz (1986b, 1990), with some modifications (Fig. 3). The format for the count of elytral costae follows Balthasar (1936) and Vaurie (1962). The terminology of aedeagus structures follows d'Hotman & Scholtz (1990) and Pittino (1987).

The literature was also verified in order to confirm the date of publication of each species according to Art. 21 of ICZN (1999) (Horn *et al*. 1990a,b; Bousquet 2016). Label data of type-specimens are provided in *ipsis litteris*. Our remarks and additional comments (*e.g.*, colour and form of labels; translations) are found in square brackets ([…]). Type label data are cited verbatim and all information is enclosed in quotations ("…"); a forward slash (/) separated subsequent lines within the same label. All handwritten information is underlined. For the non-type material examined, the information retrieved (when available), were organized as follows: country names in capital and bold letters (*e.g.*, **BRAZIL**); department, province or state names in bold letters (*e.g.*, **Rio de Janeiro** – with exception of the **FRENCH GUIANA**, treated here as a country); cities or specific locality (when available); meters above sea level (3,500 m); geographical coordinates; day.month.year (3.iii.1976); method of collect; name of

collector (leg.); number of examined specimens and gender (♀, ♂ or without symbol when unsexed) follow the acronym (*e.g*., 1♂ CEMT). The countries, first-order political division and cities or/and specific localities are given in alphabetical order.

Each specimen examined had its location and geographic coordinate information associated with the original data copied to a table for preparation of distribution maps. When the coordinate of a specific locality was not recorded on the original labels, the software Google Earth version 7.3.2.5776 or literature (*i.e*., Raymond 1983, 1988, 1989, 1991, 1992, 1993; 1994, 1995) was used to search the centroid coordinates of the respective locality. Specialized literature (*i.e*., Papavero 1971, 1973; Lamas 1980; Horn *et al*. 1990a,b; Evenhuis 1997) was also studied in order to find the localities based on the itinerary of collectors and year of collection. Specimens with vacant location information (with just country or first political division) were not plotted on distribution maps. The distribution maps were generated using the software ArcGIS for Desktop version 10.8.0 based on the labels data available on each examined specimen by the authors. All images taken by the authors were made using a stereomicroscope Leica model m205C (7.8X-160.0X) with image capture system MC190 HD. Photographs not made by the authors are indicated in the proper figure legends with your respective copyright of the author and museum. The schematic drawings and plates were prepared using InkScape version 1.1.1 and GIMP version 2.10 software, respectively.

The lectotypes here designated are in accordance with Article 74 of the International Commission on Zoological Nomenclature (1999) in order to keep a single name-bearing individual.

Results

Key to South American Trogidae genera:

1 Antennae with round scape (Fig. 1C); margin of head evenly rounded, not angled at clypeogenal junction; lateral and posterior margins of pronotum with distinctive spatulate setae…. genus *Trox* Fabricius

1' Antennae with elongate scape (Figs. 1A-B); margin of head usually angled at junction of clypeus and gena; lateral and posterior margins of pronotum with small filiform setae…. 2

2 Antennae with pedicel attached subapically in the scape (Fig. 1B); scutellum constricted at base (Fig. 1E) or oval (Fig. 1F); sixth antennomere without any seta ventrally; apex of clypeus reflexed or straight…. genus *Omorgus* Erichson

2' Antennae with pedicel attached apically in the scape (Fig. 1A); elongate scutellum (Fig. 1D) or reduced (for species without humeral callus); sixth antennomere with a single seta ventrally (Fig. 1A); apex of clypeus bent down, forming a right angle with the front…. genus *Polynoncus* Burmeister 3

Key to the species of the genus Polynoncus*:*

3 Humeral region without prominent callus (Fig 4A) …. 4

3' Humeral region with prominent callus (Fig 4B) ….11

4 Humeral callus obsolete; elytral tubercles with tufts of erect black setae; restricted to Ecuador…. *Polynoncus tenebrosus* (Harold)

4' Humeral callus completely absent; elytral tubercles glabrous or with sparse small black setae….5

5 Posterior margin of clypeus emarginate in dorsal view (Fig 4E) ….6

5' Posterior margin of clypeus truncate in dorsal view (Fig 4F) ….7

6 Odd-numbered elytral tubercles distinctly separate and glabrous; antennae with black setae. Chile and Argentina…. *Polynoncus bullatus* (Curtis)

6' Odd-numbered elytral tubercles poorly separated and covered by velutinous tumescence; antennae with yellow setae. Restricted to Galapagos Archipelago…. *Polynoncus galapagoensis* (Van Dyke)

7 Elytra subcircular, nearly as wide as long; meso- and metatibiae with long and dense setae on inner margin. Chile and Argentina…. *Polynoncus hemisphaericus* (Burmeister)

7' Elytra elongate, distinctly longer than wide; meso- and metatibiae with short setae on inner margin (the setae smaller than the basal tarsomere) ….8

8 Pronotum with basal tubercles obsolete or poorly distinguishable; elytral tubercles on the anterior half coalescent….9

8' Pronotum with distinct basal tubercles; elytral tubercles distinctly separated….10

9 Pronotal ridges acute, shiny; pronotum with basal tubercles indistinctive. Restricted to Argentina…. *Polynoncus pampeanus* (Burmeister)

9' Pronotal ridges broad, rounded; pronotum with basal tubercles distinctive, visible. Restricted to Argentina…. *Polynoncus erugatus* Scholtz

10 Pronotal ridges connected with the antero-lateral tubercle (Fig. 5G); costal tubercles usually confluent. Restricted to Argentina…. *Polynoncus patagonicus* (Blanchard)

10' Pronotal ridges not connected with the antero-lateral tubercle; costal tubercles separate. Restricted to Argentina…. *Polynoncus patriciae* Pittino

11 Apex of mesotibia with a prominent tooth in ventral view (Fig 4C) …12

11' Apex of mesotibia truncate, without teeth in ventral view (Fig 4D) ….19

12 Antennae with yellow setae….13

12' Antennae with black setae….14

13 Pronotum with lateral margin crenulate; surface of the elytral tubercles rounded. Restricted to Argentina…. *Polynoncus neuquen* (Vaurie)

13' Pronotum with lateral margin smooth; surface of the elytral tubercles flat. Restricted to Argentina…. *Polynoncus pittinoi* Costa-Silva & Diéguez

14 Pronotum without distinct raised medial ridges (Fig. 56). Widely distributed in western South America…. *Polynoncus peruanus* (Erichson)

14' Pronotum with distinct medial ridges (as in Fig. 4E)….15

15 Pronotum with transversal basal tubercles elongate and thin (male – Fig. 5A); or elongate and broad (female – Fig. 5B). Restricted to Argentina….*Polynoncus gemmiferus* (Blanchard)

15' Pronotum with basal tubercles rounded or poorly visible….16

16 Entire surface of the hypomeron covered by setae (as in Fig. 31C – white setae). Restricted to Argentina….*Polynoncus gemmifer* (Blanchard)
16' Entire surface of the hypomeron glabrous….17

17 Second and fourth elytral costae with equal size tubercles (sometimes one or two tubercles varying in size). Bolivia and Argentina….*Polynoncus burmeisteri* Pittino
17' Second and fourth elytral costae with different size tubercles….18

18 Pronotal ridge complete, forming a well-defined triangle with shallow fovea (Fig. 4G). Restricted to Argentina….*Polynoncus argentinus* (Harold)
18' Pronotal ridge incomplete, not forming a well-defined triangle at the middle (Fig. 4H). Restrict to Argentina ….*Polynoncus pseudogemmifer* **n. sp.**

19 Pronotal and elytral surface with distinct black setae; elytral tubercles with tufts of erect black setae. Known only from Ecuador….*Polynoncus ecuadorensis* (Vaurie)
19' Pronotal and elytral surface without distinct black setae; elytral costae with tomentose or glabrous, but never with distinct erect setae….20

20 Surface of elytra without distinctly raised elytral tubercles; elytral costae formed by tufts of small fulvous, yellow, or black setae (Fig. 5F) ….21
20' Surface of elytra with distinctly raised elytral tubercles (Fig. 5E) ….22

21 Intercostal punctures shallow, forming a straight edge along the surface of elytra; lateral margin of elytra with row of small yellow bristles (Fig. 5F). Restricted to Chile…. *Polynoncus diffluens* (Vaurie)
21' Intercostal punctures distinct and deep, forming a sinuous edge along the surface of elytra; lateral margin of elytral smooth. Restricted to Chile…. *Polynoncus crypticus* Diéguez

22 Meta- and mesotibia with surface glabrous; surface of elytra glabrous, tomentosity restricted to the raised tubercles (Fig. 5E). Argentina and Paraguay…. *Polynoncus pedestris* (Harold)
22' Meta- and mesotibia covered partially or completely by tomentosity; elytral tubercles glabrous….23

23 Head and pronotum entirely covered by distinct punctation (the distance between puncture is smaller than diameter of puncture; as in Fig. 56); surface of meso- and metasternum with dark bristles; pronotum without distinct medial ridges and tubercles. Widely distributed in western South America …. *Polynoncus aricensis* (Gutiérrez)

23' Head and pronotum without distinctly punctation (sometimes restricted to basal tubercles and pronotal ridges); surface of meso- and metasternum glabrous or with few sparse setae; pronotal ridges and tubercles distinct….24

24 Elytral tubercles shiny (Figs. 4A-B)….25

24' Elytral tubercles completely covered by tomentosity….30

25 Elytra with elongate shiny elytral tubercles (Fig. 1B); if rounded, half of surface covered by discreet velutinous area….26

25' Elytra with rounded shiny elytral tubercles (Fig. 4A) ….28

26 Tubercles of third elytral costae 3–4 times longer than wide (Fig. 4B); elytral tubercles completely shiny; elytral intercostae marked with deep round punctures; male with metatarsus as long as metatibia. Chile and Argentina….*Polynoncus longitarsis* (Harold)

26' Tubercles of third elytral costae at most two times longer than wide; elytral tubercules shiny or with half of surface covered by discreet velutinous area; male with metatarsus smaller than metatibia ….27

27 Humeral callus prominent, covering the lateral margin of elytra (Fig. 5H); subhumeral callus with coalesced tubercules, overhanging. Chile and Argentina….*Polynoncus chilensis* (Harold)

27' Humeral callus not prominent, lateral margin of elytra visible (Fig. 5I); subhumeral callus with few and separate tubercles. Chile and Argentina….*Polynoncus mirabilis* Pittino

28 Subhumeral ridge present (as in Fig 14B, white arrows). Brazil, Argentina and Uruguay….*Polynoncus aeger* (Guérin-Meneville)

28' Subhumeral ridge absent….29

29 Anterior half of lateral margin of elytra entirely smooth; latero-basal tubercles of pronotum poorly raised. Chile and Argentina….*Polynoncus brevicollis* (Eschscholtz)
29' Anterior half of lateral margin of elytra slightly crenulated; basal and latero-basal of pronotum raised, distinctly raised. Restricted to Chile….*Polynoncus gibberosus* Scholtz

30 Lateral margin of pronotum with sides bulbous in front of the middle (Fig. 5A, white arrow)….36
30' Lateral margin of pronotum rounded until constriction in front of the posterior angle (Fig. 5B, white arrow)….31

31 Antennae with black setae; scutellum broad, shield-shaped. Widely distributed in central South America ….*Polynoncus pilularius* (Germar)
31' Antennae with fulvous or yellow setae; scutellum elongate….32

32 Tubercles in the odd-numbered elytral costae slightly separated (space between tubercles smaller than tubercle length), thus forming an interrupted carinae; surface of elytral with glabrous areas; only elytral tubercles tomentose. Restricted to Ecuador (including Galapagos Island)….*Polynoncus seymourensis* (Mutchler)
32' Tubercles in the odd-numbered elytral costae well separated (space between tubercles the same size or bigger than tubercle length; elytra completely tomentose…. 33

33 Subhumeral ridge present (Fig. 14B, white arrow). Brazil, Paraguay and Argentina….*Polynoncus brasiliensis* (Vaurie)
33 Subhumeral ridge absent….34

34 Pronotal ridges connected with basal tubercle. Restrict to Peru….*Polynoncus gordoni* (Steiner)
34' Pronotal ridges distinctly separated from basal tubercle…35

35 Elytral tubercles not raised, small (tubercles in the third elytral costae narrower than scutellum width). Ecuador, Peru and Bolivia….*Polynoncus sallei* (Harold)

35' Elytral tubercles raised, rounded (width of tubercles in the third elytral costae bigger than scutellum width). Widely distributed in South America ….*Polynoncus gemmingeri* (Harold)

36 Pronotal ridges and basal tubercles fused (Fig. 5C, black line)….38
36' Pronotal ridges and basal tubercles not fused (Fig. 5D, black line)….37

37 Odd-numbered tubercles with small yellowish setae (x128). Bolivia, Brazil, Paraguay and Argentina….*Polynoncus bifurcatus* (Vaurie)
37' Odd-numbered tubercles with small black setae (x128); Brazil, Paraguay, Argentina and Uruguay….*Polynoncus parafurcatus* Pittino

38 Pronotal antero-basal projection prominent, acute; posterior margin of pronotum with an obtuse lobe at the middle, pointing backward (see drawing in Huchet and Costa-Silva 2018, figures 10–11); inner margin of protibias with a well-defined second tooth. Guianas and north of Brazil….*Polynoncus juglans* (Ratcliffe)
38' Pronotal antero-basal projection rounded; posterior margin of pronotum backward, but never forming a distinct lobe; inner margin of protibias without a second teeth….39

39 Latero-basal tubercles of pronotum distinct; tubercles on odd-numbered costae raised and usually rounded (at least 2x longer than wide). Restricted to Brazil…*Polynoncus furcillifer* Pittino
39' Latero-basal tubercle poorly raised; tubercles on odd-numbered costae elongate, thin and poorly raised (at least 2x longer than wide). Restricted to Brazil....*Polynoncus vazdemelloi* Huchet and Costa-Silva

Systematics

Trogidae MacLeay, 1819: 136.
Omorginae Nikolajev, 2005: 322; Smith 2006: 153; Strümpher *et al*. 2014: 549; Strümpher *et al*. 2016: 63; Zídek 2017: 96, Mondaca 2023: 209.
Polynoncus Burmeister, 1876

Trox (*Polynoncus*) Burmeister, 1876: 264 (*pro parte*); Preudhomme de Borre 1886: 59 (identification key and checklist); Arrow 1912: 53; Scholtz 1982: 15 (catalogue).
Polynoncus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1419 (revision); Diéguez 2008: 13 (new species and notes); Gómez 2008: 514 (identification key); Zídek 2013: 6 (checklist); Strümpher *et al*. 2014: 549 (systematics); Strümpher *et al*. 2016: 73 (overview); Zídek 2017: 97 (checklist); Huchet & Costa-Silva 2018: 554 (new species); Costa-Silva & Diéguez 2020: 268 (new species and checklist), Mondaca 2023: 209 (checklist from Chile).

Type-species: *Trox pedestris* Harold, 1872, by subsequent designation by Scholtz 1982: 15.

Etymology: From the geek "πολύ / poly" (= many, very) and "όγκος / ónkos" (= tumor, volume) (Brown 1954), supposed to be in reference to the elytral tubercles found in the majority of Trogidae species.

Polynoncus aeger (Guérin-Meneville, 1830)

(Figs. 6, 8)

Trox aeger Guérin-Meneville, 1830: plate 22 (validated name); Harold 1869: 1087 (checklist); Harold 1872: 132, 189 (redescription); Burmeister 1876: 259 (redescription); Berg 1881: 99 (checklist of Rio Negro, Argentina); Preudhomme de Borre 1886: 69 (checklist); Bruch 1911: 192 (checklist); Arrow 1912: 53 (catalogue); Blackwelder 1944: 218 (checklist – as "*aegra*"); Vaurie 1962: 120 (redescription).
Trox (*Polynoncus*) *aeger*: Scholtz 1982: 15 (catalogue)
Polynoncus aeger: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1429 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 6 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 97 (checklist); Smith 2017: 88 (lectotype designated); Costa-Silva & Diéguez 2020: 271 (records from Argentina).
Trox leprosus Blanchard, 1847: 188 (original description); Lacordaire 1855: 152 (checklist); Harold 1872: 132, 190 (checklist); Burmeister 1876: 259 (as synonym of *T. aeger*); Preudhomme de Borre 1886: 73 (catalogue); Arrow 1912: 53 (catalogue –

as junior synonym of *T. aeger*); Vaurie 1962: 120 (as synonym of *T. aeger*); Scholtz 1982: 15 (catalogue – as synonym of *T. aeger*); Zídek 2013: 13 (checklist – as junior synonym of *T. aeger*); Zídek 2017: 103 (checklist – as junior synonym of *T. aeger*); Smith 2017: 88 (as junior synonym of *T. aeger*).

Type-specimen examined. LECTOTYPE (MNHN – Fig. 6**).** First label [white aged, handwritten]: "Trox / aeger Guer. / Lima.". Second label [white with black border, typeset]: "Ex-Musæo / GUÉR-MENEV.". Third label [red with black border]: "TROX / AEGER / GUÉRIN-MÉNEVILLE, 1830 [Smith's handwriting] / LECTOTYPE / A.B.T. SMITH" (Fig. 6C). **Type locality:** "Lima" [Peru?]. Although cited by some authors as Lima, possibly in Peru, the origins of the type series remain uncertain (see Smith 2017).

Type-specimen examined of *Trox leprosus* Blanchard, 1847. LECTOTYPE HERE DESIGNATED (MNHN – Fig. 7**).** First label [white aged with black frame]: "MUSEUM PARIS / RIO-JANEIRO / D'ORBIGNY 1834". Second label [round, d'Orbigny handwriting]: "5219 / 34.". Third label [white aged, unknown's handwriting]: "220". Fourth label [green with black bars on each side, Émile Blanchard's handwriting]: "leprosus. / Dj [Dejean]". Fifth label [red with black frame, Vinícius Costa-Silva's handwriting]: "LECTOTYPE / Trox leprosus / Blanchard, 1847 / des. V. Costa-Silva 2022". Sixth label [white with black frame]: "= Polynoncus aeger / (Guérin-Meneville, 1830) / Det. V. Costa-Silva, 2022" (Fig. 7C).

Type locality: Maldonado (Uruguay), collected by Alcides Dessalines d'Orbigny (1802-1857). The label "Rio-Janeiro" is incorrect according to the d'Orbigny catalog: the number "220" (third label) corresponds to the specimens collected on dried carrion (often found abundantly under the carcasses) in Maldonado (Uruguay) during November 1826.

Differential diagnosis. *Polynoncus aeger* is most similar to *P. brevicollis* and *P. gibberosus* but is easily separated from both by the presence of a distinct sub-humeral ridge (as in *P. brasiliensis* – Fig. 14B, white arrows), and the basal tubercles not touching the pronotal ridges. *Polynoncus brevicollis* and *P. gibberosus* both lack the sub-humeral ridge and the basal tubercles touching the pronotal ridges. For a detailed description see Vaurie (1962: 120) and Scholtz (1990: 1429).

Geographic distribution. This species is known from the southeastern part of Argentina, throughout Uruguay, and southern Brazil (Fig. 8).

Vaurie (1962) and Scholtz (1990), in their respective treatments of the Neotropical Trogidae, cited records of *P. aeger* from Chile. During this study, the first author (VCS) examined one specimen of *P. aeger*, housed in BMNH, with an old label written "Chili" without further data. Based on our understanding about geographical distribution of *P. aeger*, we believe it is a mislabeled specimen. Furthermore, Diéguez (2008) in his revision of Chilean Trogidae conclude that both records by Vaurie (1962) and Scholtz (1990) were based in misidentified specimens of *P. brevicollis* (Eschscholtz) (see Diéguez 2008: 21). Since Diéguez's study no further records of *P. aeger* from Chile have been reported; hence, we agree that this species most likely does not occur in the country.

Scholtz (1990) also recorded *P. aeger* from the Amazonia region in Brazil (listing four specimens from Pará). We examined the four specimens lodged in the Carnegie Museum of Natural History (Pittsburgh, Pennsylvania, United States) mentioned by Scholtz (1990). These specimens were most likely collected by Samuel Klages which later found their way into the Henry Klages Collection (Nearns and Androw 2013). The Henry Klages Collection is known to contain numerous mislabeled Nearctic and Neotropical specimens [Robert Androw, pers. comments to VCS]. Hence, we treat this record with caution. Vaurie (1962) also cited Peru for the distribution of *P. aeger*, probably because Guérin-Meneville (1844, page 85), in his original description, cited "Pérou" as the type locality for this species based on the label reading "Lima". With the exception of the type cited by Guérin-Meneville, no other specimens were recorded from this country. Considering the known geographical distribution of *P. aeger*, these records from Chile and Peru seem doubtful, and likely caused by mislabeling.

Examined non-type material (182 specimens). ARGENTINA: Buenos Aires, Androgué, ii.1921, G. Pellerano leg. (1 MACN); Bahía Blanca, no date or collector (2 MACN); Bahía San Blas, 13.i.1829, A. d'Orbigny leg. (2 MNHN); Balcarce, no date, J.M. Gallardo leg. (1 MACN); Buenos Aires, Flores, 11.xii.1918, no collector [Dallas' collection] (1 MLPA); Buenos Aires, Flores, 8.iv.1919, no collector [Bosq's collection] (1 MLPA); Buenos Aires, Flores, 9.iv.1919, no collector [Bosq's collection] (1 MLPA); Buenos Aires, Villa Mazzini, 15.xii.1910, no collector [Bosq's collection] (1 MLPA); Burzaco, 15.x.1939, no collector (1 CVMD); Caseros, 15.i.1946,

no collector (1 MACN); Gorchs, iii.1917, G. Pellerano leg. (1 MACN); La Plata, 1906, L. Fairmaire leg. (1♂ MNHN); La Plata, Manuel Bernardo Gonnet, 13.xii.1957, H.E. Trotta leg. (1 MLPA); La Plata, no date or collector (1 MACN); La Plata, no date or collector (3 MLPA); La Plata, no date or collector (2 CEMT); La Plata, no date, C. Bruch leg. (5 MLPA); La Plata, Rio Santiago, 15.xii.1907, C. Bruch leg. (1 MACN); La Plata, Tolosa, no date or collector (1 MACN); La Plata, W. Warren leg. (1 BMNH); [La] Plata, no date or collector (2 MNHN); Rosas, "F.C. Sud" [Ferrocarril al Sud - Train Station], no date, J.B. Daguerre leg. (2 MACN); Tandil, i.1951, no collector (1 MLPA); Tornquist, Sierra de la Ventana, no date or collector (1 CEMT); Without specific locality, 1.x.1903, A. Zotta leg. (1 MACN); Without specific locality, 14.iv.1905, no collector [Bruch's collection] (1 MACN); Without specific locality, 1922, L. Bedel leg. (1 MNHN); Without specific locality, date or collector (1♂ and 3 unsexed BMNH); Without specific locality, date or collector (2 MNHN); Without specific locality, date or collector (3 MACN); Without specific locality, date or collector (3 MLPA); Without specific locality, no date or collector [Richter's collection] (3 MLPA); Without specific locality, no date, A. Beyer leg. (1 MACN); Without specific locality, no date, A. Beyer leg. (3 MACN); Without specific locality, no date, A. Zotta leg. (1 MACN). **Córdoba,** Calamuchita, Hotel El Sauce, xi.1976, M. Viana leg. (2♂ and 11 unsexed CVMD); Cruz Alta, xi.1941, J.P. Duret leg. (1 MNHN); Fauna Nature Reserve Laguna La Felipa, 24.xi.2003, cow carcass, no collector (1 IFML); Fauna Nature Reserve Laguna La Felipa, 33º08'25"S, 63º32'09"W, 24.xi.2003, cow carcass, no collector (1 MNHN); Laguna La Helvecia, 20.i.2003, cow carcass, R. Gomez leg. (1 IADIZA); Villla Carlos Paz, i.1954, no collector (1 MLPA); Without specific locality or date, P.G. Lorentz leg. (1 MNHN); Without specific locality, date or collector (2 MLPA); Without specific locality, ix.1947, no collector (1 MACN). **Corrientes,** Santo Tomé, xi.1926, G. Pellerano leg. (1 MACN); Without specific locality, date or collector (1 MACN). **Entre Rios,** Paraná, no date or collector [Burmeister's collection] (2 MACN); Pueblo Liebig, 10–17.xii.1994, G. Arriagada leg. (1 CVMD); Pueblo Liebig, xii.1997, Mateo Zelich leg. (1♂ and 3 unsexed CVMD); Villa del Rosário, no date, A. Stevenin leg. (1 MACN); Villa Paranacito, no date or collector (1 MACN); Without specific locality, no date or collector [Richter's collection] (1 MLPA). **La Pampa,** Santa Rosa, 29.viii.1997, Alfageme leg. (1♀ IADIZA); Toay, Parque Luro Provincial Reserve, 10.xii.1997, D. Rojas Lanus leg. (1♂ CVMD). **La Rioja,** Without specific locality, date or collector (3 MACN). **Misiones,** Without specific locality, date or collector (3 MLPA); Without

specific locality, no date, A. Beyer leg. (1 MACN). **San Luis,** Villa Elena Natural Reserve, xi.1976, M. Viana leg. (2♂ and 29 unsexed CVMD); Villa Elena Natural Reserve, xi.1976, M. Viana leg. (1 MUSM). **Santa Fé,** Rosário, no date or collector (1 MACN); Without specific locality, 1900, no collector [Bruch's collection] (1 MACN); Without specific locality, date or collector [Richter's collection] (2 MLPA). Without specific locality, date or collector (1 MLPA); Without specific locality or date, C. Berg leg. (2 MNHN). **BRAZIL: Pará** [dubious locality] (CMNH). **Paraná,** Guarapuava, x.1957, H. Scheneider leg. (1 MZSP). **Rio Grande do Sul,** Canguçu, Cabanha Sobrado Branco, 300m, iv.2012, Light trap, Santos Dias, Carneiro and Zacca leg. (1♀ CEMT); Pelotas, 4.ii.1961, Biezanko leg. (1 CVMD); Rio Grande, Taim Ecological Station, 14–15.ix.1991, L. Moura leg. (1 MCNZ); Rio Grande, Taim Ecological Station, 5.xi.1986, A. Lise leg. (1 MCNZ); Without specific locality, date or collector (1 MNHN). **Santa Catarina,** BR 116, 4.ii.1969, L. Stange leg. (1 IFML). **Without specific locality,** date or collector (1 MNHN); without specific locality, date or collector (1 BMNH). **CHILE** [dubious locality]**: Without specific locality,** date or collector (1 BMNH). **URUGUAY: Canelones,** Las Piedras, 18.i.1968, A. Carmenes leg. (1♂ CVMD). **Cerro Largo,** Cañada de los Burros, 1908, T. Lucas leg. [Tremoleras' collection] (2 MLPA). **Colônia,** La Estanzuela, INIA [National Institute of Agricultural Research], 12.ix.1995, J.R. Verdú leg. (1♂ and 1♀ CEMT); Without specific locality, 20.i.1924, J. Tremoleras leg. [Tremoleras' collection] (1 MLPA); Without specific locality, date or collector leg. (1 MACN). **Montevideo,** Colón, 3.xi.1931, no collector [Tremoleras' collection] (1 MLPA); Colón, 10.xi.1932, E. Montoro Guarch [ex-Tremoleras' collection] leg. (1 CEMT); Colón, v.1896, M.G. Oldfield Thomas leg. (1 BMNH); Pocitos, 13.x.1932, no collector [Tremoleras' collection] (1 MLPA); Without specific locality or date, Birabent leg. (2 MNHN); Without specific locality, 24.xii.1931, no collector [Tremoleras' collection] (2 MLPA); Without specific locality, date or collector (2 MNHN); Without specific locality, date or collector [Tremoleras' collection] (1 MLPA). **Paysandú,** Paysandú, no date or collector (3 MNHN). **Rivera,** Valle del Lunarejo, Arroyo Gajo del Lunarejo, 29.vii.1995, no collector (4 MZSP). **Rocha,** Rocha, no date or collector (1 MACN). **Without specific locality,** data or collector (5 MNHN).

Remarks. *Polynoncus aeger* was described by Félix Édouard Guérin-Méneville (1799–1874), historically dated to 1844 by several authors (*i.e.*, Arrow 1912; Blackwelder 1944; Vaurie 1962; Scholtz 1982; Scholtz 1990; Zídek 2013, 2017). However, as noticed by Smith (2017), *P. aeger* was illustrated in the livraison 9, plate

22 of the Guérin-Méneville' work. This section refers to the date of 1930 and should be used as the correct year of publication for this species as defined by ICZN (1999: 102) (also see Bousquet 2016: 234).

Polynoncus argentinus (Harold, 1872) **revalidated**

(Figs. 4G, 9–10)

Trox argentinus Harold, 1872: 143, 189 (original description); Preudhomme de Borre 1886: 69 (checklist); Bruch 1911: 193 (checklist); Arrow 1912: 53 (catalogue); Blackwelder 1944: 218 (checklist – as "*argentina*"); Vaurie 1962: 120 (synonymized with *T. gemmifer*).

Trox (*Polynoncus*) *argentinus*: Scholtz 1982: 16 (catalogue – as a synonym of *T. gemmifer*).

Polynoncus argentinus: Pittino 1987: 384 (reinstated as a valid name); Scholtz 1990: 1430 (synonymized with *T. gemmifer*); Zídek 2013: 7 (checklist); Zídek 2017: 98 (checklist, as synonym of *T. gemmifer*); Smith 2017: 92 (as synonym of *T. gemmifer*; records and comments).

Type-specimens examined. LECTOTYPE, HERE DESIGNATED (♂ MNHN – Fig. 9). First label [white aged]: "Cordoba / Lorentz". Second label [white aged, Harold's handwriting]: "Tr. argentinus / mihi typ.". Third label [white aged with black frame, typeset]: "Ex-Musæo / E. Harold". Fourth label [pink, typeset]: "Type". Fifth label [white with green frame, handwritten]: "argentinus Har.". Sixth label [white, Patrice Vaurie's handwriting]: "Trox / gemmifer / Har. / Vaurie ´61". Seventh label [red with black frame, printed]: "LECTOTYPE / Trox argentinus / Harold, 1872 / des. V. Costa-Silva, 2022". Eighth label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus ♂ / argentinus / (Harold, 1872) / Det. V. Costa-Silva, 2022" (Fig. 9E). **Type locality:** "Córdoba" (Argentina), collected by Paul Günther Lorentz (1835–1881), a German botanist who lived in Córdoba, between 1870 and 1874 (Lorentz 1875). According to the author, he arrived in Córdoba in October 1870 and spent several months collecting around the city. However, in November 1871, Paul Lorentz began an expedition away from Córdoba that finished in May 1872. Considering that *P. argentinus* was described in 1872, it is possible that the specimens examined by Harold

have been collected between 1870–1871 around Córdoba city (for more details, see Lorentz 1875: 94–96).

PARALECTOTYPE (1♂ MNHN). First label [white aged, handwritten]: "Lorentz". Second label [white aged, Harold's handwriting]: "Trox / argentinus / typ. Harold.". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "PARALECTOTYPE ♂ / Trox argentinus / Harold, 1872 / des. V. Costa-Silva, 2022". Fourth label: "Polynoncus ♂ / argentinus / (Harold, 1872) / Det. V. Costa-Silva, 2022".

Differential diagnosis. *Polynoncus argentinus* is morphologically similar to *P. pseudogemmifer* **new species.** However, both species can be distinguised by the shape of the pronotal ridges and their distinct male genitalia. In *P. argentinus*, the pronotal ridges are complete, separated in two lines (on each side) in the middle forming a well-defined triangle with shallow fovea (Fig. 4G). The ridges are similar in *P. pseudogemmifer*; however, the internal line of the triangle is not complete (sometimes absent) (Fig. 4H). The odd-numbered costae are also useful to separate the two species: in *P. argentinus*, the odd-tubercles are more rounded and raised (Fig. 9A-B), while in *Polynoncus pseudogemmifer*, the odd-tubercles are generally flat and fewer in number (each tubercle always bigger than the diameter of scutellum; Fig. 60A).

The male genitalia of both species are distinct as well: in lateral view, the median lobe of *P. pseudogemmifer* is constricted before the apex, while in *P. argentinus* the median lobe is parallel, without constriction (Fig. 9D) (for more details, see Pittino 1987: 384).

Geographic distribution. *Polynoncus argentinus* has been recorded in the semiarid regions of Argentina (Fig. 10). Here we present the first records of this species from Uruguay, and Brazil. The Uruguay records are based on one male specimen housed in MCZ without further information on the specific locality. Similarly, a single male specimen found in BMNH with an old handwritten label reading "Brazil", corresponds to *P. argentinus*. Considering the distribution of *P. argentinus*, it would not be surprising to find the distribution of this species extending across Uruguay and into southern Brazil, but additional sampling is needed in the region to delineate its distribution boundaries and to confirm the presence of *P. argentinus* in both countries.

Examined non-type material (130 specimens). ARGENTINA: Buenos Aires, Bahía Blanca, no date or collector (1♂ and 1♀ MACN); Bahia Blanca, no date, C. Darwin [Beagle Voyage] leg. (2♂ and 1♀ BMNH); Bahía San Blas, ii.1932, no collector (1♂ MLPA); Bahía San Blas, no date or collector (1♂ and 1♀ MACN); Bajo

Hondo, no date or collector (1 CEMT); Balcarce, no date, J.M. Gallardo leg. (1♂ MACN); Coronel Suárez, Sierra de Cura Malal, 5.iii.1925, P. Saggero leg. (1♀ MLPA); Gorchs, xii.1916, G. Pallermo leg. (1♀ MACN); Los Cardales, 18.i.1942, no collector (2♂ and 1 unsexed BMNH); Medanos, 11.xi.1946, Willink leg. (2 IFML); Medanos, xi.1946, Willink leg. (1 IFML); Puán, Felipe Solá, ii.1961, A. Martinez leg. (6 MZSP); Puán, Felipe Solá, xi.1961, A. Martinez leg. (2♂ and 19 unsexed MZSP); Puán, Estancia Barrau, 30km S.O. of the Villa Iris Station, xi.1946, Coll. Martínez (1 CMNC); Tres Arroyos, 30.i.1938, M. Biroben and Scott leg. (1♂ MLPA); Villarino Playa La Chiquita, 27.iii.2014, under dead Penguin, G. Flores and N. Zanetti leg. (2 IADIZA); Without specific locality, no date or collector (1♂ and 3♀ MLPA). **Catamarca,** Campo del Pucará, 9.i.1951, no collector (3♂, 1♀ and 1 unsexed IFML); Cerro El Manchao, 3,000m, 16–20.i.1959, R. Golbach leg. (1 IFML). **Chubut,** without specific locality, no date or collector (1♂ MACN). **Córdoba,** Río Cuarto, Estación Monte de los Gauchos, 23.ii.1996, Maceda leg. (1♂ and 1 unsexed IADIZA); Without specific locality, x.1942, no collector (1♀ BMNH). **La Pampa,** Bajo Giuliani, 3.iii.1999, halophilic material, Gouts, Rastelli leg. (1 IADIZA); Catriló, 24.ii.1938, M. Biroben and Scott leg. (5♂ and 2♀ MLPA); Catriló, 24.iii.1938, Biraben leg. (3♂ MLPA); Catriló, no date or collector (1♀ MACN); Cuchillo Có, 1913, A. Copello leg. (1♀ MACN); Cuchillo Có, no date or collector (1♀ MACN); Santa Rosa, 26.iv.1997, Bárbara Corró Molas leg. (1♀ IADIZA); Santa Rosa, Faculdad de Agronomia, 25.iv.1995, Bárbara Corró Molas leg. (1♂ IADIZA); Santa Rosa, Parque Industrial 15.vi.1997, Bárbara Corró Molas leg. (1♂ IADIZA); Santa Rosa, Parque Industrial 2.v.1997, Bárbara Corró Molas leg. (1♂ IADIZA); Toay, Parque Luro Provincial Reserve, xi.2003, Pessino leg. (1♀ IADIZA). **La Rioja,** without specific locality, no date, A. Breyer leg. (1♀ MACN). **Misiones,** without specific locality, no date, A. Breyer leg. (1♀ MACN). **Neuquén,** without specific locality, 1907, Dr. Adolf Lendl leg. (3♂ and 3♀ MNHN). **Río Negro,** Lamarque, 5.xi.1963, M. Fritz leg. (1♂ CVMD); Río Colorado, 13–19.xi.1946, H. and W. leg. (2 IFML); Río Colorado, 14–19.xi.1946, Hayward and Willink leg. (4 IFML); Rio Colorado, 29.ii.1941, M. Biroben leg. (1♂ MLPA); Rio Colorado, no date or collector (1 CEMT); Without specific locality, date or collector (1 MACN); Without specific locality, no date, A. Breyer leg. (1♀ MACN). **San Luis,** 18km S. Arizona, 250m, 18–23.i.1982, H. & A. Howden leg. (1♂ and 10 unsexed CMNC); Arizona, ii.1980, M. Viana leg. (2♂ and 2♀ CVMD); Bajo Hondo, no date or collector (3♂ MLPA); Without specific locality, 21.xii.1925, no collector (1♀ MACN); Without

specific locality, no date or collector (1♂ and 2♀ MLPA). **Tucumán,** without specific locality, date or collector (1♀ MNHN). **Without specific locality,** "Buenos Aires a Corrientes" [going up the Paraná River], 15.ii–15.iii.1827, D'Orbigny leg. (1♀ MNHN). **BRAZIL** [dubious locality]**: without specific locality,** date or collector (1♂ BMNH). **URUGUAY: Montevideo,** without specific locality, no date or collector (1♂ MZLU; 1♀MCZ).

Remarks. The name *Polynoncus argentinus* has had an unstable taxonomic history. It was originally described by Harold (1872) in the genus *Trox*, later synonymized with *Polynoncus gemmifer* (Blanchard 1847) by Vaurie (1962), reinstated as a valid name by Pittino (1987), to be again treated as a synonym of *P. gemmifer* by Scholtz (1990). However, careful examination of the type specimens of both species confirmed these two species are indeed distinct.

Polynoncus argentinus can easily be separated from *P. gemmifer* by absence of setae on the surface of hypomeron (setose in *P. gemmifer*); pronotum with antero-lateral tubercle indistinct, covered by tomentosity (distinct and shiny in *P. gemmifer*); apex of median lobe laterally flattened and lateral margins parallel in dorsal view (apex rhomboidal with lateral margins diverging forward in *P. gemmifer*). Consequently, *P. argentinus* is removed from synonymy with *P. gemmifer*, and reinstated as a separate valid species.

Polynoncus aricensis (Gutiérrez, 1950)

(Figs. 8, 11)

Trox aricensis Gutiérrez, 1950: 63 (original description); Vaurie 1962: 126 (redescription); Steiner 1981: 210 (notes on distribution).

Trox (*Polynoncus*) *aricensis*: Scholtz 1982: 15 (catalogue)

Polynoncus aricensis: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1436 (redescription); Diéguez 2008: 13 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 7 (checklist); Ratcliffe *et al*. 2015: 189 (checklist for Peru); Zídek 2017: 98 (checklist); Costa-Silva & Diéguez 2020: 271 (records from Argentina); Mondaca 2023: 209 (checklist from Chile).

Type-specimens examined. HOLOTYPE, through photographs (♂ MZUC – Fig. 11**).** First label [white, Guillermo Kuschel's handwriting]: "Chile / Putre / Arica / 3 [or 8] 650 [vertical] / XII-46 [vertical] / Kuschel [vertical]". Second label [white with black border]: "Trox ♂ / aricensis [Gutiérrez's handwriting] / R. Gutiérrez-Det. 45 [handwritten]". Third label [white with blue border]: "Colección / R. Gutiérrez / 1958". Fourth label [orange with black border]: "HOLOTIPO ♂". Fifth label [orange]: "*Polynoncus aricensis* / (Gutiérrez, 1949 / HOLOTYPE / MZUC – UCCC Nº 41944" (Fig. 11D). **Type locality:** "Putre, Arica" (now Arica y Parinacota, XV Region), Chile, collected by the Chilean naturalist Guillermo Kuschel Gerdes (1918–2017).

PARATYPES (2 BMNH). First label [white aged, handwriten]: "Putre / 3650 mts. / 23 II – 48". Second label [round with yellow frame, typeset]: "Para- / type". Third label [white aged, handwriten]: "CHILE: Arica. / Putre, 3650 m. / R. Gutierrez Coll / B.M. 1948-510". Fourth label [white aged, Trox / sp. ? nov. / J.Balfour-Browne det." Fifth label [white aged, unknown's handwriting]: "Trox aricensis". Sixth label [white aged, Patricia Vaurie's handwriting]: "Trox / aricensis / Gut. / Vaurie ´61". Seventh label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / aricensis / (Gutiérrez, 1950) / Det. V. Costa-Silva, 2022". Eighth label [white, printed]: "[QR Code] / NHMUK 014596062" **(1 BMNH)**. First label [white aged, handwriten]: "Putre / 3650 mts. / 24 II – 48". Second label [round with yellow frame, typeset]: "Para- / type". Third label [white aged, handwriten]: "CHILE: Arica. / Putre, 3650 m. / R. Gutierrez Coll / B.M. 1948-510". Fourth label [white aged, unknown's handwriting]: "Trox aricensis". Fifth label [white aged, Patricia Vaurie's handwriting]: "Trox / aricensis / Gut. / Vaurie". Sixth label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / aricensis / (Gutiérrez, 1950) / Det. V. Costa-Silva, 2022" **(1 BMNH)**.

Differential diagnosis. *Polynoncus aricensis* could be confused with *P. peruanus* but is distinguished from the latter for lacking distinct teeth on the apex of mesotibia and by the smooth lateral pronotal and elytral margins. *Polynoncus peruanus* has distinct teeth present on the apex of mesotibia and the lateral pronotal and elytral margins serrate or crenulate. For a more detailed description, see Vaurie (1962: 126) and Scholtz (1990: 1436).

Geographic distribution. *Polynoncus aricensis* is recorded for Argentina, northern region of Chile, Bolivia and Peru (Fig. 8). Usually collected at high elevations (~2,000–4,500 meters above sea level).

Examined non-type material (94 specimens). ARGENTINA: Catamarca, Aconquija, 3,000m, 1916, P. Jorgensen and Joel Blamey leg. (4 OUMNH); Aconquija, La Plaza, 2,340m, 1916, P. Jorgensen and Joel Blamey leg. (2 OUMNH); Belén, Reserva de Biósfera de Laguna Blanca, no date, [Bruch's collection], Weiser leg. (1 MACN); Without specific locality, 30.xi.1946, R. Golbach leg. (1 IFML); Without specific locality, no date or collector leg. (2 MLPA). **Jujuy,** La Quiaca, 1944, Cipolletti [?] leg. (1 MNHN); Without specific locality, 1900, [Bruch's collection] (1 MACN); Without specific locality, 1900, [Bruch's collection] (1 MLPA); Without specific locality, 3,400m, 30.xi.1909, [Bruch's collection] (2 MACN); Without specific locality, no data or collector (2 MLPA); Without specific locality, no date collector leg. (5 MLPA). **Salta,** Iruya, Iruya, 20.xi.1981, A. Roig leg. (1♀ IADIZA); Piedra del Molino, 3,640m, i.1988, A. Martinez leg. (1♂ JZPC). **Santiago del Estero,** Juan Felipe Ibarra, Suncho Corral, 1906, Girard leg. (1 IFML). **Tucumán,** Cumbre de Chaquivil, near the Cumbres Calchaquíes, i.1945, D. Olea leg. (6 IFML); Cumbre de Chaquivil, near the Cumbres Calchaquíes, ii.1945, no collector (3 IFML); El Infernillo, 7.xii.2003, sheep carcass, R. Gomez leg. (1 IFML). **BOLIVIA: Cochabamba,** without specific locality, 1889, P. Germain leg. (2 MNHN). **La Paz,** Ancocahua, 3,800m, no date or collector (1♀ CEMT); Omasuyos, Anchacachi, 3,840m, 5.ii.2008, Marcos Ferru leg. (1 CVMD); Omasuyos, Anchacachi, 3,850m, xii.1948, Helen leg. (1 MNNC). **Oruro,** Cosapa, iii.1996, A. Ugarte leg. (1 JZPC); Without specific locality, 3,700m, 9.iii.1940, W. Wittmer leg. (1 BMNH). **Potosí,** Uyuni, 3,660m, no date, wet season, no collector (1 BMNH); Uyuni, 3,660m, xi.1901, no collector (1♂ and 3 unsexed BMNH). **Santa Cruz,** Santa Cruz de La Sierra, 11.xi.1830–v.1831, D'Orbigny leg. (1♀ MNHN). **Without specific locality,** date or collector (1 MNHN). **CHILE: Antofagasta (II Region),** Atacama Desert, no date, Rhamer leg. (1 MNNC). **Arica y Parinacota (XV Region),** Arica, Aduana de Arica, 6.iii.1996, G. Castillo leg. (3 CVMD); Parinacota, Aduana de Visviri, 4,084m, 17º35'51"S, 69º29'0", 28.iii.2015, Llama carcass, G. Arriagada & G. Castillo leg. (1 CVMD); Parinacota, Putre, 18.ii.1999, M. Beeche leg. (1 CVMD); Parinacota, Putre, 3,650m, x.1946, Kusche leg. (1 MNNC); Parinacota, Putre, xi.1948, Kusche leg. (1 MNNC); Parinacota, Putre, xii.1946, Kuschel leg. (1 MZUC); Parinacota, Putre, Zapahuira, 3,210m, 20.iii.2000, Franscisco Ramirez leg. (1♂ and 1 unsexed CVMD); Parinacota, Putre, Zapahuira, 3,225m, 4.iii.2000, Franscisco Ramirez leg. (1♂ and 1 unsexed CVMD); Parinacota, Putre, Zapahuira, 3,250m, 24.iii.2000, Franscisco Ramirez leg. (1♂ and 1 unsexed CVMD). **Tarapacá (I**

Region), Caraguano, 4,200m, i.1998, A. Ugarte leg. (1♂ and 1 unsexed JZPC); Iqueque, Colchane, Enquelga, 3,900m, 10.iii.2001, Marcos Ferru leg. (1 CVMD); Iqueque, Colchane, Pampa Caraguano, 3,900m, 28–30.i.1998, H. Larraín leg. (3 MNNC); Iqueque, Colchane, Pampa Caraguano, 4,000m, 1.ii.1998, Horácio Larraín leg. (1 CVMD); Iqueque, Colchane, Pampa Caraguano, 4,000m, 3.ii.1998, A. Ugarte leg. (1♂ and 1 unsexed CVMD); Iqueque, Colchane, Pampa Caraguano, 4,000m, 30.i.1998, Horácio Larraín leg. (2♀ CEMT); Iqueque, Colchane, Pampa Caraguano, 4,000m, 30.i.1998, Horácio Larraín leg. (2 MUSM); Iqueque, Colchane, Pampa Caraguano, 4,200m, 19º33'50"S, 68º44'24"W, 3.iii.1998, A. Ugarte leg. (6 CEMT); Iqueque, Colchane, Pampa Caraguano, i.1998, F. Vaz-de-Mello leg. (1 CVMD). **PERU: Cusco,** Cusco, 1839, J.B. Pentland leg. (1 MNHN); Without specific locality, 1849, C. Gay leg. (1 MNHN). **Junín,** Tarma, 3,000m, 1942 (4 IFML). **Lima,** Lima, 1847, De Castelnau leg. (2 MNHN). **Puno,** Puno, iii.1998, no collector (2 CVMD); Without specific locality, 3,850m, 5.xi.1949, Kusche leg. (1 MNNC).

Polynoncus bifurcatus (Vaurie, 1962)

(Figs. 10, 12)

Trox bifurcatus Vaurie, 1962: 129 (original description)

Trox (Polynoncus) bifurcatus: Scholtz 1982: 15 (catalogue)

Polynoncus bifurcatus: Scholtz 1986a: 362 (systematics); Pittino 1987: 393 (redescription); Scholtz 1990: 1441 (redescription); Gómez 2008: 517 (key to Argentinean species); Zídek 2013: 7 (checklist); Correa *et al*. 2013: 239-240 (records from centre of Brazil); Zídek 2017: 98 (checklist); Costa-Silva & Diéguez 2020: 271 (records from Argentina).

Polynoncus furcifer Pittino, 1987: 394 (original description); Scholtz 1990: 1441 (synonym); Zídek 2013: 10 (checklist); Zídek 2017: 101 (checklist).

Type-specimens examined. HOLOTYPE (♂ MFNB – Fig. 12**).** First label [old green, typeset]: "O. Bolivien / Prov. Sara / J. Steinbach S.V.". Second label [white, Patricia Vaurie's handwriting]: "Trox / bifurcatus / Vaurie / Type ♂". Third label [red with black frame]: "Holotypus / Nr.". Fourth label [white with black frame, Riccardo Pittino's handwriting]: Polynoncus / bifurcatus (Vaurie) / Det. Pittino 1988" (Fig. 12D).

Type locality: "Prov. [Province] Sara" (eastern Bolivia); the type specimen was collected by Joseph Steinbach (1875–1930), a German naturalist that lived and collected in Bolivia during the first half of the 20th century (Anonymous, 1916; Llave *et al*. 2015).

PARATYPES (1♂ and 3 unsexed MFNB, all with same information data). First label [old green, typeset]: "O. Bolivien / Prov. Sara / J. Steinbach S.V.". Second label [white, Patricia Vaurie's handwriting]: "Trox / bifurcatus / Vaurie / PARATYPE". Third label [red with black frame]: "Paratypus / Nr.".

Type-specimens of *Polynoncus furcifer* Pittino, 1987 (not examined). HOLOTYPE (♂ HNHM). Type locality: "Asunción" (Paraguay), collected by Hungarian biologist János Dániel Anisits (1856-1911) between September and October 1904.

PARATYPES EXAMINED (1♂ [Fig. 13] **and 1♀ MNHN; 3♂ and 1♀ RPMI [through detailed photographs]).** First label [white aged, typeset]: "Paraguay Central / P. Germain / 1885". Second label [green, typeset]: "Museum Paris / ex Coll. / R. Oberthur". Third label [white, Patricia Vaurie's handwriting]: "Trox / bifurcatus / Vaurie / Vaurie '61". Fourth label [white, handwritten]: "♀". Fifth label [red, Riccardo Pittino's handwriting]: "Polynoncus ♀ / furcifer n. sp. / Det. R. Pittino 1987". Sixth label [red, typeset]: "PARATYPUS". Seventh label [white, printed]: "MNHN / EC9640" **(1♀ MNHN)**. First label [white aged, typeset]: "Paraguay Central / P. Germain / 1885". Second label [green, typeset]: "Museum Paris / ex Coll. / R. Oberthur". Third label [white, Patricia Vaurie's handwriting]: "Trox / bifurcatus / Vau. / Vaurie '61". Fourth label [red, typeset]: "PARATYPE". Fifth label [red, Riccardo Pittino's handwriting]: "Polynoncus ♂ / furcifer n. sp. / Det. R. Pittino 1987". Sixth label [white, printed]: "MNHN / EC9639" **(1♂ MNHN** – Fig. 13E**)**. First label [white aged, typeset]: "Brésil / Prov. Matto-Grosso / P. Germain / 1886". Second label [green, typeset]: "Museum Paris / ex Coll. / R. Oberthur". Third label [white, Patricia Vaurie's handwriting]: "Trox / bifurcatus / Vau. / Vaurie '61". Fourth label [red, typeset]: "PARATYPUS". Fifth label [red, Riccardo Pittino's handwriting]: "Polynoncus ♂ / furcifer n. sp. / Det. R. Pittino 1987" **(1♂ RPMI)**. First label [white, typeset]: "Paraguay / Anisits". Second label [white, typeset]: "Asuncion". Third label [red, typeset]: "PARATYPUS". Fourth label [red, Riccardo Pittino's handwriting]: "Polynoncus ♂ / furcifer n. sp. / Det. R. Pittino 1987". Fifth label [white, handwritten]: "COLL. R. PITTINO" **(1♂ RPMI)**. First label [white, typeset]: "Asunción / Paraguay". Second

label [white, typeset]: “EX COLL. / WINKLER, WIEN”. Third label [red, typeset]: “PARATYPUS”. Fourth label [red, Riccardo Pittino’s handwriting]: “Polynoncus ♀ / furcifer n. sp. / Det. R. Pittino 1987” **(1♀ and 1♂ RPMI)**.

Differential diagnosis. *Polynoncus bifurcatus* is most similar to *Polynoncus parafurcatus* but can be readily distinguished from the latter by presence of small yellow setae in the surface of the elytral tubercles. *Polynoncus parafurcatus* has black setae on the tubercles. This characteristic is easier to see with good illumination and a stereomicroscope with 128x magnification. The male genitalia of both species are distinctive. *Polynoncus bifurcatus* has a foliaceous and undulate lateral dilatation in the right side of the medial lobe (Fig. 12C), which is absent in *P. parafurcatus* or indicated with a projection pointed laterally (see figs. 58 and 64 in Pittino 1987: 387). For more details of the description and aedeagus drawings, see Vaurie (1962: 129), Pittino (1987: 387) and Scholtz (1990: 1441).

Geographic distribution. *Polynoncus bifurcatus* is distributed widely in central South America, mainly in the Chaco region. It is recorded from Bolivia, Brazil, Paraguay and Argentina (Fig. 10).

Examined non-type material (134 specimens). ARGENTINA: Catamarca, Without specific locality, 4.xii.2003, sheep carcass, no collector (1 IADIZA); Without specific locality, 4.xii.2003, sheep carcass, no collector (1 IFML). **Chaco,** Capitán Solari, 26º48'45"S, 59º33'19"W, 10.ix.2016, pitfall, wet chaco, C. Guerra-A leg. (1♂ and 7 unsexed CEMT); Resistencia, no date, Mello [Bosq's collection] leg. (1 MLPA); Resistencia, xi.1945, A. Martinez leg. (2♂ SAMC); Río Muerto, 26º7'33"S, 61º40'39"W, 31.x.2016, pitfall, dry chaco, C. Guerra-A leg. (1♂ IEXA); Río Muerto, 26º7'33"S, 61º40'39"W, 31.x.2016, pitfall, dry chaco, C. Guerra-A leg. (1♂ and 1 unsexed CERPE); Río Muerto, 26º7'33"S, 61º40'39"W, 31.x.2016, pitfall, dry chaco, C. Guerra-A leg. (1♂, 2♀ and 14 unsexed CEMT); Without specific locality, 30.x.1986, no collector (3♂ SAMC); Without specific locality, date or collector (1 MACN). **Entre Rios,** Concordia, Salto Grande Bridge, 1979, A. Martinez leg. (1♀ SAMC). **Formosa,** Formosa, i.1905, no collector [Bruch's collection] (1 MACN); Formosa, iii.1905, no collector [Bruch's collection] (1 MACN); Laguna Blanca, iv.1948, I. Morel leg. (1 IFML). **Jujuy,** Without specific locality, no date or collector [Bruch's collection] (1 MACN); Without specific locality, no date or collector [Richter's collection] (1 MLPA). **Misiones,** Without specific locality, date or collector [Bruch's collection] (1 MACN). **Salta,** Capiazutí, xi.1953, M. Viana leg. (1 CVMD); Coronel Moldês, xii.1958, A.

Martinez leg. (1♂ MZSP). **Santiago del Estero,** Pampa de los Guanacos, 25º45'07"S, 61º42'52"W, 31.x.2016, C. Guerra-A leg. (4 CEMT). **Tucumán,** Without specific locality, no date or collector (1 MACN); Without specific locality, xi–xii.1944, R. Golbach leg. (1 IFML); Without specific locality, xi–xii.1944, R. Golbach leg. (5 IFML). **BOLIVIA: Beni,** La Santísima Trinidad, 3.i.1949, Kusche leg. (1 CVMD). **Santa Cruz de la Sierra,** Sara, 450m, x.1909, J. Steinbach leg. (1♂ SAMC); Sara, Cuatro Ojos no date, J. Steinbach leg. (1♂ SAMC); Sara, ii.1958, F. Monrós leg. (1 IFML). **Without specific locality,** date or collector (1 MACN). **BRAZIL: Mato Grosso do Sul,** Aquidauana, 20º26'54"S, 49º38'39"W, 15.x.2011, pitfall trap in carcass, C.M. A. Correa leg. (1♂, 1♀ and 1 unsexed CEMT); Aquidauana, Piraputanga, 20º28'"S, 55º32'39"W, 6.x.2010, pitfall with banana, J.L.N. Oliveira leg. (2 CEMT); Corguinho, Quinta do Sol, 19º49'57"S, 54º49'45"W, ii.2011, human feces, L.O. Bavutti leg. (2♂ CEMT); Corumbá, Alto Paraguay, no date or collector [Richter's collection] leg. (1♀ MLPA); Corumbá, Pantanal do Miranda, i.2000, J.N.C. Louzada leg. (1 CEMT); Corumbá, Pantanal Studies Base, Federal University of Mato Grosso do Sul, 6.x.2011, M.B. Pessoa leg. (5 CVMD); Corumbá, Passo do Lontra, ii.1996, Louzada & Vaz-de-Mello leg. (1♂ and 6♀ CEMT); Corumbá, Passo do Lontra, ii.1996, Louzada & Vaz-de-Mello leg. (1♀ CVMD); Corumbá, São Bento Farm, 19º29'55"S, 57º1'42"W, vi.1999, L. Vieira leg. (1 CEMT); Corumbá, São Judas Farm (Rio Vermelho), 19º36'43"S, 56º57'50"W, iii.1999, L. Vieira leg. (1♂ CEMT); Corumbá, São Judas Farm (Rio Vermelho), 19º36'43"S, 56º57'50"W, viii.1999, L. Vieira leg. (1 CEMT); Corumbá, São Judas Farm (Rio Vermelho), 19º36'43"S, 56º57'50"W, vi.1999, L. Vieira leg. (1 CEMT); Porto Murtinho, Conceição Farm, 21º41'12"S, 57º46'15"W, iii.2011, human feces, L.O. Bavutti leg. (1♂ and 1♀ CEMT); Porto Murtinho, i.1930, R. Spitz leg. (1♀ MZSP); Porto Murtinho, 1929, R. Spitz leg. (1♀ MZSP). **Mato Grosso,** Figueirópolis d' Oeste, Monte Fusco Farm, 308m, 15º31'46"S, 58º38'12"W, 11–13.i.2013, pitfall hum-pig dung, R.J. Silva leg. (1♂ CEMT). **Paraná,** Londrina, Mata dos Godoy State Park, 610m, 23º26'S, 53º50'W, 24.iv.2016, malaise, R. Barros leg. (1♀ CEMT). **PARAGUAY: Boquerón,** Loma Plata, 20–30.i.1995, P. Gerlach leg. (1♂ CVMD); Loma Plata, i.1994, P. Gerlach leg. (1♂ and 1♀ CEMT); Loma Plata, 20–30.i.1994, P. Gerlach leg. (5 CVMD); Alto Paraguay, Puerto Voluntad, 20º42'S, 57º59'W, 5–6.ix.1997, B. Garcete leg. (2♂ and 1♀ CEMT); Cruce Los Pioneros, 7–28.i.1996, P. Gerlach leg. (1♂ and 7 unsexed CVMD); Loma Plata, 8–29.i.1994, P. Gerlach leg. (2♀ CVMD). **Central,** without specific locality, 1889, P. Germain leg. (1♂ and 2♀

MNHN). **Cordillera,** Emboscada, ii.1976, M. Viana leg. (1 total, 1♂, ♀ CVMD). **Itapuá,** Trinidad, x.1913, no collector (1 MLPA). **Paraguarí,** Compañía Naranjo, 16.vii.2001, no collector (2♀ CVMD); Compañía Naranjo, 27.ix.1999, Carlos Aguilar J. leg. (2♂ and 6 unsexed CVMD); Compañía Naranjo, 28.viii.2001, Carlos Aguilar J. leg. (1♂ CVMD); Compañía Naranjo, 6–10.xi.2001, no collector (1♂ CVMD). **Without specific locality,** xii.1936, Le Moult leg. (1♂ SAMC); Without specific locality, no date or collector (1 MLPA).

Remarks. Pittino (1987) described *Polynoncus furcifer* Pittino, 1987 from a small number of specimens collected from Paraguay and Brazil. Despite having identical external morphology to *P. bifurcatus*, Pittino at the time, considered differences on the ventral piece of the median lobe on male genitalia as geographically distinctive and a reliable character to use to distinguish between *P. furcifer* (Paraguay-Brazil) from *P. bifurcatus* (Bolivia). However, Scholtz (1990), during his revision of South American fauna of Trogidae, and after seeing additional material found the differences listed by Pittino to be unreliable to distinguish the two species and synonymized *P. furcifer* with *P. bifurcatus*.

After studying a large series of specimens (> 100) identified as *P. bifurcatus* housed in several collections, we found the variation of the ventral piece of the median lobe, as cited by Pittino (1987) is not specific and can be found within a single series of specimens across populations from Argentina, Bolivia, Brazil, and Paraguay. Thus, we agree with Scholtz (1990) and maintain *P. furcifer* as a junior synonym of *P. bifurcatus*.

Polynoncus brasiliensis (Vaurie, 1962)

(Figs. 14–15)

Trox brasiliensis Vaurie, 1962: 134 (original description)
Trox (*Polynoncus*) *brasiliensis*: Scholtz 1982: 15 (catalogue)
Polynoncus brasiliensis: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1443 (redescription); Bachmann *et al*. 2010: 55 (catalogue of types housed in MACN); Zídek 2013: 8 (checklist); Zídek 2017: 98 (checklist); Costa-Silva & Diéguez, 2020: 271 (records from Argentina).

Type-specimen examined. HOLOTYPE (♂ MZSP – Fig. 14**).** First label [white with black frame, typeset]: "S. Paulo – Ypiranga / [Frederico] Lange de Morretes / Coll. I-XII-1937". Second label [yellow, typeset]: ♂ [typeset]. Third label [red with black frame, printed]: "HOLOTIPO". Fourth label [red, Patricia Vaurie's handwriting]: "TYPE / Trox / brasiliensis / Vaurie" (Fig. 14D). **Type locality:** "Ypiranga", São Paulo (Brazil), collected by Frederico Lange de Morretes (1892–1954).

PARATYPES (2♂, 4♀ and 15 unsexed MZSP). First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. 1-XII-1937" **(1 ♂ MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [yellow, typeset]: "♂". Third label [red with black frame, printed]: "PARATIPO". Fourth label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. 30-XI-1937" **(1 ♂ MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [yellow, typeset]: "♀". Third label [red with black frame, printed]: "PARATIPO". Fourth label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. 30-XI-1937" **(1 ♀ MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [yellow, typeset]: "♀". Third label [red with black frame, printed]: "PARATIPO". Fourth label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. 1-XII-1937" **(2 ♀ MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. 8-XII-1937" **(2 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. 9-XII-1937" **(1 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / XII-1937 / Maria Cardoso coll." **(1 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / Lange de Morretes / Coll. XII-1937" **(1 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox /

brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / XII-1937 / F. Lane coll." **(1 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, typeset]: "S. Paulo – Ypiranga / XI-1937 / F. Lane coll." **(3 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [white, typeset]: "♀". Third label [red with black frame, printed]: "PARATIPO". Fourth label [white, typeset]: "S. Paulo – Ypiranga / X-1937 / F. Lane coll." **(1♀ MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, Hermann Luederwaldt's hanwriting]: "Ypiranga / SP Cap. / dez.1912 / Luederw." **(2 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, Hermann Luederwaldt's hanwriting]: "S. Paulo-Ypiranga / III-1909 / LUEDERW. COLL." **(1 MZSP)**. First label [yellow, Patricia Vaurie's handwriting]: "PARATYPE / Trox / brasilien- / sis / P. VAURIE". Second label [red with black frame, printed]: "PARATIPO". Third label [white, Hermann Luederwaldt's handwriting]: "S. Paulo-Ypiranga / III-1910 / LUEDERW. COLL." **(3 MZSP)**.

Differential diagnosis. *Polynoncus brasiliensis* is morphologically similar to *P. gemmingeri* but can easily be separated from the latter by the presence of a subhumeral ridge on the elytra (Fig 14B – white arrows). *Polynoncus gemmingeri* lack the subhumeral ridge on the elytra. For details of description, see Vaurie (1962: 134) and Scholtz (1990: 1443).

Geographic distribution. This species is known from southeastern South America. It is recorded from Brazil, Paraguay and, for the first time, Argentina (Fig. 15).

Examined non-type material (136 specimens). ARGENTINA: Misiones, Dos de Mayo, xi.2007, E. Abadie leg. (1♂ CEMT); Loreto, iii.1936, no collector (1 MLPA); Without specific locality, no date, H. Richter leg. (1 MLPA). **BRAZIL: Goiás,** Goiânia, Campinas, x.1935, Spitz leg. (1 MZSP); Goiânia, Campinas, xi.1936, S.B. Pessôa leg. (2 MZSP); Leopoldo Bulhões, x.1935, Spitz leg. (1 MZSP). **Minas Gerais,** Campestre, 23.iii.1960, A. Zaneti leg. (1♂ MZSP); Uberaba, Irará Train Station, 1909, Dr. Bach leg. (1 MZSP). **Paraná,** Céu Azul, Iguaçu National Park, 655m, 25º9'0"S,

53º50'0"W, 14.x.2015, Light trap, Atlantic Forest, R. Barros leg. (1♂ CEMT); Curitiba, Barigui, xii.1940, R. Lange leg. (1 DZUP); Curitiba, i.1942, R. Lange leg. (1 DZUP); Curitiba, i.1948, R. Lange leg. (1 DZUP); Curitiba, ii.1942, R. Lange leg. (1 DZUP); Curitiba, ii.1947, R. Lange leg. (1 DZUP); Curitiba, ix.1940, R. Lange leg. (1 DZUP); Curitiba, x.1940, R. Lange leg. (3 DZUP); Curitiba, x.1947, R. Lange leg. (1 DZUP); Curitiba, xi.1940, R. Lange leg. (4 DZUP); Curitiba, xii.1939, R. Lange leg. (1 DZUP); Jaguariaíva, 1.i.1973, F. Giacomel leg. (1 DZUP); Londrina, Mata dos Godoy State Park, 610m, 23º26'0"S, 53º50'0"W, 5.xii.2016, Light trap, R. Barros leg. (1♀ CEMT); Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 19.xi.1987, no collector (1 DZUP); Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 17.v.1988, no collector (1 DZUP); Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 18.i.1988, no collector (1 DZUP); Rio Negro, 24.viii.1970, Mielke leg. (2 DZUP); Banhado iii.1972, P.J. Riehs leg. (1 DZUP). **Rio Grande do Sul,** Bento Gonçalves, ix.2001, C. Arioli leg. (1 CEMT); Bento Gonçalves, ix.2001, C. Arioli leg. (2 CEMT); Caxias do Sul, 23.ix.2014, T. Maschio leg. (1 MCNZ); Caxias do Sul, 24.i.1927, no collector (1 MCNZ); Monte Belo do Sul, 20.ix.2001, C. Arioli leg. (1♂ and 1 unsexed CEMT); Porto Alegre, 11.5.1932, no collector (1 MGAP); Porto Alegre, 16–18.iii.1980, M.E.L. Souza leg. (1 MCNZ); Porto Alegre, 31.x.1961, no collector (1 MGAP); Santa Cruz do Sul, Cerro Alegre, 29º48'17"S, 52º19'59"W, 11.ii.2012, R. Bohn leg. (1 CEMT); Santa Maria, Botanic Garden, Federal University of Santa Maria, 96m, 29º43'03"S, 53º43'31"W, 12.vii.2013, Rat carcass, V. Costa-Silva leg. (1 CEMT); Santa Maria, Morro da Caturrita ii.1993, Witeck leg. (1 MCNZ); Santa Maria, Morro da Caturrita, 24.v.1994, Witeck leg. (8 MCNZ); Santa Maria, Morro da Caturrita, v.1993, Witeck leg. (8 MCNZ); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 1.viii.2016, feces, S. Cassenote leg. (1 CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 1.viii.2016, feces, S. Cassenote leg. (1 CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 14.x.2016, feces, S. Cassenote leg. (2 CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.iv.2017, feces, Atlantic Forest, S. Cassenote leg. (1 EMAC); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.iv.2017, feces, Atlantic Forest, S. Cassenote leg. (1♀ and 3 unsexed CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 19.iv.2017, feces, S. Cassenote leg. (2 CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 28.vi.2016, feces, S. Cassenote leg. (1 CEMT); São Jerônimo, 13–19.viii.1982, T.

Arigony leg. (2 MCNZ); São Jerônimo, 21.vi.1982, M.E.L. Souza leg. (1 MCNZ); São Jerônimo, 5.viii.1982, M.E.L. Souza leg. (1 MCNZ); Silveira Martins, 29º38'0"S, 53º37'0"W, vii.2011, human feces, G. Viegas leg. (4 CEMT); Triunfo, COPESUL [Southern Petrochemical Company], 18.ix–18.x.1993, no collector (9 MCNZ); Triunfo, COPESUL [Southern Petrochemical Company], 23.x–4.xii.2001, pitfall trap, no collector (1 MCNZ); Triunfo, COPESUL [Southern Petrochemical Company], 4.xii–3.i.2002, no collector (1 MCNZ); Viamão, 26.ix.1964, no collector (1 MGAP). **Santa Catarina,** Campos Novos, 27º23'0"S, 51º12'0"W, ii.2014, pitfall with bait, R.C Campos leg. (1 CERPE); Campos Novos, 27º23'0"S, 51º12'0"W, ii.2014, pitfall with bait, R.C Campos leg. (2♂ and 4 unsexed CEMT); Florianópolis, Rio Vermelho, i.1961, Dirings leg. (2 MZSP); Florianópolis, Rio Vermelho, iii.1961, Dirings leg. (1 MZSP); Rancho Queimado, 1,300m, 28º8'21"S, 49º37'51"W, 17.xii.2015, pitfall (meat); P.G. da Silva leg. (2 CEMT); Rio das Antas, i.1953, Camargo leg. (2 MZSP); Seara, Nova Teutônia, 24.xii.1941, Fritz Plaumann leg. (1 MZSP); Seara, Nova Teutônia, 300–500m, 27º11'S, 52º23'W, 24.xii.1963, Fritz Plaumann leg. (1 SAMC); Seara, Nova Teutônia, 300–500m, 27º11'S, 52º23'W, x.1963, Fritz Plaumann leg. (1 MZSP); Seara, Nova Teutônia, no date or collector (1 SAMC); Seara, Nova Teutônia, xii.1963, Fritz Plaumann leg. (1 MZSP); Seara, Nova Teutônia, xii.1963, no collector (2 MLPA); Urubici, São Joaquim National Park, 1,300m, 28º8'21"S, 49º37'51"W, 22.x.2015, pitfall (meat), P.G. da Silva leg. (1♀ CEMT); Without specific locality, x.1932, Maller leg. (1 MZSP). **São Paulo,** Barueri, xii.1966, K. Lenko leg. (1♀ MZSP); Cabreúva, 640m, 23º18'21"S, 47º7'55"W, 29.i.2015, Pig carcass, Atlantic Forest, N. Purgato leg. (1♂ CEMT); Franco de Rocha, 18.v.1950, Rabello leg. (4 MZSP); Itatiba, xii.1935, Worontzow leg. (1 MZSP); Osasco, x.1953, Gaus leg. (1 MZSP); São Paulo, Bela Vista, Rua Maestro Cardim, x.1957, Dirings leg. (1♀ MZSP); São Paulo, Ipiranga, 17.xi.1926, F. Ohaus leg. (1♀ MNHN); São Paulo, Ipiranga, no date or collector (1♂ MZSP); São Paulo, ix.1936, no collector (2 SAMC); São Paulo, Santo Amaro, xii.1961, J. Lane leg. (1 MZSP); São Paulo, Saúde 26.x.1960, P. Biasi leg. (1 MZSP). **PARAGUAY: Amambay,** Pedro Juan Caballero, xi.1998, M.A. Ruíz Díaz leg. (1♂ CEMT). **Concepcion,** Cororo, 20.xii.1999, Jorge Jensen leg. (1 CVMD). **Itapúa,** Without specific locality, 2–28.ii.1991, no collector (1 CVMD).

Polynoncus brevicollis (Eschscholtz, 1822)

(Figs. 15–16)

Trox brevicollis Eschscholtz, 1822: 12 (original description); Solier 1851: 75 (redescription); Lacordaire 1855: 152 (checklist); Harold 1869: 1087 (checklist); Harold 1872: 144, 189 (redescription); Burmeister 1876: 260 (comments); Preudhomme de Borre 1886: 70 (checklist); Bruch 1911: 193 (checklist); Arrow 1912: 54 (catalogue); Blackwelder 1944: 218 (checklist); Gutiérrez 1947: 311 (catalogue from Chile and Argentina); Vaurie 1962: 119 (redescription).

Trox (*Polynoncus*) *brevicollis*: Scholtz 1982: 16 (catalogue)

Polynoncus brevicollis: Scholtz 1986a: 362 (systematics); Scholz 1990: 1425 (redescription); Diéguez 2008: 14 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 8 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 98 (checklist); Smith 2017: 89 (lectotype designated); Costa-Silva & Diéguez 2020: 271 (records from Argentina); Mondaca 2023: 209 (checklist from Chile).

Trox lachrymosus Curtis, 1844: 455 (original description); Harold 1869: 1087 (checklist); Harold 1872: 145, 190 (new synonym); Preudhomme de Borre 1886: 73 (catalogue); Arrow 1912: 54 (as junior synonym of *T. brevicollis*); Vaurie 1962: 119 (as junior synonym of *T. brevicollis*); Scholtz 1982: 16 (as junior synonym of *T. brevicollis*); Scholtz 1990: 1425 (as junior synonym of *T. brevicollis*); Zídek 2013: 12 (checklist – as synonym); Zídek 2017: 103 (checklist – as synonym); Smith 2017: 89 (lectotype designated); Mondaca 2023: 209 (checklist from Chile – as synonym).

Type-specimen examined (through detailed photographs). LECTOTYPE (ZMUM – Fig. 16**).** First label [light brown, handwritten]: "brevicollis [underline] / Esch. / Chili.". Second label [red with black border]: "TROX / BREVICOLLIS / ESCHSCHOLTZ, 1822 [Andrew Smith's handwriting] / LECTOTYPE / A.B.T. SMITH [typeset]". Third label [white with black border]: "Southern Neotropical Scarabs / database # AS2608385 / *Polynoncus brevicollis* / (Eschscholtz, 1822) / DET: A.B.T. SMITH 2006" (Fig. 16C). **Type locality:** "Chili". Probably in Concepción. For details, see Smith (2017).

Type-specimen examined of *Trox lachrymosus* Curtis, 1844 (Fig. 17**). LECTOTYPE (BMNH).** First label [white aged: Valparaiso / 63.43". Second label [white aged]: "Valp". Third label [round with orange frame, typeset]: "Type". Fourth label [white,

Vaurie's handwriting]: "Trox / brevicollis / Esch. / Vaurie '61". Fifth label [orange, Andrew Smith's handwriting]: "TROX / LACHRYMOSUS / CURTIS, 1844 / LECTOTYPE". Sixth label [white with black frame; Andrew Smith's handwriting]: "POLYNONCUS / BREVICOLLIS / (ESCHSCHOLTZ) / ♀ / Det. A.B.T.Smith 2011". Seventh label [white with black frame; printed]: "[QR code] / SCARABS OF / SOUTHERN / SOUTH AMERICA / SSSA3000435". Eighth label [white; printed]: "[QR code]" / NHMUK010364098" (Fig. 17C). **Type locality:** "Valp" [Valparaíso] (Chile), collected by the Australian explorer Philip Parker King (1791–1856) around 1829 (see Smith 2017).

Differential diagnosis. *Polynoncus brevicollis* is most similar to *P. gibberosus* but can be separated from the latter based on the following characteristics: lateral margin of pronotum less flattened than in *P. gibberosus*; odd- and even-numbered costae tubercles more or less with the same height (in *P. gibberosus*, the odd-numbered is distinctly more raised than even-numbered tubercles); the intercostal punctures smaller than even-numbered tubercles, which is the same size in *P. gibberosus*. This species is also similar to *P. aeger*, but can be easily separated from the latter by the absence of subhumeral ridge and basal tubercles of pronotum fused with the pronotal ridges. The male genitalia of these three species are distinctive. For details of description, see Vaurie (1962: 119) and Scholtz (1990: 1425).

Geographic distribution. *Polynoncus brevicollis* is widely distributed in Argentina and Chile (Fig. 15). Vaurie (1962) cited this species from "Brazil", without further information about specific locality and neither where the examined material is housed. In the course of this study, we examined three specimens (2 BMNH and 1 MNHN) labeled as "Brazil" (or "Brésil"): one specimen collected by John Miers (1789–1879), probably in Rio de Janeiro where he lived between 1831 and 1838 (Anonymous 1879) and one specimen without further information housed in BMNH; and one collected by Charles Gaudichaud-Beaupré (1789–1854) during his second excursion to South America aboard the frigate "La Herminie" between 1831–1833 (consult Papavero, 1971 to see the Brazilian states visited by frigate La Herminie). The specimen collected by Gaudichaud-Beaupré has a label with the number "2520" that refers to the data entry in the museum's catalog, showing that the specimen was in fact collected in Valparaíso (Chile), and not in Brazil.

However, even with these old records of *P. brevicollis* from Brazil, the confirmation of occurrence of this species in the country should be treated with caution until new data arises.

Scholtz (1990) cited *P. brevicollis* from Colombia (Bogotá), Paraguay (Santa Fé [Santa Fé del Paraná?]) based on specimens housed in RBINS; and Peru (Callao and "Payla"), from specimens housed in USNM. The specimens from Paraguay and Peru mentioned by Scholtz (1990) could not be traced. However, we examined two old specimens labeled from "Pérou" without further information housed in MNHN, confirmed as *P. brevicollis*. Even with this record, we believe that it is a case of mislabeled specimens.

We suspect that "Payla" (mentioned by Scholtz 1990) refers to Payla Menuko, a mapuche community localized in San Martin de los Andes (Argentina), where other specimens of *P. brevicollis* were already reported. The specimen from Bogotá was also studied by us, confirming the identification made earlier by Scholtz (1990). However, according to our understanding of the geographical distribution of this species and knowledge of the habitat where *P. brevicollis* is usually found (*i.e.*, arid zones), it is possible that this specimen was mislabeled. Thus, we agree with Smith (2017) and these localities reported by Vaurie (1962) and Scholtz (1990) for *P. brevicollis* are considered to be dubious.

Examined non-type material (467 specimens). ARGENTINA: Buenos Aires, Bahía Blanca, no date, C. Darwin [Beagle Voyage] leg. (2 BMNH); Tigre, x.1956, M. Viana leg. (1 CVMD); Without specific locality, date or collector (1 MNHN). **Chubut,** Epuyén, [N.-W. Patagonia (sic!)], 300-900 m, xii.1919, H.E. Box leg. (1♀ BMNH); Trelew, 4.ii.2001, Daniel Rojas Lanus leg. (1 CVMD). **Córdoba,** Río Cuarto, Estación Monte de Los Gauchos, 23.ii.1996, Maceda leg. (1 IADIZA). **Neuquén,** Andalgalá, no date or collector (1 MLPA); Junin de los Andes, 39º57'S, 71º25'W, 12.xi.1990, Endrödy-Younga leg. (9 TMSA); Río Collún-Có, 900m, 19.xii.1973, M. Gentili leg. (1 IADIZA); Río Limay no date or collector (2 MLPA); Río Pucará, x.1956, M. Viana leg. (2 CVMD); San Martín de los Andes, 10.xi.1977, M. Gentili leg. (6 IADIZA); San Martín de los Andes, 15.ii.1980, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 20.ix.1962, M. Gentili leg. (3 IADIZA); San Martín de los Andes, 3.x.1964, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 10.iii.1980, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 10.xii.1992, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 15.x.1977, M.

Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 15.xi.1972, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 15.xi.1979, M. Gentili leg. (1 CEMT); San Martín de los Andes, 640m, 15.xi.1979, M. Gentili leg. (2 IADIZA); San Martín de los Andes, 640m, 20.i.1979, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 25.xi.1979, M. Gentili leg. (1♂ and 2 unsexed IADIZA); San Martín de los Andes, 640m, 25.xi.1979, M. Gentili leg. (1♂ CEMT); San Martín de los Andes, 640m, 5.x.1980, M. Gentili leg. (1 IADIZA); San Martín de los Andes, 640m, 6.ii.1978, M. Gentili leg. (2 IADIZA); San Martín de los Andes, 8.xi.1957, no collector (2 IADIZA); San Martín de los Andes, Arrayan, 950m, 10.x.1980, M. Gentili leg. (3 IADIZA); San Martín de los Andes, ii.1956, A. Martinez leg. (2 MZSP); San Martín de los Andes, Lago Lágar, 650m, 7.xi.1982, M. Gentili leg. (4 IADIZA); San Martín de los Andes, Lago Lágar, Trompul, 1000m, 6.xii.1983, M. Gentili leg. (1 IADIZA); San Martín de los Andes, Lago Lágar, xii .1960, A. Martinez leg. (8 MZSP); San Martín de los Andes, Lanín National Park, i.1951, S. Schajovskoy leg. (1 MLPA); San Martín de los Andes, Lanín National Park, ii.1951, S. Schajovskoy leg. (1 MLPA); San Martín de los Andes, Lanín National Park, xi.1951, S. Schajovskoy leg. (4 MLPA); San Martín de los Andes, Lanín National Park, xii.1951, S. Schajovskoy leg. (3 MLPA); San Martín de los Andes, Quilquihué, 750m, 2.x.1986, M. Gentili leg. (2 IADIZA); San Martín de los Andes, Traful, 690m, 18.xi.1966, M. Gentili leg. (1 IADIZA); San Martín de los Andes, xii.1958, A. Martinez leg. (57 MZSP); San Martín de los Andes, xii.1964, A. Martinez leg. (7 MZSP); Without specific locality, 1907, Dr. Adolf Lendl leg. (1♂ MNHN). **Rio Negro,** Bariloche, no date, H. Richter leg. (5 MLPA); El Bolsón, 1.ii.1959, A. Kovacs leg. (3 BMNH); El Bolsón, 12.x.1958, A. Kovacs leg. (14 BMNH); El Bolsón, 15.i.1959, A. Kovacs leg. (1 BMNH); El Bolsón, 15.x.1958, A. Kovacs leg. (4 BMNH); El Bolsón, 18.xii.1958, A. Kovacs leg. (3 BMNH); El Bolsón, 2.i.1960, A. Kovacs leg. (2 BMNH); El Bolsón, 20.ix.1958, A. Kovacs leg. (2♂ and 10 unsexed BMNH); El Bolsón, 20.x.1958, A. Kovacs leg. (3 BMNH); El Bolsón, 20.xii.1958, A. Kovacs leg. (1 BMNH); El Bolsón, 22.i.1959, A. Kovacs leg. (1♂ BMNH); El Bolsón, 22.xi.1958, A. Kovacs leg. (12 BMNH); El Bolsón, 30.xi.1961, A. Kovacs leg. (1 BMNH); El Bolsón, 5.xii.1958, A. Kovacs leg. (1 BMNH); Lago Mascardi, 840m, 23–31.i.2000, V.M. Diéguez leg. (1 CVMD); Rio Colorado, xii.1930, no collector (1 DZUP); Without specific locality, 1822, H. Cuming leg. (1 BMNH); Without specific locality, 1900, C. Bruch leg. (1 MACN); Without specific locality, date or collector (1 MACN); Without specific locality, date or collector (2 MLPA). **Salta,** General José de San Martin,

Profesor Salvador Mazza [also called "Pocitos"], xi.1959, A. Martinez leg. (1 MZSP). **San Luis,** Desaguadero, xii.2006, Cesar Fortino leg. (1♂ CVMD). **Tucumán,** Concepcion, 6.xii.1959, no collector (1 MZSP); Lules, xii.1957, A. Martinez leg. (2 MZSP). **BRAZIL** [dubious locality]**: Without specific locality,** date or collector (1 BMNH); without specific locality or date, J. Miers leg. (1 BMNH). **CHILE: Araucanía (IX Region),** Cautín, 11.xii.1993, S. Castro leg. (1 CVMD); Cautín, Pucón, 12.i.1954, I. Espinoza leg. (1 CVMD); Cautín, Pucón, 25.i.1954, I. Espinoza leg. (1 CVMD); Cautín, Pucón, Lago Caburga, 345m, 20.ii.1999, Franscisco Ramirez leg. (1 CVMD); Cautín, Temuco, 24.x.1985, S. Escobar leg. (2 MNNC); Cautín, Temuco, 28.x.1985, S. Escobar leg. (2 MNNC); Cautín, Temuco, 7.viii.1985, S. Escobar leg. (2 MNNC); Cunco, Colico Lake, i.1955, no collector (1 MNNC); Curacautin, Cuesta Las Raíces, xii.1999, Alfredo Ugarte leg. (1 CVMD); Malleco, Angol, 10.xi.1944, no collector (1 MNNC); Malleco, Angol, 1951, P. Pereira leg. (1 MZSP); Malleco, Angol, 6.viii.1949, Perelli leg. (1 MNNC); Malleco, Liucura, 14.i.1995, C. Yañez leg. (1 CVMD); Malleco, Lonquimay, i.1992, G. Castillo leg. (2 CVMD); Malleco, Lonquimay, ii.1994, S. Castro leg. (1 CVMD); Malleco, Marimenuco, xi.1965, no collector (1 CVMD); Malleco, Nahuelbuta National Park, 13.ii.2001, B. Guinéz leg. (1 CVMD); Malleco, Paso Pino Hachado, 7.ii.2000, SAG leg. (1 CVMD); Malleco, Termas de Pemehue, i.1946, R. Gutiérrez leg. (2 MNHN); Malleco, Tolhuaca Nationak Park, 17.ii.1997, José Mondaca leg. (2 CVMD); Malleco, Tolhuaca National Park, 19.ii.1997, José Mondaca leg. (1 CVMD). **Bío-Bío (VIII Region),** Alto Cayucupil, 25–31.i.1997, V.M. Diéguez leg. (6 CVMD); Arauco, Isla Mocha National Reserve, 1947, no collector (1 BMNH); Bío-Bío, Laja, i.1977, J. Barriga leg. (1 CVMD); Chillan, Pre-Cordillera, i.1972, no collector (1 CVMD); Chillan, Valle Las Trancas, xii.1995, no collector (1 CVMD); Chillan, Valle Las Trancas, xii.1997, Pedro Ramizes F. leg. (1 CVMD); Concepcion, 25.xi.1954, no collector (1 MNNC); Concepcion, no date or collector (1 MNNC); Concepcion, Talcahuano, 1841, J.B. Hombron leg. (1 MNHN); Mulchén, Termas de Pemehue, ix–xii.1896, no collector (1 MNNC); Ñuble, Chillan, Piedras Comadres, 10.i.1992, Manuel Galvez leg. (1♂ CVMD); Ñuble, Chillan, Piedras Comadres, ii.1998, S. Roitman leg. (1♂ CVMD); Ñuble, Cobquecura, 24.x.1987, Alexis López leg. (7 CVMD); Ñuble, Cobquecura, 6.ii.1992, Pedro Ramizes F. leg. (1 CVMD); Ñuble, Cobquecura, 8.i.1962, P. Ramirez leg. (1 CVMD); Ñuble, Los Lleuques, 12.i.1994, S. Castro leg. (1 CVMD); Without specific locality, 27.i.1992, S. Castro leg. (1 CVMD). **Coquimbo (IV Region),** Choapa, Illapel, 27.ii.1952, no

collector (1 MNNC); Limarí, El Palquí, 15.x.1960, Larraín leg. (1 CVMD); Los Vilos, 16.ix.1983, G. Carrasco leg. (5 MNNC); Los Vilos, 31º53'S, 71º29'W, 3.x.1990, pitfall with meat as bait, Endrödy-Younga leg. (1 TMSA); Los Vilos, Bosque Queredo, 26.ix.1983, G. Carrasco leg. (1 CVMD); Los Vilos, Isla Varde, 22.iii.2002, Douglas Jackson leg. (1 CVMD). **Los Lagos (X Region),** Isla de Chiloe Teroa, 42º44'S, 73º42'W, 25.x.1990, at light, Endrödy-Younga leg. (1 TMSA); Llanquihue, 3.xii.1942, Barros leg. (6 MNNC); Maullín, 19.i.1942, no collector (1 MNNC); Río Peulla, ii.1902, no collector (2 MNNC). **Los Rios (XIV Region),** Llifén, 14.ii.1948, no collector (5 MNNC); Panquipulli, i.1941, no collector (5 MNNC); Paso Carirriñe, 1–7.ii.1999, V.M. Diéguez leg. (1 CVMD); Puente Puñir, 26.ii.1948, no collector (1 MNNC); Riñihue, i.1948, no collector (2 MNNC); Riñihue, xii.1947, no collector (1 MNNC); Termas Chihuio, xii.1947, no collector (1 MNNC); Valdivia, 10.ix.1986, Franscisco Ramirez leg. (1♂ and 8 unsexed CVMD); Valdivia, 11.xii.2001, M. Galvéz leg. (1♂ CVMD); Valdivia, 17.x.1994, no collector (1♂ and 1♀ CEMT); Valdivia, 2.x.1986, E. Krahmer leg. (1 CVMD); Valdivia, 27.xi.1984, Marcos Beeche leg. (1 CVMD); Valdivia, 27.xi.1984, Marcos Beeche leg. (2 CVMD); Valdivia, 28.ix.1986, A. Ugarte leg. (1♀ CVMD); Valdivia, 3.ix.1986, E. Krahmer leg. (1 CVMD); Valdivia, Amargos, 11.ii.1982, no collector (1 MNNC); Valdivia, ix.1986, E. Krahmer leg. (1 MUSM); Valdivia, ix.1986, E. Krahmer leg. (3 CVMD); Valdivia, ix.1996, A. Ugarte leg. (1 JZPC); Valdivia, no date or collector (1 MNHN); Valdivia, no date or collector (1 MNNC); Valdivia, no date or collector (1 MNNC); Valdivia, no date or collector (1♂ and 2 unsexed BMNH); Valdivia, Santo Domingo, ix.1997, A. Ugarte leg. (1 JZPC); Valdivia, xii.1964, S. Castro leg. (2 CVMD). **Maule (VII Region),** Cauquenes, no date or collector (2 MNNC); Constituicion, i.1995, T. Witterheim leg. (1 CVMD); Curicó, Los Niches, 15.i.1992, J.E. Barriga leg. (1 CJEB); Curicó, Los Niches, viii–ix.2004, J.E. Barriga leg. (1 CJEB); Curicó, x.1956, Dirings leg. (2 MZSP); Licanten, 15.xii.1993, L. Peralta leg. (1 CVMD); Talca, Armerillo, ii.1955, no collector (2 CVMD); Talca, Cordillera, 1.xi.1971, G. Zuffi leg. (1 CVMD); Talca, Cordillera, 10.xii.1971, G. Zuffi leg. (1 CVMD). **O'Higgins (VI Region),** Doñihue, 10.xii.1967, no collector (1 CVMD); Machalí, Río Cipreces National Reserve, 19.xi.1995, V.M. Diéguez leg. (2 CVMD); Peumo, xii.1952, E.O.B leg. (1 CVMD); Portezuelo, 2.xi.2004, Manuel Galvez leg. (1 CVMD). **Santiago (Metropolitan region),** Santiago, El Canelo, xi.1949, no collector (3 MNNC); Santiago, El Manzano, xii.1995, no collector (1 CVMD); Santiago, El Monte, 15.v.1997, V. Beeche leg. (1 CVMD); Santiago, La Cisterna,

viii.1950, no collector (2 MNNC); Santiago, Bellavista de la Florida, 7.xi.1952, no collector (1 MNNC); Santiago, Las Condes, Cerro Manquehue, xi.1948, no collector (1 MNNC); Santiago, Maipú, Oscuro, 18–28.ix.1947, L.E. Peña leg. (1 CVMD); Santiago, no date or collector (1 BMNH); Santiago, no date, P. Germain leg. (3 BMNH); Santiago, Pudahuel, Mina Lo Aguirre, 13.viii.1989, Alexis López leg. (1 CVMD); Santiago, Pudahuel, Mina Lo Aguirre, 26.xii.1988, Alexis López leg. (12 CVMD); Santiago, Pudahuel, Mina Lo Aguirre, 26.xii.1988, Alexis López leg. (1 MUSM); Santiago, Renca, viii.1948, no collector (1 MNNC); Talagante, viii.1948, no collector (1 MNNC). **Valparaíso (V Region),** Algarrobo, 21.vii.1951, Kuschel leg. (1 MNNC); El Quisco, 16.viii.1946, no collector (1 MNNC); Quillota, 15.vii.1994, no collector (1 MNNC); San Antonio, Águas Buenas, 23.v.1999, V.M. Diéguez leg. (1 CVMD); San Antonio, Llolleo, i.1962, P. Ramirez leg. (2 CVMD); San Antonio, Llolleo, vii.1960, P. Ramirez leg. (2 CVMD); Viña del Mar, Recreo, 30.viii.1962, Solervicens leg. (1 MNNC); Without specific locality or date, E. von Bibra leg. (1 MNHN); Without specific locality, ii–iii.1830, D'Orbigny leg. (1 MNHN); Without specific locality, 1833, C. Gaudichaud-Beaupré [Exp. L'Herminie] leg. (1 MNHN). **Without specific locality,** 1.v.1903, C. Bruch leg. (1 MACN); Without specific locality or date, E.C. Reed leg. (1 BMNH); Without specific locality or date, H. Jekel leg. (1 MNHN); Without specific locality, 1833, C. Gaudichaud-Beaupré [Exp. L'Herminie] leg. (2 MNHN); Without specific locality, 1833, C. Gay leg. (3 MNHN); Without specific locality, 1834, M. Fontaine leg. (2 MNHN); Without specific locality, 1836, C. Gay leg. (1 MNHN); Without specific locality, 1837, C. Gaudichaud-Beaupré [Exp. La Bonite] leg. (1 MNHN); Without specific locality, 1843, C. Gay leg. (2 MNHN); Without specific locality, 1849, C. Gay leg. (3 MNHN); Without specific locality, 1906, no collector leg. (2 MNHN); Without specific locality, 1906, R.M. Maddleton leg. (2 BMNH); Without specific locality, date or collector (2♂ and 12 unsexed BMNH); Without specific locality, date or collector leg. (1 MNHN); Without specific locality, date or collector leg. (24 MNHN). **PERU: Lima,** without specific locality, date or collector (2 MNHN).

Polynoncus bullatus (Curtis, 1844)

(Figs. 4E, 18–19)

Trox bullatus Curtis, 1844: 444 (original description); Solier 1851: 74 (redescription); Lacordaire 1855: 152 (checklist – as synonym of *T. brevicollis*); Harold 1869: 1087 (checklist); Harold 1872: 54, 189 (redescription); Preudhomme de Borre 1886: 70 (checklist); Felsche 1901: 154 (new senior synonym of *P. patagonicus*); Bruch 1911: 193 (checklist); Arrow 1912: 54 (catalogue); Blackwelder 1944: 218 (checklist – as "*bullata"*); Gutiérrez 1947: 311 (catalogue from Chile and Argentina); Vaurie 1962: 139 (redescription).

Trox (*Polynoncus*) *bullatus*: Scholtz 1982: 16 (catalogue).

Polynoncus bullatus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1419 (redescription); Arias 2000: 70 (Coleopteran list from Chile); Diéguez 2008: 15 (redescription); Gómez 2008: 515 (key to Argentinean species); Zídek 2013: 8 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 98 (checklist); Smith 2017: 91 (lectotype designated); Costa-Silva & Diéguez 2020: 271 (records from Argentina); Muñoz *et al*. 2021: 5 (beetles of forest and plantations from Chile); Jackson & Diéguez 2023: 145–148 (notes of natural history); Mondaca 2023: 209 (checklist from Chile).

Type-specimen examined. LECTOTYPE (BMNH – Fig. 18**).** First label [round with orange border, typeset]: "Type". Second label [white aged]: "Valparaiso / 63.49". Third label [white aged, handwritten]: "Valp." [Valparaíso, Chile]. Fourth label [white aged, handwritten]: "Trox / bullatus Curt.". Fifth label [white, Vaurie's handwritting]: "Trox / bullatus / Curt / Vaurie '61". Sixth label [orange, Andrew Smith's handwriting]: "TROX / BULLATUS / CURTIS, 1844 / LECTOTYPE". Seventh label [white with black border, Andrew Smith's handwriting]: "POLYNONCUS / BULLATUS / (CURTIS) / Det: A.B.T. Smith 2011". Eighth label [white with black border, typeset with QR code in the upper left corner]: "SCARABS OF / SOUTHERN / SOUTH AMERICA / SSSA3000437". Ninth label [white, typeset]: "[QR code] / NHMUK010364099" (Fig. 18C). **Type locality:** "Valp" [Valparaíso] (Chile), collected by the Australian explorer Philip Parker King (1791–1856) around 1829 (see Smith 2017).

Differential diagnosis. *Polynoncus bullatus* have an external morphology similar to *P. patriciae*, and the two species are likely to be confused. In collections they have certainly been confused. However, they can easily be separated by the shape of the

clypeus. *Polynoncus bullatus* has the clypeal margin emarginate in dorsal view (Fig. 4E), while it is truncated in *P. patriciae* (similar to that of *P. patagonicus*; Fig. 4F).

Polynoncus bullatus also resembles another wingless species, *P. patagonicus* (Fig. 52A) but differs externally from the latter by the absence of the ridges connecting the median ridge of pronotum and the anterolateral tubercles, which is clearly visible in *P. patagonicus*. *Polynoncus patagonicus* is generally larger and more elongate than *P. bullatus*. Male genitalia of the three species are distinctive.

Geographic distribution. *Polynoncus bullatus* is common and widely distributed in the central part of Chile, with few records from Argentina, mainly in the Argentinean Andes (see Smith 2017) (Fig. 19).

Both Vaurie (1962) and Scholtz (1982) cited this species from Peru, Bolivia and Uruguay without specific locality data or information about the depository where these specimens are deposited. Of those countries mentioned by last two authors, we studied just two specimens from Peru housed in MNHN: one specimen collected in Lima by Charles Gaudichaud-Beaupré (1789–1854) during his second expedition to South America aboard the frigate "L'Herminie" between 1831–1833 (see Papavero 1971); and other specimen with an old handwritten label citing "Peru" and without further information.

During this study, we have not examined or encountered any specimens of *Polynoncus bullatus* in any of the aforementioned collections originating from Bolivia and/or Uruguay during the study. On this basis we treat the records from these countries (including Peru) with some caution until such time as more material becomes available.

Remarks. *Polynoncus bullatus* is one of the largest species of the genus ranging in length from 15–18 mm. However, during this study we have seen specimens markedly smaller than previously recorded for this species. We examined 23 specimens measuring 11 mm in length. These specimens are from Chile (Coquimbo [six]; Bío-Bío [eight] and Santiago [six]) and Argentina (one specimen from San Juan), and housed in the MNNC and CVMD respectively. Apart from their smaller size, the external characters and male genitalia appears to be identical to that of the much larger specimens.

Examined non-type material (273 specimens). ARGENTINA: Buenos Aires, La Plata, 1897, Rafinesque leg. (1 MNHN); Without specific locality, date or collector (1 MNHN). **Chubut,** Valle del Lago Blanco, 1903, no collector (1 BMNH). **Córdoba,** 17.viii.1987, José L. Brito leg. (2 CVMD). **San Juan,** San José de Jachal,

5.i.2004, G. Castillo leg. (1♂ CVMD). **Tucumán,** Without specific locality, no date or collector (1 MNHN). **Without specific locality,** 1863, Duhamel [?] leg. (2 MNHN). **CHILE: Araucanía (IX Region),** Cautín, Cunco, i.1934, R. Gutiérrez leg. (1 MNHN); Copiapó, 5km S. Incahuasi, 12.ix.1976, Guilermo González leg. (1 CVMD); Malleco, Parque Nacional Nahuelbuta, 13.ii.2001, B. Guinéz leg. (1 CVMD); Malleco, Parque Nacional Nahuelbuta, 25–30.i.2005, V.M. Diéguez leg. (1 CVMD); Pucón, Fundo El Volcán Villarrica, iii.1969, no collector (1 CVMD). **Bío-Bío (VIII Region),** Chillan, Pre-Cordillera, xii.1970, no collector (1 CVMD); Concepción, San Pedro de la Paz, no date or collector (1 MNNC); Ñuble, Chillan, Piedras Comadres, 10.i.1992, Manuel Galvez leg. (1♀ CVMD); Ñuble, Chillan, Piedras Comadres, 10.i.2006, S. Roitman leg. (1 CVMD); Ñuble, Chillan, Piedras Comadres, 6–8.xii.1998, V.M. Diéguez leg. (1 CVMD); Ñuble, Los Lleuques, 10.i.1999, S. Figueroa leg. (1♂ and 2 unsexed CVMD); Ñuble, Los Lleuques, 8.xii.1997, S. Roitman leg. (1♂ CVMD); Ñuble, Los Lleuques, x.1998, Segundo Ocare leg. (2 CVMD); Ñuble, Los Lleuques, xii.1999, S. Ocare leg. (6 MNNC); Ñuble, Perales, 12.iv.2016, Lycalopex culpaeus' feces, V.M. Diéguez leg. (1♂ CVMD); Ñuble, Perales, no date or collector (1 MNNC); Ñuble, Perales, vii.1925, no collector (1 MNNC); Ñuble, Puente Marchant, 17.i.1995, S. Roitman leg. (1♂ CVMD); Ñuble, Puente Marchant, 6–8.xii.1997, V.M. Diéguez leg. (1 CVMD); Ñuble, Puente Marchant, i.1998, V.M. Diéguez leg. (1 EMAC); Ñuble, Puente Marchant, i.1998, V.M. Diéguez leg. (2♂ and 5 unsexed CEMT); Ñuble, Recinto, xii.1953, L. Peña leg. (2 MNNC). **Coquimbo (IV Region),** Choapa, Agua Dulce, km 272 Paramericana Norte, 18.vii.1985, M. Elgueta leg. (2 MNNC); Choapa, Cordillera de Talinay, 20.xi.1947, no collector (1 MNNC); Choapa, Cordillera de Talinay, 23.ix.2000, A. Ugarte leg. (1 CVMD); Choapa, Cordillera de Talinay, 3.vii.1975, J. Solervicens leg. (1 MNNC); Choapa, Huentelauquén, vi.1995, A. Ugarte leg. (1♂ and unsexed JZPC); Choapa, Illapel, x.1942, no collector (2 MNNC); Choapa, Los Vilos, 11.vii.1990 (2 CVMD); Choapa, Los Vilos, 11.x.1982, C. Carrasco leg. (1 CVMD); Choapa, Los Vilos, 16.ix.1983, G. Carrasco leg. (1 MNNC); Choapa, Los Vilos, 28.v–3.vi.1984 (1 CVMD); Choapa, Los Vilos, 31º53’S, 71º29’W, 3.x.1990, pitfall with meat as bait, Endrödy-Younga leg. (2♀ TMSA); Coquimbo, Tongoy, Quebrada El Almendro, 3.vi.1999, Franscisco Ramirez leg. (6 CVMD); Elqui, 10 km S. La Serena, vi.2004, G. Castillo leg. (12 IADIZA); Elqui, Las Barrancas, 3.iv.2004, Solange Veja leg. (1 MNNC); Elqui, Tongoy, 3.vi.1999, no collector (1♂ and 1♀ CEMT); Elqui, Tongoy, Quebrada El Almendro, 65m, 16.viii.1996, F. Ramirez leg. (1 MNNC); Limarí, Parque Nacional

Fray Jorge, 1.v.1999, Jaime Pizarro leg. (1 MNNC); Limarí, Parque Nacional Fray Jorge, 11.x.1992, M. Beeche leg. (1 CVMD); imarí, Parque Nacional Fray Jorge, 14.ix.1947, no collector (1 MNNC); Limarí, Parque Nacional Fray Jorge, 15.i.1999, *Lycalopex culpaeus*' feces, Solange Veja leg. (1 MNNC); Limarí, Parque Nacional Fray Jorge, 7.x.1995, José Mondaca leg. (1 CVMD); Limarí, Quebrada Las Vacas, Parque Nacional Fray Jorge, 16.vii.1997, *Lycalopex culpaeus*' feces, Jaime Pizarro leg. (2 MNNC); Limarí, Socos, 12.ix.1997, José Mondaca leg. (1 CVMD); Puerto Velero, 60m, 22.v.1999, Franscisco Ramirez leg. (2 CVMD); Tongoy, 3.vi.1999, sheep carcass, F. Ramirez leg. (1 IFML); Tongoy, Quebrada El Almendro, 15–20.ix.1999, V.M. Diéguez leg. (2 CVMD); Tongoy, Quebrada El Almendro, 15–20.ix.1999, V.M. Diéguez leg. (2 IADIZA); Tongoy, Quebrada El Almendro, 15–20.ix.1999, V.M. Diéguez leg. (2 MUSM); Tongoy, xi.1999, no collector (1 CVMD); Without specific locality or date, C. Darwin [Beagle Voyage] leg. (2 BMNH); Without specific locality or no date, F. Walker leg. (3 BMNH); Without specific locality, 20.ix.1964, P. Ramirez leg. (1 CVMD). **Los Rios (XIV Region)**, Valdivia, no date or collector (1 MNHN). **Maule (VII Region),** Cauquenes, Reserva Nacional Los Queules, 25–28.i.2003, Manuel Galvez leg. (1 CVMD); Curicó, 29.iv.1943, no collector (4 MNNC); Curicó, iii.1943, no collector (2 MNNC); Linares, Parral, x.1956, Dirings leg. (14 MZSP); Talca, Altos de Vilches, 15.xi.1991, E. Arias T. leg. (2 MNNC); Talca, Vilche Alto, 18.ix.1971, P. Ramirez leg. (1 CVMD). **O'Higgins (VI Region),** Colchagua, NE de Lo Moscoso, 872m, 34º34'15"S, 71º4'40"W, 2–27.ix.2016, M. Elgueta leg. (1 MNNC). **Santiago (Metropolitan Region),** Cerro Manquehue, 15.viii.1984, S. Roitman leg. (1 CVMD); Cerro Manquehue, 6.vi.1985, L. Peña leg. (3 INPA); Cerro Manquehue, 7.x.1982, S. Roitman leg. (1 CVMD); Chacabuco, Colina, El Portezuelo, 2.xi.2004, Manuel Galvez leg. (1 CVMD); Chacabuco, Cuesta La Dormida, 18.v.1996, V.M. Diéguez leg. (1♂ and 5 unsexed CVMD); Cordillera, Cajon del Maipo, Melocotón, xi.1954, no collector (1 MNNC); La Obra, 8.i.1994, A. Fierro leg. (1 CVMD); Lo Barnechea, 2.ix.1967 (2 BMNH); Maipo, Laguna Aculeo, Cuesta El Cepillo, 13.vii.1994, A. Fierro leg. (2 CVMD); Melipilla, El Pangue - E de Tapihue, 670m, 33º15'25"S, 71º12'46"W, 26.x.22.xi.2016, no collector (4 MNNC); Melipilla, Pallocabe, 350m, 30.vii.2001, V.M. Diéguez leg. (1 CVMD); Melipilla, Rapel, 1.vii.1968, C. Gaultier leg. (5 MNNC); Mina Lo Aguirre, 26.xii.1988, Alexis López leg. (6 CVMD); Mina Lo Aguirre, 28.xii.1988, Alexis López leg. (1 CVMD); Peñalolén, v.1953, Olave leg. (2 CVMD); Peñanolén, 20.vi.1953, L.E. Peña leg. (2 CVMD); Pudahuel, Laguna

Caren, 15.12.1989, V.M. Diéguez leg. (3 CVMD); Quebrada de Macul Natural Park, 27.vii.1975, J. Valencia leg. (1 CVMD); Quebrada de Macul Natural Park, 29.vii.1995, V.M. Diéguez leg. (1 CVMD); Quebrada de Macul Natural Park, 3.viii.1995, V.M. Diéguez leg. (1 CVMD); San Carlos de Apoquindo, 26.v.1996, V.M. Diéguez leg. (1 CVMD); Without specific locality, ix.1983, L. Peña leg. (4 MNNC). **Valparaíso (V Region),** Coleman [?], 1903, Crawford Exp. leg. (1 BMNH); El Plateado, 14.vii.1962, J. Solervicens leg. (3 MNNC); Los Perales, 1947, no collector (1 BMNH); Maitencillo, 150m, 17.iv.2005, A. Ramirez leg. (1♂ CVMD); Marga Marga, El Belloto, 1.v.1962, J. Solervicens leg. (1 MNNC); Marga Marga, Reserva Nacional Lago Peñuelas, 364m, 33º11'30"S, 71º26'58"W, 24.x–14.xi.2017, pitfall trap, M. Elgueta & J. Solervicens leg. (3 MNNC); Petorca, Cachagua, iv.1998, A. Ugarte leg. (1♂ and 1 unsexed BMNH); uillota, 5.viii.1994, no collector (4 MNNC); Quillota, Túnel El Melón, 432m, 32º36'48"S, 71º13'51"W, 29.viii–26.ix.2016, M. Elgueta leg. (4 MNNC); Quillota, viii.1894, no collector (1 MNNC); Quillota, x.1995, no collector (1 MNNC); San Antonio, Aguas Buenas, 13.vii.1999, V.M. Diéguez leg. (1 CVMD); San Antonio, Aguas Buenas, 23.v.1999, V.M. Diéguez leg. (3♀ CVMD); San Antonio, Aguas Buenas, 5.iv.2000, V.M. Diéguez leg. (1 CVMD); San Antonio, Llolleo, i.1960, P. Ramirez leg. (3 CVMD); Viña del Mar, Tanque Recreo, 15.viii.1961, J. Solervicens leg. (1 MNNC); Viña del Mar, Tanque Recreo, 23.vii.1966, J. Solervicens leg. (7 MNNC); Without specific data, no date or collector leg. (1 MNNC); Without specific locality, 1833, C. Gaudichaud-Beaupré [Exp. L'Herminie] leg. (1 MNHN); Without specific locality, 1879, no collector (1 MNHN); Without specific locality, 1901, H.R.P. Carter leg. (1 BMNH); Without specific locality, 1905, C.E. Porter leg. (1 MNHN); Without specific locality, date or collector (2 MNHN); Without specific locality, no date, C. Darwin [Beagle Voyage] leg. (2 BMNH); Without specific locality, vi.1836, C. Gaudichaud-Beaupré [Exp. La Bonite] leg. (1 MNHN). **Without specific locality**, no date, T. Tatum leg. (1 BMNH); Without specific locality or date, E.C. Reed leg. (1 BMNH); Without specific locality or date, E.C. Reed leg. (3 MNHN); Without specific locality or date, P. Germain leg. (2 MNHN); Without specific locality, 1833, C. Gaudichaud-Beaupré [Exp. L'Herminie] leg. (1 MNHN); Without specific locality, 1833, C. Gay leg. (1 MNHN); Without specific locality, 1834, Fontaine [?] leg. (2 MNHN); Without specific locality, 1843, C. Gay leg. (2 MNHN); Without specific locality, date or collector (18 MNHN); Without specific locality, date or collector (8

BMNH). **PERU: Lima,** Lima, 1833, C. Gaudichaud-Beaupré [Exp. L'Herminie] leg. (1 MNHN). **Without specific locality,** date or collector leg. (1 MNHN).

Polynoncus burmeisteri Pittino, 1987

(Figs. 19–20)

Polynoncus burmeisteri Pittino, 1987: 380 (original description); Scholtz 1990: 1431 (redescription); Gómez 2008: 516 (key to Argentinean species); Zidek 2013: 8 (catalogue); Zídek 2017: 98 (catalogue); Costa-Silva & Diéguez 2020: 271 (records from Argentina).

Type-specimens examined. HOLOTYPE (♂ MNHN – Fig. 20**).** First label [white aged, Edgar von Harold's handwriting): "Mendoza". Second label [light brown with black border, typeset]: "EX MUSEO / BONVOULOIR". Third label [with aged with black border, typeset]: "MUSÉUM PARIS / 1936 / COLL. A. BOUCOMONT". Fourth label [red, Riccardo Pittino's handwriting]: "Polynoncus / burmeisteri n. sp. / HOLOTYPUS / Det. R. PITTINO 1987". Fifth label [white with black border, typeset]: "MNHN / EC10487" (Fig. 20E). **Type locality: "**Mendoza", Argentina.

PARATYPES (1♂ and 3♀ RPMI [through detailed photographs]; 2♂ and 2♀ MNHN). First label [white, typeset]: "Bella Vista / Arg., Gassner". Second label [white, typeset]: "EX COLL. / WINKLER, WIEN". Third label [red, typeset]: "PARATYPUS". Fourth label [red with black border, Riccardo Pittino's handwriting]: "Polynoncus ♀ / burmeisteri / n. sp. / Det. Pittino 1987" **(1♀ RPMI)**. First label [green, handwritten]: "Bolivia". Second label [white, typeset]: "MUS. LA FERTÉ / 380." [handwritten]. Third label [light brown with black border, typeset]: "Ex-Musæo / D. Sharp 1890". Fourth label [green with black border, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fifth label [red, typeset]: "PARATYPUS". Sixth label [red with black border]: "Polynoncus / burmeisteri n. sp. / Det. Pittino 1987" **(1♀ RPMI)**. First label [white aged, handwritten]: "Mendoza". Second label [green, typeset]: "Museum Paris / ex Coll. / R. Oberthur". Third label [red, typeset]: "PARATYPUS". Fourth label [red with black border, Riccardo Pittino's handwriting]: "Polynoncus ♀ / burmeisteri n. sp. / Det. Pittino 1987" **(1♀ RPMI)**. First label [white aged, handwritten]: "Mendoza". Second label [white]: "EX COLL. / WINKLER, WIEN". Third label [red with black

border, typeset]: “PARATYPUS”. Fourth label [red with black border, Riccardo Pittino’s handwriting]: “Polynoncus / burmeisteri ♂ / n. sp. / Det. Pittino 1987” **(1♂ RPMI)**. First label [white aged, handwritten]: “Mendoza”. Second label [light brown with black border, typeset]: “Ex Musæo / E. Steinheil”. Third label [white, handwritten]: “♀”. Fourth label [light green with black border, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fifth label [red, Riccardo Pittino’s handwriting]: Polynoncus ♀ / burmeisteri n. sp. / Det. R. Pittino 1987”. Sixth label [red, Riccardo Pittino’s handwriting]: “PARATYPUS”. Seventh label [white with black border, typeset]: “MNHN / EC10488” **(1♀ MNHN)**. First label [white aged, handwritten]: “gemmifer / mendoza”. Second label [green with black border, typeset]: “Museum Paris / ex Coll. / R. Oberthur”. Third label [red with black border, typeset]: “PARATYPUS”. Fourth label [red with black border]: “Polynoncus ♀ / burmeisteri / n. sp. [Riccardo Pittino’s handwriting] / Det. Pittino 1987”. Fifth label [white with black border]: “MNHN / EC10489” **(1♀ MNHN)**. First label [ligh brown, handwritten]: “gémifer / Blanchard. / Mendoza”. Second label [white aged with black border, typeset]: “Ex-Musæ / A. SALLÉ / 1897” [vertical, right side]. Third label [light green with black border, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fourth label [white aged, Vaurie’s handwriting]: “Trox / gemmifer / Bl. / Vaurie ‘61”. Fifth label [red with black border]: “PARATYPUS”. Sixth label [red, Riccardo Pittino’s handwriting]: “Polynoncus ♂ / burmeisteri n. sp. / Det. R. Pittino 1987”. Seventh label [white with black border]: “Polynoncus / burmeisteri / Pittino ♂ [Andrew Smith’s handwriting] / Det: A.B.T. Smith 2016 [typeset]”. Eighth label [white, typeset]: “MNHN / EC10490” **(1♂ MNHN)**. First label [ligh brown with black border]: “MUSEUM PARIS / PATAGONIE / AIVES DU RIO NEGRO / H. DE LA VAULX 1897”. Second label [red with black border, typeset]: “PARATYPUS”. Third label [red with black border]: “Polynoncus / burmeisteri ♂ / n. sp. [Riccardo Pittino’s handwriting] / Det. Pittino 1987. Fourth label [white with black border]: “MNHN / EC10491” **(1♂ MNHN)**.

Differential diagnosis. *Polynoncus burmeisteri* is similar to *P. pseudogemmifer* **n. sp.** and *P. argentinus*. However, the last two species have second elytral costae with well-developed tubercles, while *P. burmeisteri* has just a granulate row (see Costa-Silva & Diéguez 2020 – page 270, fig 12).

Polynoncus burmeisteri also bears some resemblances to *P. gemmifer*, but the absence of setae in the hypomeron easily separates it from the latter (see section above). The male genitalia of the four species are very distinctive. For details of description and

differential diagnosis, see Pittino (1987: 380) and Costa-Silva & Diéguez (2020: 269), respectively.

Geographic distribution. *Polynoncus burmeisteri* is recorded from central Argentina, and a single record from Bolivia (one paratype without specific locality) (Fig. 19).

Examined non-type material (14 specimens). ARGENTINA: Buenos Aires, Carmen de Patagones, no date or collector (1♂ MLPA). **Córdoba,** Cabana, 22.xii.1925, no collector (1♂ MLPA); Calamuchita, Hotel El Sauce, x.1975, M. Viana leg. (1♂ CVMD); Calamuchita, Hotel El Sauce, xi.1968, M. Viana leg. (1♂ CVMD); Tanti, ii.1943, M. Biraben leg. (1♂ MLPA). **Mendoza,** Santa Rosa, Reserva de Biosfera de Ñacuñán, 11–13.xii.2002, V.M. Diéguez leg. (1♂ and 1♀ CVMD); Santa Rosa, Reserva de Biosfera de Ñacuñán, 11–13.xii.2002, V.M. Diéguez leg. (2♂ and 1♀ IADIZA); Santa Rosa, Reserva de Biosfera de Ñacuñán, 11–13.xii.2002, V.M. Diéguez leg. (1♂ and 1♀ CEMT). **Río Negro,** Aguada Cecílio, no date or collector (2♀ MLPA).

Polynoncus chilensis (Harold, 1872)

(Figs. 5H, 10, 21)

Trox chilensis Harold, 1872: 137, 189 (original description); Preudhomme de Borre 1886: 70 (checklist); Arrow 1912: 54 (catalogue); Blackwelder 1944: 218 (checklist); Vaurie 1962: 137 (redescription).

Trox (*Polynoncus*) *chilensis*: Scholtz 1982: 16 (catalogue).

Polynoncus chilensis: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1452 (redescription); Diéguez 2008: 16 (redescription); Gómez 2008: 517 (key to Argentinean species); Zídek 2013: 8 (checklist); Zídek 2017: 99 (checklist); Smith 2017: 92 (lectotype designated); Costa-Silva & Diéguez 2020: 271 (records from Argentina); Mondaca 2023: 209 (checklist from Chile).

Type-specimen examined. LECTOTYPE (♂ MNHN – Fig. 21**).** First label [white aged, Harold's handwriting]: "Chile". Second label [white aged, Harold's handwriting]: "chilensis / 25 Harold". Third label [white aged with black frame, typeset]: "Ex Musæo / E.Steinheil". Fourth label [red, Patricia Vaurie's handwriting]: "TYPE / Vaurie ´61". Fifth label [red with black frame, Andrew Smith's handwriting]: "TROX / CHILENSIS

/ HAROLD, 1872 / LECTOTYPE / A.B.T. SMITH". Sixth label [white with black frame, Andrew Smith's handwriting]: "POLYNONCUS / CHILENSIS / (HAROLD) ♂ / Det:A.B.T.Smith 2016". Seventh label [white with black frame, printed]: "[QR code] / SCARABS OF / SOUTHERN / SOUTH AMERICA / SSSA3001567" (Fig. 21E). **Type locality: "**Chile", specific locality unknown. For additional details, see Smith (2017: 92).

Differential diagnosis. *Polynoncus chilensis* is very similar to *Polynoncus mirabilis*. It can be distinguished from the latter by presence of a prominent humeral callus, covering the lateral margin of anterior angles of elytra (Fig. 5H). The male genitalia of the two species are clearly distinct. For details of description and a complete differential diagnosis, see Pittino (1987: 391); Scholtz (1990: 1452) and Diéguez (2008: 16).

Geographic distribution. *Polynoncus chilensis* is known from central and southern Chile, and western Argentina (Fig. 10). These records match with the map presented by Scholtz (1990). Costa-Silva & Diéguez (2020) provide additional records from Argentina.

Examined non-type material (38 specimens). ARGENTINA: Neuquén, Isla Victoria, 40º57'0"S, 71º33'0"W, 29.i.2001, J. Paritsis leg. (1 MNNC). **Rio Negro,** Arroyo Torrontegui, Lago Gutiérrez, 840m, 23–31.i.2000, V.M. Diéguez leg. (1♀ CVMD). **CHILE: Araucanía (IX Region),** Curacautin, Cuesta Las Raíces, xii.1999, Alfredo Ugarte leg. (1 CVMD); Malleco, Laguna María Jesús, i.1980, J. Philippi leg. (2 MNNC); Without specific locality, no date or collector (1 MNNC). **Bío-Bío (VIII Region),** Alto Cayucupil, Cordillera de Nahuelbuta, 23–31.i.1997, V.M. Diéguez leg. (1 CVMD); Alto Cayucupil, Cordillera de Nahuelbuta, 25–31.i.1997, V.M. Diéguez leg. (2 CVMD); Chillan, Las Trancas, xii.1987, P. Gerlach leg. (1♀ CVMD); Pemuco, Fundo Santa Amelia, 15.ii.2009, S. Anguita leg. (1♂ and 1 unsexed CVMD); Alto Cayucupil, Cordillera de Nahuelbuta, 8–13.iii.1998, Danilo Escobar leg. (1♂ CVMD). **Los Lagos (X Region),** Maullin 5 km N [North], 41º37'0"S, 73º36'0"W, 23.xi.1990, ground traps, Endrödy-Younga leg. (2 TMSA); Osorno, Fundo Porvenir, 13.iii.1982, D. Jackson leg. (2♂ CVMD). **Los Rios (XIV Region),** Puyehue Vulcón, 260m, 40º38'0"S, 72º12'0"W, 18.xi.1990, Endrödy-Younga leg. (8 SAMC); Valdivia, 10.ix.1986, Ernesto Krahmer G leg. (1♂ CVMD); Valdivia, ix.1986, E. Krammer leg. (1♂ CEMT); Valdivia, ix.1986, Ernesto Krahmer G leg. (2 CVMD); Valdivia, ix.1986, L. Peña leg. (1♂ JZPC); Valdivia, no date or collector (1 MNNC); Valdivia, Punta Galera (near to Corral),

10.vii.1995, José Mondaca leg. (1 CVMD); Valdivia, Santo Domingo, 23.ix.1990, E. Krahmer leg. (1♀ CEMT). **O'Higgins (VI Region),** Navidad, El Maitén, 4.ix.2010, C. Fortino leg. (1♀ CVMD). **Santiago (Metropolitan region),** Melipilla, 15.vii.2009, ultraviolet light trap, P. Vera leg. (1♂ CVMD). **Without specific locality,** data or collector (1 MZSP); Without specific locality, date or collector (1♂ and 1♀ MNHN).

Polynoncus crypticus Diéguez, 2019

(Figs. 4D, 15, 22)

Polynoncus crypticus Diéguez, 2019: 88 (original description); Mondaca 2023: 209 (checklist from Chile).

Type-specimens examined. HOLOTYPE (♂ MNNC – Fig. 22**).** First label [yellow, typeset]: "HOLOTIPO / *Polynoncus / crypticus* nov. sp. / V. M. Diéguez 2019". Second label [white, typeset]: "CHILE X REGIÓN / 7 km. W. Pargua, Ainco / 25 Diciembre 2010 / Leg. Gerardo Arriagada / Colectados a la luz" (Fig. 22D). **Type locality:** "7 km West of Pargua, Ainco" (or Ahinco), Los Lagos (X Region), Chile.

PARATYPES (1♂ CEMT; 2♂ and 1♀ CVMD). First label [white with black border, typeset]: "Pte. Aserradero / Las Trancas – Chillán / S36º54.95 – W71º27.49 / 1295msnm 29/XII/2016 / Col. Thomas Fichet. Second label [yellow, typeset]: "PARATIPO / *Polynoncus* / *crypticus* nov. sp. / V.M. Diéguez 2019" **(1♂ CEMT)**. First label [White with black border, typeset]: "Chile, Llanquihue / Puerto Montt, 7 km. W de Pargua / Ainco, 25. Diciembre.2010 / leg. Gerardo Arriagada". Second label [yellow, typeset]: "PARATIPO / *Polynoncus* / *crypticus* nov. sp. / V.M. Diéguez 2019" **(1♀ CVMD)**. First label [white with black border, typeset]: "Chile, Malleco / Cuesta Las Raíces / Febrero 2001 / leg. Alfredo Ugarte". Second label [yellow, typeset]: "PARATIPO / *Polynoncus* / *crypticus* nov. sp. / V.M. Diéguez 2019" **(1♂ CVMD)**. First label [white with black border]: "Chile, Capitán Prat / Cochrane, 3.Febrero.1990 / leg. Luis Peña G". Second label [yellow, typeset]: "PARATIPO / *Polynoncus* / *crypticus* nov. sp. / V.M. Diéguez 2019" **(1♂ CVMD)**.

Differential diagnosis. *Polynoncus crypticus* is very similar and often confused with *P. diffluens*. However, the lateral margins of the pronotum in *P. crypticus* are somewhat slightly crenulate with an emargination in front of the acute posterior

angles. *Polynoncus diffluens* not have any emargination and has a round posterior angle of pronotum. For details of description and additional differential diagnosis, see Diéguez (2019: 88).

Geographic distribution. *Polynoncus crypticus* is known from a few localities in Chile where it appears to be associated with *Nothopagus* (Nothofagaceae) forests found in central-southern Chile (Fig. 15). This species also occurs sympatrically with *Polynoncus diffluens*.

Remarks. After re-examination of the type-series of *Polynoncus crypticus*, we observed an acute tooth on the apex of the inner margin of mesotibia present in all the males (in ventral view; Fig. 22B). The latter is clearly absent in females. This character, which was overlooked by Diéguez (2019), is externally visible and sexually dimorphic. No other material was examined beyond the type series.

Polynoncus diffluens (Vaurie, 1962)

(Figs. 5F, 8, 23)

Trox diffluens Vaurie, 1962: 138 (original description);
Trox (*Polynoncus*) *diffluens*: Scholtz 1982: 16 (catalogue).
Polynoncus diffluens: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1454 (redescription); Diéguez 2008: 17 (redescription); Zídek 2013: 9 (checklist); Zídek 2017: 100 (checklist); Smith 2017: 92 (comments); Mondaca 2023: 209 (checklist from Chile).

Type-specimen examined (through detailed photographs). HOLOTYPE (♀ CASC – Fig. 23**).** First label [white aged, handwritten]: "LEYDA / SANTIAGO / CHILE VI-48". Second label [white]: "♀". Third label [red, Patricia Vaurie's handwriting]: "TYPE / Trox / diffluens / ♀ Vaurie". Fourth label [white with black border]: "Southern Neotropical Scarabs / database # AS2617774 / *Polynoncus diffluens* / (Vaurie 1962) ♀ / DET: A.B.T. SMITH 2008". Fifth label [white, typeset]: "California Academy / of Sciences / Type 8054 [handwritten] / No." (Fig. 23C). **Type locality:** "Leyda" [probably the Train Station "Leyda"], localized in the boundaries between Valparaíso and Santiago, Chile.

Differential diagnosis. *Polynoncus diffluens* is related to *Polynoncus crypticus* and can easily be confused with the latter. However, *P. diffluens* can be separate from *P. crypticus* by the differences on the lateral margin of pronotum. In *Polynoncus diffluens* the lateral margin is smooth, while in *P. crypticus* it is slightly wavy with an emargination in front of the basal angle. For details of description, see Diéguez (2019: 90).

Geographic distribution. *Polynoncus diffluens* is endemic to the southern half of Chile (Fig. 8). Diéguez (2008) mentioned the range of distribution of *P. diffluens* from Santiago (Metropolitan Region) to Aisén (XI Region). In addition to the vast majority of material also studied by Diéguez (2008), we also examined material from Valparaíso. For additional records of *P. diffluens* in Chile, see Diéguez (2008) and Mondaca (2023).

Examined non-type material (27 specimens). CHILE: Araucanía (IX Region), Malleco, Lonquimay, ii.1994, S. Castro leg. (2 CVMD). **Bío-Bío (VIII Region),** Ñuble, Chillan, Las Trancas, 1,295m, 36º54"S, 71º27"W, 29.xii.2016, Thomas Fichet leg. (1 CVMD); Ñuble, Chillan, Las Trancas, 17.i.2005, M. Beeche leg. (1 CVMD); Ñuble, Chillan, Las Trancas, 8.i.1997, M. Beeche leg. (1 CVMD); Ñuble, Chillan, Piedras Comadres, 17.i.1992, S. Roitman leg. (1♂ CVMD); Ñubles, Los Lleuques, 4.i.2016, M. Beeche leg. (1 CVMD). **Los Lagos (X Region),** Calbuco, 7 km W Pargua, 25.xii.2010, light trap, G. Arriagada leg. (1♂ CVMD). **Los Rios (XIV Region),** Valdivia, Niebla, Llancahue, 11.xii.2001, M. Galvéz leg. (1♂, 1♀ and 2 unsexed CVMD); Valdivia, Paillaco, 19.ii.1999, E. Piel leg. (1 CVMD); Valdivia, Paillaco, 28.xi.2014, J. Reves leg. (1 CVMD); Valdivia, Panguipulli, Liquiñe, 9–15.ii.1999, V.M. Diéguez leg. (1♀ CVMD); Valdivia, San José de la Mariquina, Mehuin, 23–31.i.1992, no collector (1 CVMD). **O'Higgins (VI Region),** Cachapoal, Machalí, 8.ii.1998, A. Ugarte leg. (2 CVMD); Rancagua, 15.xii.1946, no collector (1 MNNC). **Santiago (Metropolitan Region),** Melipilla, Fundo San Luis Pallocabe, 300m, 10–15.xii.2001, light trap, V.M. Diéguez leg. (1 CVMD; 1♂ CEMT); Melipilla, Villa de San Gerónimo de La Sierra de Alhué, i.1947, no collector (5 MNNC). **Valparaíso (V Region),** Marga Marga, Olmué, i.1950, no collector (1 MNNC).

Polynoncus ecuadorensis (Vaurie, 1962)

(Figs. 24–25)

Trox ecuadorensis Vaurie, 1962: 133 (original description).

Trox (*Polynoncus*) *ecuadorensis*: Scholtz 1982: 16 (catalogue).

Polynoncus ecuadorensis: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1448 (redescription); Kawai 2007: 96 (record from Peru); Zídek 2013: 9 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 100 (checklist).

Type-specimens examined (through detailed photographs). HOLOTYPE (♂ ZMUC – Fig. 24**).** First label [white aged, typeset]: "Quito, Ecuador. / Vorbeck | 10.IX.1925". Second label [red, Patricia Vaurie's handwriting]: "TYPE ♂ / Trox / ecuadorensis / Vaurie". Third label [white, printed]: "zmuc / 00022596" (Fig. 24D). **Type locality:** "Quito, Ecuador". This specimen was collected by a Danish pharmacist and brewer Henrik Emil Vorbeck (1870–1943).

PARATYPES (2♀ MNHN): First label [white aged, typeset]: "MUSÉUM PARIS / ÉQUATEUR / QUITO / R. BENOIST 1930". Second label [white, Emil Haaf's handwriting]: "Trox / sallei Har. / det.Dr.E.Haaf 1953". Third label [white aged, typeset]: "♀". Fourth label [white aged, Patricia Vaurie's handwriting]: "Trox ecua- / dorensis / Vaurie / PARATYPE". Fifth label [white, Patricia Vaurie's handwriting]: "Trox ecuadorensis / Vaurie". Sixth label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus ♀ / ecuadorensis / (Vaurie 1962) / Det. V. Costa-Silva, 2022" **(1♀ MNHN)**. First label [white, typeset]: "Machachi, / Ecuador. / 9-10,000 feet. / Ed. Whymper.". Second label [white aged, typeset]: "♀". Third label [white aged, typeset]: "Ex- Musaeo / H.W.BATES / 1892 [vertical]". Fourth label [white aged, Patricia Vaurie's handwriting]: "Trox ecua- / dorensis / Vaurie / PARATYPE". Fifth label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus ♀ / ecuadorensis / (Vaurie 1962) / Det. V. Costa-Silva, 2022" **(1♀ MNHN).**

Differential diagnosis. This species is most similar to *P. tenebrosus* but can be distinguished from the latter by the presence of distinct humeral callus, which is less developed in *P. tenebrosus* (almost obsolete); scutellum is elongate (almost oval in *P. tenebrosus*); antennae with yellow setae, which is dark in *P. tenebrosus*. Shares with *P. diffluens* and *P. crypticus* the elytral tubercles poorly developed, but can be distinguished from these based on the presence of erect black setae in the surface of elytral tubercles in *P. ecuadorensis*. For details of description, see Vaurie (1962).

Geographic distribution. This rare species is only known from Ecuador (Fig. 25), and a single record from Peru (Kawai 2007). *Polynoncus ecuadorensis* is reported from the high elevations in the Andes (1,000–3,000 meters above sea level; see Vaurie 1962).

Examined non-type material (11 specimens). ECUADOR: Imbabura, Chachimbiro, 18.xi.1984, F. Bravo leg. (1♀ CEMT). **Napo,** without specific locality, date or collector (1♀ MNHN). **Pichincha,** Quito, 16.i.1988, Sanchez leg. (1♀ CEMT); Quito, 2,800m, 12.x.1989, E. Kessles [?] leg. (1♀ CEMT); Quito, Calderón, 25.iii.1997, V. Carvajal leg. (1♂ CEMT); Quito, Cumbayá, 2,300m, 28.xii.1995, M. Torres leg. (1 CEMT); Quito, San Gregorio, 16.i.1988, P. Mendozo leg. (1 CVMD); San Rafael, 2,517m, 16.i.1988, S. Gutierrez leg. (1♀ CEMT); Tumbaco, 2,650m, 15.v.1989, J. Vallejo leg. (1♂ CEMT); Tumbaco, 29.xii.1985, F. Brabo leg. (1♀ CEMT). **Tungurahua,** Env. d'Ambato [San Juan de Ambato], 1930, Irenée Blanc leg. (1♂ MNHN).

Polynoncus erugatus Scholtz, 1990

(Figs. 26–27)

Polynoncus erugatus Scholtz, 1990: 1425 (original description); Gómez 2008: 515 (key to Argentinean species); Zídek 2013: 9 (checklist); Zídek 2017: 100 (checklist); Costa-Silva & Diéguez 2020: 271 (records from Argentina).

Type-specimens examined. HOLOTYPE (♀ IFML – Fig. 26**).** First label [light brown, typeset]: "ARGENTINA / TUCUMAN / El Infiernillo / 3.000 m / 3.I.1974 / Col. A. Willink". Second label [white aged with red border, Clarke Scholtz's handwriting]: "Polynoncus / erugatus / C.H. Scholtz, 1988 / HOLOTYPE". Third label [yellow, typeset]: "COLECCTION / INST. – FUND. M. LILLO / (4000) – S.M. TUCUMAN / TUCUMAN – ARGENTINA". Forth label [white with black border, typeset]: "TCOL238" (Fig. 26C). **Type locality:** "El Infiernillo" [also called El abra del Infiernillo]**,** Tucumán, Argentina.

PARATYPE (♀ IFML). First label [light brown, typeset]: "ARGENTINA / TUCUMAN / El Infiernillo / 3.000 m / 3.I.1974 / Col. A. Willink". Second label [white aged with red border]: "Polynoncus / erugatus / C.H. Scholtz, 1988 [handwritten] / HOLOTYPE

[red, typeset]". Third label [yellow, typeset]: "COLECCTION / INST. – FUND. M. LILLO / (4000) – S.M. TUCUMAN / TUCUMAN – ARGENTINA". Forth label [white with black border, typeset]: "TCOL238".

Differential diagnosis. In its external morphology, this species is very similar to *P. pampeanus*. However, *P. erugatus* can be distinguished from the latter by the presence of slightly raised, usually glabrous, basal pronotal tubercles which is obsolete/absent in *P. pampeanus*. For details of description, see Scholtz (1990: 1425).

Geographic distribution. This species appears to be restricted to the Cordillera Mountain range in northwestern Argentina (Fig. 27).

Examined non-type material (9 specimens). ARGENTINA: Catamarca, San Fernando del Valle de Catamarca, 540m, iv.2005, G.E Acuña leg. (1 CEMT). **Salta,** Capital, 15.i.1985, J.E. Barriga leg. (1♂ CVMD). **Tucumán,** El Infiernillo, 9.xi.1995, G. Flores and S. Roig leg. (1♂ and 2♀ CEMT; 2♂ and 2♀ CVMD).

Remarks. Scholtz (1990) described *Polynoncus erugatus* from three female specimens (see Scholtz 1990:1425) collected in "El Infiernillo – Tucuman". During this study, we found several male specimens from the same locality with identical external morphology to that of the females of *P. erugatus*. However, with regards to the morphology of the male genitalia, there was no difference between males of what we consider to be *P. erugatus* and males of *P. pampeanus*. Despite the similarity of male genitalia, we will keep both species as valid until new data could confirm the possible synonym.

Polynoncus furcillifer Pittino, 1987 **revalidated**

(Figs. 5C, 27–28)

Polynoncus furcillifer Pittino, 1987: 396 (original description); Scholtz 1990: 1442 (synonymized with *Polynoncus parafurcatus*); Zídek 2013: 10 (checklist, as synonym of *P. parafurcatus*); Zídek 2017: 101 (checklist, as synonym of *P. parafurcatus*).

Type-specimens examined (through detailed photographs). **HOLOTYPE (♂ RPMI** – Fig. 28**).** First label [green, typeset]: "Espirito-Santo / Brasil / ex coll. Fruhstorfer.". Second label [white, typeset]: "Dobiasch 1917". Third label [white, typeset]: "EX

COLL. / WINKLER, WIEN". Fourth label [red, Riccardo Pittino's handwriting]: "Polynoncus / furcillifer n. sp. / HOLOTYPUS ♂ / Det. Pittino [typeset] 1987" (Fig. 28C). **Type locality:** "Espirito-Santo", Brazil.

Differential diagnosis. *Polynoncus furcillifer* can be separate from *P. bifurcatus* and *P. parafurcatus* for having pronotal ridges and basal tubercles of the pronotum connected (Fig. 5C). However, it is most morphologically similar to *P. vazdemelloi*, although *P. furcillifer* has the elytral tubercles more prominent and rounded (sometimes elongate) while it is poorly elevated and elongate (at least 2x longer than wide) in *P. vazdemelloi*. The male genitalia and description of *P. furcillifer* are detailed by Pittino (1987: 387).

Geographic distribution. *Polynoncus furcillifer* is widely distributed in the Brazilian Atlantic Forest, going up the south coast to the northeast of the country (Fig. 27). This species also occurs sympatrically with *Polynoncus vazdemelloi*.

Examined non-type material (449 specimens). BRAZIL: Bahia, Boa Nova, Mata do Cipó II, 14º21'6"S, 40º15'4"W, 4.ix.2014, pitfall, J. Maciel leg. (1 CEMT). **Espírito Santo,** Domingos Martins, Pedra Azul State Park, 1,500m, i.2000, Lopes-Andrade & Vaz-de-Mello leg. (1♂ and 3♀ CEMT); Domingos Martins, Pedra Azul State Park, i.2000, Lopes-Andrade & Vaz-de-Mello leg. (1♀ CVMD); Linhares, Vale Natural Reserve, 19º6'18"S, 39º58'27"W, 10.iv.2016, pitfall with human feces, F. Cassar leg. (1 CEMT); Venda Nova do Imigrante, xii.2001, F.Z. Vaz-de-Mello leg. (1♂ and 1♀ CEMT). **Minas Gerais,** Águas Vermelhas, xii.1997, A. Bello & F.Z Vaz-de-Mello leg. (1♂ CEMT); Bocaína de Minas, 22º13'15"S, 44º29'1"W, iii.2019, pitfall, L.O. Cortez et al., leg. (1 CEMT); Brumadinho, 20º07'50"S, 44º06'47"W, xi.2021, P.G. da Silva leg. (1 CEMT); Ijaci, Palmital Farm, FAEPE [Foundation to Support Teaching, Research and Extension] xi.2002, light trap, J. Louzada leg. (1♀ CEMT); Lima Duarte, Ibitipoca State Park, 1,400m, vi.2001, F.Z. Vaz-de-Mello leg. (1♀ CEMT); Pouso Alegre, xii.1952, F.S. Pereira leg. (1♂ MZSP); Vespasiano i.1992, A. Machado leg. (1♀ CEMT); Vespasiano xii.1951, A. Machado leg. (1♀ CEMT); Viçosa, 10.i.1994, J. Louzada leg. (2♂ and 1 unsexed CEMT); Viçosa, 17.i.1994, J. Louzada leg. (2 CEMT); Viçosa, 28.i.1994, J. Louzada leg. (1 CEMT); Viçosa, 30.xii.1993, J. Louzada leg. (1♂ CEMT); Viçosa, 7.xii.1998, J. Moreno & T. Mestre leg. (2 CEMT); Viçosa, Campus UFV [Federal University of Viçosa], i.1995, J. Louzada leg. (3♂ and 6 unsexed CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 15–31.viii.2016, NTP-80 (meat), M. Ix-Balam leg. (1♀ CERPE); Viçosa,

Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 15–31.viii.2016, NTP-80 (meat), M. Ix-Balam leg. (1♀ CEMT and 39 unsexed); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 23.ix.3.x.2016, NTP-80 (meat), M. Ix-Balam leg. (1♂ IEXA); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 23.ix.3.x.2016, NTP-80 (meat), M. Ix-Balam leg. (1♀ and 11 unsexed CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 14–24.x.2016, NTP-80 (meat), M. Ix-Balam leg. (16 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 18–25.xi.2016, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (7 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 24–31.x.2016, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (8 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 9–15.ix.2016, NTP-80 (meat), M. Ix-Balam leg. (5 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 25.xi.6.xii.2016, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (3 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 10–17.vi.2016, NTP-80 (meat), M. Ix-Balam leg. (3 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 1–5.viii.2016, NTP-80 (meat), M. Ix-Balam leg. (5 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 15.vii.1.viii.2016, NTP-80 (meat), M. Ix-Balam leg. (13 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 15–23.ix.2016, NTP-80 (meat), M. Ix-Balam leg. (13 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 6–13.i.2017, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (10 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 10–20.ii.2017, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (1 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 13–20.i.2017, NTP-80 (meat), M. Ix-Balam & A. Ceballos leg. (2 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 20.i.1.ii.2017, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (1 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 1–15.vii.2016, NTP-80 (meat), M. Ix-Balam leg. (4 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 20.ii.6.iii.2017, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (3 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S,

42º51'43"W, 31.x.9.xi.2016, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (6 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 9–18.xi.2016, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (1 EMAC); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 9–18.xi.2016, NTP-80 (meat), M. Ix-Balam & B. Rivas leg. (23 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 15.xii.2016.6.i.2017.2016–2017, NTP-80 (meat), M. Ix-Balam & A. Ceballos leg. (1 EMAC); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 15.xii.2016.6.i.2017.2016–2017, NTP-80 (meat), M. Ix-Balam & A. Ceballos leg. (12 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 6–15.xii.2016, NTP-80 (meat), M. Ix-Balam & A. Ceballos leg. (6 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 1–15.vii.2016, NTP-80 (meat), M. Ix-Balam leg. (1 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 3–7.x.2016, NTP-80 (meat), M. Ix-Balam leg. (2 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 7–14.x.2016, NTP-80 (meat), M. Ix-Balam leg. (15 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 31.viii.9.ix.2016, NTP-80 (meat), M. Ix-Balam leg. (1 IEXA); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 31.viii.9.ix.2016, NTP-80 (meat), M. Ix-Balam leg. (14 CEMT); Viçosa, Mata Atlântica (UFV [Federal University of Viçosa]), 20º47'52"S, 42º51'43"W, 5–15.viii.2016, NTP-80 (meat), M. Ix-Balam leg. (1 CEMT); Viçosa, Mata do Paraíso, 20º47’S, 42º51’W, xii.1996, J. Louzada, Lopes Sperber & Vaz-de-Mello leg. (1♂ and 1♀ CEMT); Viçosa, Mata do Paraíso, 20º47’S, 42º51’W, xii.1998, F.Z. Vaz-de-Mello leg. (2♂ and 2 unsexed CVMD); Viçosa, Mata do Paraíso, i.1996, F.Z. Vaz-de-Mello leg. (1♂ and 2 unsexed CEMT); Viçosa, Mata do Paraíso, i.1996, J. Louzada, Lopes Sperber & Vaz-de-Mello leg. (1♂ and 1♀ CEMT); Viçosa, Mata Prefeitura, xi.2000, F.Z. Vaz-de-Mello leg. (1♂, 1♀ and 1 unsexed CEMT); Viçosa, x.1998, F. Vaz-de-Mello leg. (4 total, 1♂, ♀ CVMD); Without specific locality, no date, Steph. leg. (1 ZSM). **Paraná,** Campina Grande do Sul, Estrada da Mandaçaia 12.viii.2014, FIT [Flight Interceptation trap], F.W.T. Leivas leg. (2 CEMT); Campina Grande do Sul, Estrada da Mandaçaia 25º17'47"S, 49º2'13"W, 4.xii.2013, FIT [Flight Interceptation trap], F.W.T. Leivas leg. (1 CEMT); Campina Grande do Sul, Estrada da Mandaçaia 9–10.xii.2012, F.W.T. Leivas leg. (1 CEMT); Campina Grande do Sul, Estrada da

Mandaçaia, 7–10.iv.2014, FIT [Flight Interceptation trap], F.W.T. Leivas leg. (1 CEMT); Cascavel, Paulo Gorski Municipal Park, 24º57'44"S, 53º26'13"W, 6.i.2017, pitfall with *Puma concolor* feces, A. Bach leg. (3 CEMT); Céu Azul, Iguaçu National Park, 655m, 25º9'S, 53º50'W, 9.xi.2015, Canopy, R. Barros leg. (1♀ CEMT); Céu Azul, Iguaçu National Park, Rio Azul waterfall, -25.131074, -53819797, 661m, 10–16.i.2020, FIT [Flight Interceptation trap], A.D.M.M. Eulálio leg. (1 CEMT); Curitiba, Barigui, ii.1942, R. Lange leg. (1 DZUP); Londrina, Mata dos Godoy State Park, 610m, 23º26'S, 53º50'W, 24.iv.2016, malaise, R. Barros leg. (2♀ CEMT); Londrina, 24.xi.1998, I.M. Medri leg. (2 CEMT); Londrina, xi.2005, Lopes leg. (1♀ CEMT); Morretes, 24.ix.01.x.1984, light trap, C.I.I.F leg. (1 DZUP); Piraquara, 1,038m, 25º29'33"S, 48º58'41"W, 13.iii.2012, FIT [Flight Interceptation trap], F. Leivas & P. Grossi leg. (1 CEMT); Rancho Alegre, 22.xi.2007, pitfall with meat, T.L. Coppo leg. (1 CEMT); Rancho Alegre, Congonhas Farm, 21.vi.2007, pitfall trap with feaces, J. Lopes leg. (1 CEMT); Rancho Alegre, Congonhas Farm, 580m, 22º47'45"S, 51º0'12"W, 27.xii.2012, P.M. Felix leg. (2♂ CEMT); Rancho Alegre, Congonhas Farm, 580m, 22º47'45"S, 51º0'12"W, 28.iii.2013, P.M. Felix leg. (1♀ CEMT); Rio Negro, 11.i.2017, L. Fogaça leg. (1 CEMT); Rolândia, ii.1960, Dirings leg. (1 MZSP); Rolândia, x.1952, Dirings leg. (1 MZSP); Rolândia, xii.1957, no collector (1 DZUP); São Mateus do Sul, ii.1957, H. Rodr. [sic!] leg. (1 MZSP); São Mateus do Sul, x.1956, H. Rodr. [sic!] leg. (1 MZSP); Tamarana, 6.xi.2000, light trap, Lopes et al., leg. (1♂ CEMT); Telêmaco Borba, Samuel Klabin residencial 23.x.1987, no collector (1 DZUP). **Rio de Janeiro,** Nova Friburgo, Lumier, xi.2008, E. Grossi leg. (1♂ CVMD); Nova Friburgo, Macaé de Cima, 1,400m, ix–x.2008, FIT [Flight Interceptation trap], no collector (1♀ CVMD); Nova Friburgo, Macaé de Cima, 1,400m, ix–x.2008, FIT [Flight Interceptation trap], no collector (1♂ CVMD); Nova Friburgo, Macaé de Cima, 1,400m, v.2007, FIT [Flight Interceptation trap], no collector (1♀ CVMD); Nova Friburgo, Macaé de Cima, 1,500m, 22º22'S, 42º29'W, 15.xii.2005, E. & P. Grossi leg. (1♀ CEMT); Nova Friburgo, Macaé de Cima, 1,500m, iii.2000, Lopes-Andrade, Gumier & Vaz-de-Mello leg. (1♂ CEMT); Nova Friburgo, Macaé de Cima, i.1999, P. Grossi leg. (1♂ and 1♀ CEMT); Nova Friburgo, Macaé de Cima, i.2000, FIT [Flight Interceptation trap], E. & P. Grossi leg. (2♀ and 1 unsexed CEMT); Nova Friburgo, Macaé de Cima, i.2006, B. Miller leg. (1♂ CEMT); Nova Friburgo, Macaé de Cima, ii.2006, E.J. Grossi leg. (1♂ CEMT); Nova Friburgo, Macaé de Cima, x.2000, P. Grossi leg. (2 CEMT); Nova Friburgo, Macaé de Cima, xii.2001, E. & P. Grossi leg. (1♂ CEMT); Teresópolis, 2–5.xii.1958, Martínez,

Werner, Alvarenga & Seabra leg. (1 DZUP); Teresópolis, H. Deyrolle leg. (1 BMNH). **Rio Grande do Sul,** Monte Belo do Sul, 20.ix.2001, C. Arioli leg. (1♂ CEMT); Riozinho, 29º38'59"S, 50º27'16"W, 20–23.x.2010, human feces, G. Viegas leg. (1♂ CEMT); Santa Cruz do Sul, Cerro Alegre, 29º48'19"S, 52º19'53"W, 11.ii.2012, R. Bohn leg. (1 CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.iv.2017, S. Cassenote leg. (2♂, 1♀ and 1 unsexed CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 28.vi.2016, feces, S. Cassenote leg. (1♀ CEMT); Silveira Martins, 29º38'S, 53º37'W, vii.2011, pitfall carrion, G. Viegas leg. (4♂, 2♀ and 2 unsexed CEMT); Triunfo, Southern Petrochemical Company, 26.ix–23.x.2001, pitfall trap, no collector (2♂ and 3 unsexed MCNZ); Triunfo, Southern Petrochemical Company, 23.x–04.xii.2001, pitfall trap, no collector (1 MCNZ); Triunfo, Southern Petrochemical Company, 18.ix–18.x.1993, pitfall trap, no collector (4♂ and 18 unsexed MCNZ); Triunfo, Southern Petrochemical Company, 18.ix–18.x.1993, pitfall trap, no collector (1 CEMT); Triunfo, Southern Petrochemical Company, 03.i–06.ii.2002, pitfall trap, no collector (5 MCNZ); Triunfo, Southern Petrochemical Company, 23.x–04.xii.2001, pitfall trap, no collector (3 MCNZ); Triunfo, Southern Petrochemical Company, 28.viii–26.ix.2001, pitfall trap, R. Ott leg. (2 unsexed MCNZ); Triunfo, Southern Petrochemical Company, 28.viii–26.ix.2001, pitfall trap, R. Ott leg. (1♂ CEMT); Triunfo, Southern Petrochemical Company, 06.ii.12.iii.2002, pitfall trap, R. Ott leg. (1 MCNZ); Triunfo, Southern Petrochemical Company, 12.iii–16.iv.2002, pitfall trap, R. Ott leg. (1 MCNZ); Triunfo, Southern Petrochemical Company, 17.x.1993, pitfall trap, no collector (32 MCNZ); Triunfo, Southern Petrochemical Company, 17.x.1993, pitfall trap, no collector (2 CEMT); Porto Alegre, Lami José Lutzenberger Biological Reserve, 7–27.vii.2006, pitfall trap, R. Moraes leg. (1♂ and 1 unsexed MCNZ). **Santa Catarina,** Corupá, ix.1959, no collector (1 DZUP); Florianópolis, Lagoa do Peri, 27º43'S, 48º32'W, 2007, A. Martins & M. Hernández leg. (1♀ CEMT); Rancho Queimado, 800m, 27º41'22"S, 49º0'52"W, 16.xii.2015, human feces, P.G. da Silva leg. (1♂ and 1♀ CEMT); Santo Amaro da Imperatriz, 500m, 27º44'30"S, 48º48'41"W, 22.iv.2016, pitfall (meat), P.G. da Silva leg. (1♀ CEMT); Timbó, v.1962, Dirings leg. (1 MZSP); Tubarão, 13.vii.2018, R.B. Goulart leg. (3 CEMT). **São Paulo,** Atibaia, 10.ix.1971, J. Halik leg. (1 MZSP); Barueri, 13.xii.1955, K. Lenko leg. (1 MZSP); Cabreúva, 640m, 23º18'21"S, 47º7'55"W, 15.vii.2015, Pig carcass, N. Purgato leg. (1♀ CEMT); Cabreúva, 640m, 23º18'21"S, 47º7'55"W, 20.vii.2015, Pig carcass, N. Purgato leg. (1♂ CEMT); Cabreúva, 640m, 23º18'21"S,

47º7'55"W, 23.vii.2015, Pig carcass, N. Purgato leg. (1♀ CEMT); Cabreúva, 640m, 23º18'21"S, 47º7'55"W, 24.vii.2015, N. Purgato leg. (1♀ and 1 unsexed CEMT); Cabreúva, 640m, 23º18'21"S, 47º7'55"W, 6.viii.2015, Pig carcass, N. Purgato leg. (1♂ CERPE); Cabreúva, 640m, 23º18'21"S, 47º7'55"W, 6.viii.2015, Pig carcass, N. Purgato leg. (1♂ and 1♀ CEMT); Itamambuca, Serra do Mar State Park - Santa Virginia center, 23º19'27"S, 45º5'10"W, 18.i.2012, human faces, E. Bovy leg. (1♂ CVMD); Presidente Epitácio, Rio Paraná (Porto Cabral), 1–25.iv.1944, Trav. Fo., Carrera & E. Dente leg. (1 MZSP).

Remarks. Pittino (1987: 396) described *Polynoncus furcillifer* based on a single male specimen. Later, Scholtz (1990: 1442) synonymized *P. furcillifer* with *P. parafurcatus* Pittino, 1987 on the grounds of their similar external morphology. During this study we examined a large series of specimens (n = 443) from several museum collections, which allowed us to study intraspecific variation, and evaluate the synonymy enacted by Scholtz (1990). Our examination of the additional material (including type specimens) confirmed the presence of two distinct morphotypes. The consistent differences observed in external morphology and in the shape and structure of the male genitalia of the two nominal species agree with Pittino's (1987) original treatment. Based on our findings we have no doubt that *P. furcillifer* is a valid species. The name *Polynoncus furcillifer* is hence in this paper removed from synonymy with *P. parafurcatus*, and reinstated as valid.

Polynoncus galapagoensis (Van Dyke, 1953)

(Figs. 29–30)

Trox galapagoensis Van Dyke, 1953: 124 (original description); Vaurie 1962: 131 (redescription); Linsley and Usinger 1966: 152 (list of Galapagos species); Franz 1985: 96 (list of Galapagos species).

Trox (*Polynoncus*) *galapagoensis*: Scholtz 1982: 16 (catalogue).

Polynoncus galapagoensis: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1447 (redescription); Zídek 2013: 10 (checklist); Zídek 2017: 101 (checklist).

Type-specimen examined (through detailed photographs). HOLOTYPE (♀ CASC – Fig. 29**).** First label [white aged with the right wing glued]: "R.L. wing.". Second label

[white aged, typeset]: “Culpepper I. / Galapagos Is. / IX – 05”. Third label [white aged, typeset]: “Coll. By / F.X. Williams”. Fourth label [red, Van Dyke’s handwriting]: “Trox / galapagoensis / HOLOTYPE [typeset] / E.C. Van Dyke”. Fifth label [white, typeset]: “♀”. Sixth label [white aged with black border]: “Trox / galapagoensis / Van Dyke”. Seventh label [white, typeset]: “California Academy / of Sciences / Type 7409 [handwritten] / No.” (Fig. 29C). **Type locality:** “Culpepper I. [Island]” (currently named Darwin Island), Galápagos Archipelago.

Differential diagnosis. This rare wingless species is known only from the Galapagos Islands. It is similar to *Polynoncus seymourensis* (Van Dyke, 1953), the only other species of *Polynoncus* occurring on the islands. *Polynoncus galapagoensis* differs from the latter in that the humeral calli are obsolete and the elytral tubercles are round and contiguous, forming distinct ridges over the length of elytra. The humeral calli are present in *Polynoncus seymourensis* (fully winged) and the elytral tubercles seldom form continuous ridges.

Geographic distribution. *Polynoncus galapagoensis* is endemic to the Galapagos Islands (Fig. 30). Vaurie (1962) mentioned a single record of *P. galapagoensis* from Wenman (Wolf) Island based on one elytron examined. Later, Scholtz (1990) recorded 19 additional specimens from Culpepper Island. Apart from the type specimen (from Culpepper [Darwin] Island), no other specimen was examined by us.

Polynoncus gemmifer (Blanchard, 1847)

(Figs. 27, 31–32)

Trox gemmiferus Blanchard, 1847: 187 (original description/misspelling); Lacordaire 1855: 152 (checklist); Harold 1872: 148, 190 (redescription and correction of the specific name).

Trox gemmifer: Burmeister 1876: 261 (redescription); Preudhomme de Borre 1886: 72 (checklist); Bruch 1911: 193 (checklist – as “gemmiferus”); Arrow 1912: 56 (catalogue); Blackwelder 1944: 218 (checklist).

Trox haafi Vaurie, 1962: 122 (**new synonymy**); Scholtz 1982: 16 (catalogue); Scholtz 1986a: 362 (systematics – as *Polynoncus haafi*); Scholtz 1990: 1431 (redescription – as *Polynoncus haafi*); Gómez 2008: 516 (key to Argentinean species – as *Polynoncus*

haafi); Zídek 2013: 11 (checklist – as *Polynoncus haafi*); Zídek 2017: 102 (checklist – as *Polynoncus haafi*); Smith 2017: 95 (records and comments – as *Polynoncus haafi*); Costa-Silva & Diéguez 2020: 272 (records from Argentina – as *Polynoncus haafi*).

Type-specimen examined. LECTOTYPE HERE DESIGNATED (♀ MNHN – Fig. 31**).** First label [white aged, typeset]: "MUSEUM PARIS / PATAGONIE / (PATAGONES) / D'ORBIGNY 1834". Second label [rounded, d'Orbigny's handwriting]: "6033 / 34". Third label [green with black bars on each side, Blanchard's handwriting]: "gemmiferus / Bl." Fourth label [white, Patricia Vaurie's handwriting]: "Trox / haafi / Vaurie". Fifth label: [white, typeset]: "♀". Sixth label [red, printed]: "PARATYPE". Seventh label [red with black frame, printed]: "LECTOTYPE / Trox gemmifer / Blanchard, 1847 / des. V. Costa-Silva, 2022". Eighth label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / gemmifer / (Blanchard, 1847) / Det. V. Costa-Silva, 2022" (Fig. 31D). **Type locality:** "Patagones" [Village de Patagones] (=Viedma), Río Negro (Argentina). The type specimen was collected by the French naturalist Alcide Charles Victor Marie Dessalines d'Orbigny (1802–1857) in 1829 during his famous *'Voyage dans l'Amérique méridionale*' between 1826 and 1833. The label "6033" corresponds to a data entry in d'Orbigny collection catalog (number 1034), where in his observations he mentioned that individuals of the species are common and can be found on the coast as well as inland. He also observed these beetles being active at night, although not very agile.

Type-specimen examined of *Trox haafi* Vaurie, 1962 (NEW SYNONYM). HOLOTYPE (♂ MNHN – Fig. 32**).** First label [light green with black border, typeset]: "MUSEUM PARIS / PATAGONIE / GOLFE ST-GEORGES [San Jorge Gulf] / COLI-HUAPI / A. TOURNOÜER 1903". Second label [red]: "TYPE [typeset] / Trox / haafi / Vaurie [Patricia Vaurie's handwriting]". Third label [red with black border]: "TROX / HAAFI / VAURIE / ♂ [Patricia Vaurie's handwriting] / HOLOTYPE [typeset]. Fourth label [white with black border]: "SCARABS OF / SOUTHERN / SOUTH AMERICA / SSSA3001568" (Fig. 32E). **Type locality:** "Golfe St.-Geoges, Coli-Huapi" (=Colhué Huapi Lake), southern Chubut, Argentina. According to the type labels, the holotype was collected by the French André Tournoüer (1871–1929) in one of his paleontological expeditions in the Patagonia between 1898 and 1903 (Tournoüer 1903;

Buffetaut 2020). In his work, Tournouër presents a map showing all localities that he explored during these expeditions (see Tournouër 1903: 465, figure 2), including the Colhué Huapi lake (called by Tournouër as "Coli-Huapi").

PARATYPE (♀ MNHN). The paratype is the same specimen of *Trox gemmifer* lectotype (see comments section).

Remarks. Blanchard (1847: 187) originally described *Trox gemmifer* from a single female specimen collected by d'Orbigny. Later, Vaurie (1962), in her revision of South American Trogidae, stated the original type specimen could not be traced (page 120) and was presumed lost or missing. However, we located this type specimen (Fig. 31) at MNHN. We found one female specimen bearing Émile Blanchard's signature handwritten green type label – "gemmiferus Bl." [= "gemmifer" see *Polynoncus gemmiferus* (Blanchard, 1847) for explanation) (Horn *et al*. 1990: 59), as well as carrying a round label corresponding to d'Orbigny catalog entry "6033 / 34" (Fig. 31D). There can be no doubt that this specimen in MNHN is the original type and the one Blanchard had before him when he described *Trox gemmifer*. Much to our surprise we found that this same specimen is also one of the paratypes in the type series of *Trox haafi*, which was described by Vaurie (1962: 122) in her revision of South American Trogidae, and even stating that this specimen was from Oberthür collection housed in MNHN. We think Vaurie failed to recognize Blanchard's label designating this specimen as the type of *Trox gemmifer*.

Differential diagnosis. *Polynoncus gemmifer* is the only species of the genus that has long black setae in the hypomeron (Fig. 31C, white arrow) and antennae with back setae. For details of description, see Vaurie (1962: 122).

Geographic distribution. This species, even rare in collections, seems to be widely distributed in Argentina (Fig. 27). In addition, Scholtz (1990: 1431) mentioned two specimens from Monte Aymond (Santa Cruz), but these individuals could not be traced.

Examined non-type material (8 specimens). ARGENTINA: Chubut, Epuyén, [N.-W. Patagonia (sic!)], 300-900 m, xii.1919, H.E. Box leg. (1♂ and 1 unsexed BMNH). **Mendoza,** San Carlos, 17km E [East] Refugio Alvarado, Reserva Natural Laguna del Diamante, 1,704m, 35º15'22"S, 69º12'4"W, 19.xi.2012, horse carcass, G. Arriágada leg. (1 CEMT); San Carlos, 17km E [east] Refugio Alvarado, Reserva Natural Laguna del Diamante, 1,704m, 35º15'22"S, 69º12'4"W, 19.xi.2012, horse carcass, G. Arriágada leg. (1♂ CVMD). **Neuquén,** Los Lagos, Río Caleufú,

xi.1964, A. Giai leg. (1♀ CVMD); Río Collon Cura, 650m, 10.ii.1994, M. Gentili leg. (1 IADIZA); Salado River valley, cattle carcass, 950m, 14.xii.1974, M. Gentili leg. (1 IADIZA); Without specific locality, 1907, Dr. Adolf Lendl leg. (1♀ MNHN).

Polynoncus gemmiferus (Blanchard, 1847)

(Figs. 33–35)

Trox gemmiferus Blanchard, 1847: 188 (original description).

Trox guttifer Harold, 1868: 86 (replacement name and validation - *nomen novum*); Harold 1869: 1088 (checklist); Harold 1872: 146, 190 (redescription); Burmeister 1876: 261 (as variety of *T. gemmifer*); Preudhomme de Borre 1886: 73 (checklist, as variety of *T. gemmifer*); Arrow 1912: 56 (as variety of *T. gemmifer*); Blackwelder 1944: 218 (checklist, as variety of *T. gemmifer*); Vaurie 1962: 124 (redescription).

Trox (*Polynoncus*) *guttifer*: Scholtz 1982: 16 (catalogue).

Polynoncus guttifer: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1435 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 11 (checklist); Zídek 2017: 102 (checklist – as "*gutifer*").

Polynoncus gemmiferus: Zídek 2013: 10 (as *n. praeocc.*); Zídek 2017: 101 (as n. praeocc.); Smith 2017: 94–95 (original spelling to species); Costa-Silva & Diéguez 2020: 272 (records from Argentina).

Type-specimen examined. LECTOTYPE HERE DESIGNATED (♀ MHNH – Fig. 33**).** First label [white aged with black frame, typeset]: "MUSEUM PARIS / PATAGONIE / (PATAGONES) / D'ORBIGNY 1834". Second label [rounded, d'Orbigny's handwriting]: "6031 / 34". Third label [white aged, d'Orbigny's handwriting]: "1032.". Fourth label [white]: "♀". Fifth label [green with black bars on each side, Blanchard's handwriting]: "margaritiferus / Bl.". Sixth label [red with black frame, printed]: "LECTOTYPE / Trox gemmiferus / Blanchard, 1847 / des. V. Costa-Silva, 2022". Seventh label [white with black frame, Vinícius Costa-Silva's handwriting]: Polynoncus ♀ / gemmiferus / (Blanchard, 1847) / Det. V. Costa-Silva, 2022" (Fig 33C). **Type locality:** "Patagones" [Village de Patagones] (=Viedma), Río Negro (Argentina), collected by A. d'Orbigny between January and September 1829. According to the d'Orbigny catalogue (number 1032), these individuals are found in sandy and dry

places, hiding beneath or inside carcasses; at night they are more active searching for food resources.

Differential diagnosis. Even though the confluent pattern of elytral tubercles in *P. gemmiferus* resembles that of *P. pampeanus*, the presence of humeral calli and distinct basal tubercles on the pronotum easily separate the former from the latter.

Vaurie (1962), in her revision of South American Trogidae cited and illustrated a variation on the basal tubercles of pronotum (Vaurie 1962:125). According to the author, there are two different forms of basal tubercles on pronotum: one with the basal tubercles and pronotal ridges distinctly separate (Fig. 34A), and another form with basal tubercles broader and partly fused to the pronotal ridges (Fig. 34B). After examined and dissected more than 90 specimens, we concluded that this characteristic is, in fact, a marked sexual dimorphism of *P. gemmiferus*, where the males, which are generally larger in size, have the basal tubercle much thinner and widely separate of the pronotal ridges, while in females these basal tubercles tend to be broader and weakly fused to the pronotal ridges (see Fig. 34 to comparison).

Geographic distribution. *Polynoncus gemmiferus* is widely distributed in Argentina with a single record from Paraguay (Fig. 35). Vaurie (1962) examined one specimen from Chile without specific locality data; however, this specimen could not be traced by us.

Examined non-type material (317 specimens). ARGENTINA: Buenos Aires, Bahía San Blas, no date or collector (1 MACN); Carmen de Patagones, no date or collector (1 MLPA); Carmen de Patagones, no date or collector [Burmeister's collection] (1 MACN); La Plata, no date, A.R. Bezzi leg. (1♂ and 1♀ MLPA); Tapalqué, no date or collector [Bruch's collection] (2 MACN). **Chubut,** Epuyén, [N.-W. Patagonia (sic!)], 300-900 m, xii.1919, H.E. Box leg. (3♂ BMNH); Península Valdés, 1.iii.1998, D. Rojas Lanus leg. (1♂ and 3♀ CVMD); Península Valdés, i.2004, Carlos H. Ferreira leg. (1♀ MZSP); Península Valdes, Punta Delgada, ii–iii.1998, Daniel Rojas Lanus leg. (2♂ and 13 unsexed CVMD); Península Valdes, Punta Delgada, ii–iii.1998, Daniel Rojas Lanus leg. (1♂ and 1♀ MUSM); Río Senguer, Río Mayo, 30.i.1997, F. Ricci leg. (1♂ and 1♀ CVMD); Río Senguer, Río Mayo, 30.i.1997, J. Mondaga leg. (1 CVMD); Sarmiento, Colhué Huapi, Cerro Negro, 15.ii.1927, no collector [Bruch's collection] (1 MACN); Tehuelches, 3km NE Libertador San Martín, 721m, 17.xi.2014, V. Silvestro, R. Carrara, G. Cheli, G. Flores leg. (1♀ IADIZA); Telsen, 3.ii.2011, under Guanaco [*Lama guanicoe*] carcass, G. Arriagada leg. (1♀ CVMD); Valle del Lago

Blanco, 1903, no collector (1♀ BMNH); Without specific locality, no date or collector (1 MLPA); Without specific locality, no date or collector [Bruch's collection] (1 MACN); Without specific locality, no date, G. Pellegrano leg. (3 MACN); Without specific locality, no date, H. Richter leg. (1 MLPA); Without specific locality, no date, H. Richter leg. (2♂ and 1♀ MLPA). **Córdoba,** Without specific locality, no date or collector [Burmeister's collection] (1 MACN). **Entre Rios,** Pueblo Liebig, xii.1997, Mateo Zelich leg. (1♂ CVMD). **La Rioja,** Ruta 60, 5.ii.2002, horse carcass C. Medina leg. (2♂ UPTC). **Mendoza,** 17 km E [East] Refugio Alvarado, Reserva Laguna del Diamante, 1,704m, 34º15'22"S, 69º12'4"W, 19.xi.2012, horse carcass, Gerardo Arriagada leg. (2♂ and 3 unsexed CVMD); Desaguadero, 9.i.2000, S. Esparza leg. (1♀ CVMD); Dique El Nihuil, 10.i.1980, Willink, Fidalgo, Claps y Domingos leg. (4♀ IFML); Dique El Nihuil, iii.2002, C.A Medina leg. (1♂ and 1♀ CEMT); Isla Cochicó, no date or collector (1 MLPA); Malargüe, Reserva Natural La Payunia, Puesto La Senillosa, 20.ii.1998, A. Atencio leg. (1♂ IADIZA); Malargüe, Reserva Natural Payunia, 1,575m, 35º59'59"S, 68º52'55"W, 2.xii.2015, horse carcass, F. Aballay leg. (1♀ IADIZA); Malargüe, Reserva Natural Payunia, 2,028m, 35º40'47"S, 68º41'40"W, 6.i.2016, F. Aballay leg. (9♂ and 6♀ IADIZA); Malargüe, Reserva Natural Payunia, Puesto Mina Ethel, 1,672m, 36º0'4"S, 68º50'11"W, 4.i.2016, F. Aballay leg. (2♂ and 3♀ IADIZA); San Carlos, Reserva Laguna del Diamante, 1,800m, 31.xii.2014, F. Aballay & F. Jofré leg. (2♂ and 6♀ IADIZA); San Carlos, Reserva Laguna del Diamante, 1,800m, 31.xii.2015, F. Aballay & F. Jofré leg. (10♂ and 9♀ IADIZA); San Carlos, Reserva Laguna del Diamante, 2,200m, 31.i.2015, F. Aballay leg. (2♂ and 4♀ IADIZA); San Rafael, 1.ii.1979, Sergio Roig leg. (1♀ IADIZA); San Rafael, no date, Sergio Roig leg. (2♂ IADIZA); Santa Rosa, Reserva de Biosfera de Ñacuñán, 10.iii.2014, collected with light trap, G. Arriagada leg. (1 CVMD); Santa Rosa, Reserva de Biosfera de Ñacuñán, 11–13.xii.2002, V.M. Diéguez leg. (3♂ and 1♀ IADIZA); Santa Rosa, Reserva de Biosfera de Ñacuñán, 11–13.xii.2002, V.M. Diéguez leg. (4 CVMD); Santa Rosa, Reserva de Biosfera de Ñacuñán, 16.ii.1982, S. Claver leg. (1♂ and 1♀ IADIZA); Santa Rosa, Reserva de Biosfera de Ñacuñán, 3.xii.1981, S. Claver leg. (2♂ IADIZA); Santa Rosa, Reserva de Biosfera de Ñacuñán, i.1976, Sergio Roig leg. (1♀ IADIZA); Villa San Carlos, no date or collector (1 MACN); Without specific locality or date, P. Strobel leg. (1♂ and 1♀ MNHN); Without specific locality, data or collector (3♂ MNHN); Without specific locality, no date or collector (3 MLPA); Without specific locality, no date or collector [Burmeister's collection] (1 MACN);

Without specific locality, no date or collector [Burmeister's collection] (1 MACN); Without specific locality, no date, H. Richter leg. (2 MLPA); Without specific locality, no date, H. Richter leg. (1♀ CEMT); Without specific locality, xi.1946, Moyano leg. (1♂ and 1 unsexed IFML). **Neuquén,** Bajada Marucho, 650m, 21.iii.1974, M. Gentili leg. (3♀ IADIZA); Bajada Marucho, 870m, 4.xii.1972, M. Gentili leg. (1♂ IADIZA); Confluencia, Estación Challacó, 1900, Dr. Schiller leg. [Bruch's collection] (1 MACN); Lácar, Río Caleufú, xi.1964, D. Giai leg. (1 CVMD); Laguna Blanca National Park, 1,270m, 21.ii.1966, M. Gentili leg. (1♀ IADIZA); Laguna Blanca National Park, 1,270m, xii.1965, A. Giai leg. (4♀ IADIZA); Laguna Blanca, 20.i.1971, no collector (1♂ JZPC); Lotena, Granito, 800m, 13.x.1971, M. Gentili leg. (1♂ IADIZA); Piedra del Aguila, 525m, 7.ii.1992, M. Gentili leg. (1♀ IADIZA); Plaza Huincul, 5.iv.1920, no collector [Bruch's collection] (1 MACN); Plaza Huincul, 600m, 21.x.1970, M. Gentili leg. (1♀ IADIZA); Reserva Provincial Auca Mahuida, El Cruce, 600m, 9.x.1982, M. Gentili leg. (1♀ IADIZA); Río Limay, no date or collector (3 MLPA); Sañico, 900m, 14.iii.1972, M. Gentili leg. (2♀ IADIZA); Santo Tomas, 600m, 5.x.1972, M. Gentili leg. (1♀ IADIZA); Without specific locality, 1900, Weiske leg. (1 MLPA); Without specific locality, 1907, Dr. Adolf Lendl leg. (2♂ MNHN); Without specific locality, no date, H. Richter leg. (4 MLPA); Zapala, 15–21.vii.1949, Monrrós leg. (1♂ and 1♀ IFML); Zapala, 18–22.xii.1946, Hayward y Willink leg. (1♂ and 3♀ IFML); Zapala, Catutoa, 1,080m, 17.ii.1968, M. Gentili leg. (2♀ IADIZA); Zapala, Villa Militar de Covunco 29.x.1962, M. Gentili leg. (2♀ IADIZA). **Rio Negro,** Aguada Cecílio, no date or collector (15 MLPA); Aguada Cecílio, no date or collector (9 MLPA); Cerro Tapiluque, 19.iii.1915, no collector (17 MLPA); Cerro Tapiluque, no date or collector (20 MLPA); Cerro Tapiluque, no date or collector (4♀ CEMT); Ministro Ramos Mexía Corral Chico, no date or collector (30 MLPA); Pichi Mahuida, Rio Colorado, xii.1930, [J. Bosq's collection] (1 MLPA); Pichi Mahuida, Rio Colorado, xii.1930, A. Breyer leg. (5 MACN); Village de Patagones [=Viedma], ii.1829, D'Orbygni leg. (1♀ MNHN); Without specific locality, 1900, [Bruch's collection] (1 MLPA); Without specific locality, date or collector (2♂, 4♀ and 2 unsexed MACN). **Santa Cruz,** Deseado, Punta Peligro [also called Punta Maqueda], xi.2005, no collector (1♀ IADIZA); Puerto Deseado, ii.1962, no collector (3 MACN); Without specific locality, date or collector [Bruch's collection] (1 MACN). **Tucumán,** Without specific locality, i–ii.1884, L. Dormer leg. (1♀ BMNH); Without specific locality, date or collector (1♂ and 1♀ MNHN). **Without specific locality,** "Patagonie", Aucey [?] leg. (1♀ MNHN); "Patag",

no date or collector (1♀ MNHN). **PARAGUAY: Capital District,** Asunsión, no date or collector (2♂ RBINS).

Remarks. The name *Polynoncus guttifer* was proposed by Harold (1868) to replace the name *Trox gemmiferus* Blanchard, 1847: 188 to avoid the homonym with *Trox gemmiferus* Blanchard, 1847: 187. As first mentioned by Smith (2017), the valid name for the species is *Trox gemmiferus* (currently *Polynoncus gemmiferus*) and should be used as a nomenclatural priority according to the International Commission on Zoological Nomenclature (1999) (for details, see Smith 2017). We are in agreement with Smith's (2017) conclusions.

Note. After examining of the type of *Trox gemmiferus* (not examined by earlier authors), it became clear that the mistake made by Blanchard (in naming two species with the same spelling) was made only in the writing of the manuscript. According to the label found on the type species, Blanchard intended to name the species "*margaritiferus*", as can be seen in Fig. 33C.

Polynoncus gemmingeri (Harold, 1872)

(Figs. 5B, 36–37)

Trox gemmingeri Harold, 1872: 134, 190 (original description); Preudhomme de Borre 1886: 72 (checklist); Luederwaldt 1911: 420 (list of necrophagous beetles from São Paulo); Arrow 1912: 56 (catalogue); Blackwelder 1944: 218 (checklist); Vaurie 1962: 128 (redescription).

Trox (*Polynoncus*) *gemmingeri*: Scholtz 1982: 16 (catalogue).

Polynoncus gemmingeri: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1440 (redescription); Gómez 2008: 517 (key to Argentinean species); Zídek 2013: 7 (catalogue); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 98 (catalogue); Costa-Silva & Diéguez 2020: 272 (records from Argentina); Correa *et al*. 2022: 3 (list of Scarabaeoidea from Brazilian caves).

Type-specimen examined. LECTOTYPE HERE DESIGNATED (MNHN – Fig. 36**).** First label [green]: "goyaz" [handwitten]. Second label [light brown with black border]: "Ex-Musæo / H.W. BATES / 1892 [vertically]. Third label [blue]: "gemingeri **/** Harold." [handwritten]. Fourth legal [white]: "MUSEUM PARIS / 1952 / coll. R. OBERTHÜR

[typeset]. Fiveth label [red]: “SYNTYPE” [typeset]. Sixth label [white]: “SYNTYPE” / Polynoncus / gemmingeri (Harold, 1872) [typeset]. Seventh label [white]: “MNHN / EC9641” [typeset] (Fig. 36C). **Type locality:** “Goyaz” [Goiás], Brazil. Probably in the east, near to the territorial limits between Goiás and Minas Gerais. The type series was collected by the German naturalist Johann Baptist Ritter von Spix (1781–1826) during his travels to South America between 1817–1820 (Papavero 1971; also see Spix & Martius 1823, 1828, 1831).

Differential diagnosis. This species is most similar to *P. brasiliensis*, but the two can be easily separated by the following characteristics: absence of subhumeral carina, which is present in *P. brasiliensis* (Fig. 14B); tubercles on the odd-numbered costae rounded and punctate, while is elongate in *P. brasiliensis*; the pronotal ridges not fused with the basal tubercle in *P. gemmingeri* and fused in *P. brasiliensis*; the meso and metatarsus with claws longer than first respective tarsomere in *P. gemmingeri* and of the same length or less in *P. brasiliensis*. The male genitalia of the two species are distinctive. For details of description, see Vaurie (1962: 128) and Scholtz (1990: 1440).

Geographic distribution. This species is widely distributed to the southern half of South America. It is recorded from Brazil, Peru, Bolivia, Paraguay, Uruguay, and Argentina (Fig. 37). The geographical distribution of *P. gemmingeri* in those countries match with the earlier revisions of the group conducted by Vaurie (1962) and Scholtz (1990). However, this study expands the geographical distribution of this species based on more than 450 examined specimens.

Ratcliffe (2002) cited this species from Panama, but without further information on the specific locality, nor repository where the specimen is housed. To date we have not seen, nor studied specimens of *P. gemmingeri* occurring north of 10°S. We thus treat this record from Panama as dubious.

Examined non-type material (508 specimens). ARGENTINA: Buenos Aires, Almirante Brown, Burzaco, 12.iii.1939, no collector (1 CVMD); Almirante Brown, Burzaco, 8.ii.1940, no collector (1 CVMD); Balcarce, Sierra La Barrosa, ix.1983, A. Roig leg. (1 IADIZA); Buenos Aires, Isla Martín Garcia, iv.1935, Daguerre leg. (2 MACN); Buenos Aires, Isla Martín Garcia, no date or collector (1 MACN); Buenos Aires, Merlo, Pontevedra, i.1947, no collector (1 MACN); Buenos Aires, no date or collector (1 MACN); Buenos Aires, no date, A. Beyer leg. (2 MACN); Buenos Aires, San Nicolas de los Arroyos, x.2003, D. Carpintero, Ciechino & J.E. Barriga leg. (1 CJEB); Buenos Aires, San Nicolas de los Arroyos, xii.2002, D. Carpintero leg. (1

CVMD); Centro Agrícola El Pato, iii.2003, D. Carpintero, Kahler & J.E. Barriga leg. (1 CJEB); La Plata, 10–30.xi.1982, Sergio Roig leg. (1 IADIZA); La Plata, M.B. Gonnet, 7.v.1957, Frotta leg. (1 MLPA); La Plata, no date, A.R. Bezzi leg. (1 MLPA); La Plata, Río Santiago, 15.xii.1907, Bruch leg. (1 MACN); Mar del Plata, 11.i.2000, D. Rojas Lanus leg. (1♂ CVMD); Martinez, no date or collector (2 MLPA); Miramar, i.1977, Sergio Roig leg. (1 IADIZA); Miramar, iii.1970, no collector (3 MACN); Olavarría, iv.1947, F. Monros leg. (1 SAMC); Puan, no date or collector (1 SAMC); Reserva Ecológica Costanera Sur, canal Viamonte, 4.i.2009, D.J. Carpintero leg. (1 CJEB); Rosário de Santa Fé, no date, A. Stevenin leg. (3 MACN); San Isidro, iii.1954, no collector (1 MLPA); San Isidro, v.1955, no collector (1 MLPA); Tandil, xii.2002, pitfall, D. Carpintero leg. (3♂ and 1 unsexed CVMD); Tigre, i.1946, M. Viana leg. (1♂ and 1 unsexed CVMD); Without specific locality or date, G. Pellegrano leg. (1 MACN); Without specific locality, 1909, C. Grant leg. (1♂ BMNH); Without specific locality, 2.xi.1908, J.B. leg. (1 MACN); Without specific locality, 20.ii.1919, J.B. leg. (1 MACN); Without specific locality, 30.vi.1908, J.B. leg. (1 MACN); Without specific locality, 6.iii.1908, J.B. leg. (1 MACN); Without specific locality, date or collector (1 MNHN); Without specific locality, i.1977, no collector (2 CVMD); Without specific locality, no date or collector (1 MACN); Without specific locality, no date, Schimpf S.K. leg. (1♂ MFNB). **Chaco,** Charata, xii.1995, S. Bolle leg. (1♂ 1 unsexed BMNH). **Córdoba,** 25km S de la Alta Gracia, 18.xi.1975, L. Stange leg. (1 IFML); Alpa Corral, 10km W, 895m, 32º38'45"S, 64º45'42"W, 4.ii.2009, UV light, F.C. Ocampo and K. Sheldon leg. (1 IADIZA); Alpa Corral, 32º41'13"S, 64º42'50"W, 2.ii.2009, F.C. Ocampo leg. (1 IADIZA); Bialet Massé, 11.i–3.ii.1976, A. Willink leg. (1 IFML); Calamuchita, Los Reartes, x.1972, M. Viana leg. (1♂ and 1♀ CVMD); Casa Bamba, El Diquecito, xii.1964, A. Martinez leg. (1 MZSP); Fauna Nature Reserve Laguna La Felipa, 14.i.2003, Puma feaces, R. Gomez leg. (1 MNHN); Jesús María, 4.vi.1940, Maldonado leg. (1 MLPA); Laguna La Helvecia [Fishing Club], 14.i.2003, R. Gomez leg. (2♂ CVMD); Río Cuarto, 20.xi.2002, pig carcass, R. Gómez leg. (2 IADIZA); Río Cuarto, UNRC [National University of Río Cuarto], 13.ii.2002, R. Gomez leg. (1 MNHN); Río Cuarto, UNRC [National University of Río Cuarto], 20.xi.2002, R. Gomez leg. (1 IADIZA); Río Cuarto, UNRC [National University of Río Cuarto], 20.xi.2002, pig carcass, R. Gomez leg. (2 IFML); Río Cuarto, UNRC [National University of Río Cuarto], 4.v.2002, no collector (1 IFML); Río Cuarto, Vicuña Mackenna, xi.1965, M. Viana leg. (1♀ CVMD); San Bartolomé, 842m, 3.ii.2009, B.

Maldonado leg. (4 IADIZA); San Bartolomé, 842m, 32º44'54"S, 64º43'38"W, 3–7.ii.2009, K. Sheldon and F.C. Ocampo leg. (1 IADIZA); San Javiar, 14.i.1982, Willink leg. (2♂ and 3 unsexed IFML); Santa Rosa de Calamuchita, Hotel El Sauce, x.1975, M. Viana leg. (1♀ CVMD); Santa Rosa de Calamuchita, Hotel El Sauce, xi.1968, M. Viana leg. (1♂ and 1 unsexed CVMD); Santa Rosa de Calamuchita, xii.1941, no collector (1 DZUP); Unquillo, 1.iii.1926, no collector (1 MLPA); Unquillo, 13.ii.1926, no collector (1 MLPA); Unquillo, 22.i.1926, no collector (1 MLPA); Unquillo, 25.xii.1925, no collector (1 MLPA); Unquillo, 28.i.1926, no collector (1 MLPA); Unquillo, 9.i.1926, [Bruch's collection] (1 MACN); Unquillo, 9.ii.1926, no collector (1 MLPA); Villa Yacanto, ii.1972, M. Viana leg. (1♂ CVMD); Villa Yacanto, no date, A. Stevenin leg. (1 MACN); Without specific locality, iv.1967, L.E. Peña leg. (2♂ CVMD); Without specific locality, no date, J. Frenzel S. leg. (2 MFNB). **Corrientes,** Ituzaigó, ii.1978, M. Viana leg. (3 CVMD); Mburucuyá, Manantiales, ix.1974, M. Viana leg. (2 CVMD); Mburucuyá, Manantiales, xi.1947, M. Viana leg. (1 CVMD); Mburucuyá, Manantiales, xii.1976, M. Viana leg. (1 CVMD); Santo Tomé, i.1927, G. Pellegrano leg. (2 MACN); Santo Tomé, i.1928, G. Pellegrano leg. (4 MACN); Santo Tomé, i.1929, G. Pellegrano leg. (1 MACN); Santo Tomé, ix.1923, G. Pellegrano leg. (1 MACN); Santo Tomé, ix.1923, G. Pellegrano leg. (1 MACN); Santo Tomé, ix.1928, G. Pellegrano leg. (3 MACN); Santo Tomé, no date or collector (2 MACN); Santo Tomé, v.1926, G. Pellegrano leg. (3 MACN); Santo Tomé, x.1926, G. Pellegrano leg. (2 MACN); Santo Tomé, xi.1923, G. Pellegrano leg. (1 MACN); Santo Tomé, xi.1926, G. Pellegrano leg. (3 MACN); Santo Tomé, xii.1925, G. Pellegrano leg. (2 MACN); Santo Tomé, xii.1926, G. Pellegrano leg. (5 MACN); Santo Tomé, xii.1928, G. Pellegrano leg. (1 MACN). **Entre Rios,** Colón, 16.ii.1987, O. Mitre leg. (5 SAMC); Colón, El Palmar National Park, xi.1974, M. Viana leg. (1 CVMD); Colón, El Palmar National Park, xi.1974, M. Viana leg. (1 CVMD); Concordia, ii.1974, M. Viana leg. (1 CVMD); Concordia, ii.1978, M. Viana leg. (2 CVMD); La Paz, 15.ii.1959, Bolly leg. (1 SAMC); La Paz, i.1974, M. Viana leg. (5 CVMD); Pronunciamiento, 22.i.1987, O. Mitre leg. (3 SAMC); Pueblo Liebig, 10.i.2001, S. Bolle leg. (1♂ 1 unsexed JZPC); Pueblo Liebig, 14.i.1987, O. Mitre leg. (6 SAMC); Pueblo Liebig, ii.1996, Mateo Zelich leg. (2♂, 1♀ and 7 unsexed CVMD); Rincón de Nogoyá, 20km S de Victoria, 27–28.ii.1982, Sergio Roig leg. (1 IADIZA); Villa Paranacito, ii.1947, M. Viana leg. (1♂ CVMD); Villa Paranacito, no date or collector (1 MACN); Villa Paranacito, xi.1947, M. Viana leg. (1 CVMD). **Jujuy,** San Salvador de Jujuy, xii.1947, A.F. Proson leg. (1 SAMC). **La**

Pampa, Anguil, 22.xi.1997, Bárbara Corró Molas leg. (1 IADIZA); Anguil, 27.i.2003, Bárbara Corró Molas leg. (1 IADIZA); Santa Rosa, Bajo Giuliani, 21.ii.1999, Gouts Rastelli leg. (1♀ and 2 unsexed IADIZA); Santa Rosa, Bajo Giuliani, 4.vii.1999, Gouts and Rastelli leg. (1 IADIZA); Santa Rosa, Faculdad de Agronomia, 23.viii.1996, Bárbara Corró Molas leg. (12 IADIZA). **La Rioja,** Without specific locality, no date or collector (1 MACN). **Misiones,** Apóstoles, 4–27.ii.1981, R. Golbach leg. (1 IFML); Candelaria, Bonpland, no date, Jörgensen leg. (1 MLPA); Concepcion, Colonia Santa María, x.1960, M.J. Viana leg. (1♀ CVMD); Concepcion, Colonia Santa María, xi.1958, M.J. Viana leg. (1♂ CVMD); Dos de Mayo, x.1994, S. Bolle leg. (1♂ 1 unsexed JZPC); Loreto, iii.1936, no collector (1 MLPA); Loreto, v.1956, no collector (1 MLPA); Posadas, iii.1986, H. Martinez leg. (1 SAMC); Posadas, Itaembo Mini, ii.1986, no collector (1 SAMC); San Ignacio, no date or collector (1 MACN); Without specific locality, i.1979, Carpintero leg. (1 CVMD); Without specific locality, no date, A. Beyer leg. (3 MACN); Without specific locality, no date, A. Stevenin leg. (1 MACN); Without specific locality, no date, C. Bruch leg. (1 MACN); Without specific locality, xii.1950, Leandro N.A leg. (4 MZSP). **Salta,** Corralito, x.1986, M. Viana leg. (2 CVMD). **San Luis,** La Punilla, 25.i.1995, F.C. Ocampo leg. (1 IADIZA); Villa Elena, xi.1976, M. Viana leg. (1♂ CVMD). **Santa Fé,** Garay, Colonia Mascías, xi.1942, Viana leg. (2 MACN); Sancti Spiritu, ii.1958, Denier leg. (1 MLPA); Villa Ocampo, xii.1968, M. Viana leg. (1♀ and 1 unsexed CVMD). **Santiago del Estero,** Girardet, 9.xii.1939, Biraben-Bezzi leg. (1 MLPA); Sumampa, no date, Proson-Coleq leg. (2 SAMC). **Tucumán,** Monteros, Quebrada de Los Sosa, 1100m, 2.xi.1963, W. Wayrauch leg. (1♂ IFML); Sierra de San Javier, 26º47'55"S, 65º19'60"W, 11.xii.2012, Maldonado leg. (3♂ IADIZA); Without specific locality, xi–xii.1944, R. Golbach leg. (1 IFML); Yerba Buena, Horco Molle Flora and Fauna Experimental Reserve, 1.i.1966, no collector (1 IFML); Yerba Buena, Horco Molle Flora and Fauna Experimental Reserve, 700m, 25.ix.1975, L. Stange leg. (1 IFML); Yerba Buena, Horco Molle Flora and Fauna Experimental Reserve, xi.1960, M. Viana leg. (2 CVMD). **Without specific locality,** no date or collector (2 CVMD). **BOLIVIA: Chuquisaca,** San Antonio, no date or collector leg. (1 MNHN). **Cochabamba,** Without specific locality, 1889, P. Germain leg. (1♂, 1♀ and 1 unsexed MNHN). **La Paz,** Chaco [in Yungas region], 3,000m, no date, G. Garlepp leg. (1♂, 1♀ and 3 unsexed MNHN); Chicani, no date or collector (1♀ MNHN); Chulumani, xii.1998, S. Pokorrý leg. (1♂ JZPC); Nor Iungas, Coroico, xii.1949, A. Martinez leg. (1 MZSP); Without specific locality, date or collector (1♂

and 1♀ MFNB; 1 MZSP). **Without specific locality,** no date or collector (1♂ 1 unsexed MNHN); Chaco, no date or collector (4 MNHN). **BRAZIL: Bahia,** Macugê, Chapada Diamantina, 27.ii.2010, T. Vasconcelos leg. (1 total, ♂, 1♀ CEMT); Senhor do Bonfim, 1908, E. Garbe leg. (1 MZSP). **Goiás,** Without specific locality, 1890, no collector (1♂ MNHN). **Minas Gerais,** Andrelândia, Tora do João Japonês I, 21º46'26"S, 44º21'58"W, 22.iii.2014, L.F.M. Iniesta leg. (1♂ and 8 unsexed CEMT); Barbacena, 8.i.1974, L.R. Fontes leg. (1 SAMC; 4 MZSP); Catas Altas, Serra do Caraça, 1,380m, xi.1961, no collector (1 MZSP); Diamantina, no date, Abbé Torgue leg. (1♀ MNHN); Diamantina, no date, P.E. Gounelle leg. (1♀ MNHN); Diamantina, Riacho Fundo Farm, xii.1902, E. Gounelle leg. (2 MZSP); Horizonte, Sabara, Rio das Velhão, no date, A.G.N. Chalmers leg. (1♀ BMNH); Lavras, no date or collector (3 CEMT); Lavras, 03.vi.1983, L. Araujo Junior leg. (1 CEMT); Lavras, 1.viii.1986, M.A. Simões Pires leg. (1 CEMT); Lavras, 10.ii.1986, no collector (1 CEMT); Lavras, 25.ii.1999, C.V.A Fiorini leg. (1 CEMT); Lavras, Campus da UFLA, xi–xii.2001, Light trap, F.Z. Vaz-de-Mello leg. (2♂ CEMT); Lavras, near to Poço Bonito, x.2001, P. Grossi & F.Z Vaz-de-Mello leg. (1♂ CEMT); Lavras, near to Poço Bonito, xii.2001, F.Z. Vaz-de-Mello leg. (1 CEMT); Mariana, Serra do Caraça, vi–xii.1884, P. Germain leg. (4 MNHN); Poços de Caldas, 21.x.1963, J. Becker, O. Roppa & O. Leoncini leg. (1 CEMT); Without specific locality, no date, Steph. leg. (1 ZSM). **Paraná,** Campo do Tenente, 21.i.1974, Becker & Mielke leg. (3 DZUP); Campo do Tenente, 5.x.1973, Zundir Buzzi leg. (1 DZUP); Castro, 1912, E.D. Jones leg. (1♀ BMNH); Castro, no date or collector (1 MFNB); Curitiba, 14.xii.1970, Marinoni leg. (1 DZUP); Curitiba, 7.xi.1965, P.J.S. Moure leg. (1 DZUP); Curitiba, 900m, 10.ix.1966, Depto. Zoo. leg. (1 DZUP); Curitiba, 900m, 19.xii.1965, Depto. Zoo. leg. (2 DZUP); Curitiba, 900m, 21.xii.1966, Depto. Zoo. leg. (1 DZUP); Curitiba, 900m, 22.i.1966, Depto. Zoo. leg. (1 DZUP); Curitiba, 900m, 6.xi.1969, Depto. Zoo. leg. (2 DZUP); Curitiba, i.1959, R. Lange leg. (2 DZUP); Curitiba, iii.1957, R. Lange leg. (3 DZUP); Francisco Beltrão, 2.ii.1981, R. Diaz leg. (1 CVMD); Guarapuava, 26.vii.1987, no collector (1 DZUP); Guarapuava, Estância de Águas Santa Clara, 15.ii.1988, light trap, PROFAUPAR leg. (1 DZUP); Guarapuava, Estância de Águas Santa Clara, 18.i.1988, light trap, PROFAUPAR leg. (1 DZUP); Guarapuava, no date, Hypolito Scheneider leg. (1 MZSP); Jaguariaíva, 24–29.xii.1970, F. Giacomel leg. (1 DZUP); Morretes, 14.iv.1968, Scucata leg. (1 DZUP); Ponta Grossa, ii.1952, no collector (1 DZUP); Ponta Grossa, iii.1937, Pinheiro Machado leg. (1 MZSP); Ponta Grossa, no date, Justus leg. (1 DZUP);

Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 19.ii.1988, light trap, no collector (2 DZUP); Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 18.i.1988, light trap, no collector (1 DZUP); Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 21.i.1988, light trap, no collector (1 DZUP); Ponta Grossa, Reserva Iapar Br376 [Agronomic Institute of Parana], 2.xii.1986, light trap, no collector (1 DZUP); Ponta Grossa, vii.1942, F. Justus leg. (1 SAMC); Ponta Grossa, vii.1942, no collector (1 DZUP); Ponta Grossa, viii.1942, in the wall, no collector (1 DZUP); Ponta Grossa, xii.1971, light trap, no collector (1 CEMT); São José dos Pinhais, 12.ix.1964, Moure & Laroca leg. (1 DZUP); Without specific locality, 1890, no collector (2 MNHN); Without specific locality, ii.1940, R. Lange leg. (1 DZUP); Without specific locality, no date, J. Isaak, Zawiereie leg. (1♂ MFNB). **Rio Grande do Sul,** Alto Feliz, ii.1932, no collector (1 MGAP); Arroio do Sal, São Salvador, 1962, no collector (1 MGAP); Arroio do Sal, São Salvador, 1963, no collector (2 MGAP); Arroio do Sal, São Salvador, iv.1958, no collector (1 MGAP); Bagé, Embrapa Pecuária, i.2006, L.D. Audino leg. (1 CEMT); Bagé, Embrapa Pecuária, i.2006, L.D. Audino leg. (1 CVMD); Cachoeira do Sul, Ferreira, 62m, 30º00'01"S, 52º57'21"W, ii.2021, V. Costa-Silva leg. (1 CEMT); Canguçu, Coxilha de Fogo, i.1998, C.N. Duekett leg. (5 MCNZ); Caxias do Sul, Vila Oliva, 25.i.1963, no collector (1 MGAP); Cerro Largo, 20.xii.1968, no collector (1 MGAP); Cidreira, 24.i.2003, J. Alvenir leg. (2 MCNZ); Cidreira, 4.x.2003, J. Alvenir leg. (1 MCNZ); Dois irmãos, 18.xii.1962, no collector (1 MGAP); Dois irmãos, 2.i.1963, no collector (1 MGAP); Dois irmãos, 8.i.1962, no collector (1 MGAP); Eldorado do Sul, 1.i.1990, M.A. Santos leg. (1 MCNZ); Gravataí, Morungava, i.1975, J.B Feeburg leg. (1 MGAP); Herval, 32º5'85"S, 56º36'83"W, 28.xi.4.xii.2014, L. Garcia leg. (1 CEMT); Herval, 32º5'85"S, 56º36'83"W, x.2013, pitfall, L. Garcia leg. (1 CEMT); Maquiné, 7–8.iv.1995, A. Franceschini leg. (1 MCNZ); Pareci Novo, i.1933, no collector (1 MGAP); Pareci Novo, i.1936, no collector (1 MGAP); Pareci Novo, iii.1932, no collector (1 MGAP); Pareci Novo, iii.1932, no collector (4 MGAP); Pareci Novo, iv.1933, no collector (1 MGAP); Pareci Novo, ix.1932, no collector (1 MGAP); Pareci Novo, viii.1935, no collector (1 MGAP); Porto Alegre, 10.xii.1944, no collector (1 MGAP); Porto Alegre, 13.iii.1962, C. Araujo leg. (1 MCNZ); Porto Alegre, 14.ii.1969, Stoffel leg. (1 MGAP); Porto Alegre, 14.x.1966, light trap, no collector (1 MGAP); Porto Alegre, 16.ix.1940, no collector (11 MGAP); Porto Alegre, 1–6.vi.1994, light trap, no collector (1 MCNZ); Porto Alegre, 16–18.iii.1980, M.E.L. Souza leg. (1 MCNZ); Porto Alegre, 17–

18.v.1994, light trap, no collector (1 MCNZ); Porto Alegre, 21.iv.1959, no collector (1 MGAP); Porto Alegre, 21.iv.1959, no collector (1 MGAP); Porto Alegre, 22.vii.1931, no collector (1 MGAP); Porto Alegre, 27.viii.1961, Pedro Braum leg. (1 MCNZ); Porto Alegre, 31.x.1961, no collector (1 MGAP); Porto Alegre, 5.iii.1964, Pedro Braum leg. (1 MCNZ); Porto Alegre, 5.iii.1965, L. Buckup leg. (1 MCNZ); Porto Alegre, 6.xi.1956, no collector (1 MGAP); Porto Alegre, Bairro Belém Novo, i.1959, no collector (1 MGAP); Porto Alegre, i.1938, no collector (1 MGAP); Porto Alegre, iv.1955, T. de Lema leg. (1 MCNZ); Porto Alegre, LAMI - Ponta do Cego, 24.iii.12.iv.2006, R. Moraes leg. (1 MCNZ); Porto Alegre, LAMI - Ponta do Cego, 7–27.vii.2006, R. Moraes leg. (1 MCNZ); Porto Alegre, no date or collector (1 MCNZ); Porto Alegre, no date, Chagastelles leg. (1 SAMC); Porto Alegre, no date, T.L. leg. (2 MCNZ); Porto Alegre, x.1956, M. Paloya leg. (1 MCNZ); Rio Grande, no date or collector [Fry's collection] (1 BMNH); Santa Maria, Botanic Garden, Federal University of Santa Maria, 96m, 29º43'03"S, 53º43'31"W, 12.vii.2013, Rat carcass, V. Costa-Silva leg. (1 CEMT); Santa Maria, Morro da Caturrita, v.1993, Witeck leg. (1 MCNZ); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 1.viii.2016, pitfall trap, S. Cassenote leg. (1♀ and 3 unsexed CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 10.ix.2016, pitfall trap, S. Cassenote leg. (1 EMAC); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.iv.2017, pitfall trap, S. Cassenote leg. (1 IEXA); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.iv.2017, pitfall trap, S. Cassenote leg. (1♀ and 2 unesexed CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.xii.2016, pitfall trap, S. Cassenote leg. (1♂ CERPE); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 15.xii.2016, pitfall trap, S. Cassenote leg. (1♂ CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 19.iv.2017, pitfall trap, S. Cassenote leg. (1♂ CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 19.iv.2017, pitfall trap, S. Cassenote leg. (2 CEMT); Santa Maria, Morro do Cerrito, 211m, 29º42'7"S, 53º47'8"W, 28.vi.2016, pitfall trap, S. Cassenote leg. (2 CEMT); Santana do Livramento, 26.ii.1993, Lasconde, V. leg. (2 MCNZ); Santo Augusto, ii.1983, O. Roppa leg. (1 CEMT); Santo Augusto, xii.1970, no collector (1♂ CEMT); São Francisco de Paula, ii.1956, L. & E. Buckup leg. (1 MCNZ); São Jerônimo, 13–19.viii.1982, C.J. Becker leg. (1 MCNZ); São Jerônimo, 16.vi.1982 [or 1962], H.A. Gastaç leg. (1 MCNZ); Sapucaia, 1964, no collector (1 MGAP); Triunfo, COPESUL [Southern Petrochemical Company], 17.x.1993, no collector (2 CEMT);

Triunfo, COPESUL [Southern Petrochemical Company], 18.ix–18.x.1993, pitfall trap, no collector (6 MCNZ); Triunfo, COPESUL [Southern Petrochemical Company], 4.xii.2001–3.i.2002, R. Ott leg. (2 MCNZ); Viamão, 1.ii.1964, no collector (1 MGAP); Without specific locality, no date or collector (1♀ MNHN). **Santa Catarina,** Bom Jardim da Serra, Mantiqueira, xii.2001, C. Arioli leg. (1♂ and 1♀ CEMT); Seara, Nova Teutônia, 300 – 500m, 27º11'S, 52º23'W, iv.1978, Fritz Plaumann leg. (1 DZUP); Seara, Nova Teutônia, 300 – 500m, 27º11'S, 52º23'W, vii.1975, Fritz Plaumann leg. (1 DZUP); Without specific locality, no date or collector (1♀ BMNH). **São Paulo,** Amoires, ix.1947, no collector (1 SAMC); Quéluz, no date, P. Germain leg. (1 MNHN); São Paulo, iii.1947, no collector (1 SAMC); Without specific locality, 12.viii.1948, W. Maluf leg. (1 SAMC); Without specific locality, 2.vii.1948, W. Maluf leg. (3 SAMC); Without specific locality, 2.viii.1948, W. Maluf leg. (1 SAMC); Without specific locality, 25.viii.1948, R.L. Aravio leg. (3 SAMC); Without specific locality, date or collector (1 ZSM). **Without specific locality,** date or collector (1 MNHN); Campos (sic!), no date or collector (1 MNHN). **PARAGUAY: Boquerón,** Loma Plata, 8–29.i.1995, P. Gerlach leg. (3 total, 1♂, 2♀ CVMD). **Guairá,** Mbureru near to Villarica, 14.vi.1932, Köller leg. (1 MFNB); Villarica, 20.iv.1992, Köller leg. (1 MFNB); Villarica, iii.1936, F. Schade leg. (1 MFNB); Villarica, iv.1934, Köller leg. (2 MFNB); Villarica, no date, H. Richter leg. (1 MLPA); Villarica, x.1936, F. Schade leg. (1 MFNB); Without specific locality, 2.vii.1946, F.H. Schade leg. (1 SAMC); Without specific locality, date or collector (1 MACN). **Paraguarí,** Sapucay, 6.ix.1901, no collector (1♀ MNHN). **PERU: Junín,** Chamchamayo, no date or no collector (1 MFNB). **URUGUAY: Canelones,** Canelones, 27.i.2002, pitfall trap with dog feces, no collector (1♀ CEMT); Las Piedras, 12.i.1988, A. Carmenes leg. (5 CVMD). **Maldonado,** Bella Vista, xi.1980, W.D. Rovera leg. (2 HNHM); Punta del Este, i.1961, H.M.S. Owen leg. (1 BMNH); Punta del Este, no date or collector (1 MZSP). **Montevideo,** Without specific locality, xi.1947, no collector (2 CVMD); Without specific locality, 1912, P. Serre leg. (1♀ MNHN). **Rivera,** Bañado de Medina, Piedras Sueltas Farm, 32º18'21"S, 53º57'30"W, 13–20.xii.2011, pitfall trap with human and pig dung, R.M. Moraes leg. (1♂ CEMT). **Soriano,** Dolores, no date, Breuer leg. (2 MFNB). **Without specific locality,** no date, A. Beyer leg. (1 MACN); Without specific locality, no date or collector (1 MFNB).

Polynoncus gibberosus Scholtz, 1990

(Figs. 35, 38)

Polynoncus gibberosus Scholtz, 1990: 1428 (original description); Diéguez 2008: 18 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 10 (checklist); Zídek 2017: 101 (checklist); Smith 2017: 95 (distribution and comments); Mondaca 2023: 209 (checklist from Chile).

Type-specimen examined (through detailed photographs). HOLOTYPE (♂ USNM – Fig. 38**).** First label [aged white, handwritten]: "Concepcion / Des 1986 / L. Peña". Second label [white with red border, Clarke Scholtz's handwriting]: "Polynoncus / gibberosus / C.H. Scholtz 1988 / HOLOTYPE". Third label [red]: "Type Number / 104758 / U. S. N. M". Fourth label [white, printed]: "USNMENT / [QR Code] / 01476215" (Fig. 38D). **Type locality:** "Concepción", Chile.

Differential diagnosis. *Polynoncus gibberosus* is similar to *P. brevicollis* and *P. aeger*, differing from the latter by lacking the subhumeral ridge (which is present in *P. aeger*). Also, *P. gibberosus* is distinguished from *P. brevicollis* by having anterior half of lateral margin of elytra slightly crenulated and basal and latero-basal pronotal tubercles distinctly raised. In *P. brevicollis*, the anterior half of lateral margin of elytra is entirely smooth, and the basal and latero-basal tubercles of the pronotum are poorly raised.

Polynoncus gibberosus and *P. brevicollis* both have the median lobe of male aedeagus in rhomboid shape apically, with a distinct longitudinal keel dorsally. In *Polynoncus gibberosus* this keel extends to the apex of the median lobe, while ending in the apical third in *P. brevicollis*, never reaching the apex. For details of description, see Scholtz (1990: 1428).

Geographic distribution. *Polynoncus gibberosus* is endemic to southern Chile (Fig. 35). Scholtz (1990) cited this species from two localities (records of type series). Later, Diéguez (2008) cited additional localities/records expanding the known geographical range of *Polynoncus gibberosus*. Our findings corroborate Diéguez's (2008) conclusions.

Examined non-type material (24 specimens). CHILE: Araucanía (IX Region), Lonquimay, ii.1994, S. Castro leg. (1♀ CEMT); Lonquimay, ii.1994, S. Castro leg. (4 CVMD); Nahuelbuta National Park, 1,200m, 37º47'S, 73º0'W, 22.xi.2004, J.E. Barriga & T. Iogging leg. (1♀ CJEB). **Bío-Bío (VIII Region),** Alto

Cayucupil, Cordillera de Nahuelbuta, 25–31.i.1997, V.M. Diéguez leg. (1♂ and 6 unsexed CVMD); Alto Cayucupil, Cordillera de Nahuelbuta, 25–31.i.1997, V.M. Diéguez leg. (1♂ CEMT); Alto Cayucupil, Cordillera de Nahuelbuta, 8–13.iii.1998, Danilo Escobar leg. (1 CVMD); Alto Cayucupil, Cordillera de Nahuelbuta, 3–9.iii.1997, Danilo Escobar leg. (2 CVMD). **Los Lagos (X Region),** Osorno, Fundo Porvenir, 13.iii.1982, D. Jackson leg. (1♂ CVMD). **Los Ríos (XIV Region),** Valdivia, 10–12.i.1980, E. Krahmer leg. (1 MNNC); Valdivia, 12.i.1991, E. Arias leg. (1 MNNC); Valdivia, Llancahue Park, 11.xii.2001, M. Galvéz leg. (1 CVMD); Valdivia, Llancahue Park, 15.ii.2002, M. Galvéz leg. (2♂ CVMD); Valdivia, xii.1994, S. Castro leg. (1 CVMD).

Polynoncus gordoni (Steiner, 1981)

(Figs. 37, 39)

Trox gordoni Steiner, 1981: 205 (original description)

Polynoncus gordoni: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1446 (redescription); Zídek 2013: 10 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 101 (checklist)

Type-specimens examined (through detailed photographs). HOLOTYPE (♂ USNM – Fig. 39**).** First label [white, typeset]: "PERU: Cuzco / 15 km SW / Limatambo / 25 Feb. 1979 / W. E. Steiner". Second label [red, typeset]: "HOLOTYPE ♂ / Trox gordoni [underlined] / W.E. Steiner / USNM # 76505". Third label [white, typeset]: "USNMENT / [QR Code] / 01476214" (Fig. 39C). **Type locality:** "Limatambo, Cuzco" (Peru), collected by Warren E. Steiner.

ALLOTYPE (♀ USNM). First label [white, typeset]: "PERU: Cuzco / 15 km SW / Limatambo / 25 Feb. 1979 / W. E. Steiner". Second label [red, typeset]: "ALLOTYPE ♀ / Trox gordoni [underlined] / W.E. Steiner / USNM # 76505". Third label [white, typeset]: "USNMENT / [QR Code] / 01476213".

Differential diagnosis. This rare species is most similar to *P. sallei* and *P. gemmingeri*. *Polynoncus gordoni* differs from *P. gemmingeri* by having the pronotal ridges connecting the basal tubercle, which are distinctly separate in the latter. Also, *Polynoncus gordoni* have the elytral tubercles elongate, which is rounded in *P.*

gemmingeri. The male genitalia of both species are very similar (for a more detailed discussion of the male genitalia of this group of closely related species, see Steiner (1981: 209).

Lastly, *Polynoncus gordoni* is also similar to *P. sallei* but can be separate from the latter by the shape of the clypeal margin, which is emarginate in *P. gordoni* and truncate in *P. sallei*. Furthermore, in *Polynoncus sallei* the elytral tubercles (mainly on the odd-numbered costae) are usually rounded and more numerous across the length of the elytra (more than eight), as opposed to *P. gordoni* which has the tubercles elongate and less numerous (less than eight).

Geographic distribution. *Polynoncus gordoni* was previously only known from the type locality. We examined two specimens from northern Peru, a substantial range expansion northward from where it was previously known. *Polynoncus gordoni* appears to be restricted to the Andean Mountain range in Peru (Fig. 37).

Examined non-type material (4 specimens). PERU: Amazonas, Bagua, Achaguay Alto, 688m, 5º35'24"S, 78º30'11"W, 31.iii.2012, I. Medina & J. Grados leg. (1♂ CEMT); Bagua, Achaguay Alto, 688m, 5º35'24"S, 78º30'11"W, 31.iii.2012, I. Medina & J. Grados leg. (1 CVMD); Chachapoyas, 1889, M. de Mathan leg. (1♀ MNHN). **Ayacucho,** near to Ayacucho, Wari (Huanta), 2,500m, 20.iii.1995, Pedro Hocking leg. (1♂ MUSM).

Polynoncus hemisphaericus (Burmeister, 1876)

(Figs. 4A, 4F, 37, 40–41)

Trox hemisphaericus Burmeister, 1876: 253 (original description); Berg 1884: 145 (taxonomic notes); Preudhomme de Borre 1886: 73 (checklist); Bruch 1911: 193 (checklist); Arrow 1912: 56 (catalogue); Blackwelder 1944: 218 (checklist – as "*hemisphaerica*"); Vaurie 1962: 142 (redescription).

Trox (*Polynoncus*) *hemisphaericus*: Scholtz 1982: 16 (catalogue).

Polynoncus hemisphaericus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1424 (redescription); Diéguez 2008: 18 (redescription); Gómez 2008: 515 (key to Argentinean species); Bachmann *et al*. 2010: 54 (catalogue of types housed in MACN); Zídek 2013: 11 (checklist); Zídek 2017: 102 (checklist); Smith 2017

(distribution and comments); Costa-Silva & Diéguez 2020: 272 (records from Argentina); Mondaca 2023: 210 (checklist from Chile).

Trox globulatus Fairmaire, 1884: 490 (original description); Berg 1884: 145 (synonym); Preudhomme de Borre 1886: 72 (catalogue); Bruch 1911: 193 (checklist – as synonym of *T. hemisphaericus*); Arrow 1912: 56 (catalogue, as junior synonym of *T. hemisphaericus*); Vaurie 1962: 142 (as synonym); Scholtz 1982: 16 (catalogue – as synonym); Scholtz 1990: 1224 (as synonym); Zídek 2013: 10 (checklist – as synonym); Zídek 2017: 101 (checklist – as synonym); Smith 2017: 95 (comments – as synonym); Mondaca 2023: 210 (checklist – as synonym).

Type-specimens examined. LECTOTYPE HERE DESIGNATED (MACN – Fig. 40**).** First label [red with black border, Axel Bachmann's handwriting]: "Trox / hemisphaericus / Burmeister / 1876 / Syntypus [vertical]. Second label [red, typeset]: "LECTOTYPE". Third label [red, Costa-Silva's handwriting]: "Trox hemisphaericus / Burmeister, 1876 / des. V. Costa-Silva". Fourth label [white with black border, typeset]: "MACN-En / 1118" (Fig. 40C). **Type locality:** Puerto Santa Cruz, Province of Santa Cruz, Argentina. **Note.** None of the specimens in the type-series carry any locality labels. Burmeister (1876) stated in his description that the type-series was collected by Carlos Berg along the Santa Cruz River. Carlos Berg (or Friedrich Wilhelm Karl Berg) was a member of an expedition team to Patagonia in 1874 (Berg, 1875; Gallardo, 1902). According to Berg (1875: 367), on October 8, 1874, the expedition anchored at the mouth of the Santa Cruz River because of its intense flow. Once the flow of the river reduced, the expedition traveled upriver for about 11 English miles (~ 17km) to Puerto Santa Cruz (50°01'S, 68°31'W), where the expedition team spent two days collecting and studying the local fauna and flora. Puerto Santa Cruz is more likely to be the type locality of *Trox hemisphaericus*.

PARALECTOTYPES (8 MACN, all with the same data label). First label [red with black border, Axel Bachmann's handwriting]: "Trox / hemisphaericus / Burmeister / 1876 / Syntypus [vertical]. Second label [red, typeset]: "PARALECTOTYPE". Third label [red, Costa-Silva's handwriting]: "Trox hemisphaericus / Burmeister, 1876 / des. V. Costa-Silva".

Type-specimen examined of *Trox globulatus* Fairmaire, 1884. LECTOTYPE HERE DESIGNATED (MNHN – Fig. 41**).** First label [white aged, typeset]: "MUSEUM PARIS /

SANTA CRUZ / PATAGONIE / LEBRUN 1884". Second label [round, handwritten]: "2551 / 83". Third label [white aged, León Fairmaire's handwriting]: "Trox / globulatus / Fairm.". Fourth label [red with black frame, Vinícius Costa-Silva's handwriting]: "LECTOTYPE / Trox globulatus / Fairmaire, 1883 / des. V. Costa-Silva 2022" (Fig. 41C). **Type locality:** "Patagonie, Santa Cruz". The number 2551 (round label) in the Lebrum's catalog, refers to a specimen collected in Punta Arenas, XII Region of Magallanes (Chile) by the French taxidermist Édouard A. Lebrun (1852–1904), in 1883, during his expedition across Straits of Magellan. **Note.** There are four more specimens with the same label information as the lectotype housed at MNHN, but without any indication (*i.e.*, determination labels) that they were studied by L. Fairmaire. As recommended by the Code (ICZN, 1999), these specimens were not included as paralectotypes.

Differential diagnosis. *Polynoncus hemisphaericus* can be easily recognized by its convex body shape. Besides that, this species is unique among the wingless species in that it bears on the middle and hind tibia long black setae. It also resembles *P. pampeanus*, but can be differentiated from the latter by the presence of a basal tubercle of pronotum distinctly visible. The basal tubercle of the pronotum is obsolete. For details of description, see Vaurie (1962: 142) and Scholtz (1990: 1424).

Geographic distribution. *Polynoncus hemisphaericus* is recorded in the arid zones of Argentine Patagonia and southern Chile (Magallanes and Chilean Antarctic Territory) (Fig. 37).

Smith (2017) mentioned that records of the *P. hemisphaericus* from Buenos Aires, Neuquén, and Río Negro are doubtful and need confirmation. Our study confirmed, based on additional examined specimens, the records for these localities. Furthermore, after the study of several specimens, we expand the geographical known distribution of this species to the north (Mendoza), when compared with earlier authors (i.e., Vaurie 1962; Scholtz 1990; Costa-Silva & Diéguez 2020).

Examined non-type material (74 specimens). ARGENTINA: Buenos Aires, Carmen de Patagones, no date or collector (1 MACN). **Chubut,** Cerro Negro, 15.ii.1927, C. Bruch leg. (1 MACN); Estancia La Escondida, 24.iv.1941, Maldonado leg. (1 MLPA); Gaiman, Bryn Gwyn, iv–v.2011, trampa c/ pollo [pitfall trap with chicken as bait], D. Rojas Lanus leg. (1 CVMD); Golfe St. Georges, Coli-Huapi, 1903, A. Tournoüer leg. (1 MNHN); Trelew, 20.iii.2010, D. Rojas Lanus leg. (1 CVMD);

Trelew, 20.xi.2005, D. Rojas Lanus leg. (1 CVMD); Trelew, 28.i.2002, D. Rojas Lanus leg. (1 CVMD); Valle del Lago Blanco, 1903, no collector (2 BMNH); Without specific data, ii.1897, C. Bruch leg. (1 MACN); Without specific locality, 30.iv.1977, J. Solervicens leg. (1 CVMD); Without specific locality, data or collection (1 BMNH). **Mendoza,** Laguna del Diamante, 2,319m, 20.xi.17.xii.2012, Trampa c/ exc. humano, G. Arriágada leg. (1♀ CEMT); Laguna del Diamante, 2319m, 20.xi–17.xii.2012, trampa com excremendo humano [pitfall with human feaces], G. Arriagada leg. (1 CVMD); Malargüe, El Nevado, 7km E. Ruta 186, 2,198m, 35º37'29"S, 68º36'4"W, 21.ii.2006, R. Carrara leg. (10 IADIZA); Malargüe, El Nevado, 7km E. Ruta 186, 2,198m, 35º37'29"S, 68º36'4"W, 21.ii.2006, R. Carrara leg. (2 CEMT); Malargüe, Provincial Reserve La Payunia Manchón, Molle Camino Payún, 2,267m, 36º20'50"S, 69º15'27"W, 29.i.2010, R. Carrara, E. Scheibler, F. Campón leg. (1 IADIZA); San Carlos, 14km E [East] Refugio Alvarado, 1,760m, 2.xi.2015, G. Flores leg. (1 IADIZA); San Carlos, Laguna del Diamante, 1,800m, 31.i.2016, F. Aballay & F. Jofré leg. (1 IADIZA); San Rafael, Volcón Diamante, 2,233m, 26.xii.2015–10.i.2016, S. Roig & G. Debandi leg. (1 CEMT). **Neuquén,** Without specific locality, 1907, Dr. Adolf Lendl leg. (1 MNHN); Without specific data (3 MACN). **Río Negro,** San Carlos de Bariloche, Estância San Ramon, 27.vi.1966, no collector (1 BMNH); Without specific locality (11 MACN); Without specific locality, 4.iii.1909, C. Bruch leg. (1 MACN); Without specific locality, C. Bruch leg. (1 MLPA); Without specific locality, C. Bruch leg. (3 MACN). **Santa Cruz,** Patagônia National Park (1 MACN); Río Gallegos, 1937, H. de Miller leg. (1 MLPA). **CHILE: Magallanes (XII Region),** Lago Sarmiento, National Park Torres del Paine, 20.i.1950 (2 MNNC); Laguna Amarga, 8.xi.1961, Cekalovic leg. (2 MNNC); Patagonie, Punta Arenas, 1889, M.E. Lebrun leg. (8 MNHN); Río de las Chinas, 2.xi.1952, T. Cekalovic leg. (1♂ CVMD); Río Las Chinas, 2.xi.1952 (1 MNNC); Ultima Esperanza, Cerro Guido, 7.i.2010, en oveja [sheep], Douglas Jackson leg. (4 CVMD); Ultima Esperanza, Cerro Guido, 7.i.2010, en oveja [sheep], Douglas Jackson leg. (1♂ CEMT); Without specific data, 20.i.1950 (1 CVMD).

Polynoncus juglans (Ratcliffe, 1978)

(Figs. 35, 42)

Trox juglans Ratcliffe, 1978: 299 (original description)

Trox (Polynoncus) juglans: Scholtz 1982: 16 (catalogue)

Polynoncus juglans: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1442 (redescription); Moragues 2010: 76 (catalogue from Guianas); Zídek 2013: 12 (checklist); Zídek 2017: 102 (checklist); Hielkema & Hielkema, 2019: 12 (checklist of the Guianas).

Type-specimen examined (through detailed photographs). HOLOTYPE (♂ INPA – Fig. 42**).** First label [white, printed]: "BRASIL: Amazonas / Reserva Ducke / 26 km. NE Manaus / IX-27-1977 / B.C. Ratcliffe". Second label [red, Brett Ratcliffe's handwriting]: "HOLOTIPO / TROX JUGLANS / RATCLIFFE / HOLOTIPO". Third label [white, typeset]: "COLEO 083" (Fig. 42D). **Type locality:** "Reserva Ducke" [Adolfo Ducke Forest Reserve], Manaus, Amazonas, Brazil.

ALLOTYPE (♀ INPA). First label [white, printed]: "BRASIL: Amazonas / Reserva Ducke / 26 km. NE Manaus / IX-27-1977 / B.C. Ratcliffe". Second label [red, Brett Ratcliffe's handwriting]: "ALLOTIPO / TROX JUGLANS / RATCLIFFE / ALLOTIPO". Third label [white, typeset]: "COLEO 084".

PARATYPES (2 MZSP). First label [white, typeset]: "BRASIL: Amazonas / Reserva Ducke / 26 km. NE Manaus / XI-1-1977 / B.C. Ratcliffe". Second label [yellow, Brett Ratcliffe's handwriting]: "PARATIPO / TROX JUGLANS / RATCLIFFE / PARATIPO" **(1 MZSP)**. First label [white, typeset]: "BRASIL: Amazonas / Reserva Ducke / 26 km. NE Manaus / III-3-1978 / B.C. Ratcliffe". Second label [yellow, Brett Ratcliffe's handwriting]: "PARATIPO / TROX JUGLANS / RATCLIFFE / PARATIPO" **(1 MZSP)**.

Differential diagnosis. *Polynoncus juglans* is the smallest species of the genus (~ 7 mm) and clearly distinct from other congeners. It is most similar to *P. furcillifer* and *P. vazdemelloi*, but differs from the both by having of a pronounced lateral margins of the pronotum (bulbous shape) in front of the posterior angle (see Huchet & Costa-Silva 2018); median edges and tubercles of pronotum raised and distinctive; elytral tubercles raised and elongate. Also, the median lobe (aedeagus) of *P. juglans* has a broader apex (chalice shape – Fig. 42C), while the apex is narrow and parallel in *P. vazdemelloi* and bifurcate in *P. furcillifer*. For additional details of description and differential diagnosis, see Ratcliffe (1978), Scholtz (1990), and Huchet & Costa-Silva (2018).

Geographic distribution. *Polynoncus juglans* is recorded in northern Brazil and French Guiana (Fig. 35). Is the unique species of *Polynoncus* recorded north of the Amazonas River.

This species was described from the Amazon Basin (Manaus, Brazil). Later, Scholtz (1990) expanded the geographical distribution after examination of material from French Guiana (11 specimens) and northeastern Brazil (based on one specimen from Rio Largo, Alagoas, housed in BMNH).

The specimen mentioned by Scholtz (1990) from "Rio Largo" was examined and identified as *P. furcillifer*. The label "FRY 1905-100" indicates that this specimen belongs to the Fry Collection and the label with the number "57482" refers to a specimen collected in Theresópolis (Teresópolis, Rio de Janeiro, Brazil) by Henri Deyrolle (1827–1902) according to the Fry's catalog.

Examined non-type material (22 specimens). BRAZIL: Amazonas, Manaus, Adolpho Ducke Forest Reserve, 2º55'49"S, 59º58'32"W, 28.iv–3.v.2013, F.Z. Vaz-de-Mello leg. (2♂ CEMT); Manaus, Dimona Farm, Biological Dynamics Project of Forest Fragments (PDBFF), 2º19'97"S, 60º7'45"W, 20.ii.2005, pitfall with dung, M. Radtke leg. (2 CEMT); Manaus, Esteio Farm, Biological Dynamics Project of Forest Fragments (PDBFF), 2º25'S, 59º50'W, 2–28.vii.2000, I. Quintero leg. (1 CEMT). **FRENCH GUIANA: Cayenne,** Macouria, Matiti, ZA Wayabo, 5º4'20"N, 52º37'0"W, 2014, FIT [Flight Interceptation trap], J.L. Gluglaris leg. (1 CERPE); Macouria, Matiti, ZA Wayabo, 5º4'20"N, 52º37'0"W, 2014, FIT [Flight Interceptation trap], J.L. Gluglaris leg. (1 IEXA); Macouria, Matiti, ZA Wayabo, 5º4'20"N, 52º37'0"W, 2014, FIT [Flight Interceptation trap], J.L. Gluglaris leg. (7 CEMT); Roura, Trésor Regional Nature Reserve, 225m, 4º36'37"N, 52º16'44"W, 29.xi.2009, vitre interceptation trap, Stéphane Brule leg. (1♀ BMNH). **Sinnamary,** Paracou, Paracou Field Station, x.2003, pitfall with meat, edge of the forest, F. Feer leg. (1♂ and 1 unsexed CEMT). **Without specific locality**, 10.xi.2018, P. Dalens leg. (1♂ and 3 unsexed CVMD). **GUYANA: East Berbice-Corentyne,** Tigri, Oronoque & New River Heads, 1938, H. Beddington leg. (1 BMNH).

Polynoncus longitarsis (Harold, 1872)

(Figs. 4B, 25, 43)

Trox longitarsis Harold, 1872: 136, 190 (original description); Preudhomme de Borre 1886: 73 (checklist); Arrow 1912: 58 (catalogue); Blackwelder 1944: 219 (checklist); Vaurie 1962: 137.

Trox (*Polynoncus*) *longitarsis*: Scholtz 1982: 16 (catalogue).

Polynoncus longitarsis: Scholtz, 1986a: 362 (systematics); Scholtz 1990: 1451 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 12 (checklist); Zídek 2017: 103 (checklist); Smith 2017: 97 (distribution data); Costa-Silva & Diéguez, 2020: 272 (records from Argentina); Mondaca 2023: 210 (checklist from Chile).

Type-specimen examined. HOLOTYPE (MNHN – Fig. 43**).** First label [white aged, Harold's handwriting]: "Chili / longitarsis / mihi. / typ.". Second label [white aged with black border, typeset]: "Ex-Musæo / E. Harold". Third label [red, printed]: "TYPE". Fourth label [red with black border, Andrew Smith's handwriting]: "TROX / LONGITARSIS / HAROLD, 1872 / HOLOTYPE". Fifth label [white, printed]: "[QR Code] / SCARABS OF / SOUTHERN / SOUTH AMERICA / SSS3001569" (Fig. 43C). **Type locality:** "Chili" (Chile), without specific locality.

Differential diagnosis. *Polynoncus longitarsis* is similar to *P. mirabilis* and *P. chilensis* in external morphology. It can be reliably distinguished from both species for having elongate and shiny elytral tubercles and intercostal punctures well-defined and deep (better visible in clean specimens). In *P. mirabilis* and *P. chilensis*, the elytral tubercles are elongated, distinctly raised and many tubercles with the surface covered by tomentose. The morphology of male the genitalia is also diagnostic: *P. longitarsis* has the apex of parameres without sclerotization and bowed down, giving an impression of the truncate apex in dorsal view, while in *P. mirabilis* and *P. chilensis*, the apex of parameres is distinctively sclerotized.

Geographic distribution. *Polynoncus longitarsis* is recorded in arid zones of southern Chile and Argentine Patagonia (Fig. 25). These records match with the geographical distribution previously reported for this species (*i.e.*, Vaurie 1962; Scholtz 1990; Diéguez 2008; Smith 2017; Costa-Silva & Diéguez 2020).

Examined non-type material (76 specimens). ARGENTINA: Neuquén, 32 km E [east] of Paso Hua-Hum, Lago Lácar, 950m, 40º8'S, 71º26'W, 11.i.1988, pitfall with human dung, Ashworth, Fugiseth, Maliscke leg. (1♂ CEMT); Chapelco, 10.xi.1981, Mario Gentili leg. (1 IADIZA); Nonthué, Lago Lácar, 640m, 17.x.1990,

Mario Gentili leg. (1 CEMT); Nonthué, Lago Lácar, 640m, 17.x.1990, Mario Gentili leg. (1♂ IADIZA); Nonthué, Lago Lácar, 640m, 30.xii.1992, Mario Gentili leg. (1 IADIZA); Nonthué, Lago Lácar, 640m, 7.xi.1982, Mario Gentili leg. (1♂ and 1 unsexed IADIZA); Quilaquina, 1,000m, no date or collector (1♂ IADIZA); San Martin de los Andes, 6–7.xi.1948, Hayward y Willink leg. (1 IFML); San Martín de los Andes, Pucará, x.1952, S. Schajovskoy leg. [Schajovskoy's collection] (1 MLPA); Yuco, Lago Lácar, 950m, 25.xi.1983, Mario Gentili leg. (1♂ IADIZA). **Río Negro,** São Carlos de Bariloche, i.1965, A. Martinez leg. (3 MZSP). **CHILE: Araucanía (IX Region),** Curacautin, Cuesta Las Raíces, xii.1999, A. Ugarte leg. (1 CVMD); Lonquimay, ii.1994, S. Castro leg. (1 CVMD); Mala'cahuello, Malalcahuello Natural Reserve, i.2000, A. Ugarte leg. (1 CVMD). **Bío-Bío (VIII Region),** Alto Cayucupil, 25–31.i.1997, V.M. Diéguez leg. (1♂ and 1 unsexed CVMD); Chillan Los Lleuques, 12.i.1994, S. Castro leg. (2 CVMD); Los Angeles, xi.1921, no collector (1 MZSP); Ñuble, Puente Marchant, 6–8.xii.1997, V.M. Diéguez leg. (1 CVMD). **Los Lagos (X Region),** Isla de Chiloé, Quellón, i.1951, J.S. Vargas leg. (1 MNNC); Llanquihue, Saltos del Petrohue 150m, 23.xii.1984, Peck leg. (1 MCNZ); Palena, 37km SE Chaitén, 60m, 28.xii.1984–30.i.1985, S. & J. Peck leg. (3 BMNH); Paso Carririñe, 1–7.ii.1999, V.M. Diéguez leg. (1 CVMD); Puerto Montt, Fundo El Mirador 3.xii.2010, cattle carcass, V.M. Diéguez leg. (1♂ CVMD); Puerto Montt, Fundo El Mirador, 25.i.2005, cattle carcass, V.M. Diéguez leg. (4 CVMD); Purranque, 10km N [north], 40º51'S, 73º11'W, 24.x.1990, pitfall with faeces as bait, Endrödy-Younga leg. (1 TMSA); Puyehue National Park, 400m, 24–31.i.2004, Light trap, V.M. Diéguez leg. (1 CVMD). **Los Ríos (XIV Region),** Los Valdivia, Santo Domingo, 23.ix.1990, E. Krahmer leg. (2♂ CEMT); Puyehue Volcano, 260m, 40º38'S, 72º12'W, 18.xi.1990, pitfall with faeces as bait, Endrödy-Younga leg. (24 TMSA); Valdivia, 10–12.i.1980, E. Krahmer leg. (1 MNNC); Valdivia, 17.xii.1993, S. Castro leg. (1 MUSM); Valdivia, xii.1994, S. Castro leg. (2 CVMD); Valdivia, 17.xii.1993, S. Castro leg. (3 CVMD); Valdivia, 19.iii.2007, no collector (3 CEMT); Valdivia, Corral, xii.1994, L. Peña leg. (1 BMNH). **Without specific locality,** date or collector (2 MNHN); Without specific locality, date or collector (1♀ BMNH).

Polynoncus mirabilis Pittino, 1987

(Figs. 5I, 44–46)

Polynoncus mirabilis Pittino, 1987: 391 (original description); Scholtz 1990: 1453 (redescription); Diéguez 2008: 20 (redescription and records from Chile); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 13 (checklist); Zídek 2017: 104 (checklist); Smith 2017: 97 (distribution data and comments); Costa-Silva & Diéguez 2020: 272 (records from Argentina); Mondaca 2023: 210 (checklist from Chile).

Type-specimen examined (through detailed photographs). HOLOTYPE (♂ RPMI – Fig. 44**).** First label [light brown with black border, Gustave Baer's handwriting]: "Santiago / Peron". Second label [light brown, typeset]: "Baer". Third label [white, typeset]: "EX COLL. / WINKLER, WIEN". Fourth label [red with black border]: "Polynoncus / mirabilis n. sp. / HOLOTYPUS ♂ / det. Pittino [typeset] 1987. Fifth label [white, handwritten]: "COLL. / R. PITTINO" (Fig. 44E). **Type locality:** "Santiago, Perón" [Santiago de Chuco, Peru (probably mislabeled)]. According to the original labels on the holotype, the type-specimen was collected by the French naturalist Gustave Adolphe Baer (1839–1918), probably on his trip to South America between 1896 and 1906 (Baer 1907; Chopard 1918; Lamas 1980; Horn *et al*. 1990; Cambefort 2006). In his description, Pittino (1987: 391) mentions "Santiago, Peron" as the type locality, without further information. In a search for type specimens also collected by Baer in South America, we found housed in MNHN, the type of *Pilobalia baerii* Fairmaire, 1902 (Coleoptera: Tenebrionidae – Fig. 45A), which has identical labels to those on the type of *P. mirabilis* (Fig 45B). However, the locality name on the original labels on the tenebrionid type clearly reads "Santiago Pérou" and not "Santiago Peron" as interpreted by Pittino (1987) when he described *P. mirabilis*. According to Fairmaire's description (1902: 149), the locality written on the label of the type of *P. baerii* refers to Santiago de Chuco (La Libertad, Peru).

According to Solier (1851) and Blanchard (1851), many other naturalists mistook the insects collected in Peru and Chile (also see Smith 2002). It is likely that the specimen of *P. mirabilis* was mislabeled by Baer, since the most boreal record known for the species is Bío-Bío (VIII Chilean region), and its distribution to Peru (= Pérou, in French) is improbable.

Differential diagnosis. *Polynoncus mirabilis* is morphologically similar to *P. chilensis* and *P. longitarsis*. Is distinguished from the latter for having tubercles no more than two times longer than wide (which is 3–4 times longer than wide in *P. longitarsis*)

in the third elytral costae and by tubercles with shiny or with half of surface covered by discreet velutinous area (*P. longitarsis* have the odd-numbered elytral costal tubercles completely shiny).

Polynoncus mirabilis is more similar to *P. chilensis*, with both species been frequently confused in collections. However, the shape of humeral callus can be easily useful to separate both species: in *P. mirabilis*, the humeral callus is less prominent (being able to see the lateral margin of elytra in dorsal view (Fig. 5I), while very prominent in *P. chilensis*, covered the lateral margin of elytra in dorsal view (Fig. 5H). For description, diagnosis and detailed illustrations of male genitalia, see Pittino (1987: 391). Also see Scholtz (1990: 1453) and Diéguez (2008: 20) for additional morphological comments.

Geographic distribution. *Polynoncus mirabilis* occurs in the arid zones of southern Chile and Argentine Patagonia (Fig. 46), and is sympatric with the morphologically similar looking species, *P. chilensis* and *P. longitarsis*. The records plotted in the map (Fig. 46) match those presented by Diéguez (2008), Smith (2017), Costa-Silva & Diéguez (2020), and Mondaca (2023). Scholtz (1990) presented a map with a record of *P. mirabilis* from the north of Argentina without any information about the origin of the specimen examined. Based on our study, this record needs to be treated with caution until new and additional data or specimens is forthcoming from this region.

Examined non-type material (40 specimens). ARGENTINA: Chubut, Valle del Lago Blanco, 1903, no collector (3 BMNH); Without specific locality, "Patagonia", no date or collector (1♂ and 11 unsexed BMNH); Without specific locality, "Patagonia", no date or collector (1♂, 4♀ and 2 unsexed MNHN). **Neuquén,** 32 km E [east] of Paso Hua-Hum, Lago Lacar, 950m, 40º8'S, 71º26'W, 11.i.1988, human dung, Ashworth, Fugiseth, Maliscke leg. (1♂ CEMT); 32 km E [east] of Paso Hua-Hum, Lago Lacar, 950m, 40º8'S, 71º26'W, 23.xii.1987, human dung, Ashworth, Fugiseth, Maliscke leg. (1♀ CEMT). **CHILE: Araucanía (IX Region),** Curacautin, Cuesta Las Raíces, ii.2001, Alfredo Ugarte leg. (1 CVMD); Curacautin, Cuesta Las Raíces, xii.1999, Alfredo Ugarte leg. (1♂ CVMD); Malalcahuelo, i.2000, A. Ugarte leg. (2♂ CVMD); Malleco, Malalcahuello, i.1998, A. Ugarte leg. (1 JZPC); Malleco, Nahuelbuta National Park, 1,000m, ii.2000, Guido Castillo leg. (1♂ CVMD); Malleco, Nahuelbuta National Park, 1,400m, 9.xii.1984–16.ii.1985, *Nothophagus*-Araucaria forest, S. & J. Peck leg. (1♂ and 2 unsexed BMNH). **Aysén (XI Region),** Coyhaique, i–ii.1999, no collector (1 BMNH); Coyhaique, Balmaceda, 3 km N [North], 45º52'S, 71º41'W, 22.xi.2011,

Maurício Chang leg. (1♂ CVMD). **Bío-Bío (VIII Region),** Alto Cayucupil, Cordillera de Nahuelbuta, 3–9.iii.1997, Danilo Escobar leg. (1 CVMD); Chillian, 1,200m, 36º52'S, 71º39'W, 30.xi.1990, ground traps in forest, Endrödy-Younga leg. (2 TMSA). **Los Lagos (X Region),** Correntoso, Fundo El Mirador, 30.iii.2006, V.M. Diéguez leg. (1♂ CVMD). **Los Ríos (XIV Region),** Valdivia, 10–12.i.1980, E. Krahmer leg. (1 MNNC).

Polynoncus neuquen (Vaurie, 1962)

(Figs. 47–48)

Trox neuquen Vaurie, 1962: 123 (original description).
Trox (*Polynoncus*) *neuquen*: Scholtz 1982: 16 (catalogue).
Polynoncus neuquen: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1434 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 13 (checklist); Zídek 2017: 105 (checklist); Smith 2017: 98 (new records); Costa-Silva & Diéguez 2020: 272 (records from Argentina).

Type-specimen examined (through detailed photographs). HOLOTYPE (♂ MFNB – Fig. 47**).** First label [aged white, typeset]: "Dr. LENDL ADOLF / NEUQUEN 1907." Second label [red with black frame, typeset]: "Holotypus / Nr.". Third label [white, Patrice Vaurie's handwritten]: "Trox / neuquen / ♂ Vau." (Fig. 47E). **Type locality:** "Neuquén" (Argentina). Probably close to the Lake Nahuel Huapi and Confluencia Department, where Dr. Adolf Lendl spent a month collecting in 1907 (see Keve and Sámuel 1969: 352).

Differential diagnosis. *Polynoncus neuquen* is most similar to *P. pittinoi*, but both can be separated by the morphology of elytral costae. *Polynoncus neuquen* has a space between tubercles on the odd-numbered costae two times (sometimes three times) bigger than tubercles diameter. In *P. pittinoi*, this space is smaller than tubercles' size. Also, *P. neuquen* has the 9th elytral costae granulate, never tuberculate, while it is tuberculate in *P. pittinoi*. Costa-Silva & Diéguez (2020) illustrated in high-resolution photographs both species in dorsal habitus and male genitalia for comparison.

Geographic distribution. *Polynoncus neuquen* is widely distributed in Argentina (Fig. 48), with one record from Bolivia, with no precise locality. Scholtz (1990) cited this species from Salta (Argentina), the northernmost known record. We

examined the same specimen previously studied by C. Scholtz at IFML and confirmed its identity as *Polynoncus neuquen*. Also, we examined one specimen from "Bolívia" (old label, handwritten) housed in BMNH, without further information about its locality. This record from Bolivia (the first from the country), is not surprising since the latitudinal range is similar to the record from Salta (Argentina) mentioned by Scholtz (1990). However, new records are needed to confirm which regions of Bolivia this species occurs in.

Vaurie (1962) mentioned one female specimen from Coquimbo (Chile) housed in MFNB. As discussed by Smith (2017), the record provided by Vaurie (1962) is doubtful, since no additional information/records of this species occurring in the Chilean territory were presented in the last 60 years (see Diéguez 2008). Unfortunately, we were not able to examine this specimen.

Examined non-type material (136 specimens). ARGENTINA: Catamarca, Without specific locality, no date or collector (2♂ MLPA). **Chubut,** Paso de Indios, 50km W [west] Los Altares, 8.ii.2011, cattle carcass, V.M. Diéguez leg. (1♂ and 1♀ CVMD); Península Valdés, 1.iii.1998, D. Rojas Lanus leg. (1 CEMT); Sierra del Chacay, 22.i.2012, horse carcass, no collector (1♂ and 2 unsexed CVMD); Telsen, 3.ii.2011, under Guanaco carcass [*Lama guanicoe*], G. Arriagada leg. (1 CVMD); Telsen, 3.ii.2011, under Guanaco carcass [*Lama guanicoe*], G. Arriagada leg. (1♂ CEMT); Without specific locality, date or collector (1 MLPA). **Entre Rios,** Pueblo Liebig, ii.1996, Mateo Zelich leg. (1♂ CVMD). **Mendoza,** Las Heras, 25km N [north] Uspallata, 2,400m, 28.i.2004, cattle carcass, G. Flores & S. Roig leg. (5 IADIZA); Las Heras, 7km E [east] Paramillos, 2,824m, 4.xii.2004, cattle carcass, J. Lobos leg. (9 IADIZA); Las Heras, Reserva Natural Villavicencio, 2,200m, 31.xii.2014, F. Aballay leg. (2 CEMT); Las Heras, Reserva Natural Villavicencio, 2,600m, 31.i.2016, F. Aballay & F. Jofré leg. (1 CEMT); Las Heras, Reserva Natural Villavicencio, 2,600m, 31.i.2016, F. Aballay & F. Jofré leg. (19 IADIZA); Las Heras, Reserva Natural Villavicencio, 2,600m, 31.xii.2014, F. Aballay leg. (8 IADIZA); Las Heras, Reserva Natural Villavicencio, 2,600m, 31.xii.2015, F. Aballay & F. Jofré leg. (5 IADIZA); Malargüe, Reserva Provincial La Payunia, zona petrolera Fortunoso, 1,668m, 3.xii.2016, black light, G. Flores leg. (1 IADIZA); San Carlos, Reserva Natural Laguna del Diamante, Puesto Alvarado, 2,327m, 34º14'46"S, 69º22'50"W, 8–17.ii.2005, S. Claver leg. (10 IADIZA); Uspallata, 16km NW [northwest] Archaeological Park of Tambillos, 2,700m, 28.i.2004, cattle carcass, G. Flores leg. (2 IADIZA); Uspallata,

25km NW Archaeological Park of Tambillos, 28.i.2004, cattle carcass, G. Flores leg. (1 IFML); Uspallata, 5km W [west] Archaeological Park of Tambillos, 2,500m, 27.i.2004, G. Flores & S. Roig leg. (20 IADIZA); Uspallata, Estancia Yaguaraz, 9.iii.1940, Biraben leg. (1 MLPA). **Neuquén,** Bajada del Agrio, 9.v.1964, no collector (2♂ CVMD); Bajada del Agrio, 9.v.1964, no collector (9 IADIZA); Bajada Marucho, 870m, 4.xii.1972, M. Gentili leg. (2 IADIZA); Bajada Marucho, 870m, 9.i.1970, M. Gentili leg. (3 IADIZA); Cerro La Pintada, 21.i.1983, M. Gentili leg. (1 IADIZA); Cerro La Pintada, 650m, 21.x.1990, M. Gentili leg. (1 IADIZA); Laguna Blanca National Park, 3.iii.1984, M. Gentili leg. (1 IADIZA); Los Lagos, Río Caleufú, xi.1964, A. Giai leg. (1 CVMD); Piedra del Aguila, 525m, 7.ii.1992, M. Gentili leg. (1 IADIZA); Sañico, 900m, 14.iii.1972, M. Gentili leg. (2 IADIZA); Without specific locality, 1907, Dr. Adolf Lendl leg. (1 MNHN); Without specific locality, 950m, 14.xii.1974, M. Gentili leg. (3 IADIZA); Zapala, Villa Militar de Covunco 29.x.1962, M. Gentili leg. (1 IADIZA). **Río Negro,** Ministro Ramos Mexía, Corral Chico, 6.iii.1915, no collector (1♂ MLPA); Ministro Ramos Mexía, Corral Chico, no date or collector (5♂ and 3 unsexed MLPA); Pilcaniyeu, 12km N [north] Comallo, Estancia El Gringo, 735m, 11.vii.2017, black and white lights, G. Flores & F. Aballay leg. (1 IADIZA). **Salta,** Capiazutti, ix.1944, R. Golbach leg. (1 IFML). **San Luis,** Villa Elena, xi.1976, M. Viana leg. (1♂ CVMD). **BOLIVIA: Without specific locality,** date or collector (1 BMNH).

Polynoncus pampeanus (Burmeister, 1876)

(Figs. 25, 49)

Trox pampeanus Burmeister, 1876: 255 (original description); Preudhomme de Borre 1886: 74 (checklist); Bruch 1911: 193 (checklist); Arrow 1912: 59 (catalogue); Blackwelder 1944: 219 (checklist – as "*pampeana*"); Vaurie 1962: 142 (redescription).

Trox (*Polynoncus*) *pampeanus*: Scholtz 1982: 16 (catalogue).

Polynoncus pampeanus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1423 (redescription); Gómez 2008: 515 (key to Argentinean species); Bachmann *et al*. 2010: 54 (catalogue of types housed in MACN); Zídek 2013: 14 (checklist); Zídek 2017: 106 (checklist); Costa-Silva & Diéguez 2020: 272 (records from Argentina).

Type-specimens examined. LECTOTYPE HERE DESIGNATED (MACN – Fig. 49**).** First label [green, typeset]: "Tucu - / man.". Second label [white, typeset]: "68". Third label [white, typeset]: Col. / Antigua". Fourth label [light brown with black border, typeset]: "PARATYPUS". Fifth label [light brown with another piece of a label glued up]: "pampea - / nus Nob. [Hermann Burmeister's handwriting] / Museo Argentino de Ciencias Naturales [typeset]. Sixth label [red with black frame, Axel Bachmann's handwriting]: "Trox / pam - / peanus / Burmeister / 1876 / Syntypus [vertical]. Seventh label [red, printed]: "LECTOTYPE". Eighth label [red, Costa-Silva's handwriting]: "Trox pampeanus / Burmeister, 1876 / des. V. Costa-Silva". Nineth label [white with black frame, typeset]: "MACN-En / 1343" (Fig. 49C). **Type locality:** "Tucumán", without further data (Argentina).

PARALECTOTYPES (3 MACN). First label [green]: "Catamarca". Second label [red, Axel Bachmann's handwriting]: Trox / pam - / peanus / Burmeister / 1876 / Syntypus [vertical]. Third label [red, printed]: "PARALECTOTYPE". Fourth label [red, Vinícius Costa-Silva's handwriting]: "Trox pampeanus / Burmeister, 1876 / des. V. Costa-Silva" **(1 MACN)**. First label [green]: "Carm. Patag. [Carman de Patagones]". Second label [red, Axel Bachmann's handwriting]: Trox / pam - / peanus / Burmeister / 1876 / Syntypus [vertical]. Third label [red, printed]: "PARALECTOTYPE". Fourth label [red, Vinícius Costa-Silva's handwriting]: "Trox pampeanus / Burmeister, 1876 / des. V. Costa-Silva" **(1 MACN)**. First label [red, Axel Bachmann's handwriting]: Trox / pam - / peanus / Burmeister / 1876 / Syntypus [vertical]. Second label [red, printed]: "PARALECTOTYPE". Third label [red, Vinícius Costa-Silva's handwriting]: "Trox pampeanus / Burmeister, 1876 / des. V. Costa-Silva" **(1 MACN)**.

Differential diagnosis. *Polynoncus pampeanus* can be easily distinguished from other wingless species. It is most similar to *Polynoncus erugatus*, although, the absence of basal tubercles in *P. pampeanus* allows both species to be distinguished. The basal tubercle in *P. erugatus* is poorly raised and usually glabrous.

Geographic distribution. *Polynoncus pampeanus* is endemic in the arid and semiarid regions of Argentina (Fig. 25). Vaurie (1962) and Scholtz (1990) present a reduced geographical distribution of this species from Argentina, based on six and 13 examined specimens, respectively. Here, we expand the geographical distribution of this species based on more than 100 examined specimens and available literature (*i.e.*, Gómez, 2005; Costa-Silva & Diéguez, 2020).

Examined non-type material (110 specimens). ARGENTINA: Buenos Aires, Bahía Blanca, 6.ix–17.x.1832, C. Darwin [Beagle voyage] leg. (3 BMNH); Felipe Solá, ii.1961, A. Martinez leg. (1 MZSP). **Chubut,** without specific locality, date or collector [Burmeister's collection] (1 MACN). **Córdoba,** without specific locality or date, H. Rierter leg. [Bruch's collection] (1 MACN). **La Pampa,** Caleu Caleu, Estancia Los Valles, 1.ix.2000, Marchicote leg. (10 IADIZA); Caleu Caleu, Estancia Los Valles, 17.ix.2000, Marchicote leg. (1 CEMT; 1 IADIZA); Caleu Caleu, Estancia Los Valles, 18.ix.2000, Marchicote leg. (1 IADIZA); Caranches, 24.iii.1938, Biraben - Scott leg. (1 MLPA); Curacó, Puelches, Estancia La Gracielita, v.2003, Bárbara Corró Molas leg. (1 IADIZA); Guatraché, Estancia La Unión, ix.1995, Pessino leg. (1 CEMT; 1 IADIZA); Lihué Calel, Lihué Calel National Park, 17.viii.1997, Pessino leg. (3 IADIZA); Lihué Calel, Lihué Calel National Park, 23.iii.1994, Pessino leg. (1 CEMT); Lihué Calel, Lihué Calel National Park, 23.iii.1994, Pessino leg. (3 IADIZA); Macachín, Salinas Grandes, 5.x.1994, Bárbara Corró Molas leg. (2 IADIZA); Santa Rosa, Bajo Giuliani, 11.iv.1999, Goats & Rastelli leg. (2 IADIZA); Santa Rosa, Bajo Giuliani, 19.ix.1994, Montalvo leg. (2 IADIZA); Santa Rosa, Bajo Giuliani, 2.v.1999, Goats & Rastelli leg. (1 IADIZA); Santa Rosa, Bajo Giuliani, 20.vii.1999, Goats & Rastelli leg. (1 IADIZA); Santa Rosa, Bajo Giuliani, 21.ii.1999, Goats & Rastelli leg. (1♂ IADIZA); Santa Rosa, Bajo Giuliani, 21.iii.1999, Goats & Rastelli leg. (1♂ and 1♀ IADIZA); Santa Rosa, Bajo Giuliani, 21.v.1999, Goats & Rastelli leg. (1 IADIZA); Santa Rosa, Bajo Giuliani, 7.iii.1999, Goats & Rastelli leg. (1♀ IADIZA); Santa Rosa, Faculdad de Agronomia, 16.iii.1993, Bárbara Corró Molas leg. (2 IADIZA); Santa Rosa, Faculdad de Agronomia, 2.iv.2003, Tirani leg. (3♂ and 2 unsexed IADIZA); Santa Rosa, Faculdad de Agronomia, 2.v.1997, Maceda leg. (4♂ and 4 unsexed IADIZA); Santa Rosa, Faculdad de Agronomia, iv.1999, Bárbara Corró Molas leg. (1♂ and 1 unsexed IADIZA); Toay, Estancia Bajo Verde, 25.xi.1997, Bárbara Corró Molas leg. (1 IADIZA); Toay, Reserva Natural Parque Luro, 14.ix.1996, Maceda leg. (1♂ and 2 unsexed IADIZA); Toay, Reserva Natural Parque Luro, 14.viii.1996, Maceda leg. (1♀ and 1 unsexed IADIZA); Toay, Reserva Natural Parque Luro, 17.viii.1996, Maceda leg. (1 IADIZA); Toay, Reserva Natural Parque Luro, 19.ix.1994, Carbonado leg. (1 IADIZA); Toay, Reserva Natural Parque Luro, 3.iii.1997, Maceda leg. (1 IADIZA); Toay, Reserva Natural Parque Luro, 31.vii.1996, Maceda leg. (4 IADIZA); Toay, Reserva Natural Parque Luro, 4.iii.1997, Maceda leg. (2♂ and 1 unsexed CVMD); Toay, Reserva Natural Parque Luro, xi.2002, Pessino leg. (1♂ IADIZA); Utracán,

Patagua, 31.viii.1994, Púgener Cardonato Montalvo leg. (2 IADIZA); Victorica, 19.vi.1995, Maceda leg. (1 IADIZA); Zapala, Ruta 14 Km 166, 31.vii.1999, Maceda leg. (1♂ CEMT; 1♀ IADIZA). **Mendoza,** Without specific locality, 1900, no collector [Bruch's collection] (1 MACN); Santa Rosa, Reserva de Biosfera de Ñacuñan, 11–13.xii.2002, V.M. Diéguez leg. (1♂ IADIZA). **San Luis,** Ayacucho, 6km S de Baldecito, 16.xi.1997, S. Roig leg. (1 CVMD); Belgrano, Fundo "El Molle", near Villa de la Quebrada, 15–25.i.2009, José Goméz leg. (2♂, 3♀ and 3 unsexed CVMD); Belgrano, Fundo "El Molle", near Villa de la Quebrada, 20–28.i.2013, G. Arriágada leg. (1♀ CEMT); Belgrano, Fundo "El Molle", near Villa de la Quebrada, 622m, 33º2'22"S, 66º30'47"W, 15–25.i.2007, José Goméz leg. (2♂, 1♀ and 9 unsexed CVMD). **Tucumán,** El Infiernillo, Cumbre Cachaquies, 9.xi.1995, Flores & Roig leg. (1♂ CVMD); Without specific locality, C. Darwin [Beagle voyage] leg. (2 BMNH). **Without specific locality,** date or collector (1 MLPA).

Polynoncus parafurcatus Pittino, 1987

(Figs. 5D, 46, 50–51)

Polynoncus parafurcatus Pittino, 1987: 395 (original description); Scholtz 1990: 1441 (redescription); Gómez 2008: 517 (key to Argentinean species); Zídek 2013: 14 (checklist); Zídek 2017: 106 (checklist); Costa-Silva & Diéguez 2020: 272 (records from Argentina).

Polynoncus parafurcatus occidentalis Pittino, 1987: 395 (synonymized by Scholtz 1990).

Type-specimens examined. HOLOTYPE (♂ MNHN – Fig. 50**).** First label [round, white aged, Castelnau's handwriting]: "7 / 47". Second label [white aged, typeset]: "MUSEUM PARIS / BRÉSIL / MINAS-GERAES / DE CASTELNAU 1847". Third label [red, Riccardo Pittino's handwriting]: "Polynoncus / parafurcatus n. sp. / HOLOTYPUS ♂ / Det. R. Pittino 1897". Fourth label [red with black frame, typeset]: "HOLOTYPE". Fifth label [white, typeset]: "MNHN / EC9642" (Fig. 50E). **Type locality: "**Minas-Geraes [Minas Gerais]" (Brazil), collected by the French entomologist Francois Louis Nompar Caumont de Laporte de Castelnau (1810–1880) during one of his expeditions to South America between 1843 and 1847 (Papavero, 1971).

PARATYPES (1♂ MNHN; 1♂ and 1♀ RPMI [through detailed photographs]). First label [round, white aged, Castelnau's handwriting]: "7 / 47". Second label [white aged, typeset]: "MUSEUM PARIS / BRÉSIL / MINAS-GERAES / DE CASTELNAU 1847". Third label [red, Riccardo Pittino's handwritten]: "Polynoncus / parafurcatus n. sp. / HOLOTYPUS ♂ / Det. R. Pittino 1897". Fourth label [White with black border, handwritten]: "♀" Fifth label [red, typeset]: "PARATYPE". Sixth label [white, typeset]: "MNHN / EC9643" **(♂ MNHN)**. First label [light brown, handwritten]: "São Paulo / J. Metz.". Second label [white, typeset]: "EX COLL. / WINKLER, WIEN". Third label [red, typeset]: "PARATYPUS". Fourth label [red with black frame, Riccardo Pittino's handwriting]: "Polynoncus ♂ / parafurcatus / n. sp. / Det. Pittino 1987" **(♂ RPMI)**. First label [white aged, typeset]: "MUSEUM PARIS / BRÉSIL / MINAS-GERAES / DE CASTELNAU 1847". Second label [round and green, without any visible information]. Third label [red, typeset]: "PARATYPUS". Fourth label [red with black border, Riccardo Pittino's handwriting]: "Polynoncus ♂ / parafurcatus / n. sp. / Det. Pittino 1987" **(♀ RPMI)**.

Type-specimens examined of *Polynoncus parafurcatus occidentalis* Pittino, 1987 (Fig. 51)**. HOLOTYPE (♂ MNHN).** First label [white aged, typeset]: "MUSEUM PARIS / BUENOS-AYRES / A CORRIENTES / D'ORBIGNY 1834". Second label [white aged, round, d'Orbigny's handwriting]: "5398 / 34". Third label [red, Riccardo Pittino's handwriting]: "Polynoncus / parafurcatus / occidentalis n. sp. / HOLOTYPUS ♂ / Det. R. Pittino 1987". Fourth label [white, Vinícius Costa-Silva's handwriting]: "=Polynoncus / parafurcatus / Pittino 1987 / Det. V. Costa-Silva, 2022" (Fig. 51D). **Type locality:** "Buenos-Ayres à Corrientes". According to d'Orbigny catalogue (nº 399), this specimen was found under dry carcass during this travel going up the Paraná River from Buenos Aires to Corrientes between January 15th and March 15th, 1827.
PARATYPE (♂ RPMI): First label [white, typeset]: "Bella vista / Argentina". Second label [white aged, typeset]: "EX COLL. / WINKLER, WIEN". Third label [red with black frame, typeset]: "PARATIPUS". Fourth label [red with black frame, Riccardo Pittino's handwriting]: "Polynoncus / parafurcatus / occidentalis n. sp. / Det. Pittino 1987".

Differential diagnosis. This species is more similar to *Polynoncus bifurcatus* and *P. furcillifer*. However, *P. furcillifer* has medial ridges and basal tubercles of the pronotum connected (Fig. 4C), while is distinctly separate in *P. parafurcatus* and *P.*

bifurcatus (Fig. 4D). *Polynoncus parafurcatus* and *P. bifurcatus* can be confused at first glance, however, *P. parafurcatus* has black setae in the punctations localized in the dorsal surface of elytral tubercles, while *P. bifurcatus* present yellow setae. This characteristic is easier to see with good illumination and stereomicroscope with 128x magnification. Male genitalia are also distinctive (see *Polynoncus bifurcatus* section, plus Pittino 1987).

Geographic distribution. *Polynoncus parafurcatus* is widely distributed in central South America, with records from Brazil, Paraguay, Uruguay and Argentina (Fig. 46). Many populations of *P. parafurcatus* occur in sympatry with *P. furcillifer*, *P. gemmingeri* and *P. brasiliensis*.

Examined non-type material (69 specimens). ARGENTINA: Corrientes, Nueva Valencia [currently Riachuelo city], xi.1947, Manuel Viana leg. (1 CJEB). **Córdoba,** Alpa Corral, Eloisa, 976m, 32º38'27"S, 64º42'47"W, 5–8.ii.2009, K. Sheldon, F.C. Ocampo leg. (1♂ IADIZA); Alpa Corral, 10Km NW Sítio, 8–9.ii.2009, F.C. Ocampo leg. (3 CEMT); Calamuchita, Hotel El Sauce, xi.1968, Manuel Viana leg. (1♂ CVMD). **BRAZIL: Bahia,** without specific locality, date or collector (1♂ BMNH). **Distrito Federal,** Brasília, Água Limpa Farm, 15º56'40"S, 47º55'38"W, 10.xii.2017, pig faeces, Y. Ferreira leg. (3♀ CEMT); Brasília, Água Limpa Farm, 15º56'40"S, 47º55'38"W, 9.xii.2017, pig faeces, Y. Ferreira leg. (1 CEMT); Brasília, Brasília National Park, 15º43'46"S, 47º55'18"W, 16.xi.2017, *Sus scrofa* carcass, L.A. Lira-Junior leg. (1 CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 12.i.2016, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (1 CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 17.ii.2016, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (1♂ CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 21.xii.2015, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (2 CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 23.iii.2016, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (1♂ and 1 unsexed CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 27.xi.2015, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (1♂ IEXA); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 27.xi.2015, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (4 CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 4.iii.2016, FIT [Flight Interceptation Trap], Cerrado, N.H.D. Silva leg. (2 CEMT); Brasília, Brasília National Park, 15º51'22"S, 47º48'48"W, 7.v.2016, FIT [Flight Interceptation Trap], Cerrado, J. Evangelista & M.V.C Rocha leg. (1 CERPE); Brasília,

Brasília National Park, 15º51'22"S, 47º48'48"W, 7.v.2016, FIT [Flight Interceptation Trap], Cerrado, J. Evanjelista & M.V.C. Rocha leg. (1 CEMT); Brasilia, IBGE Ecological Reserve, x.1997, I. Diniz leg. (1 EMAC); Brasília, IBGE Ecological Reserve, x.1997, I. Diniz leg. (1 CEMT); Brasília, IBGE Ecological Reserve, x.1997, I. Diniz leg. (1♀ CVMD); Brasília, IBGE Ecological Reserve, xi.1986, I. Diniz leg. (2 CEMT); Brasília, IBGE Ecological Reserve, xi.1986, I. Diniz leg. (3♂ CVMD); Brasília, IBGE Ecological Reserve, xii.1986, I. Diniz leg. (1 CEMT); Planaltina, 15º36'24"S, 47º44'42"W, 5.x.2015, Light trap, A. Specht leg. (1 CEMT); Planaltina, ESEC Águas Emendadas, 15º35'31"S, 47º36'49"W, 1–15.x.2010, pitfall, M.R. Frizzas leg. (1 CEMT); Planaltina, ESEC Águas Emendadas, 15º35'31"S, 47º36'49"W, 16–31.x.2009, pitfall, M.R. Frizzas leg. (1 CEMT). **Goiás,** Mineiros, Emas National Park, 1999, G. Machado leg. (1♂ CEMT). **Minas Gerais,** Araxá, 6.xi.1965, C. & T. Elias leg. (1 DZUP). **Paraná,** Tibagi, Guartelá State Park, 900m, xi.2007, pitfall P. Grossi leg. (1♀ CEMT). **Rio Grande do Sul,** Bagé, Embrapa, i.2006, L.D. Audino leg. (1♂ CEMT); Herval, 32º5'85"S, 56º36'83"W, 28.xi–04.xii.2014, L. Garcia leg. (2♂ CEMT). **São Paulo,** Botucatu, 10.ii.1982, A. Scivittaro leg. (1♀ SAMC); Itú, Pau d'Alho Farm, 1.i.1958, U. Martins leg. (1 MZSP); Itú, Pau d'Alho Farm, xi.1958, U. Martins leg. (1♀ MZSP); São José dos Campos, 1–4.x.1960, D.L. Tiemann leg. (1♂ SAMC); São Paulo, 22.ii.1948, Maluf leg. (1♂ SAMC); São Paulo, Ipiranga, 2.ii.2000, G. Machado leg. (1 CEMT); São Paulo, Ipiranga, no date or collector (1♂, 3♀ and 5 unsexed MZSP); São Paulo, Ipiranga, xi.2000, G. Machado leg. (1 CEMT); São Paulo, Santo Amaro, no date, J. Lane leg. (1 MZSP); São Paulo, xii.1963, no collector (1♂ MZSP); Valinhos, 700m, 16.ix.1967, Light trap, no collector (1♀ CEMT); Without specific locality, v.1996, J. Carlos leg. (1♀ CEMT). **PARAGUAY: Itapuá,** Puerto Cantera, xi.1956, Wolz leg. (1♂ SAMC). **URUGUAY: Rivera,** Bañado de Medina, Piedras Sueltas Farm, 32º18'21"S, 53º57'30"W, 13–20.xii.2011, pitfall (human and pig dung), R.M Moraes leg. (1 CEMT); Rivera COFUSA Company, 30º57'36"S, 55º29'53"W, 3.xi.2011, Human + pig dung, R.M. Moraes leg. (1♂ CEMT); Rivera, Bodegas Carrau Farm, 30º58'19"S, 55º26'40"W, 3–11.x.2011, FIT [Flight Interceptation Trap], R.M Moraes leg. (1♂ CEMT).

Remarks. *Polynoncus parafurcatus* was described together with a series of twin species, which are poorly separated considering external morphology (see Pittino, 1987). Belonging to this group, Pittino (1987) described *Polynoncus parafurcatus occidentalis* to accommodate a variety of male genitalia. This subspecies was later synonymized by Scholtz (1990: 1442) stating that both species share a variation of the

same genitalia. After examining a large series of *Polynoncus parafurcatus* we found both morphotypes of genitalia in populations from Argentina (type locality of P. *parafurcatus occidentalis*) and Brazil (type locality of *P. parafurcatus parafurcatus*). We agree with Scholtz (1990) that both species are synonymous and not a clinal variation, as proposed by Pitino (1987), maintaining both subspecies as synonymous.

Polynoncus patagonicus (Blanchard, 1847)

(Figs. 5G, 46, 52)

Trox patagonicus Blanchard, 1847: 186 (original description); Lacordaire 1855: 152 (checklist); Harold 1869: 1089 (checklist); Harold 1872: 188, 191 (citation); Berg 1881: 99 (checklist of Rio Negro, Argentina); Preudhomme de Borre 1886: 74 (checklist); Burmeister 1876: 254 (redescription); Felsche 1901: 154 (new synonym of *T. bullatus*); Bruch 1911: 193 (checklist – as synonym of *T. bullatus*); Arrow 1912: 54 (catalogue – as junior synonym of *T. bullatus*); Blackwelder 1944: 218 (checklist – T. "*patagonica*" as synonym of T. "*bullata*"); Vaurie 1962: 141 (redescription and reinstated as a valid species).

Trox (*Polynoncus*) *patagonicus*: Scholtz 1982: 16 (catalogue)

Polynoncus patagonicus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1423 (redescription); Gómez 2008: 515 (key to Argentinean species); Zídek 2013: 14 (checklist); Zídek 2017 (checklist); Smith 2017: 98 (lectotype designated); Costa-Silva & Diéguez 2020: 272 (records from Argentina)

Type-specimen examined. LECTOTYPE (♀ MNHN – Fig. 52**).** First label [white]: "♀". Second label [white aged, typeset]: "MUSEUM PARIS / PATAGONIE / (PATAGONES) / D'ORBIGNY 1834". Third label [white aged, handwritten]: "1028." [D'Orbigny's handwriting]. Fourth label [rounded, handwritten]: "6097 / 34". Fifth label [green with a black line on each side, handwritten]: "Trox / patagonicus / Blanch.". Sixth label [red, typeset]: "LECTOTYPE". Seventh label [red with black border]: "TROX / PATAGONICUS / BLANCHARD, 1847 [Andrew Smith's handwriting] / LECTOTYPE / A.B.T. SMITH [typeset]. Eighth label [white with black border]: "SCARABS OF / SOUTHERN / SOUTH AMERICA / SSSA3001570" (Fig. 52C). **Type locality:** "Patagones". According to the entry 1028 in d'Orbigny's

collection catalog, this specimen was collected in the mouth of Río Negro (Argentina) under a cow carcass in March 1829 (for details of d'Orbigny's catalog, see Smith 2017).

Differential diagnosis. *Polynoncus patagonicus* is the largest species of the genus (~ 17 – 22 mm). Is morphologically similar to *P. bullatus*, and *P. patriciae*. It can be easily separated from both species for having a raised transverse ridge connecting the pronotal ridges and anterolateral tubercle (Fig. 5G, white arrows).

The general morphology of the median lobe of all three species is similar, although the apex shape is distinctive: *P. patagonicus* has the apex sinuous; *P. patriciae*, with a strong emargination in U-shaped (almost bifurcate) and anterior angles rounded, while *P. bullatus* is smoothly emarginate with anterior angles acute. For a more detailed comparison, see Pittino (1987).

Geographic distribution. *Polynoncus patagonicus* is widely distributed in Argentina (Fig. 46). Vaurie (1962) mentioned one female specimen from Pará (Brazil), without further information about specific locality or depository of the examined material (see Smith 2017). Also, we examined in BMNH one specimen from "Bolívia" without further data. Based on our understanding about the geographical distribution of these species, these improbable records need to be treated with caution.

Examined non-type material (40 specimens). ARGENTINA: Buenos Aires, Bahía Blanca, C. Darwin leg. (4 BMNH); Bahía Blanca, no date or collector (1 CEMT); Saavedra, 5.viii.1923 (1 MLPA); Without specific locality, no date [Bruch's collection] (1 MACN). **Chubut,** Península Valdes, Punta Delgada, 2.xi.1997, Daniel Rojas Lanus leg. (1 CVMD); Valdés, 8km S [south] Punta Norte, 42m, 42º12'20"S, 63º52'5"W, 14.i.2010, G. Flores, G. Cheli y R. Carrara leg. (1 IADIZA); Valdés, Puesto Abandonado, 42º43'2"S, 63º38'27"W, 23.ii.2007, G. Cheli leg. (1 IADIZA); Without specific locality or date [Bruch's collection] (2 MACN); Without specific locality or date, G. Pellerano leg. (4 MACN); Without specific locality or date, H. Richter leg. (1 CEMT). **Córdoba,** Without specific locality, no date or collector (1 MACN). **La Pampa,** 35km W [West] de Jagüel del Monte, 14.vii.1999, Maceda leg. (1 CEMT); 35km W de Jagüel del Monte, 14.vii.1999, Maceda leg. (1 IADIZA); Conhello, Estancia San Eduardo, no date or collector (1♂ IADIZA). **La Rioja,** Without specific locality or date, A. Breyer leg. (1 MACN). **Neuquén,** Without specific locality, date or collector (3 MACN). **Rio Negro,** Rives du Rio Negro [on the banks of Rio Negro], iii–vi.1897, H. de la Vaulx leg. (1 MNHN); Without specific locality, date or collector [Bruch's collection] (3 MACN); Viedma, 3–19.iii.1829, D'Orbigny leg. (1♂ and 1♀

MNHN). **San Luis,** Coronal Pringles, La Carolina, xi.1970, H. Viana leg. (1♀ CVMD). **Tucumán,** Without specific locality, data or collector [G.V. Mniszech's collection] (1 MNHN). **Without specific locality,** no date, A. Breyer leg. (1 MACN); "Patagones", no date, C. Berg leg. (1 MNHN); "Patagonia", no date or collector (1 BMNH); "Patagonia", no date or collector (1 MNHN). **BOLIVIA** [dubious locality]**: Without specific locality,** date or collector (1 BMNH).

Remarks. There are differences between the date of original descriptions made by Emile Blanchard in his work "*Insectes de l'Amérique Méridionale*". According to Sherborn and Woodward (1901), the pages between 105–222 in Blanchard's work refers to the year 1846 as the date of publication. Many works about Trogidae's fauna published after 1901 treated all species described by Blanchard as from 1843 (*e.g.*, Bruch 1911), 1846 (*e.g.*, Arrow 1912; Blackwelder 1944; Vaurie 1962; Scholtz 1982; Scholtz 1990; Zídek 2013, 2017) or 1847 (Smith 2017; Costa-Silva & Diéguez 2020). However, Sherborn and Griffin (1934), after examination of original wrappers of Blanchard' work, reorganized the text and pages with their respective year of publication, showing that all species described between the pages 185–232 was published in 1847, the correct year that should be used (also see Evenhuis 1997; Bousquet 2016).

Polynoncus patriciae Pittino, 1987

(Figs. 48, 53)

Polynoncus patriciae Pittino, 1987: 386 (original description); Scholtz 1990: 1422 (redescription); Gómez 2008: 515 (key to Argentinean species); Zídek 2013: 14 (checklist); Zídek 2017: 106 (checklist); Costa-Silva & Diéguez 2020: 272 (records from Argentina)

Type-specimens examined (through detailed photographs). HOLOTYPE (♂ RPMI – Fig. 53**).** First label [white, handwritten]: "Buenos Aires". Second label [red with black frame, Riccardo Pittino's handwriting]: "Polynoncus / patriciae n. sp. / HOLOTYPUS ♂ / Det. Pittino 1987". (Fig. 53E). **Type locality: "**Buenos Aires", Argentina.
PARATYPE (through detailed photographs) (♂ RPMI). First label [white, handwritten]: "Buenos Aires". Second label [red]: "PARATYPUS". Third label [red

with black frame, Riccardo Pittino's handwriting]: "Polynoncus ♂ / patriciae n. sp. / Det. Pittino 1987. Fourth label [white, Riccardo Pittino's handwriting]: "COLL. / R. PITTINO".

Differential diagnosis. This species is most similar to *P. bullatus* and *P. patagonicus* (see above). It can be distinguished from *P. patagonicus* for lacking a raised transverse ridge connecting the medial ridges and anterolateral tubercle of the pronotum. Also, *P. patriciae* differs from *P. bullatus* by having the anterior margin of clypeus truncate in dorsal view (Fig. 4F), while it is emarginate in *P. bullatus* (Fig. 4E).

Geographic distribution. *Polynoncus patriciae* is recorded from Argentina and Uruguay, close to Rio de la Plata (Scholtz 1990; Fig. 48). Costa-Silva & Diéguez (2020) mentioned two provincial records of *P. patriciae* from La Rioja and La Pampa (both outside of Rio de la Plata) without further information about the specific locality. The material cited by Costa-Silva & Diéguez (2020), confirmed as *P. patriciae* by us, belongs to the old specimens (historical collections) housed in MACN. Additional data is necessary to confirm the record of this species to the north of Argentina.

Examined non-type material (13 specimens). ARGENTINA: Buenos Aires, Balcarce, no date, J.M. Gallardo leg. (1 CEMT); Buenos Aires, La Plata, no date or collector (1 BMNH); Quequén Salado River, no date or collector (1 MACN); Tandil, no date or collector (1 MACN); Without specific locality, A. Breyer leg. (1 MACN); Without specific locality, i.1977, no collector (1 MACN). **La Pampa,** Without specific locality, no date [Bruch's collection] (3 MACN). **La Rioja,** Without specific locality, A. Breyer leg. (3 MACN). **Without specific locality,** "Pampas", 1874, C. Berg leg. (1♂ MNHN).

Polynoncus pedestris (Harold, 1872)

(Figs. 5E, 54–55)

Trox denticulatus Blanchard, 1847: 189 (original description).

Trox pedestris Harold, 1872: 128, 191 (new name for *Trox denticulatus* Blanchard, 1847 and redescription); Burmeister 1876: 256 (redescription); Preudhomme de Borre 1886: 75 (checklist); Bruch 1911: 193 (checklist); Arrow 1912: 59 (catalogue); Blackwelder 1944: 219 (checklist); Vaurie 1962: 135 (redescription).

Trox (*Polynoncus*) *pedestris*: Scholtz 1982: 16 (catalogue)

Polynoncus pedestris: Scholtz 1986a: 362 (catalogue and subsequent designation of type species of *Polynoncus*); Scholtz 1990: 1449 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 14 (checklist); Zídek 2017: 106 (checklist); Smith 2017: 100 (comments); Costa-Silva & Diéguez 2020: 272 (records from Argentina).

Type-specimens examined. LECTOTYPE, HERE DESIGNATED (♀ MNHN – Fig. 54**).** First label [white aged, typeset]: "MUSEUM PARIS / PATAGONIE / (PATAGONES) / D'ORBIGNY 1834". Second label [round, handwriten]: "6029 / 34". Third label [white, unknown's handwriting]: "♀". Fourth label [white, E. Haaf's handwriting]: "Trox / pedestris Har. / det. Dr E.Haaf 1953". Fifth label [white with black frame, Riccardo Pittino's handwriting]: "Trox (Omorgus) / pedestris Har. / Det. Pittino 1985. Sixth label [red with black frame, Vinícius Costa-Silva's handwriting]: "LECTOTYPE / Trox pedestris ♀ / Harold, 1872 / des. V. Costa-Silva 2022". Seventh label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus ♀ / pedestris / (Harold, 1872) / Det. V. Costa-Silva, 2022" (Fig. 54C). **Type locality:** "Patagones". The type specimens were also collected by A. d'Orbigny during his travels to South America between 1826 and 1833. The numbers found on each type (6029 [lectotype] and 6028 [paralectotype]) refer to specimens collected in "salinas d'Andrés Paz", seven leagues [~ 38 km] above the Village of Patagones (=Viedma), Río Negro (Argentina). According to Papavero (1971), d'Orbigny left Carmen de Patagones on March 19, 1829, following the bank of the Río Negro River until the salinas of Andrés Paz (Río Negro), repeating this route on 25 March and 22 April.

PARALECTOTYPE (♀ MNHN). First label [white aged, typeset]: "MUSEUM PARIS / PATAGONIE / (PATAGONES) / D'ORBIGNY 1834". Second label [round, d'Orbigny's handwriting]: "6028 / 34". Third label [white, unknown's handwriting]: "♀". Fourth label [white, E. Haaf's handwriting]: "Trox / pedestris Har. / det. Dr E.Haaf 1953". Fifth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "PARALECTOTYPE / Trox pedestris ♀ / Harold, 1872 / des. V. Costa-Silva 2022". Sixth label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus ♀ / pedestris / (Harold, 1872) / Det. V. Costa-Silva, 2022".

Differential diagnosis. *Polynoncus pedestris* can be easily diagnosed by the glabrous surface of elytra, with the velutinous area and yellow setae restricted to the elytral rounded tubercles; legs entirely glabrous with yellow setae, not covered by

suede; meso- and metatarsus elongate and thin (each tarsomere with sides parallel and broad on the apex).

Geographic distribution. *Polynoncus pedestris* is widely distributed in Argentina, matching with earlier records presented by Scholtz (1990), Smith (2017) and Costa-Silva & Diéguez (2020). Additionally, we present the first record of *P. pedestris* from Paraguay (Fig. 55).

During this study we examined one specimen housed in BMNH from "Bolivia" (with an old label), without further data. This specimen was also examined and identified by Scholtz in 1988, but was not included in his monograph published in 1990 (Scholtz 1990). This record should be treated as uncertain until new data of this species in the Bolivian territory.

Examined non-type material (54 specimens). ARGENTINA: Buenos Aires, Tandil, no date or collector (1 MACN). **Chaco,** General Guemes, Pozo la Gringa, i.1996, S.G. Bolle leg. (1♂ JZPC). **Córdoba,** Alpa Corral, 859m, 32º41'13"S, 64º42'50"W, 2.ii.2009, F.C. Ocampo leg. (1 IADIZA); Calamuchita, Villa Yacanto, no date, A. Stevenin leg. (2 MACN); Hotel El Sauce, x.1970, M. Viana leg. (3 CVMD); Punilla, Valle Hermoso, ii.1943, M. Viana leg. (1 MACN); San Javier, Villa Dolores, xii.1932, [Bruch's collection], no collector (1 MACN); Vilelas, no date, [Bruch's collection], Horstartinoff leg. (1 MACN); Without specific locality, date or collector (1♂ BMNH); Without specific locality or date, P.G. Lorentz leg. (1 MNHN). **Entre Rios,** Pueblo Liebig, ii.1996, Mateo Zelich leg. (1♂ and 1♀ CVMD); Without specific locality, no date or collector (1 MACN). **La Pampa,** Río Colorado, between Río Negro and La Pampa, 20.ii.2001, Daniel Rojas Lanus leg. (4 CVMD); Santa Rosa, Faculdad de Agronomia, 16.ii.1993, Bárbara Corró Molas leg. (1 IADIZA). **La Rioja,** Chilecito or date, P. Strobel leg. (1 MNHN). **Mendoza,** Desaguadero, 8–19.i.1996, D. Escobar leg. (1 CVMD); Desaguadero, 9.i.2000, S. Esparza leg. (1 CVMD); Santa Rosa, Reserva Biosfera de Ñacuñán, 11–13.xii.2002, ultraviolet light trap, V.M. Diéguez leg. (2 CVMD); Santa Rosa, Reserva Biosfera de Ñacuñán, 11–13.xii.2002, ultraviolet light trap, V.M. Diéguez leg. (2 IADIZA); Santa Rosa, Reserva Biosfera de Ñacuñán, 18.xii.2002, ultraviolet light trap, R. Gomez leg. (2 CVMD). **San Luis,** Belgrano, Fundo El Molle, 20–28.i.2013, pitfall with pig dung as bait, G. Arriágada leg. (1♂ CEMT); Belgrano, Fundo El Molle, 622m, ii.2010, José Gomez leg. (2 CVMD); Desaguadero, 15.i.2000, J. Jensen leg. (2 CVMD). **Santiago del Estero,** Fernandéz, 12.xii.1939, C.M.A.M. leg. (1 MLPA); Icaño, Lago Muyo, 22.iv.1957, R. Golbach leg.

(4 IFML); Pozo Hondo, xii.1946, no collector (1 IFML). **Tucumán,** Without specific locality, date or collector (3 MLPA); Without specific locality, date or collector (1 MACN); Without specific locality, date or collector [Bruch's collection] (1 MLPA); Without specific locality, 1901, (2 MACN); Without specific locality, date or collector (1 MACN); Without specific locality, date or collector leg. (2 MACN). **Without specific locality,** date or collector (1 BMNH). **PARAGUAY:** Caazapá, San José Cristal, 25.i.1997, Jorge Jensen leg. (1 CVMD).

Polynoncus peruanus (Erichson, 1847)

(Figs. 4C, 55–56)

Omorgus peruanus Erichson, 1847: 111 (original description); Lacordaire 1855: 152 (checklist).

Trox peruanus: Harold 1869: 1089 (checklist); Harold 1872: 141, 191 (systematics and redescription); Preudhomme de Borre 1886: 75 (checklist); Arrow 1912: 59 (catalogue); Blackwelder 1944: 219 (checklist – as "*peruana*"); Gutiérrez 1950: 64 (redescription); Vaurie 1962: 126 (lectotype designated and redescription).

Trox (*Polynoncus*) *peruanus*: Scholtz 1982: 16 (catalogue)

Polynoncus peruanus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1435 (redescription); Arias 2000: 70 (Coleopteran list from Chile); Diéguez 2008: 20 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 15 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 106 (checklist); Costa-Silva & Diéguez 2020: 272 (records from Argentina); Mondaca 2023: 210 (checklist from Chile).

Type-specimen examined (through detailed photographs). LECTOTYPE (♂ MFNB – Fig. 56**).** First label [white, unknown's handwritten]: "26236". Second label [green with black border, Erichson's handwriting]: "peruanus / Er. * / Peru.". Third label [red with black border, typeset]: "Lektotypus / Nr.". Fourth label [white, handwritten in blue colour]: "LECTOTYPE / Trox peruanus / Erich. / Vaurie '61 ♂" [Vaurie's handwritten] (Fig. 56E). **Type locality: "**Peru", without specific locality. The number "26236" refers to the historical collection catalogue of MFNB. According to this catalogue, the type series was collected in Peru by the Prussian naturalist Franz Julius Ferdinand Meyen

(1804–1840), who participated of the circumnavigation aboard the “Prinzessin Luise” between 1830 and 1832 (Meyen 1834; also see Mlíkovský & Frahnert 2017).

Differential diagnosis. *Polynoncus peruanus* is similar to *P. aricensis*, sharing the absence of distinctly tubercles and medial ridges in pronotum and markable punctation, usually being represented together in dichotomous keys (*e.g.*, Vaurie 1962; Scholtz 1990; Gómez 2008). *Polynoncus peruanus* can be distinguished from *P. aricensis* for having the lateral margin of elytral and pronotum serrate; a clypeal deflexed part truncates, concave and larger (almost twice wider than long); the clypeal deflexed portion in *P. aricensis* is curved, not concave and smaller (four times wider than long); and for having prominent teeth in the apex of mesotibia in *P. peruanus* (Fig. 4C), which is absent in *P. aricensis* (as in Fig. 4D).

Geographic distribution. *Polynoncus peruanus* is widely distributed in the western South America, in the Andean regions of Peru, west of Bolivia, northern Chile and northern Argentina (Fig. 55). Usually collected at high elevations between 1,500 and 4,500 meters above sea level.

Examined non-type material (168 specimens). ARGENTINA: Catamarca, Aconquija, La Ollada, 3,000m, 9.ii.1915, P. Jorgensen and Joel Blamey leg. (2 OUMNH); Andalgalá, no date or collector (1 MLPA). **Jujuy,** Iturbe, La Cueva, 3,700m, 10.xi.1919, [Bruch's collection], Weiser leg. (2 MACN); Santa Catalina, 29.xii.1919, [Bruch's collection] leg. (1 MACN); Tumbaya, Cuesta de Lipán, Ruta 52, km 22, 3,500m, 23º40'58"S, 65º35'62"W, 17.i.2008, L.R. Faria Jr. leg. (1♀ CEMT); Tumbaya, Ruta 52, km 38, 4,100m, 17.i.2008, light, K.S. Ramos leg. (1♀ CEMT); Without specific locality, date or collector (14 MLPA). **Salta,** Cachi, Cuesta del Obispo, 3,400m, 26.i.1983, M. Viana leg. (1 CVMD); Without specific locality, date or collector (14 MLPA). **Tucumán,** Amaicha del Valle, ii.1927, no collector (1 IFML); Tafí del Valle, Calchaquí Valleys, 2,000m, ii.1905, no collector (1 IFML). **BOLIVIA: Cochabamba,** Chapare, Colomi, 3,400m, xii.1948, Kuschel leg. (2 MNNC). **La Paz,** Achacachi, Belén, 3,850m, xii.1948, Kuschel leg. (4 MNNC); Charaña, 4,060m, 17º36'6"S, 69º26'27"W, 9.xi.2005, Gorky Valencia leg. (10 CVMD); Charaña, 4,060m, 17º36'6"S, 69º26'27"W, 9.xi.2005, Gorky Valencia leg. (1 MUSM); Charaña, 4,060m, 17º36'6"S, 69º26'27"W, 9.xi.2005, William Paredes leg. (1 MUSM). **Oruro,** Carahuara de Carangas, "Grand plateau des Cordillières" (sic!), 5–11.iv.1833, D'Orbygni leg. (2 MNHN); Challapata, 3,700m, no date or collector, Wet season (7 BMNH); Cosapa, 4,300m, 15.iii.2009, G. Castillo leg. (1 CVMD); El Choro, no date or collector (1

BMNH); Lequepalca, 3,850m, i.1949, Kuschel leg. (2 MNNC); Without specific locality, 3,700m, 11.i.1940, W. Wittmer leg. (1 MACN); Without specific locality, 3,700m, 11.i.1940, W. Wittmer leg. (3 BMNH); Without specific locality, data or collector (1 MZSP). **Without specific locality,** no date or collector (1 BMNH); without specific locality, no date or collector (1 MNHN). **CHILE: Arica y Parinacota (XV Region),** Arica, 4,550m, xii.1946, Kuschel leg. (2 MNNC); Arica, Aduana, 6.iii.1996, G. Castillo leg. (5 CVMD); General Lagos, 4,200m, xii.1948, Kuschel leg. (2 MNNC); Parinacota, 4,400m, 29.xi.1948, R. Gutiérrez leg. (2 BMNH); Parinacota, Cotacotani Lake, 4,450m, ii.1998, A. Ugarte leg. (1 CVMD); Parinacota, Salar de Surire, 4,300m, 2.ii.1998, A. Ugarte leg. (1 CVMD); Parinacota, Surire, 4,400m, i.1998, A. Ugarte leg. (1 JZPC); Parinacota, Volcano Tacora, x.1997, José Mondaga leg. (1 CVMD); Without specific locality, 4,392m, no date, E. Arias leg. (2 MNNC); Without specific locality, 4,400m, 2.iii.1948, Kuschel leg. (1 MNNC). **Tarapacá (I Region),** Iquique, Caraguano, 4,200m, i.1998, A. Ugarte leg. (1♂ JZPC); Iquique, Colchane, "Pampa Caraguano", 3,900m, 28–30.i.1998, H. Larraín leg. (8 MNNC); Iquique, Colchane, "Pampa Caraguano", 4,000m, 1.ii.1998, Horacio Larraín leg. (1♂ and 9 unsexed CVMD); Iquique, Colchane, "Pampa Caraguano", 4,000m, 30.i.1998, no collector (1♂ and 3♀ CEMT); Iquique, Colchane, "Pampa Caraguano", 4,200m, 19º33'50"S, 68º44'24"W, 3.iii.1998, A. Ugarte leg. (6 CEMT); Iquique, Colchane, "Pampa Caraguano", 4,200m, 3.ii.1998, A. Ugarte leg. (6 CVMD); Iquique, Salar de Huasco, 6.xi–16.xii.1993, V. Tello leg. (2 CVMD); Lauca National Park, Chungará Lake, 7.xii.1997, J. Mondaca leg. (3 MNNC). **Without specific locality,** no date, E.C. Reed leg. (1♂ BMNH). **PERU: Apurímac,** Aymaraes, Cotaruse, 4,198m, 73º16'25"S, 14º30'44"W, 3.v.2013, L. Figueroa leg. (1 CVMD); Aymaraes, Cotaruse, 4,137m, 73º18'38"S, 14º31'36"W, 2.v.2013, L. Figueroa leg. (1 CVMD). **Arequipa,** Arequipa, 1922, Dr. E. Escomel leg. (1♀ MNHN). **Ayacucho,** Lucanas, Chaviña, 4,164m, 14º54'21"S, 73º53'56"W, 7–10.iv.2010, Bosque de *Polylepis*, Carlos Carranza leg. (2 MUSM); Lucanas, Chaviña, 14º54'27"S, 73º53'57"W, 10.iv.2010, pitfall trap with feces, I. Galindo leg. (1 EMAC); Lucanas, Chaviña, 14º54'27"S, 73º53'57"W, 10.iv.2010, pitfall trap with feces, I. Galindo leg. (1♂, 3♀ and 4 unsexed CEMT); Lucanas, 21.i.1983, Sergio Roig leg. (1 CVMD); Lucanas, Chaviña, 4,164m, 7–10.iv.2010, C. Carranza leg. (1 CVMD). **Cusco,** Cusco, 1839, J.B. Pentland leg. (1 MNHN); Espinar, Cerro Choco Choco, 4,326m, 14º58'28"S, 71º17'53"W, 18.iii.2011, Roquedal de Puya [*Puya raimondii*], Mabel Alvarado leg. (2 MUSM); Espinar, Cerro Choco Choco, 4,326m, 18.iii.2011, Mabel

Alvarado leg. (1 CVMD); Lucre, 3,000m, 5.ii.1965, no collector (1♀ CEMT); N.E. of Sacsayhuamán, 31.iii.2000, Gorky Valencia leg. (1 CVMD); Without specific locality, 1849, C. Gay leg. (5 MNHN). **Huanuco,** Pacchayoc, 2–9.x.2005, Fish gut trap, Gorky Valencia leg. (1 CVMD). **Junín,** Acolla, near to Jauja, 3,460m, 4.xii.1953, F. Blancas leg. (1 MUSM). **Lima,** Lima, 1847, De Castelnau leg. (1 MNHN). **Puno,** Chucuito, Desaguadero, Lago Titicaca, 3,913m, 22.xi.1952, F. Blancas leg. (1 MUSM); Juliaca, Coiquejahau, 4,047m, 1.iv.2005, Gorky Valencia leg. (1 CVMD).

Polynoncus pilularius (Germar, 1823)

(Figs. 57–58)

Trox pilularius Germar, 1823: 113 (original description); Dejean 1833: 148 (checklist – as "*pillularius*"); Curtis 1844: 445 (comments and records); Lacordaire 1855: 152 (checklist – as "*pillularius*"); Harold 1869: 1089 (checklist); Harold 1872: 139, 191 (redescription); Burmeister 1876: 262 (redescription); Preudhomme de Borre 1886: 75 (checklist); Bruch 1911: 193 (checklist); Luederwaldt 1911: 420 (list of necrophagous beetles from São Paulo); Arrow 1912: 59 (catalogue); Blackwelder 1944: 219 (checklist – as "*pilularia*"); Vaurie 1962: 127 (redescription).

Trox (*Polynoncus*) *pilularius*: Scholtz 1982: 16 (catalogue).

Polynoncus pilularius: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1437 (redescription); Gómez 2008: 517 (key to Argentinean species); Zídek 2013: 15 (checklist); Zídek 2017: 106 (checklist); Smith 2017: 100 (lectotype designated); Costa-Silva & Diéguez 2020: 272 (records from Argentina).

Type-specimen examined. LECTOTYPE (MNHN – Fig. 57**).** First label [white aged, handwritten]: "typ. / pilullarii". Second label [green with black border, Ernst Germar's handwritten]: "pilularius [underline] m. / 367* Buenos Ayres. Third label [white aged with black frame, typeset]: "Ex-Musæo / E. Harold". Fourth label [white, typeset]: "Museum Paris / ex Coll. / R. Oberthur." Fifth label [red, typeset]: "LECTOTYPE". Sixth label [red with black frame]: "TROX / PILULARIUS / GERMAR, 1824 [Andrew Smith's handwriting] / LECTOTYPE / A.B.T. SMITH [typeset]" (Fig. 57C). **Type locality:** "Buenos Ayres" (Buenos Aires), Argentina.

Differential diagnosis. *Polynoncus pilularius* is most similar to *P. brevicollis*, and can easily be separated for having elytral tubercles coated, which is glabrous in *P. brevicollis*. Also, *P. pilularius* has well-developed tubercles near the lateral margin of elytra, while these tubercles are absent in *P. brevicollis* (or with just a few granules). Besides that, *P. pilularius* has the basal tubercles of the pronotum distinctly separate from the pronotal ridges, while it joins the pronotal ridges in *P. brevicollis*. *Polynoncus pilularius* is also similar to *P. gemmingeri*, but the shape of scutellum is diagnostic to separate both species. *Polynoncus pilularius* has a shield-shaped scutellum, which is elongated in *P. gemmingeri*. For details of description, see Vaurie (1962) and Scholtz (1990).

Geographic distribution. This species is widely distributed in the southern half of South America and occurs in Argentina, Bolivia, Brazil, Chile [?], Paraguay and Uruguay (Fig. 58).

Vaurie (1962) mentioned one specimen from "Chile" without further information about depository. We examined three specimens (1 BMHN and 2 MNHN) from the country without further data. One of these specimens, housed in MNHN, was collected by Charles Gaudichaud-Beaupré (1789–1854) during his third excursion to South America aboard the ship "La Bonite" between 1836–1837 (Papavero 1971). According to Papavero (1971), the ship anchored in Valparaíso on June 10th, 1836, where he spent several days with scientific observations/collecting, departing the country on June 24th.

However, it is important to point out that we noticed several mislabeled specimens collected by Gaudichaud-Beaupré housed in MNHN. In addition to this isolated record to Chile, *P. pilularius* was never reported or mentioned again to the country (*e.g.*, Diéguez 2008).

Also, during the examination of specimens, we found one individual from Tefé city (Amazonas, Brazil) in the MZSP collection, collected by Ricardo von Diringshofen (or "Dirings") in 1962. According to Ferreira *et al*. (2016), as part of specimens housed in Dirings' collection was bought from Brazilian amateur collectors, several mislabeled specimens were noticed in his collection (Ferreira *et al*. 2016; Sousa & Seidel 2021). Also, according to our understanding of the geographical distribution of *P. pilularius*, we believe that this specimen housed in Dirings' collection is another case of mislabeling of specimens. These records (from Chile and northern Brazil) should be

treated as uncertain until additional data of this species from this locality or region arises.

Remarks. During this study, we noticed several specimens from Bolivia being larger in size when compared with the individuals of *P. pilularius* from Argentina, Brazil, Paraguay and Uruguay. However, we conclude that the size of those specimens from Bolivia could be interpreted as population morphological variation and not a new species.

Examined non-type material (432 specimens). ARGENTINA: Buenos Aires, Balcarce, no date, J.M. Gallardo leg. (6 MACN); Bahía Blanca, no date or collector (1 MNHN); Buenos Aires, xi.1944, no collector (1 SAMC); Buenos Aires, no date, M. Viana leg. (6 CVMD); Buenos Aires, Santa Catalina, no date or collector (1 MACN); Buenos Aires, Catamarca, date or collector (11 MACN); Carmen de Patagones, 7.i–1.ix.1829, d'Orbygni leg. (2 MNHN); Felipe Solá, xi.1961, A. Martinez leg. (5 MZSP); Gorchs, iii.1917, G. Pellerano leg. (1 MACN); Gorchs, xii.1918, G. Pellerano leg. (1 MACN); Hurlingham, iii.1956, M. Viana leg. (2 CVMD); La Plata, ii.1941, Mouros leg. (1 DZUP); La Plata, 1879, no collector (1 MNHN); La Plata, 9.ix.1986, Sergio Roig leg. (1 IADIZA); La Plata, no date, A.R. Bezzi leg. (2 MLPA); La Plata, no date or collector leg. (1 MNHN; 1 MLPA; 1 BMNH); La Plata, x.1948, Gaggero leg. (1 MLPA); Miramar, General Alvarado, 26.xi.1946, Bachmann leg. (1 MACN); Miramar, General Alvarado, 16.xi.1946, Bachmann leg. (1 MACN); Miramar, General Alvarado, 24.xi.1946, Bachmann leg. (1 MACN); Miramar, General Alvarado, 25.xi.1946, Bachmann leg. (1 MACN); Miramar, General Alvarado, 18.xi.1946, Bachmann leg. (1 MACN); Olivos, xii.1929, C. Bruch leg. [Bruch's collection] (1 MACN); Pehuajó, 26.iii.1938, Biraben-Scott leg. (1 MLPA); Rosas, "F.C. Sud" [Ferrocarril al Sud - Train Station], no date, J.B. Daguerre leg. (3 MACN); San Miguel, Campo de Mayo, no date, Heritier leg. (1 SAMC); San Pedro, no date, A.G. Frers leg. (1 MACN); Buenos Aires, Sierra La Ventana, 27.ix.1981, Sergio Roig leg. (2 IADIZA); Tolosa, no date or collector (2 MACN); Tornquist, Abra de la Ventana, 1.ii.1947, Bachmann-Rossi leg. (3 MACN); Tornquist, Ernesto Tornquist Provincial Park, 31.i.1947, Bachmann-Rossi leg. (1 MACN); Without specific locaity, 15.i–15.iii.1827, D'Orbygni leg. (1 MNHN); Without specific locality or date, C. Berg leg. (2 MNHN); Without specific locality, 1897[?], no collector (1 MNHN); Without specific locality, 21.xii.1908, J.B. Daguerre leg. (1 MACN); Without specific locality, date or collector (13 MNHN; 2 BMNH; 2 MACN); Without specific locality, date or collector

[Burmeister's collection] (1 MACN); Without specific locality, i.1977, J. Barriga leg. (1 CVMD); Without specific locality, ii.1961, A. Martinez leg. (1 MZSP); Without specific locality, iii.1930, no collector (1 MACN); Without specific locality, no date, A. Breyer leg. (2 MACN); Without specific locality, no date, A. Pellerano leg. (1 MACN); Without specific locality, no date, d'Orbigny leg. (1 MACN); Without specific locality, vi.1897, C. Bruch leg. [Bruch's collection] (1 MACN); Without specific locality, x.1897, S. Vant leg. (1 MACN); Without specific locality, x.1978, J. Barriga leg. (7 CVMD); Zelaya, 1936, J.A. Pereyra leg. (1 MACN); Zelaya, x.1978, J.E. Barriga leg. (1♀ and 1 unsexed CVMD). **Catamarca,** Aconquija, El Sancho, 2,500m, 15.xi.1915, P. Jorgensen and Joel Blamey leg. (2 OUMNH); Capilitas, 10.xi.1946, R. Golbach leg. (1 IFML); El Arenal, 4.xii.2003, collected actively, no collector (1 IFML); El Rodeo, 1,296m, i.1942, Dirings leg. (1 MZSP); El Taco, 1,395m, 28º42'27"S, 65º37'5"W, 4–7.ii.2009, K. Sheldon, F.C. Ocampo leg. (1 IADIZA); La Merced, 20.ii.1999, G. Arriagada leg. (2 CVMD). **Chaco,** Resistencia, xii.1958, M. Viana leg. (1 CVMD); Resistencia, xii.1958, M. Viana leg. (1♂ and 1 unsexed CVMD); Río Muerto, 26º7'33"S, 61º40'39"W, 31.x.2016, pitfall, C. Guerra-A leg. (1♀ CEMT); Roque Sáenz Peña, 1932, K.J. Hayward leg. (1 BMNH); Without specific locality, 4.ii.1986, no collector (2 SAMC); Without specific locality, date or collector (1 MACN); Without specific locality, xii.1987, no collector (1 SAMC). **Córdoba,** Alpa Corral, Eloisa, 1,042m, 32º37'58"S, 64º43'26"W, 5–7.ii.2009, K. Sheldon, F.C. Ocampo leg. (1 IADIZA); Alta Gracia, xii.1920, no collector [Bruch's collection] (1 MACN); Bajo Grande, 5.xi.1939, Maldonado leg. (1 MLPA); Calamuchita, Hotel El Sauce, xii.1938, M. Viana leg. (4 DZUP); Calamuchita, El Sauce, i.1962, M. Viana leg. (1♂ and 2 unsexed CVMD); Cruz Alta, 1.ii.1946, Duret leg. (1 CVMD); Fauna Nature Reserve Laguna La Felipa, 24.x.2002, horse carcass, no collector (1♂ IADIZA; 1 MNHN); Fauna Nature Reserve Laguna La Felipa, 26.xii.2002, R. Gomez leg. (1 IFML); Fauna Nature Reserve Laguna La Felipa, 24.xi.2002, sheep carcass, R. Gomez leg. (1 IFML); Laguna La Helvecia, 14.i.2003, R. Gomez leg. (1♂, 1♀ and 2 unsexed CVMD); Punilla, Copina, 1,600m, 14.iv.1967, G. Barria leg. (1 CVMD); Without specific locality, no date or collector [Burmeister's collection] leg. (1 MACN); Without specific locality, no date or collector (1 MLPA); Without specific locality, no date, A. Beyer leg. (1 MACN); Without specific locality, 22.v.1924, J.B. Daguerre leg. (3 MACN). **Corrientes,** Santo Tomé, i.1923, G. Pellerano leg. (1 MACN); Without specific locality, no date, C. Bruch leg. [Bruch's collection] (1 MACN). **Entre Rios,** Colón,

16.ii.1987, O. Mitre leg. (1 SAMC); Paraná, no date or collector (1 MACN); Paraná, no date or collector [Burmeister's collection] (1 MACN); Pronunciamiento, 22.i.1987, O. Mitre leg. (4 SAMC); Pueblo Liebig, ii.1996, Mateo Zelich leg. (1 CVMD); San Antonio de Padua de la Concordia, no date, H. Rodri. [sic!] leg. (1 MZSP); Villa Elisa, xi.1973, L. Gontero leg. (1 MACN). **Jujuy,** Cerro Perales 6.ii.1950, Willink y Monrós leg. (1 IFML). **Misiones,** Posadas, 10.xi.1970, C. Porter leg. (1 SAMC); Without specific locality, no date or collector (2 MLPA); Without specific locality, no date, A. Breyer leg. (1 MACN). **Rio Negro,** village de Patagones [=Viedma], 7.i.1–ix.1829, A. d'Orbigny leg. (2 MNHN). **Salta,** Cachi, ii.1983, M. Viana leg. (1♀ and 1 unsexed CVMD); Chicoana, xi.1988, M. Viana leg. (1 CVMD); Corralito, x.1986, M. Viana leg. (1 CVMD); Corralito, x.1986, M.J. Viana leg. (1♀ CVMD); Cuesta del Obispo, xi.1983, M. Viana leg. (1 CVMD); Guachipas, 1,106m, i.1951, A. Martinez leg. (1 MZSP); La Viña, xii.1986, M. Viana leg. (1 CVMD); Pampa Grande, no date or collector (1 MACN); Piedra del Molino, 2,640m, i.1988, A. Martinez leg. (1♂ JZPC); Rosário de Lerma, i.1983, M.J. Viana leg. (1♂ CVMD); Ruiz de los Llanos [also known as "El Tala"], ii.1947, R. Golbach leg. (1 IFML); Sierra de Metán, 16–22.ix.1977, Scrocchi leg. (1♂ IFML); Sierra de Metán, 2,400m, 13.x.1977, Dominguez leg. (2 IFML); Without specific locality, no date or collector (1 MACN). **San Luis,** Coronel Pringles, La Carolina, 26.ix.1970, M. Viana leg. (1♂ CVMD); Villa Elena, 23.x.1971, M. Viana leg. (2 CVMD); Villa Elena, xi.1972, M. Viana leg. (1♀ CVMD); Villa Elena, xi.1976, M. Viana leg. (2♂ and 6 unsexed CVMD); Without specific locality, date or collector (9 MACN). **Santa Cruz,** Las Horquetas, 19.xi.1939, Biraben-Bezzi leg. (2 MLPA). **Santa Fé,** Colonia Florencia, Rio Tapenagá, 1903, E.R. Wagner leg. (1 MNHN); Golondrina, viii.1924, K.J. Hayward leg. (1♂ BMNH); Rio las Garzas, 1918, no collector (4 BMNH); Rio las Garzas, Ocampo 25km, 1903, E.R. Wagner leg. (1 BMNH); Rosário, no date or collector (1 MACN); Santa Fé, Rosário, no date, A. Stevenin leg. (1 MACN); Without specific locality, no date, C. Bruch [Bruch's collection] leg. (1 MACN); Without specific locality, no date, Weiser leg. [Bruch's collection] (3 MACN). **Santiago del Estero,** Icaño, Edges of the Rio Salado, 1909, E.R. Wagner leg. (2 MNHN); Icaño, Guarda Escolta, xi–xii.1909, E.R. Wagner leg. (1 MNHN); Rio Salado, no date or collector (1 SAMC); Río Salado, no date, Wagner leg. (6 IFML); Without specific locality, no date, Wagner leg. (1 MLPA). **Tucumán,** 5km E [east] El Infiernillo, 7.xii.2003, under horse carcass, R. Gomez leg. (1 CVMD; 1 IFML); 5km E [east] El Infiernillo, 7.xii.2003, no collector (1 CVMD); Burruyacú,

Villa Padre Monti, 21.i–7.ii.1948, R. Golbach leg. (1 IFML); Choromoro, Alto de las Salinas, 25.ii.1900, no collector (1 IFML); Colalao, i.1954, M. Viana leg. (1♂ CVMD); Experimental Reserve Horco Molle, v.1977, Carpintero leg. (1 CVMD); Lules, xii.1957, A. Martinez leg. (3 MZSP); San Javier, iv.1955, Duret leg. (2 CVMD); San Javier Ligustral, 26º47'55"S, 65º19'60"W, 11.xii.2012, B. Maldonado leg. (1 IADIZA); San Javier 26º46'16"S, 65º19'37"W, 12.xii.2012, B. Maldonado leg. (3 IADIZA); San Javier 26º46'59"S, 65º19'47"W, 10.xii.2012, B. Maldonado leg. (1 IADIZA); San Javier Ligustral, 26º47'55"S, 65º19'60"W, 8.xii.2012, B. Maldonado leg. (1 IADIZA); Tacanas, i.1949, M. Arnau leg. (17 IFML); Tacanas, 24.viii.1973, L. Stange leg. (1♂ IFML); Taficillo xii.1929, no collector (1 IFML); Without specific locality, xii.1946, R. Golbach leg. (4 IFML); Without specific locality, xi–xii.1944, R. Golbach leg. (1 IFML); Without specific locality, no date or collector (1 MACN); Without specific locality, 1940, no collector (1 MACN); Without specific locality, ii.1902, no collector (2 MACN). **Without specific locality,** no date or collector (1 CVMD). **BOLIVIA: Chiquisaca,** Sucre, i–ii.1833, D'Orbygni leg. (3 MNHN). **Cochabamba,** Chapare, 400m, ix.1947, no collector [Justus' collection] (2 DZUP); Without specific locality, 17.ix–12.x.1899, P. Germain leg. (4 MNHN). **La Paz,** Nor Yungas, Caranavi, 1,500m, x.1990, P. Arnaud leg. (2♀ CEMT). **Potosí,** Betanzos, 3,345m, 1.ii.2008, Marcos Ferru leg. (7♂, 3♀ and 8 unsexed CVMD); Betanzos, 3,345m, 16.ii.2008, under *Fox sp*. carcass, Marcos Ferru leg. (3♂ and 3♀ CVMD). **Without specific locality,** date or collector (2 BMNH); Without specific locality, 1933, D'Orbygni leg. (1 MNHN); Without specific locality, date or collector (8 MNHN). **BRAZIL: Amazônas** [dubious locality]**,** Tefé, vi.1962, Dirings leg. (1 MZSP). **Paraná,** Castro, 1907, E. Garbe leg. (3 MZSP); Curitiba, 900m, 14.iii.1968, Depto. Zoo. Exp. (2 DZUP); Ponta Grossa, Vila Velha Park, 7.x.2007, P. Grossi leg. (1♀ CEMT); Without specific locality, date or collector (1♂ BMNH). **Rio Grande do Sul,** Bagé, Embrapa Pecuária, i.2006, pitfall, L.D. Audino leg. (1 CEMT); Bagé, Embrapa Pecuária, i.2006, pitfall, L.D. Audino leg. (2 CVMD); Barão de Cotegipe, v.1966, S. Giacomel leg. (1 DZUP); Pelotas, 15.iii.1951, Blezanko leg. (2 CVMD); Pelotas, 18.i.1950, C.M. Biezanko leg. (1♂ BMNH); Pelotas, 31.viii.1951, C.M. Biezanko leg. (1 BMNH); Porto Alegre, iv.1928, no collector (1 MGAP); Rio Grande, no date or collector (1 BMNH); São Francisco de Paula, ii.1944, no collector (1 MGAP), Without specific locality, date or collector (1 MNHN). **Santa Catarina,** Bom Jardim da Serra, Mantiqueira, xii.2001, C. Arioli leg. (1♂ CEMT); Florianópolis, São João do Rio Vermelho, 800m, iv.1958, no collector (1

DZUP); Joinville, xi.1950, Dirings leg. (2 MZSP); Mafra, 800m, iv.1961, no collector (1 DZUP); Theresópolis colony [currently Águas Mornas], 1888, H. Fruhstorfer leg. (1 MNHN); Urubici, São Joaquim National Park, 1,685m, 28º9'30"S, 49º37'37"W, 13.i.2016, meat, Atlantic Forest, P.G. da Silva leg. (1♂ CEMT); Urubici, São Joaquim National Park, 1,738m, 28º7'2"S, 49º30'2"W, 14.i.2016, meat, Atlantic Forest, P.G. da Silva leg. (1♀ EMAC); Urubici, São Joaquim National Park, 1,751m, 28º7'12"S, 49º29'43"W, 14.i.2016, meat, Atlantic Forest, P.G. da Silva leg. (2♀ CEMT); Without specific locality, no date or collector (6 BMNH). **São Paulo,** Campos do Jordão, i.1952, M.A.V.A leg. (1 MZSP); São Paulo, Brooklin, 16.viii.1959, Reichardt leg. (2 MZSP); São Paulo, Ipiranga, no date or collector (5 MZSP); São Paulo, Jabaquara, i.1959, B. Pohl leg. (2 MZSP); São Paulo, no date or collector (3 MZSP); São Paulo, Serra da Cantareira, iii.1952, Dirings leg. (1 MZSP). **Without specific locality,** Paraná River, no date or collector (1 MNHN); Without specific locality, date or collector (1♂ and 2 unsexed MNHN); "Rio (sic!), no date or collector (1 MNHN). **CHILE: Valparaíso (V Region),** Without specific locality, vi.1836, C. Gaudichaud-Beaupré [Exp. La Bonite] leg. (1 MNHN). **Without specific locality,** date or collector (1 BMNH); Without specific locality, date or collector (1 MNHN). **PARAGUAY: Without specific locality**, date or collector (1 MACN). **URUGUAY: Camelones,** Camelones, Estación Ferrocaril, 8.iii.2002, Gandini leg. (3 CEMT); Puntas del Arenal no date or collector (1 MZSP). **Cerro Largo,** Bañado de Medina, 13–20.xii.2011, pitfall trap (human+pig dung), R.M. Moraes leg. (1 CEMT). **Colônia,** La Estanzuela National Institute for Agricultural Research, 12.ix.1995, J.R. Verdú leg. (1♂ and 1 unsexed CEMT). **Florida,** Cerro Colorado, 1911, P. Serre leg. (1 MNHN). **Maldonado,** Bella Vista, xi.1980, W.D. Rovera leg. (2 HNHM). **Montevideo,** Rocha, La Esmeralda, 2.vii.1977, A. Witeck leg. (1 SAMC); Rocha, Rocha, no date or collector (1 MACN); Villa Colon, v.1886, Oldfield Thomas leg. (1♀ BMNH); Without specific locality or date, C. Darwin [Beagle Voyage] leg. (3 BMNH); Without specific locality, 1820, no collector (1 MNHN); Without specific locality, 1861, Birabent leg. (4 MNHN); Without specific locality, 1863, A. Brunel leg. (4 MNHN); Without specific locality, 1912, P. Serre leg. (2 MNHN); Without specific locality, date or collector (3♂ and 1 unsexed BMNH; 1 MACN; 6 MNHN; 2 MZSP); Without specific locality, i.1976, W.D. Rovera leg. (1 HNHM); Without specific locality, no date, A. Beyer leg. (1 MACN); **Paysandú,** Paysandú, no date or collector (3 MNHN). **Soriano,** Without specific locality or date, T. Havers leg. (1 BMNH). **Without specific locality,** date or collector (3 MNHN).

Remarks. The year of description of *Trox pilularius* is historically dated as 1824 according to the title page of the Germar's work entitled "*Insectorum species novae aut minus cognitae, descriptionibus illustratae. Volumen primum. Coleoptera. Cum Tab. aen. II."* (*i.e.* Harold 1872; Arrow 1912; Blackwelder 1944; Vaurie 1962; Scholtz 1982; Scholtz 1990; Zídek 2013, 2017; Smith 2017; Costa-Silva & Diéguez 2020). However, as first mentioned by Ersch (1828: 1166) and followed by Bousquet (2016: 211), the correct date of publication of Germar's work is 1823.

Polynoncus pittinoi Costa-Silva & Diéguez, 2020

(Figs. 48, 59)

Polynoncus pittinoi Costa-Silva & Diéguez, 2020: 268 (original description).

Type-specimen examined. HOLOTYPE (♂ MACN – Fig. 59**).** First label [white, typeset]: "ARGENT. CORDOBA / Depto. Calamuchita / El Sauce. Diciemb. 1973 / leg. Manuel Viana". Second label [red, Vinícius Costa-Silva's handwriting]: "Polynoncus pittinoi ♂ / Costa-Silva & Diéguez / HOLOTYPE" (Fig. 59E). **Type locality:** "Depto. Calamuchita, El Sauce". "El Sauce" refers to Hotel El Sauce, in Santa Rosa de Calamuchita city. This hotel historically received a lot of travellers and collectors who spent a time collecting around the city (Gerardo Arriagada, pers. comm.).
PARATYPES (1♀ CEMT and 1♀ CJEB). First label [white, handwritten]: "Arg. Córdoba / Yacanto / x.1970. M. Viana". Second label [blue, typeset]: "ex coleccion / M. VIANA / ARG. 009815". Third label [white, typeset]: "Coleccion / J.E. BARRIGA / CHILE 059018". Fourth label [yellow, Vinícius Costa-Silva's handwriting]: "Polynoncus pittinoi / Costa-Silva & Diéguez / PARATYPE ♀" (♀ **CEMT**). First label [white]: "Arg—Córdoba / Río Tercero / x.1970. M. Viana". Second label [yellow, Vinícius Costa-Silva's handwriting]: "Polynoncus pittinoi / Costa-Silva & Diéguez / PARATYPE ♀" **(♀ CJEB)**.

Differential diagnosis. *Polynoncus pittinoi* is more similar to *P. neuquen*, *P. gemmifer* and *P. haafi*. This species can be distinguished from the last two for having antennae with yellow setae (*P. gemmifer* and *P. haafi* have black setae in antennae). Also, *P. pittinoi* are different from *P. neuquen* for having bigger elytral tubercles, with the space between tubercles on the odd-numbered costae being smaller than tubercles'

size in *P. pittinoi*, while this space is bigger than tubercles in *P. neuquen*. For details of description and differential diagnosis, see Costa-Silva & Diéguez (2020).

Geographic distribution. *Polynoncus pittinoi* is only known from central Argentina (Fig. 48). No material was examined beyond the type series.

Polynoncus pseudogemmifer **Costa-Silva et al. new species**

(Figs. 4H, 60–61)

Polynoncus pseudogemmifer **new species:** Vaurie 1962: 120 ("redescription"); Scholtz 1982: 16 (catalogue); Scholtz 1986a: 362 (systematics); Scholtz 1990: 1430 (redescription); Gómez 2008: 516 (key to Argentinean species); Zídek 2013: 10 (checklist); Zídek 2017: 101 (checklist); Smith 2017: 92 (nomenclatural comments); Costa-Silva & Diéguez 2020: 271 (records from Argentina). **Note:** all these authors mentioned the name "*gemmifer*".

Type material. HOLOTYPE (♂ MNHN – Fig. 60**).** First label [green with black frame, typeset]: "MUSEUM PARIS / PATAGONIE / PROV. DE MENDOZA / SAN-RAFAEL / A. TOURNOUER 1906". Second label [white, Riccardo Pittino's handwriting]: "Trox / gemmifer Blanch. / Det. Pittino 1985". Third label [red with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus ♂ / pseudogemmifer / Costa-Silva et al. / HOLOTYPE 2022" (Fig. 60F). **Type locality: "**San-Rafael, Prov. [Province] de Mendoza" (Argentina), collected by the French paleontologist André Tournoüer. Even with the date of "1906" on the type label, there is no evidence that A. Tournoüer returned to Argentina after his expedition between 1898 and 1903 (see Buffetaut 2020).

PARATYPES (14 CEMT; 1♂ and 1♀ MZSP; 17 JBHC; 3 JZPC; 2 BMNH; 32 MNHN; 1 MCZ; 2♂ and 12 unsexed IFML; 5 IADIZA; 33 MLPA; 22 MACN; 2 CJME; 37 CVMD; 2 CJEB; 2 UNALM; 2 MUSM; 2 MNNC; 2 MZUC; 1 CMNC). First label [white with black frame, printed]: "ARGENTINA: Chubut / Gaiman, Bryn Gwyn Sur, / 43º21'04"S, 65º28'30"W, / 3.iii.2010, Daniel Rojas / Lanus leg.". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ and 1♀ MZSP; 6 CEMT; 2 CERPE)**. First label [white, printed]: "ARGENTINA: San Luís / Belgrano, Fundo El Molle, /

pitfall pig dung 20/28.i.2013, / G.Arriágada". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1 CEMT)**. First label [white aged with red frame, handwritten]: "21.696". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ and 1 unsexed CEMT)**. First label [white aged, typeset]: "Catamarca". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ CEMT)**. First label [white aged, typeset]: "Chubut". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ CEMT)**. First label [white, printed]: "ARGENTINE San Luís / Fundo El Molle / 15-25.01.2007 / J. Gómez leg.". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(15 CJBH)**. First label [white, typeset]: "ARGENTINA, Pr. SanLuis / 18km S. Arizona / 18-23.I.1982 250m / H & A Howden". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(2 CJBH)**. First label [white, handwritten]: "ARG – Chaco / Pozo La Gringa / SG Bolle I-96". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ JZPC)**. First label [white, handwritten]: "ARG – Catamarca / Lafayate / SG Bolle XI-98". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ and 1 JZPC)**. First label [white, printed]: "ARGENTINA: Tuc., / Tafi d. Valle, 2,500 m. / 6-8.i.1970. At light / Vardy & Arguin- / deguy.B.M. 1970-36". Second label [white, printed]: Polynoncus gemmifer / (Blanchard) / det. Scholtz 1988". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE 2022" **(2♀ BMNH)**. First label [white aged, handwritten]: "Tr. / gemifer / Blanch." Second label [white aged with black frame]: "Ex-Musæo / E. Harold". Third label [green, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fourth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1 MNHN)**. First label [white aged, printed]: "MUSEUM PARIS / RÉP. ARGENTINE / Chaco de Santiago del Estero / ENV. D'ICANO / E.-R. WAGNER 1902". Second

label [white aged, handwritten]: “juillet / nº 246.”. Third label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1♂ MNHN)**. First label [white aged, typeset]: “♀”. Second label [white aged with black frame]: “Ex Musæo / E. Steinheil”. Third label [green, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fourth label [white, Patricia Vaurie’s handwriting]: “Trox / gemmifer / Bl. / Vaurie ‘61”. Fifth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1♀ MNHN)**. First label [white aged, handwritten]: “Mendoza”. Second label [white aged, handwritten]: “Trox Bl. / gemmifer”. Third label [white aged, typeset]: “Ex Musæo / E. Steinheil”. Fourth label [white with black frame]: “EX MUSEO / N. VAN DE POLL.”. Fifth label [white aged, typeset]: “MUSÉUM PARIS / 1936 / COLL. A. BOUCOMONT”. Sixth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1 MNHN)**. First label [white aged, typeset]: “♀”. Second label [white aged with black frame]: “Ex Musæo / E. Harold”. Third label [green, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fourth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1 MNHN)**. First label [white aged, handwritten]: “Mendoza”. Second label [white aged with black frame]: “Ex Musæo / E. Harold”. Third label [white with black frame]: “EX MUSEO / N. VAN DE POLL.”. Fourth label [white aged, typeset]: “MUSÉUM PARIS / 1936 / COLL. A. BOUCOMONT”. Fifth [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1 MNHN)**. First label [white with black frame, handwritten]: “Japi Valley / argentina”. Second label [white aged, typeset]: “MUSÉUM PARIS / 1936 / COLL. A. BOUCOMONT”. Third label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1♂ MNHN)**. First label [white aged, handwritten]: “Chili”. Second label [white with black frame]: “EX MUSEO / N. VAN DE POLL.”. Third label [white aged, typeset]: “MUSÉUM PARIS / 1936 / COLL. A. BOUCOMONT”. Fourth [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1 MNHN)**. First label [gree with black frame, typeset]: “MUSEUM PARIS / PROV. DE SANTIAGO / DEL ESTERO / TRONCAL / 40 KM O. DE SALAVINA / E.-R. WAGNER 1909”. Second label [white, handwritten]: “♀”. Third label [yellow with black frame, Vinícius Costa-

Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♀ MNHN)**. First label [white aged, typeset]: "MUSEUM PARIS / PATAGONIE / TERR. DU CHUBUT / H. DE LA VAULX 1897". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [white aged, typeset]: "MUSEUM PARIS / PATAGONIE / (PATAGONES) / D'ORBIGNY 1834". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [green with black frame, typeset]: "MUSEUM PARIS / Chaco de Santiago del Estero / BORDS DU RIO SALADO / ENV D'ICANO / E.R. WAGNER 1910". Second label [green aged, handwritten]: "mistol Paso". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [green with black frame, typeset]: "MUSEUM PARIS / CHACO DE SANTIAGO / DEL ESTERO / ENVIRONS D'ICAÑO / GUARDA ESCOLTA / E.-R. WAGNER 1909". Second label [white, printed]: "DÉCEMBRE". Third label [white, printed]: "NOVEMBRE". Fourth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♀ MNHN)**. First label [green with black frame, typeset]: "MUSEUM PARIS / PROV. DE SANTIAGO / DEL ESTERO / BORDS DU RIO SALADO / ENV. D'ICAÑO, MISTOL PASO / E. R. WAGNER 1909". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [white aged, typeset]: "Dr. Lendl Adolf / NEUQUEN 1907.". Second label [green, typeset]: "Museum Paris / ex. Coll. / R. Oberthür". Third label [white, E. Haaf's handwriting]: "Trox / gemmifer Blanch. / det. Dr.E.Haaf 1953". Fourth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [White aged, handwritten]: "Tucuman . Dormer [John Dormer]". Second label [white aged with black frame]: "Ex-Musæo / D. Sharp 1890". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [white aged, handwritten]: "Mendoza". Second label [white aged with black frame]: "Ex Musæo / E. Harold". Third label [green, typeset]: "Museum Paris / ex. Coll. / R. Oberthür". Fourth label [white, E. Haaf's handwriting]: "Trox / gemmifer Blanch. / det.

Dr.E.Haaf 1953". Fifth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1 MNHN)**. First label [white aged, handwritten]: "Mendoza". Second label [white aged, handwritten]: "gemifer Blanch." Third label [white aged with black frame]: "Ex Musæo / E. Harold". Fourth label [white, E. Haaf's handwriting]: "Trox / gemmifer Blanch. / det. Dr.E.Haaf 1953". Fifth label [green, typeset]: "Museum Paris / ex. Coll. / R. Oberthür". Sixth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1 MNHN)**. First label [white aged, handwritten]: "Chilecito". Second label [white aged, handwritten]: "pilularius / var. / germ." Third label [white aged with black frame]: "Ex Musæo / E.Steinheil". Fourth label [green with black frame, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fifth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♂ MNHN)**. First label [white aged with black frame]: "Ex-Musæo / D. Sharp 1890". Second label [white, handwritten]: "♀". Third label [white]: "MUS. LAFERTÉ / 342". Fourth label [green with black frame, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fifth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♀ MNHN)**. First label [white aged, handwriten]: "Mendoza". Second label [white aged with black frame]: "Ex-Musæo / D. Sharp 1890". Third label label [white, handwritten]: "♀". Fourth label [green with black frame, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fifth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♀ MNHN)**. First label [white aged with black frame]: "Ex-Musæo / E. Harold". Second label [white, handwritten]: "♀". Third label [green with black frame, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fourth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♀ MNHN)**. First label [white aged with black frame, typeset]: "Ex- Musæo / E. ALLARD / 1899 [vertical]". Second label [white, handwritten]: "♀". Third label [green with black frame, typeset]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fourth label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022" **(1♀ MNHN)**. First label [white aged with black frame, typeset]: "Ex- Musæo / D.Sharp 1890". Second label [white, handwritten]: "♀". Third label

[green with black frame, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fourth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(2♀ MNHN)**. First label [white aged, handwritten]: “leprosus / Dj” [Dejean]. Second label [white, typeset]: “♀”. Third label [white aged with black frame]: “Ex-Musæo / E. Harold”. Fourth label [green with black frame, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fifth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1♀ MNHN)**. First label First label [white aged, handwriten]: “Mendoza”. Second label [white, typeset]: “EX MUSEO / BONVOULOIR”. Third label [white aged, typeset]: “MUSÉUM PARIS / 1936 / COLL. A. BOUCOMONT”. Fourth label [white, Riccardo Pittino’s handwriting]: “Polynoncus / gemmifer (Blanch) / Det. Pittino 1987”. Fifth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1 MNHN)**. First label [white aged with black frame]: “Ex-Musæo / E. Harold”. Second label [white, handwritten]: “♀”. Third label [green with black frame, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fourth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(2 MNHN)**. First label [White aged, handwritten]: “Tucuman”. Second label [white, typeset]: “♀”. Third label [white aged with black frame]: “Ex-Musæo / H.W. Bates / 1892” [vertical]. Fourth label [green with black frame, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Fifth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1♀ MNHN)**. First label [green with black frame, typeset]: “Muséum Paris / ex Coll. / R. Oberthür / 1952”. Second label [white, handwritten]: “♀”. Third label [white aged with black frame]: “Ex-Musæo / A. SALLÉ / 1897” [vertical]. Fourth label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1♀ MNHN)**. First label [white aged, handwritten]: “Mendoza [underlined] / Trox / gemifer / Blanch.”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / Costa-Silva et al. / PARATYPE 2022” **(1 MNHN)**. First label [White aged, handwritten]: “S. Matías B. [San Matías bay] / Patag Hass [Hassner] Exp.” Second label [white, typeset]: “Museum of / Comparative / Zoology”. Third label [white, printed]: “Polynoncus gemmifer / (Blanchard) / det. Scholtz 1988”. Fourth label

[white, printed]: “MCZ ENT / [QR Code] / 00726554”. Fifth label [yellow with black frame, printed]: “*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE / 2022” **(1 MCZ)**. First label [white, printed]: “Argentina - / Catamarca / Campos de Pucará / 9/I/1951”. Second label [white, printed]: “*Polynoncus* / *gemmifer* / (Blanchard, 1846) / Det. R. Gómez 2005”. Third label [green, printed]: “COLECCION / INST. – FUND. M. LILLI / (4000) – S. M. TUCUMAN / TUCUMAN – ARGENTINA”. Fourth label [yellow, printed]: “*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE / 2022” **(2♂ and 7 unsexed IFML)**. First label [white, printed]: “Argentina - / Catamarca / Campos de Pucará / 9/I/1951”. Second label [green, printed]: “COLECCION / INST. – FUND. M. LILLI / (4000) – S. M. TUCUMAN / TUCUMAN – ARGENTINA”. Third label [yellow, printed]: “*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE / 2022” **(4 IFML)**. First label [white, handwritten]: “13-19/xi/1946 [ventical] / Río Colorado / RIO NEGRO / Hayward-Willink”. Second label [white, printed]: “*Polynoncus* / *burmeisteri* / Pittino 1987 / Det. R. Gómez 2005”. Third label [white with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / gemmifer / (Blanch.) / Det. V. Costa-Silva, 2019”. Fourth label [green, printed]: “COLECCION / INST. – FUND. M. LILLI / (4000) – S. M. TUCUMAN / TUCUMAN – ARGENTINA”. Fifth label [yellow, printed]: “*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE / 2022” **(1 IFML)**. First label [white, printed]: “Argentina San Luis / Depto. Belgrano, Fdo. [Fundo] El Molle / S33º02’22.8”/W66º30’47.6” / Febrero 2009, 622msnm / Leg. José Gómez”. Second label [white, printed]: “*Polynoncus* / *gemmifer* / (Blanchard, 1846) / Det. V. M. Diéguez, 2019”. Third label [white with black frame, printed]: “COLECCIÓN / V.M.DIÉGUEZ M.” Fourth label [yellow with black frame, printed]: “*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022” **(1♂ and 1♀ CJME; 1♀ and 1 unsexed CJEB; 1♀ and 1 unsexed UNALM; 1 MUSM; 2♂ and 6 unsexed CVMD)**. First label [white, printed]: “Argentina San Luis / Depto. Belgrano, Fdo. [Fundo] El Molle / S33º02’22.8”/W66º30’47.6” / 15/25.01.2007, 622msnm / Leg. José Gómez”. Second label [white, printed]: “*Polynoncus* / *gemmifer* / (Blanchard, 1846) / Det. V. M. Diéguez, 2019”. Third label [white with black frame, printed]: “COLECCIÓN / V.M.DIÉGUEZ M.” Fourth label [yellow with black frame, printed]: “*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022” **(1 MUSM; 11 CVMD)**. First label [white, printed]: “ARGENTINA MENDOZA / Santa Rosa / Reserva de Ñacuñan / 11/13 Diciembre 2022 / leg. V. Manuel Diéguez”. Second label

[white with black frame, printed]: "*Polynoncus* / *gemmifer* (Blanchard, 1846) / Det. V. Manuel Diéguez, 2003". Third label [white with black frame, printed]: "COLECCIÓN / V.M.DIÉGUEZ M." Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ and 1♀ MNNC; 1♂ and 1♀ MZUC; 8♂ and 5♀ CVMD)**. First label [white, printed]: "ARGENTINA / 25 Km. Oeste Mendoza / 07 Febrero 1998 / Leg. G. Arriagada". Second label [white with black frame, printed]: "*Polynoncus* / *gemmifer* (Blanchard, 1846) / Det. V. Manuel Diéguez, 2002". Third label [white with black frame, printed]: "COLECCIÓN / V.M.DIÉGUEZ M." Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ and 1 unsexed CVMD)**. First label [white, printed]: "ARGENTINA ENTRE RIOS / Liebig / Febrero de 1996 / Leg. Mateo Zelich". Second label [white with black frame, printed]: "*Polynoncus* / *gemmifer* (Blanchard, 1846) / Det. V. Manuel Diéguez, 2002". Third label [white with black frame, printed]: "COLECCIÓN / V.M.DIÉGUEZ M." Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ CVMD)**. First label [white aged, unknown's handwriting]: "Argentina / Sn. Clemento / B. Aires – II-52". Second label [white aged, R. Gutiérrez's handwriting]: "Trox / pilularius (L). / R. Gutiérrez-Det 55". Third label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / gemmifer / (Blanch. 1846) / Det. V. Costa-Silva, 2019". Fourth label [white with black frame, printed]: "COLECCIÓN / V.M.DIÉGUEZ M." Fifth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1 CVMD)**. First label [white aged, unknown's handwriting]: "Argentina / Sn. Clemento / B. Aires – II-54". Second label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / gemmifer / (Blanch. 1846) / Det. V. Costa-Silva, 2019". Third label [white with black frame, printed]: "COLECCIÓN / V.M.DIÉGUEZ M." Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1 CVMD)**. First label [white, printed]: "ARGENTINA: La Pampa / Lihué Calel Parque Nacional / Lihué Calel 23-III-1994 / Coll, Pessino". Second label [white with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / gemmifer / ♀ / Det. V. Costa-Silva, 2019". Third label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♀ IADIZA)**. First label [white, printed]: "Argentina San Luis / Depto. Belgrano, Fdo. El Molle / S33º02'22.8"/W66º30'47.6" / 15/25.01.2007,

622msnm. / Leg. José Gómez". Second label [white with black frame, printed]: "COLECCIÓN / V.M. DIÉGUEZ M.". Third label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ IADIZA)**. First label [white, printed]: "ARGENTINA MENDOZA / Santa Rosa / Reserva de Ñacuñan / 11/13 Diciembre 2002 / leg. V. Manuel Diéguez". Second label [white with black frame, printed]: "*Polynoncus* / *gemmifer* (Blanchard, 1846) / Det. V. Manuel Diéguez 2003". Third label [white with black frame, printed]: "COLECCIÓN / V.M. DIÉGUEZ M.". Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♀ IADIZA)**. First label [white, printed]: "Argentina Prov. Catamarca / 120 km. Al Norte Belén / 3.02.2009, 2233msm. / 26º59'44,4"S-66°18'48.2"W / Leg. Diéguez & Arriagada / En cadaver vacuno". Second label [white with black frame, printed]: "COLECCIÓN / V.M. DIÉGUEZ M.". Third label [white with black frame, Vinícius Costa-Silva's hadwriting]: "Polynoncus / gemmifer / (Blanch. 1846) / Det. V. Costa-Silva, 2019". Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ IADIZA)**. First label [white, printed]: "Argentina San Luis / San Geronimo / Febrero 2008 / Leg. José Gómez". Second label [white with black frame, printed]: "COLECCIÓN / V.M. DIÉGUEZ M.". Third label [white with black frame, printed]: "*Polynoncus* / *gemmifer* (Blanchard, 1846) / Det. V. Manuel Diéguez 2003". Fourth label [yellow with black frame, printed]: "*Polynoncus pseudogemmifer* / des. Costa-Silva et al. / PARATYPE 2022" **(1♂ IADIZA)**. First label [white aged, typeset]: "Patagones, P. de B. A / 10-II-1941 / Biraben col.". Second label [white with black frame, Rodrigo Gomez's handwriting]: "MUSEO DE LA PLATA / Polynoncus / gemmifer (Blanchard) / Det. R. Gómez". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(2♂ and 1♀ MLPA)**. First label [white aged with black frame, typeset]: "REP. ARGENTINA / Prov. Catamarca / 4.IV.1916 / C. Bruch". Second label [white with black frame, Rodrigo Gomez's handwriting] "MUSEO DE LA PLATA / Polynoncus / haafi (Vaurie) ♀ / Det. R. Gómez". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ MLPA)**. First label [white aged, typeset]: "Catamarca". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(4♂ and 2♀ MLPA)**. First label [white aged, unknown's

handwriting]: “Corral Chico [Ministro Ramos Mexía]”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(4♂ and 1♀ MLPA; 1♀ CEMT)**. First label [white aged, unknown’s handwriting]: “Corral Chico [Ministro Ramos Mexía] / 6-3-915”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(2♂ and 1♀ MLPA)**. First label [white aged, typeset]: “S. del Estero / Col. Wagner”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♂ and 1♀ MLPA)**. First label [white aged, typeset]: “S. del Estero / Col. Wagner”. Second label [white aged, unknown’s handwriting]: “5029 / 35”. Third label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(2♀ MLPA)**. First label [white aged, unknown’s handwriting]: “[Cerro] Tapiluque”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♂ and 3♀ MLPA)**. First label [white aged, unknown’s handwriting]: “Valcheta”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♂ MLPA)**. First label [white aged, typeset]: “MENDOZA”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♂ MLPA)**. First label [white aged, typeset]: “P. B.Aires”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♀ MLPA)**. First label [white aged, unknown’s handwriting]: “Ag. [Aguada] Cecilio”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♀ MLPA)**. First label [white aged, typeset]: “R. Argent.”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(1♀ MLPA)**. First label [white aged, unknown’s handwriting]: “Girardet / S. del Estero”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]: “Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022” **(2♂ MLPA)**. First label [white aged with red frame, unknown’s handwriting]: “969-12”. Second label [yellow with black frame, Vinícius Costa-Silva’s handwriting]:

"Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1 MACN)**. First label [green with black frame, unknown's handwriting]: "Chubut". Second label [white aged with red frame, unknown's handwriting]: "5139". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(2 MACN)**. First label [white aged with red frame, unknown's handwriting]: "21-696". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ and 2 unsexed MACN)**. First label [white aged with red frame, unknown's handwriting]: "25479". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♂ MACN)**. First label [green, typeset]: "Carm. / Patag.". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(2 MACN)**. First label [white aged, typeset]: "ARGENTINA / CORDOBA". Second label [white aged with black frame, typeset]: "Col. / A. Breyer". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1 MACN)**. First label [white aged with black frame, typeset]: "ARGENTINA / Cuchillo / LA PAMPA". Second label [white aged with red frame, unknown's handwriting]: "35964". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(2♀ MACN)**. First label [white aged with red frame, unknown's handwriting]: "169-12". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ MACN)**. First label [white aged with red frame, unknown's handwriting]: "10210". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ MACN)**. First label [green with black frame, unknown's handwriting]: "Catamarca". Second label [white aged with red frame, unknown's handwriting]: "21696". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ MACN)**. First label [green, typeset]: "Cór- / dova". Second label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ MACN)**. First label [green with black frame, unknown's handwriting]: "P. de La- / Rioja". Second label

[white aged with red frame, unknown's handwriting]: "4398". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1♀ MACN)**. First label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(3♂ and 2 unsexed MACN)**. First label [white, typeset]: "ARGENTINA, Mendoza 40km. N. [North] San Rafael, / 1100m., 6.XII.1983 / L.Peña". Second label [white, printed]: "*Polynoncus gemmifer* / (Blanchard, 1847) / det. Scholtz 1988". Third label [yellow with black frame, Vinícius Costa-Silva's handwriting]: "Polynoncus / pseudogemmifer / des. Costa-Silva et al. / PARATYPE / 2022" **(1 CMNC)**.

Note. In the first comprehensive revision of South American trogids, Vaurie (1962) mentioned that the type specimen of *Trox gemmifer* Blanchard, 1847, presumably deposited in MNHN, was "not located" (Vaurie 1962: 120). During the examination of trogids material housed in MNHN by the first author (VCS), the type specimen of *T. gemmifer* was found based on the typical green label with Blanchard's handwriting "*gemmiferus*" and the d'Orbigny's labels indicating where the material was collected. Curiously, this type specimen was found as a paratype of *Trox haafi*, described by Vaurie (1962).

Considering that the description of *T. gemmifer* by Blanchard (1847) is vague, and its diagnosis could potentially apply to several species, such *Trox argentinus*, *Polynoncus burmeisteri*, and *P. pittinoi*, Vaurie (1962) noticed numerous morphological features that led her to describe *Trox haafi* as a new species. The presence of hypemeron covered by black setae (Fig. 31C), for example, is one of the diagnostic characteristics for *T. haafi* presented by Vaurie (1962), but earlier omitted by Blanchard (1847) when *T. gemmifer* was described.

Here, after 60 years, we documented this mistake carried out by Vaurie (1962), proposing *Trox haafi* as a junior synonym of *T. gemmifer*. Also, we described here *Polynoncus pseudogemmifer* **n. sp.** to accommodate the species historically identify as "*Polynoncus gemmifer*" by several authors (*i.e.*, Scholtz 1982, 1990; Diéguez & Gómez 2004; Diéguez 2008, Gómez 2008; Zídek 2013, 2017; Smith 2017; Costa-Silva & Diéguez 2020).

Differential diagnosis. *Polynoncus pseudogemmifer* is morphologically similar to *P. argentinus*. However, both species can be separated considering the shape of medial ridges of pronotum: the pronotal ridges in *P. pseudogemmifer* do not form a

remarkable triangle in the middle (Fig. 4H), while in *P. argentinus*, the shape of pronotal ridges form a well-defined triangle with a shallow fovea in the middle (Fig. 4G).

Polynoncus pseudogemmifer can be easily separated from *P. argentinus* by its male genitalia, where the former species has the lateral margins of median lobe symmetrical in dorsal view (asymmetrical in *P. argentinus*) and notably constricted near to apex in lateral view (without any constriction in *P. argentinus*). Drawings and photographs of the male genitalia of *P. pseudogemmifer* can be found in Pittino (1987: 381, figs 12–13 and 20–21; referred as *P. haafi*) and Costa-Silva & Diéguez (2020: 269, figs 10–11; referred as *P. gemmifer*), respectively. For details of species description, see Vaurie (1962: 120) and Scholtz (1990: 1430).

Description of holotype. *Size*: Length: 12.6 mm, *width*: 7.0 mm (Fig. 60). Colour: Dark-brown. Body covered by velutinous surface and shiny elytral tubercles. ***Head***: apex of clypeus bent down, forming right angle with the disc; posterior margin of clypeus slightly emarginate in dorsal view (Fig. 60A). Antennae and mouthparts with black setae. ***Pronotum***: transversal, about 1.72 times wider than long; pronotal surface sparsely but distinctly punctate. Pronotal ridge incomplete, not forming a well-defined triangle at the middle (Fig. 4H); basal and lateral-basal tubercles obsolete; antero-lateral tubercles visible, distinct. Lateral margin smooth. Hypomeron glabrous. Scutellum: elongate, almost twice as long as wide, margins recurvate. ***Elytra***: Length almost three times longer than pronotum; humeral calli proeminent. Tubercles of the 3º, 5º, 7º and 9º (odd-numbered) elytral costae bigger than others. Second elytral costae also tuberculate; fourth elytral costae tuberculate near the base and granulate in rest; sixth and eighth elytral costae all granulate. ***Legs***: Protibia with apex bidentate. Outer margin with one median tooth and poorly crenulated until base. Right protarsus missing. Apex of mesotibia with pointed apical tooth on outer ventral margin (as in Fig. 4C); outer margin of mesotibia and metatibia slightly arched; serrate. ***Male genitalia***: Symmetrical. Median lobe flattened laterally and constricted near to the apex in lateral view. Pars basalis widely membranous dorsally. For a comprehensive and complementary description, see Vaurie (1962: 120) and Scholtz (1990: 1430) plus the genitalia drawings and high-quality images by Pittino (1987: 381) and Costa-Silva & Diéguez (2020: 269), respectively.

Geographic distribution. *Polynoncus pseudogemmifer* seems to be widely distributed in Argentina between Salta and Patagonian Steppes of Chubut (Fig. 61).

Vaurie (1962) mentioned records from Brazil and Chile, without further information about the specific locality. Diéguez (2008) refutes the occurrence of this species in Chile, noticing that this report was based on a misidentified specimen. We study one specimen with an old label from Chile housed in MNHN that corresponds to *P. pseudogemmifer* **n. sp.**, being probably the same earlier studied by Vaurie (1962). Even became a paratype of *P. pseudogemmifer* **n. sp.**, this specimen was probably mislabelled and the record from Chile should be treated with caution until new data for the country.

The specimen examined by Vaurie (1962) from Brazil (Santa Catarina) was not found, nor any specimen from Brazil was examined during this study.

Scholtz (1990) included Uruguay in the geographical distribution of "*P. gemmifer*" (now *P. pseudogemmifer*) based on two specimens studied. After examining the same specimens earlier studied by Scholtz (1990) housed in MCZ, we confirm that both specimens are *P. argentinus*.

Etymology. The specific name is a combination of the Geek "*pseudo*" (false) and "*gemmifer*", the epithet of *Polynoncus gemmifer*. The name is referring to the species historically misidentified as *Polynoncus gemmifer*.

Examined non-type material (321 specimens). ARGENTINA: Buenos Aires, Baía Blanca, no date or collector (2 MACN); Burzaco, 1939, A.I. Grasso leg. (1 CVMD); Carmen de Patagones, no date or collector (2 MACN); Gorchs, xii.1916, A. Pellerano leg. (1 MACN). **Catamarca,** Belén, Las Mansas, iii.1932, no collector (1 IFML); Belén, Las Mansas, iii.1935, no collector (1 IFML); Campo Posuelo, 60km S. Punta de Balasto, 8.ii.1997, G. Arriadaga leg. (3♂, 3♀ and 6 unsexed CVMD); Hualfin, i.1953, Villalau leg. (1♂ and 1♀ IFML); Punta Balasto, 15–30.i.1997, G. Arriagada leg. (1♀ CVMD); Punta de Balasto, 18.i.1997, G. Arriagada leg. (1♀ CVMD); Santa María, 10–17.xii.1995, under horse carcass, G. Arriagada leg. (1♂ CVMD); without specific locality, date or collector (1♀ MACN; 1 MLPA). **Chubut,** Biedma, Puerto Madryn, 20m, 11.x.1974, M. Gentili leg. (1 IADIZA); Biedma, Puerto Madryn, 47m, 42º47'8"S, 65º2'56"W, 18.i.2008, G. Chelii y L. Flores leg. (1 IADIZA); Gainan, Bryn Gwyn, 3.ii.2010, D. Rojas Lanus leg. (1♂ and 5 unsexed CVMD); Gainan, Bryn Gwyn, iv-v.2011, pitfall trap with chicken as bait, D. Rojas Lanus leg. (1 CVMD); Península Valdés, Estancia La Irma, 42º16'9"S, 63º45'33"W, 18.iv.2007, G. Cheli leg. (2 IADIZA); Península Valdés, ii–iii.1998, D. Rojas Lanus leg. (1♂ CVMD); Península Valdés, Punta Delgada, 1.iii.1998, D. Rojas Lanus leg. (1 CVMD); Península Valdés,

San José Gulf, 70m, 42º30'"S, 64º5'"W, 8.xi.1990, Endrödy-Younga leg. (6 TMSA); Villa Dique Florentino Ameghino, 20.ii.2010, D. Rojas Lanus leg. (1♂ and 1♀ CVMD); without specific locality, no date or collector leg. (2 MACN; 2♂ and 4♀ MLPA; 1♂ and 1 unsexed MACN). **Córdoba,** Alta Gracia, La Granja, xii.1916, C. Bruch leg. (1 MACN); Pocho, Chancaní, 15.iv–15.v.1994, A. Costa leg. (2 CVMD); Pocho, Chancaní, 19.ix–23.x.1993, pitfall trap, L. Acosta leg. (2 IADIZA); Pocho, Chancaní, 23.x–22.xi.1993, A. Costa leg. (1 CVMD); without specific locality, no date or collector (1 MACN; 1 MACN). **Entre Rios,** Pueblo Liebig, ii.1996, Mateo Zelich leg. (2♂, 1♀ and 6 unsexed CVMD). **La Pampa,** Argentina, La Pampa, Ultracan, Cerro Patagua, 31.viii.1994, Púgener Cardonato Montalvo leg. (2♂ and 2 unsexed IADIZA); Cuchillo-có, 1913, A. Copello leg. (4 MACN); Guatraché, Coto Los Molles, Estancia La Unión, ix.1995, Pessino leg. (6 IADIZA); Lihué Calel, Lihué Calel National Park, 23.iii.1994, Pessino leg. (2♂ and 12 unsexed IADIZA); Macachín, Salinas Grandes, 5.x.1994, Bárbara Corró Molas leg. (3 IADIZA); Santa Rosa, Bajo Giuliani, 20.vi.1999, Gouts Rastelli leg. (3♂ IADIZA); Toay, Parque Luro Provincial Reserve, 21.ii.1993, Pessino leg. (2 IADIZA); Toay, Parque Luro Provincial Reserve, 21.ii.2003, Pessino leg. (4♂ and 5 unsexed IADIZA); Toay, Parque Luro Provincial Reserve, 4.iii.1997, Maceda leg. (1♂ and 1♀ IADIZA); Toay, Parque Luro Provincial Reserve, 7.ii.2003, Pessino leg. (1♂ and 6 unsexed IADIZA); without specific locality, no date or collector (1 MACN). **La Rioja,** Chilecito, Pueblo Guanchín, 1,800m, 4.iii–27.iv.2008, squid bait, G. Arriagada leg. (1♂ and 1♀ CVMD); without specific locality or date, A. Breyer leg. (3 MACN); without specific locality, date or collector leg. (1 MACN). **Mendoza,** 25km W [West] Mendoza, 7.ii.1998, G. Arriagada leg. (4♂, 1♀ and 6 unsexed CVMD); Desaguadero, 28–29.ii.2005, R. Barrera leg. (1♀ CVMD); Las Heras, Reserva Natural Villavicencio, 1,400m, 31.i.2016, F. Aballay & F. Jofré leg. (5 IADIZA); Mendoza, Malargüe, Laguna de Llancanelo Nature Reserve, 1,338m, 35º43'16"S, 69º15'4"W, 9.ii.2007, G. Flores leg. (4 IADIZA); San Rafael, 31.i.1979, S. Roig leg. (1 CVMD); San Rafael, Pumas de Nihul, 1,422m, 35º4'10"S, 68º36'23"W, 4.i.2016, F. Aballay leg. (1 IADIZA); Santa Rosa, Biosphere Reserve of Ñacuñan, 11.xii.2002–26.i.2013, V.M. Diéguez leg. (1♂ and 8 unsexed CVMD); Santa Rosa, Biosphere Reserve of Ñacuñan, 11–13.xii.2002, V.M. Diéguez leg. (2♂ and 1♀ IADIZA); Santa Rosa, Biosphere Reserve of Ñacuñan, 7.xii.2001, G. Debandi leg. (1 IADIZA); Tunuyán, Reserva Manzano Histórico, 1,400m, 31.i.2016, F. Aballay & F. Jofré leg. (4 IADIZA); Tunuyán, Reserva Manzano Histórico, 1,800m, 31.xii.2015, F. Aballay & F. Jofré leg.

(2 IADIZA); Tunuyán, Reserva Manzano Histórico, 2,200m, 31.i.2016, F. Aballay & F. Jofré leg. (1 IADIZA); without specific locality, xi.1946, Moyano leg. (24 IFML); without specific locality, xi.1946, Moyano leg. (3 IFML); without specific locality, xi.1965, Willink y A. Garcia leg. (1 IFML). **Missiones,** without specific locality, no date, A. Breyer leg. (1 MACN). **Neuquén,** Reserva Provincial Auca Mahuida, El Cruce, 9.x.1982, M. Gentili leg. (1 IADIZA). **Río Negro,** Las Grutas, 19.ii.2001, D. Rojas Lanus leg. (1♂ CVMD); Río Colorado, no date or collector (1 MLPA); Río Negro, Río Colorado, 13–19.xi.1946, Willink leg. (1♂ and 1♀ IFML); San Antonio, 3km S [South] Sierra Grande, 13.xi.2016, S. Roig y G. Flores leg. (8 IADIZA); without specific locality or date, A. Breyer leg. (1 MACN). **Salta,** 1km N [North] de Cafayate, 26º3'52"S, 65º56'19"W, 24.11.2006, light trap with UV + Hg, F. Ocampo, E. Ruiz, G. Sanblas y G. Zalazar leg. (18 IADIZA); Cachipampa, ii.1989, M. Viana leg. (1 CVMD); General Güemes, Ruiz de los Llanos, ii.1947, G. Golbach leg. (1♀ IFML). **San Juan,** Jachal, 7.ii.1976, no collector (3 IADIZA). **San Luis,** Belgrano, Fundo El Molle, 622m, 33º2'22"S, 66º30'47"W, 15–25.i.2007, José Gomez leg. (1♂ CJEB); Belgrano, Fundo El Molle, 622m, 33º2'22"S, 66º30'47"W, 15–25.i.2007, José Gomez leg. (3♂, 1♀ and 27 unsexed CVMD); San Geronimo, 15–25.ii.2007, José Gomez leg. (1♀ CVMD); without specific locality, 21.xii.1925, no collector (1 MACN). **Santiago del Estero,** Icaño, Lago Muyo, 29.ii–12iv.1948, R. Golbach leg. (1 IFML); Río Salado, xii.1980, Wagner leg. (1♀ MLPA). **Tucumán,** Tafi del Valle, 28.xi.1945, no collector (1♂ and 2 unsexed IFML); Tafi del Valle, xii.1945, no collector (1♂ and 2 unsexed IFML). **Without specific locality**, no date, or collector (2 CVMD).

Polynoncus sallei (Harold, 1872)

(Figs. 58, 62–63)

Trox sallei Harold, 1872: 138, 191 (original description); Preudhomme de Borre 1886: 76 (checklist); Arrow 1912: 60 (catalogue); Blackwelder 1944: 219 (checklist); Vaurie 1962: 130 (redescription); Paulian, 1981: 10 (catalogue from Madagascar).

Trox (*Polynoncus*) *sallei*: Scholtz 1982: 16 (catalogue)

Polynoncus sallei: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1443 (redescription); Zídek 2013: 16 (checklist); Ratcliffe *et al*. 2015: 189 (checklist from Peru); Zídek 2017: 107 (checklist).

Trox ranavalo Paulian, 1936: 134 (original description); Vaurie 1962: 130 (synonymized with *T. sallei*); Paulian 1981: 10 (catalogue from Madagascar); Scholtz 1990: 1443 (as synonym of *T. sallei*); Zídek 2013: 15 (checklist, as synonym of *T. sallei*); Zídek 2017: 107 (checklist, as synonym of *T. sallei*).

Type-specimen examined. HOLOTYPE (MNHN – Fig. 62**).** First label [light brown with orange border, unknown's handwriting]: "Bolivia / T. / Sallei / Harold.". Second label [light brown, handwritten]: "Bolivia". Third label [light brown, Harold's handwriting]: "Sallei / Har. / typ. [underlined]". Fourth label [light brown, handwritten]: "denticulatus / Bl". Fifth label [white aged, typeset]: "Ex-Musæo / A. SALLÉ / 1897 [vertical, right side]. Sixth label [light green, typeset]: "Museum Paris / ex Coll. / R. Oberthur". Seventh label [red, typeset]: "HOLOTYPE". Eighth label [white with black border]: "HOLOTYPE / Polynoncus / sallei (Harold, 1872)". Nineth [white with black border]: "MNHN / EC10493" (Fig. 62E). **Type locality:** "Bolivia", without specific locality. Harold (1872) did not provide further information about the origin of the type series other than "Bolivia", collected by "Bridges".

Thomas Charles Bridges was an English botanist that spent time collecting fauna and flora in Peru, Chile and Bolivia between 1828 and around 1851 (Turril 1920; Johnston 1928). According to Johnston (1928) and Hind and Frisby (2015), T.C. Bridges arrived in Bolivia from 1844, travelling through Potosí, Chuquisaca, Cochabamba and Santa Cruz, leaving the country in 1845 (for details of Thomas Bridges' travel in South America, see Johnston (1928)). Considering the known records for this species, we believe that the type-specimen was collected in the Andean region of Potosí.

Type-specimen examined of *Trox ranavalo* Paulian, 1936 (Fig. 63)**. Lectotype here designated (BMNH).** First label [white aged]: "Trog [?] / humerosus Reich [?] / Madagascar ?". Second label [white aged; Renaud Paulian's handwriting]: "Trox / Ranavalo / Type / n. sp. / det. R. Paulian 1937". Third label [round with orange frame, typeset]: "Holo- / type". Fourth label [white with red frame, Clark Scholtz's handwriting]: "Trox / ranavalo Paulian. / HOLOTYPE [red]". Fifth label [white, Clark Scholtz's handwriting]: "Trox / sallei Harold. / det. C.H. Scholtz 1979". Sixth label [white, printed]: "[QR code] / NHMUK014002791" (Fig. 63C). **Type locality:** "Madagascar" (mislabeled specimen).

Differential diagnosis. *Polynoncus sallei* resembles *P. gemmingeri*, *P. seymourensis* and *P. gordoni*. However, the last two species have median ridges and basal tubercles of pronotum fused, while it is separated in *P. sallei*. Also, *P. sallei* has the odd-numbered costae with small and numerous tubercles (more than seven tubercles until the elytral declivity). In *P. gemmingeri*, the elytral tubercles in the odd-numbered costae are distinctly raised, bigger and less numerous (maximum of five tubercles) in the costae. For details of descriptions and complementary diagnosis, see Vaurie (1962) and Scholtz (1990).

Geographic distribution. *Polynoncus sallei* is recorded in northwestern South America, in the Andean portion of Bolivia, Ecuador and Peru (Fig. 58). These records are in agreement with those earlier presented by Vaurie (1962) and Scholtz (1990).

We examined one specimen from Buenos Aires (Argentina) housed in MNHN. However, considering our understanding about geographical distribution and habitat where *P. sallei* is collected, we believe that it might be a mislabeled specimen.

Examined non-type material (62 specimens). ARGENTINA [dubious locality]**: Buenos Aires,** without specific locality, date or collection (1 MNHN). **BOLIVIA: Without specific locality**, no date, Standius leg. (1 MZSP); Without specific locality, date or collector (1 MNHN). **CHILE: Without specific locality,** date or collector (2♀ BMNH). **ECUADOR: Loja,** Malacatos, 1,500m, 7.xi.1995, P. Ortiz leg. (1♀ CEMT); Masanamaca, 1,700m, iii.1985, L. Coloma leg. (1♀ CEMT); Without specific locality, no date, Abbé Gaujon leg. (2♂, 1♀ and 2 unsexed MNHN). **PERU: Amazonas,** Chachapoyas, 1889, M. de Mathan leg. (1♂, 1♀ and 12 unsexed MNHN). **Arequipa,** Lomas Atiquita, 800m, ii.2005, pitfall trap, José Cerdeña leg. (1♂ and 2 unsexed CVMD); Sabandía, xii.1919, E. Egcomel leg. (1 MACN). **Cajamarca,** Cajamarca, 4.xi.1981, G. Sanchez leg. (1♂ CVMD); Contumazá, San Benito, 1,400m, 16.iii.1993, Pedro Hocking leg. (1 MUSM); Without specific locality, 27.ix.1982, J. Valderrama leg. (1 CVMD). **La Libertad,** Pataz, Nimpana, 1,976m, 7º37'57"S, 77º37'3"W, 27.ii.2015, P. Ancajima leg. (1♂ CVMD). **Lima,** Lachay National Reserve, 15.ii.1986, Rosário Acero leg. (2 CVMD); Lachay National Reserve, 23–26.xi.2011, G. Valencia leg. (3 CVMD); Lurigancho-Chosica, 29.xii.1964, P. Hocking leg. (1♂ CVMD); Matucana, 2,380m, 13.xii.2004, pitfall trap with chicken carcass, V. Manuel Diéguez leg. (2 CVMD); Tornamesa, Río Rimac, 1,600m, 18.ii.2012, Pedro Hocking leg. (2 CVMD); Yauyos Allauca, 2,500m, x.2009, C. Gaspar y L. Sulca leg. (1 MUSM). **Tacna,** Tacna, no date, Schmidt [?] leg. (1♂ MNHN). **Ancash,** Corongo, 2,000m, 3–

17.ii.2007, pitfall trap with squid, V.M. Diéguez leg. (1 CVMD); Corongo, 3,190m, 5–12.ii.2012, pitfall trap with squid, Paco Castilla leg. (1♂ and 7 unsexed CVMD); Marcara, 19.ix.1999, Zoila G.J. leg. (1 CVMD); Marcara, 3.x.1997, C. Adriano leg. (1 CVMD); Shancayan, 7.ix.2002, R. Robles leg. (1♂ CVMD); Tapacocha, Río Fortaleza, 3,100m, 4.iii.1956, W. Weyrowch leg. (2 IFML); Yungay, 15.xii.2000, Antonio Vivar leg. (1♂ CVMD); Yungay, 2,458m, 10.x.2003, Durán Huaoma Isabel leg. (1 CVMD).

Polynoncus seymourensis (Mutchler, 1925)

(Figs. 30, 64)

Trox seymourensis Mutchler, 1925: 229 (original description); Blackwelder 1944: 219 (checklist); Van Dyke 1953: 124 (notes of Galapagos' specimens); Vaurie 1962: 131 (redescription); Linsley & Usinger 1966: 152 (list of Galapagos species); Franz 1985: 96 (list of Galapagos species).

Trox (*Polynoncus*) *seymourensis*: Scholtz 1982: 16 (catalogue).

Polynoncus seymourensis Scholtz 1986a: 362 (systematics); Scholtz 1990: 1446 (redescription); Zídek 2013: 16 (checklist); Zídek 2017: 108 (checklist)

Type-specimen examined (through detailed photographs). HOLOTYPE (AMNH – Fig. 64**).** First label [white aged, typeset]: "South Seymour / Galapagos / April 23 1923". Second label [white]: "Williams Galapagos Exped., / Dept. of Tropical Research, / N. Y. Zoological Society, / William Beebe, Director". Third label [red, typeset]: "TYPE" (Fig. 64C). **Type locality: "**South Seymour" (also named Isla Baltra), Galapagos Islands, collected by Charles William Beebe (1877−1962), an American naturalist.

Differential diagnosis. *Polynoncus seymourensis* is most similar to *P. galapagoensis* and *P. sallei.* Is distinguished from the latter species for having medial edges and basal tubercles of pronotum fused, which are distinctly separated in *P. sallei*. Also, *P. seymourensis* has the humeral callus prominent, with tubercles in the same elytral costae slightly separated (sometimes forming a poorly raised continuous ridge); and markable intercostal punctures. *Polynoncus galapagoensis* has the lateral margin of elytral arched, with humeral callus obsolete; odd-numbered costae (with exception of

sutural margin), with tubercles covered with tomentose and slightly spaced, forming an interrupt and raised elytral costae.

Geographic distribution. *Polynoncus seymourensis* was reported only for the Galapagos (Isla Fernandina, Isla Isabela [also called "Albemarle Island and Cowley Island], Isla Santa Cruz, Isla Española, Isla Seymour [type], Isla Floreana, Isla Genovesa, Isla Pinta and Isla Baltra), being historically treated as endemic of the Archipelago since its description (*e.g.*, Van Dyke 1953; Vaurie 1962; Scholtz 1982; Scholtz 1986a; Scholtz 1990; Zídek 2013, 2017).

In the course of this study, we found three specimens of *P. seymourensis* (2♂ and 1♀) collected on the mainland (Ecuador and Peru), being the first record of this species outside of Galapagos Islands, therefore no longer being endemic to the Archipelago (Fig. 30).

Examined non-type material (32 specimens). ECUADOR: Galápagos, Darwin Is. 1968, no collector (3 BMNH); Isabela Is., Siera Negra, Pampas, 1,000 m, ii.1987, S. Abedrabbo leg. (1 BMNH); Isabela Is., Villamil, 20.viii.1906, F.X. Williams leg. (2 BMNH); Marchena Is., Pta. Espejo, 11–24.iii.1992, Bursera grove, carrion trap, S. Peck leg. (1 BMNH); Santa Cruz Is., 3km S. Bellavista, 150 m, 1–29.ii.1989, S. Peck & B. Sinclair leg. (2 BMNH); Santa Cruz Is., 6.iii.1995, N. Criollo leg. (1 CVMD); Santa Cruz Is., 6.iii.1995, N. Criollo leg. (1♀ CEMT); Santa Cruz Is., Charles Darwin Research Station (CDRS), 10 m, 17–30.i.1989, UV light, S. Peck & B. Sinclair leg. (2 BMNH); Santa Cruz Is., Los Gemelos, 610 m, 1–28.ii.1989, flight interceptation trap, Scalesia Forest, S. Peck & B. Sinclair leg. (2 BMNH); Santa Cruz Is., Puntudo, 650 m, 1–29.ii.1989, flight interceptation trap, Scalesia Forest, S. Peck & B. Sinclair leg. (1 BMNH); Santa Cruz Is., without specific locality, xii.1968, R.D. Sievers leg. (6 BMNH). **Loja,** Loja, no date or collector (1♀ CVMD). **Manabí,** Manta, San Juan, bosque seco [dry forest], 8.i.2010, William Chamorro leg. (1♂ CVMD). **PERU: Piura,** Suyo, 24.i.1977, R. Garcia leg. (1♂ CVMD).

Polynoncus tenebrosus (Harold, 1872)

(Figs. 58, 65)

Trox tenebrosus Harold, 1872: 130, 191 (original description); Preudhomme de Borre 1886: 77 (checklist); Arrow 1912: 62 (catalogue); Blackwelder 1944: 219 (checklist – as "*tenebrosa*"); Vaurie 1962: 132 (redescription).

Trox (*Polynoncus*) *tenebrosus*: Scholtz 1982: 17 (catalogue)

Polynoncus tenebrosus: Scholtz 1986a: 362 (systematics); Scholtz 1990: 1448 (redescription); Zídek 2013: 17 (checklist); Zídek 2017: 109 (checklist).

Type-specimen examined. HOLOTYPE (MNHN – Fig. 65**).** First label [light brown with orange border, Harold's handwritten]: "Amer. mér / T. / tenebrosus / typ. Harold". Second label [white aged with black border, typeset]: "Ex-Musæo / E. Harold". Third label [red, typeset]: "Type". Fourth label [light green]: "Muséum Paris / ex Coll. / R. Oberthür / 1952". Fifth label [white aged, Harold's handwritten]: "tenebrosus / mihi". Sixth label [red, typeset]: "HOLOTYPE". Seventh label [white with black border, typeset]: "HOLOTYPE / *Polynoncus* / *tenebrosus* (Harold, 1872). Eighth label [white, typeset]: "MNHN / EC10492" (Fig. 65C). **Type locality:** Cited by Harold (1872) as "*höchst wahrscheinlich Südamerika*" (South America). Considering the geographical distribution known for this species, the type-specimen was likely collected in Andean regions of Ecuador.

Differential diagnosis. This rare species is most similar to *P. sallei*, but differs from it by having erect black setae on the surface of elytral tubercles, which are absent in the latter species.

Polynoncus tenebrosus also bears some resemblance to *P. ecuadorensis*, but can be distinguished from it by the colour of the setae on the antennae. The setae are very dark in *P. tenebrosus*, while in *P. ecuadorensis* the setae are distinctly yellow. Furthermore, the humeral calli are obsolete in *P. tenebrosus* and well-defined in *P. ecuadorensis*. For details of description, see Vaurie (1962) and Scholtz (1990).

Geographic distribution. *Polynoncus tenebrosus* is endemic to Ecuador (Fig. 58).

Examined non-type material (1 specimen). ECUADOR: Chimborazo, Guano, 2,683m, 10.vii.2007, manual collection, no collector (1♂ CEMT).

Polynoncus vazdemelloi Huchet & Costa-Silva, 2018

(Figs. 5A, 61, 66)

Polynoncus vazdemelloi Huchet & Costa-Silva, 2018: 554 (original description); Alencar *et al*. 2021: 154 (checklist of beetles from northeastern Brazil).

Type-specimens examined. HOLOTYPE (♂ CEMT – Fig. 66**).** First label [white with black border, typeset]: "BRASIL: Pernambuco. / Araçoiaba: CIMNC [Instruction Field Marechal Newton Cavalcanti] / V-2010. LIannuzzi". Second label [red, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / HOLOTYPE" (Fig. 66E). **Type locality:** Araçoiaba, Pernambuco (Brazil).

PARATYPES (5♂ and 12 unsexed CEMT; 1 IEXA; 2 DZUP; 1♂ and 1 unsexed MZSP; 2 ZUEC; 9 CERPE). First label [white, typeset]: "BRASIL: Pernambuco, / Araçoiaba, CIMNC [Instruction Field Marechal Newton Cavalcanti] / 23-III-2010 LIanuzzi". Second label [yellow, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE" **(3 CEMT; 2 IEXA; 1 MZSP; 2 ZUEC)**. First label [white, typeset]: "BRASIL: Pernambuco, / Araçoiaba, CIMNC [Campo de Instrução Marechal Newton Cavalcanti] / V-2010 LIanuzzi". Second label [yellow, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE" **(2 CEMT; 1 DZUP)**. First label [white, typeset]: "BRASIL: Pernambuco, / Araçoiaba, CIMNC [Campo de Instrução Marechal Newton Cavalcanti] / 21-iv-2010 LIanuzzi". Second label [yellow, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE" **(4 CEMT; 1 DZUP)**. First label [white, typeset]: "Araçoiaba – PE / (CIMNC) / 19.I.2010 / Correria, R.S. col / (Pitfall) Fechada 5". Second label [yellow, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE" **(1 CEMT)**. First label [white, typeset]: "Ibateguara – AL / (Varjão) / 19.ix.2007 / Filgueiras, B.K.C. col / (carcaça) [carcass]". Second label [yellow, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE" **(1♂ CEMT)**. First label [white, typeset]: "Ibateguara – AL / (Dois Braços) / 3.xi.2007 / Filgueiras, B.K.C. col / (carcaça) [carcass]". Second label [yellow, Costa-Silva's handwriting]: "Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE" **(1♂ CEMT; 1♂ MZSP)**. First label [white, typeset]: "BRASIL: Pernambuco / Camaragibe, Aldeia, 01- / 30.v.2016, 100m [meters above sea level], - / 7.977ºS, -35.006ºW / I.V.P.C. Grossi leg.". Second label [yellow, Costa-Silva's

handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(1 CEMT; 6 CERPE)**. First label [white, typeset]: “BRASIL: Pernambuco / Camaragibe, Aldeia, 01- / 3.vi.2016, 100m [meters above sea level], - / 7.977ºS, -35.006ºW / I.V.P.C. Grossi leg.”. Second label [yellow, Costa-Silva’s handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(3 CERPE)**. First label [white, typeset]: “BRASIL: Pernambuco / Camaragibe, Aldeia, 01- / 31.v.2016, 100m [meters above sea level], - / 7.977ºS, -35.006ºW / I.V.P.C. Grossi leg.”. Second label [yellow, Costa-Silva’s handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(1 CEMT)**. First label [white, typeset]: “BRASIL: Pernambuco. / Recife. Dois Irmãos. / alunosUFPE”. Second label [yellow, Costa-Silva’s handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(1♂ CEMT)**. First label [white, typeset]: “BRASIL: PB / João Pessoa, / DSE / UFPB / AA Endres”. Second label [yellow, Costa-Silva’s handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(1♂ CEMT).** First label [white, typeset]: “BRASIL: Alagoas, Ibateguara / Serra Grande, 9º00’01,4 S” / 35º51’19 W, 05.x.2011. / Pitfall. Mata Atlântica, Interior. / BKC Filgueiras.” Second label [yellow, Costa-Silva’s handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(1 CEMT).** First label [white, typeset]: “COLEOPTERA / RECD-Iguarassu-PE / Brasil / 10.VII.07, 3M/IV / Silva *et al.,*” Second label [yellow, Costa-Silva’s handwriting]: “Polynoncus vazdemelloi / Huchet & Costa-Silva / des. Costa-Silva, 2018 / PARATYPE” **(1 CEMT).**

Differential diagnosis. This species is most similar to *P. parafurcatus*, but differs by having medial edges and basal tubercles of pronotum fused, which are disconnected in the latter species.

Polynoncus vazdemelloi is most morphologically similar to *P. furcillifer*, but its elytral tubercles are poorly elevated and elongate (at least 2x longer than wide), and its poorly developed latero-basal tubercles of pronotum can be used to distinguish both species. In *P. furcillifer*, the elytral tubercles are more prominent and rounded (seldom elongate), and the latero-basal tubercles of pronotum are distinctive. The male genitalia of both species are distinctive. For details of description, see Huchet & Costa-Silva (2018: 554).

Geographic distribution. Huchet & Costa-Silva (2018) described *Polynoncus vazdemelloi* based only on a type series (65 specimens) with its distribution restricted to northeastern Brazil. After examination of a large series of this species from other South American' collections, we conclude that *P. vazdemelloi* occurs in the Atlantic Forest of Brazil (to the Pernambuco until Paraná state) (Fig. 61).

Examined non-type material (137 specimens). BRAZIL: Bahia, Ibirapitanga, Mata do Ppuã, 14.xi.2014, G.R.G. Silva leg. (2 CEMT); Igrapiúna, Juliana Farm, Mata São José, 13º50'13"S, 39º17'2"W, 14.xi.2014, G.RG. Silva leg. (2♂, 1♀ and 1 unsexed CEMT); Igrapiúna, Vila 5, 13º48'8S, 39º10'3"W, 19.v.2010, R. Carvalho leg. (1♀ CVMD); Igrapiúna, Vila 5, 13º48'8S, 39º10'3"W, 19.v.2010, R. Carvalho leg. (1♂ and 3♀ CEMT); Ilhéus, i–ii.1999, no collector leg. (1 MZSP); Ilhéus, Una, xi–xii.1998, Cabruca [Cooperative of Organic Producers of Southern Bahia] leg. (1 MZSP); Ituberá, Pancada Grande, 13º47'59"S, 39º11'2"W, 9.iv.2009, C.M. Campos & P.P Lopes leg. (1♀ CEMT); Nilo Peçanha, 31m, 13º37'53"S, 39º12'05"W, ix.2011, pitfall, C.M.P. Leite leg. (1♀ CEMT); Porto Seguro, RPPN Veracel [Private Reserve of Natural Heritage], 11.xi.2004, Mata primária, J. Louzada leg. (1♂ and 1♀ CEMT); Una, Reserva Biológica de Una [UNA Biological Reserve], 15º10'37"S, 39º6'19"W, 2.vii.2017, pitfall, T.B. Souza leg. (4 CEMT); Wanceslau Guimarães, 13º34'S, 39º41'W, xii.2011, C.M.P. Leite leg. (1♂, 1♀ and 1 unsexed CEMT). **Espirito Santo,** Marechal Floriano, 500m, 20º23'30"S, 40º41'25"W, i.2003, L. Dias leg. (1♂ CEMT). **Paraíba,** João Pessoa, Mata do Buraquinho, 7º8'22"S, 34º51'37"W, 8.ix.2009, R.C.A.P. Farias leg. (1 CEMT); Mamanguape, Rebio Guaribas, 6º41'0"S, 35º10'0"W, vi.2002, pitfall with faeces, M.I.M. Hernández leg. (1♂ CEMT); Mamanguape, Rebio Guaribas, 6º41'0"S, 35º10'0"W, xi.2001, pitfall fezes, A.A. Endres leg. (2♂ and 2 unsexed CEMT). **Paraná,** Morretes, E.E. Embrapa, 140m, 25º27'11"S, 48º52'57"W, 10.xii.2015, *Leopardus pardalis* faeces, E.H. Raine leg. (2 CEMT); Morretes, E.E. Embrapa, 140m, 25º27'11"S, 48º52'57"W, 17.xii.2015, human faeces, E.H. Raine leg. (1♂, 1♀ and 2 unsexed CEMT); Morretes, E.E. Embrapa, 140m, 25º27'11"S, 48º52'57"W, 27.i.2016, human faeces, E.H. Raine leg. (1 CEMT); Morretes, Santuário Nhundiaquara, 100m, 25º25'32"S, 48º53'21"W, 15.i.2016, *Panthera onca* faeces, E.H. Raine leg. (1♀ CEMT); Morretes, Santuário Nhundiaquara, 100m, 25º25'32"S, 48º53'21"W, 27.i.2016, human faeces, E.H. Raine leg. (2♂ and 3 unsexed CEMT); Morretes, Santuário Nhundiaquara, 100m, 25º25'32"S, 48º53'21"W, 5.ii.2016, *Tamandua tridactyla* faeces, E.H. Raine leg. (1♂ IEXA); Morretes, Santuário Nhundiaquara, 100m, 25º25'32"S, 48º53'21"W,

18.xi.2015, human faeces FIT, E.H. Raine leg. (1 CEMT). **Pernambuco,** Araçoiaba, CIMNC [Instruction Field Marechal Newton Cavalcanti], 116m, 23.iii.2010, L. Iannuzzi leg. (1♀ CEMT); Araçoiaba, CIMNC, 116m, v.2010, L. Iannuzzi leg. (1♀ CEMT); Caramagibe, Aldeia, 100m, 7º58'37"S, 35º0'22"W, v.2017, FIT, P. Grossi & FZ Vaz-de-Mello leg. (1♀ and 6 unsexed CEMT). **Rio de Janeiro,** Rio de Janeiro, Lage Park, 22º57'14"S, 43º12'34"W, ii.1992, F.Z. Vaz-de-Mello leg. (1♂ CEMT); Rio de Janeiro, Lage Park, 22º57'14"S, 43º12'34"W, xii.1990, F.Z. Vaz-de-Mello leg. (6♂, 2♀ and 7 unsexed CEMT). **São Paulo,** Bertioga, Parq. Est. Serra do Mar [Serra do Mar State Park], 21m, 23º45'2"S, 45º55'20"W, 24.iv.2017, pitfall with gizzard, V. Costa-Silva leg. (1♀ EMAC); Bertioga, Parq. Est. Serra do Mar [Serra do Mar State Park], 21m, 23º45'2"S, 45º55'20"W, 24.iv.2017, pitfall with gizzard, V. Costa-Silva leg. (4♂ CEMT); Caraguatatuba, 21.ix.2012, carcass, A. Diaz leg. (1♂ CEMT); Caraguatatuba, Parque Estadual Serra do Mar [Serra do Mar State Park] - Núcleo Caraguatatuba, 23º35'30"S, 45º25'24"W, 13.i.2012, human faeces, E. Bovy leg. (1♂ CVMD); Cotia, Reserva do Morro Grande [Morro Grande Reserv], ii.2008, A.A. Silva leg. (1♀ and 2 unsexed MZSP); Cotia, Reserva do Morro Grande, ii.2008, A.A. Silva leg. (1♂ and 2♀ MZSP); Eldorado, Caverna do Diabo State Park [Parque Estadual Caverna do Diabo], 24º38'12.9"S, 48º24'15.2", 10–20.x.2005, E. Aguiar & P.M.S. Martínez leg. (1 MZSP); Iporanga, PETAR [Alto Ribeira State and Tourist Park], 24º35'22"S, 48º37'46"W, 9.iv.2018, B. Ribeiro & W. Yamashida leg. (1♂ CEMT); Mogi das Cruzes, Parque das Neblinas, 810m, 23º47'28"S, 46º11'48"W, ix.2015, human faeces, R.V. Nunes leg. (1♂ CEMT); Praia Grande, Parque Estadual Xixová-Japui [Xixová-Japui State Park], 6–20.i.2000, interceptação de voo [FIT] (1♂ CEMT); Praia Grande, Parque Estadual Xixová-Japui [Xixová-Japui State Park], 8.vii.1999, interceptação de voo [FIT] (1♀ CEMT); Praia Grande, Parque Estadual Xixová-Japui [Xixová-Japui State Park], 1.xii.1999, interceptação de voo [FIT] (1♀ CEMT); Praia Grande, Parque Estadual Xixová-Japui [Xixová-Japui State Park], 1.iii.2000, interceptação de voo [FIT] (1♀ CEMT); Salesópolis, Estação Biol. de Boracéia [Biological Station of Boracéia], 28.ix–01.xi.2001, S.A. Casari & I.B. Francini leg. (2 MZSP); Salesópolis, Estação Biol. de Boracéia [Biological Station of Boracéia], 852m, 23º39'20"S, 45º53'23"W, 18.ix.2012, pitfall with faeces as bait, T. Vargas leg. (1♂ and 1♀ CEMT); Salesópolis, Estação Biol. de Boracéia [Biological Station of Boracéia], 23.vii–30.viii.2002, S.A. Casari & I.B. Francini leg. (3♂, 3♀ amd 2 unsexed MZSP); Salesópolis, Estação Biol. de Boracéia [Biological Station of Boracéia], 28.vi–27.vii.2001, S.A. Casari & I.B.

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Remarks. We examined a large number of specimens (128 spec) collected from the Atlantic Forest (stretching along the Atlantic coast of Brazil). All the specimens match the description *Polynoncus vazdemelloi* (see Huchet & Costa-Silva (2018). However, we noticed that males of a population from Bahia, Espírito Santo, and Rio de Janeiro states have the medial lobe not dorsoventrally flattened at the middle in lateral view (as in Fig. 66D), but have the median lobe with uniform width until the apex. It is possible that this population could represent another new species, but a phylogenetic study with a molecular approach is needed to confirm this. Until such time as more material becomes available for analysis, we will regard these differences in the male genitalia as variation for now.

Notes on the natural history of *Polynoncus* species

Commonly called keratin-feeding, trogids have highly sclerotized mandibles and digestive enzymes capable of reducing and assimilating a highly resistant polypeptide such as keratin, an unique evolutionary characteristic among Scarabaeoidea (Hughes & Vogler 2006; Strümpher *et al*. 2016). However, larvae and adults of Trogidae are often found under carcasses in an advanced stage of decomposition, feeding on remains not used by other scavengers, or in bird nests, using feathers as a food resource (Richter 1958; Vaurie 1955, 1962; Scholtz 1990; Marinoni *et al*. 2001; Hughes & Vogler 2006).

Polynoncus species, as most of other in its family, show peculiar and intriguing evolutionary behaviours. They are often collected with the dorsal part of the elytra completely covered by humus mixed with soil. This layer of dirt provides excellent camouflage helping these beetles to hide from potential predators. Whenever touched or harassed, these beetles exhibit a behaviour known as thanatosis in which the individual pulls its legs up close against the body pretending to be dead, thus and going unnoticed by inattentive eyes (Blanchard 1847; Ratcliffe 1991).

Nearly all species of *Polynoncus* can readily be collected using pitfall traps baited with putrefied organic matter, such as carrion (especially rotten chicken remains and chicken livers), carnivore, human and pig dung.

Some individuals can also be collected at light trap (both white and ultraviolet light). *P. diffluens*, for example, has been historically collected with this method, in a light trap in low and dry regions of Chile. In addition, of the 28 specimens of *P. diffluens* examined, few specimens had residues of organic matter in state of decomposition on their body. I could only see superficial stains of some milky-looking material of white colour, which I believe to be bird droppings or guano. Other methods of passive collection, even if less effective, can also be used flight trap interception (FIT) and malaise (for details on the traps, see Almeida *et al*. (1998) and Costa-Silva *et al*. (2018)).

The majority of *Polynoncus* species are found in open vegetation in the cooler and drier climatic regions (subtropical zones) in South America but are not exclusive to these regions (Fig. 67). Only few species are found near the tropics, such as *Polynoncus juglans*, occurring in the Amazon rainforest and *P. vazdemelloi*, endemic to the Atlantic

Forest. Some species are found in high altitude zones (over 1,000 meters); flightless species are almost exclusively in these regions. *Polynoncus* species can be collected in all seasons, with more activity at night.

Although *Polynoncus* taxonomic studies are more advanced (Strümpher *et al*. 2016), the group still lacks a phylogenetic and biogeographic approach, in order to understand the evolutionary relationship between species and how the species dispersion process took place historically. These studies are in progress by the authors.

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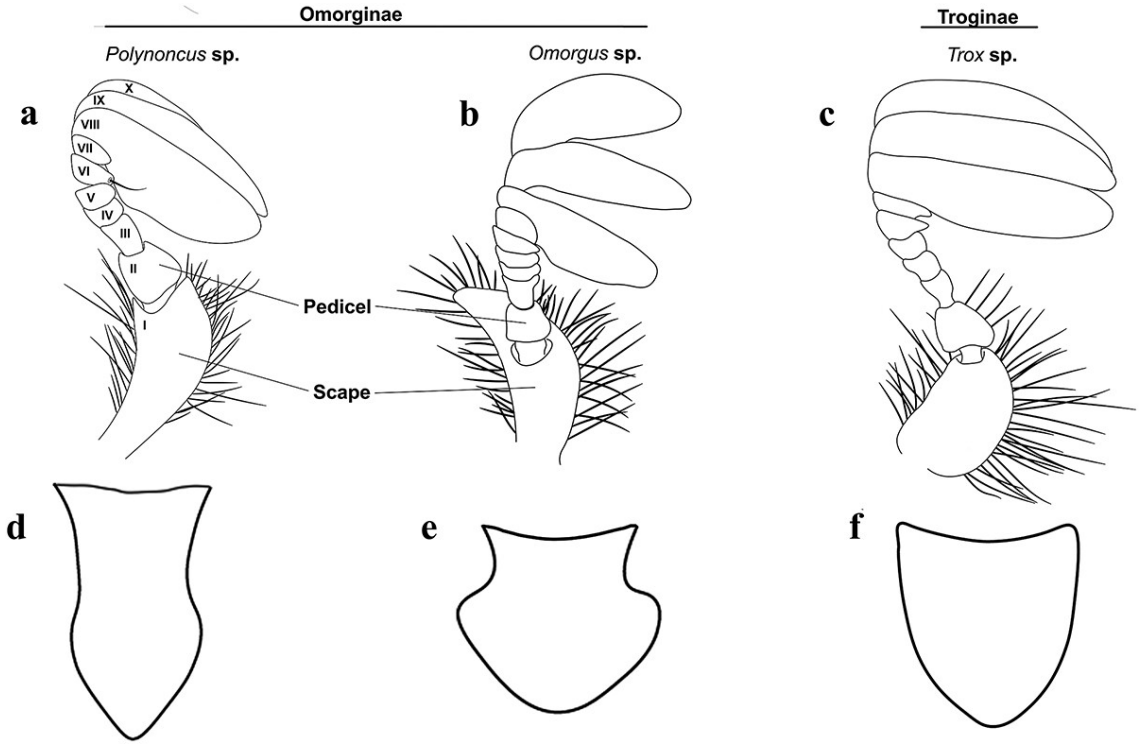


Figure 1. Schematic drawing of the Trogidae's antennae showing the relation between scape and pedicel for **A)** *Polynoncus* and **B)** *Omorgus* (Omorginae); and **C)** *Trox* genera (Troginae). Scutellum form for **D)** *Polynoncus*; **E)** *Omorgus*; and **F)** *Trox* genera (also found in some exceptions in *Omorgus*).

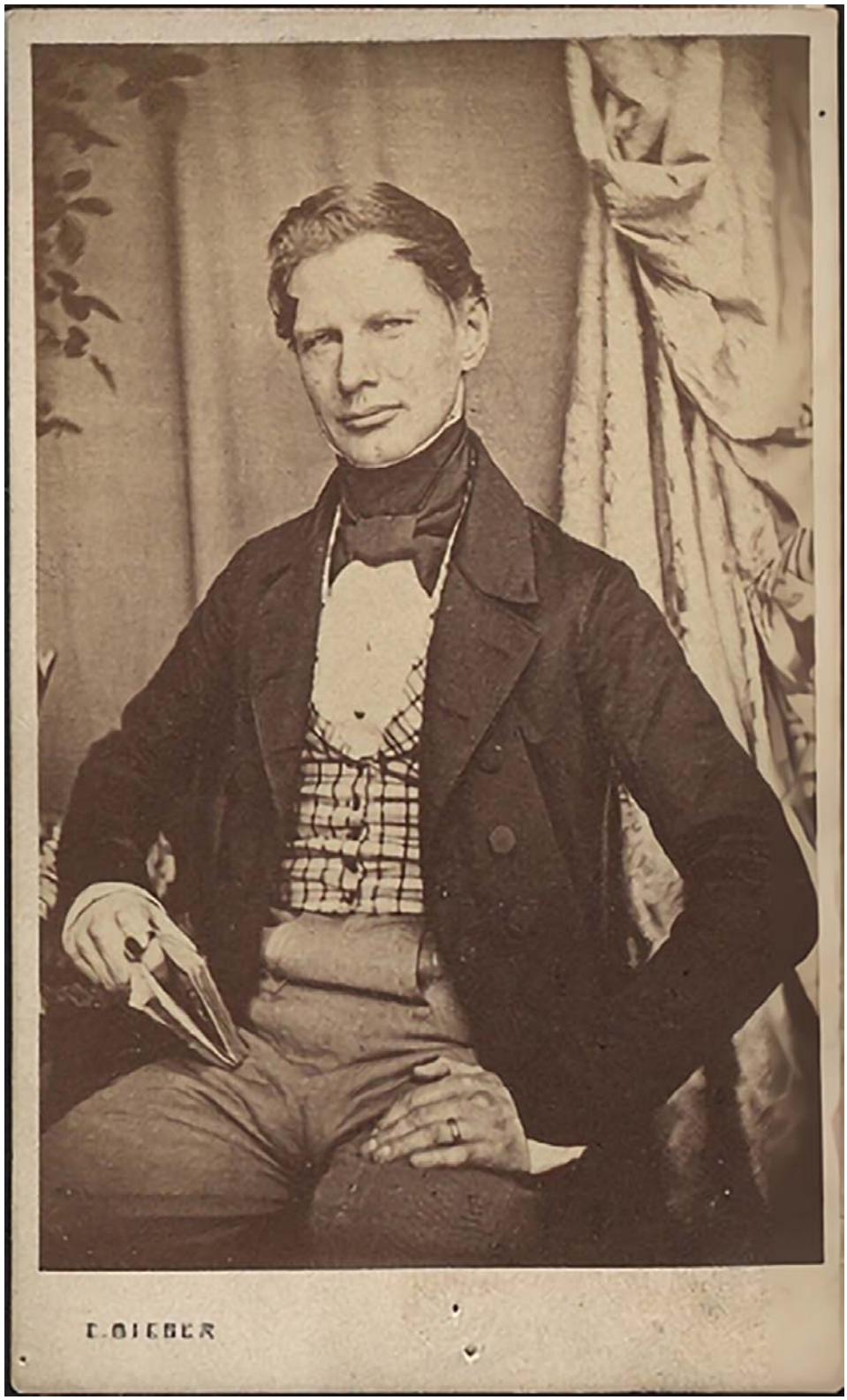


Figure 2. Carl Hermann Conrad Burmeister (1807-1892), the German entomologist and professor, director of Natural History Museum in Buenos Aires (now Argentine Museum of Natural History "Bernardino Rivadavia") between 1862 and 1892, working and teaching palaeontology and zoology (mainly insects). Image obtained from: http://sdei.senckenberg.de/biographies/index.php.

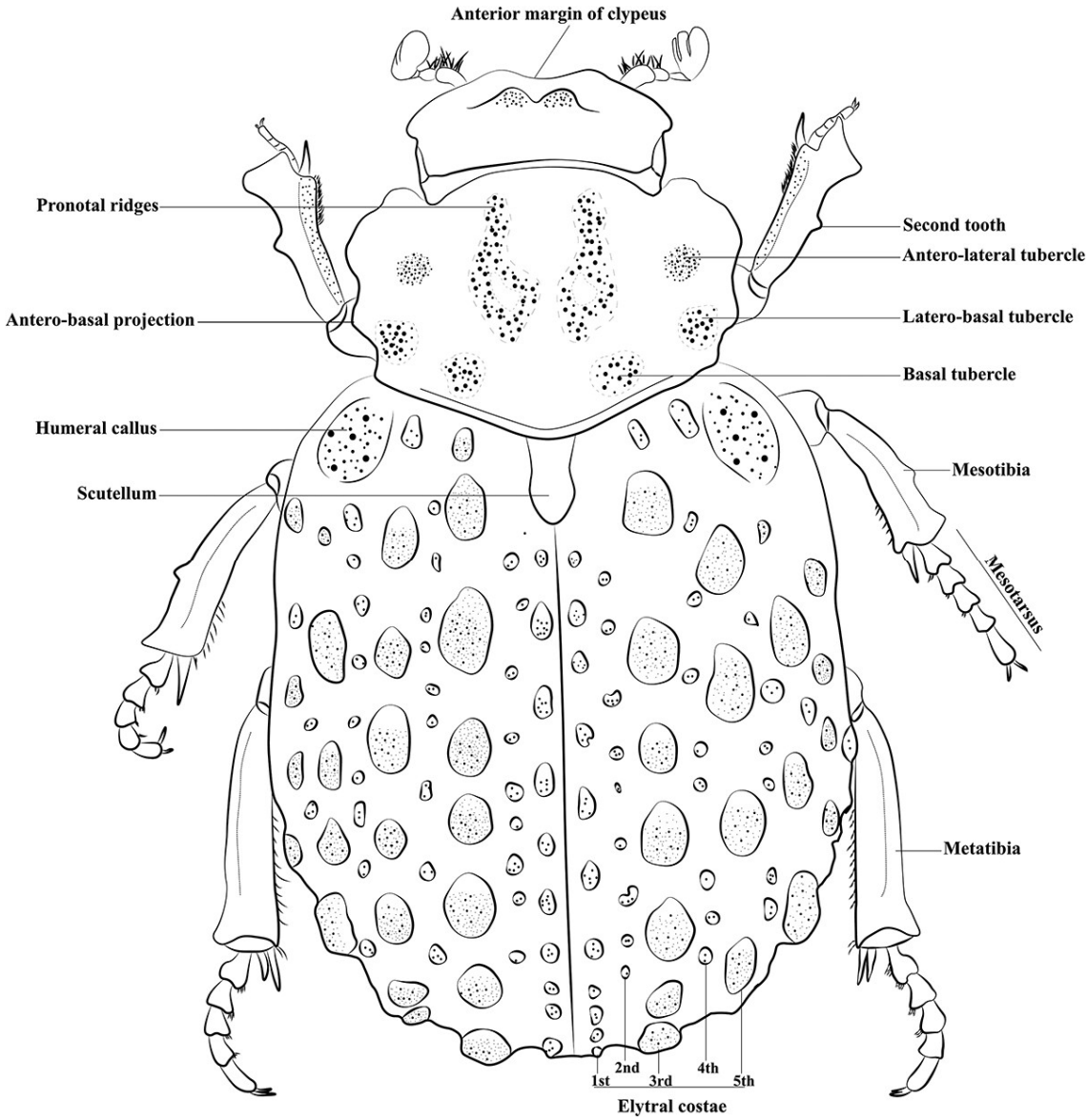


Figure 3. Schematic drawing of a *Polynoncus* spp. showing the main morphological characteristics.

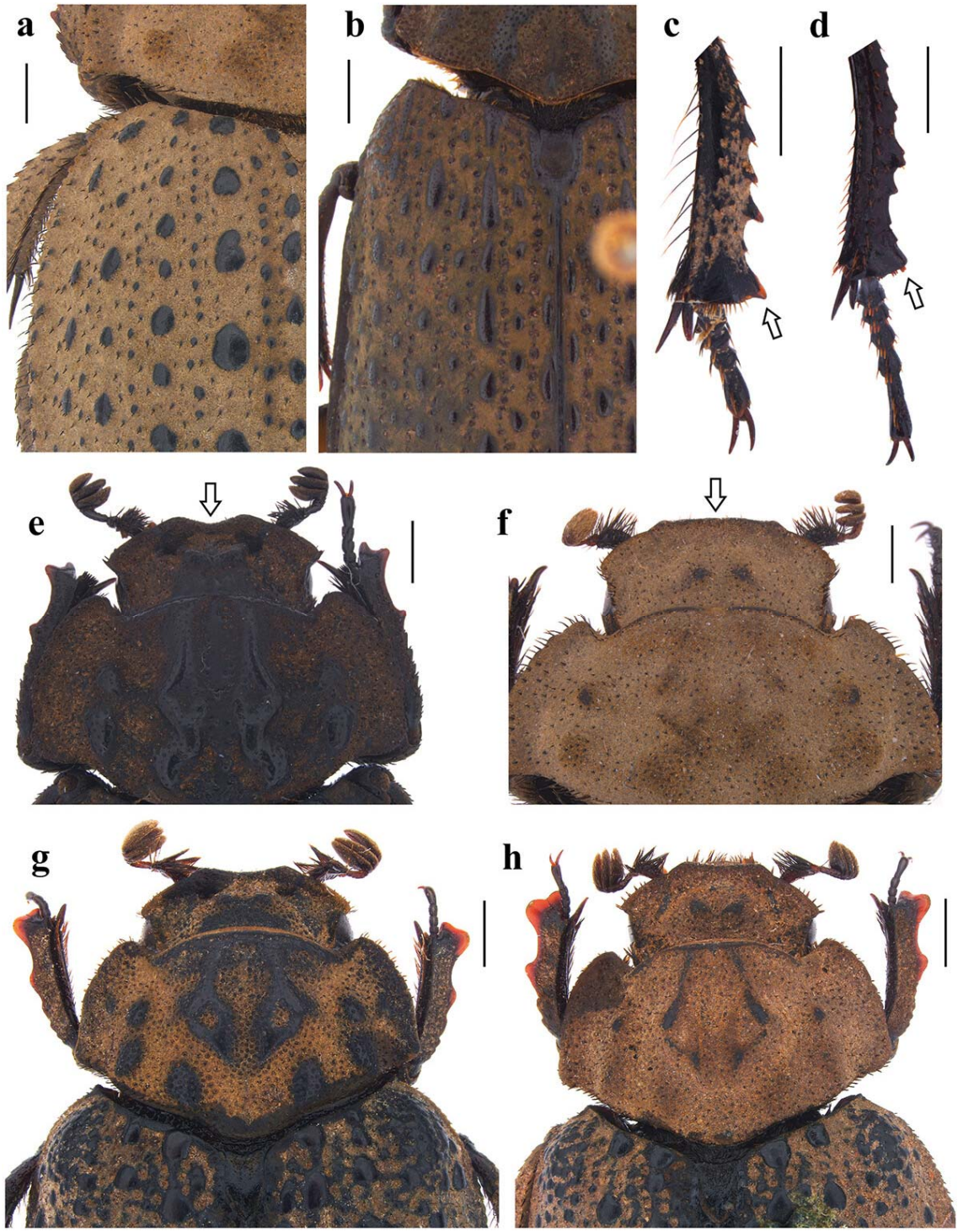


Figure 4. Differential morphology in *Polynoncus* spp.: **A)** without humeral callus [*P. hemis-phaericus*]; **B)** with humeral callus [*P. longitarsis*]. Apex of mesotibia **C)** with tooth [*P. peruanus*] and **D)** without tooth (white arrow) [*P. crypticus*]. Posterior margin of clypeus **E)** emarginate [*P. bullatus*] and **F)** truncate (white arrow) [*P. hemisphaericus*]; pronotal ridges of pronotum in **G)** *Polynoncus argentinus* and **H)** *Polynoncus pseudogemmifer* **n. sp.** (paratype). Scale bar 1 mm.

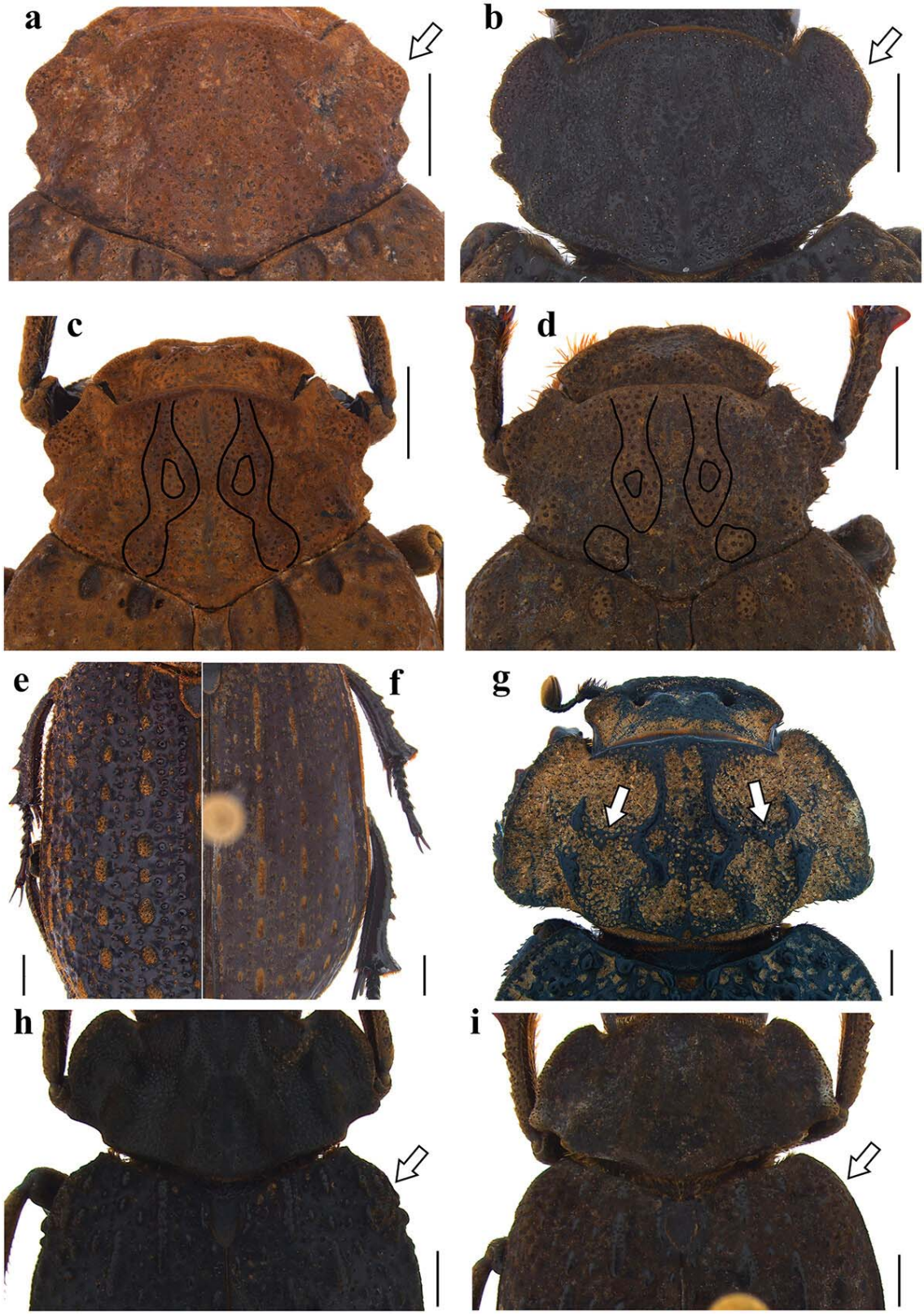


Figure 5. Differential morphology in *Polynoncus* spp.: lateral margin of pronotum **A)** bulbous [*P. vazdemelloi*] and **B)** rounded [*P. gemmingeri*]; pronotal ridges and basal tubercles of pronotum **C)** fused [*P. furcillifer*] and **D)** separated (black line) [*P. parafurcatus*]; surface of elytra **E)** with tubercles [*P.*

pedestris] and **F)** without tubercles [*P. diffluens*]; **G)** pronotal ridge and antero-lateral tubercle connected by (white arrow) [*P. patagonicus*]; **H)** humeral callus prominent (white arrow) in *P. chilensis* and **I)** humeral callus not prominent (white arrow) in *P. mirabilis*. Scale bar 1 mm.

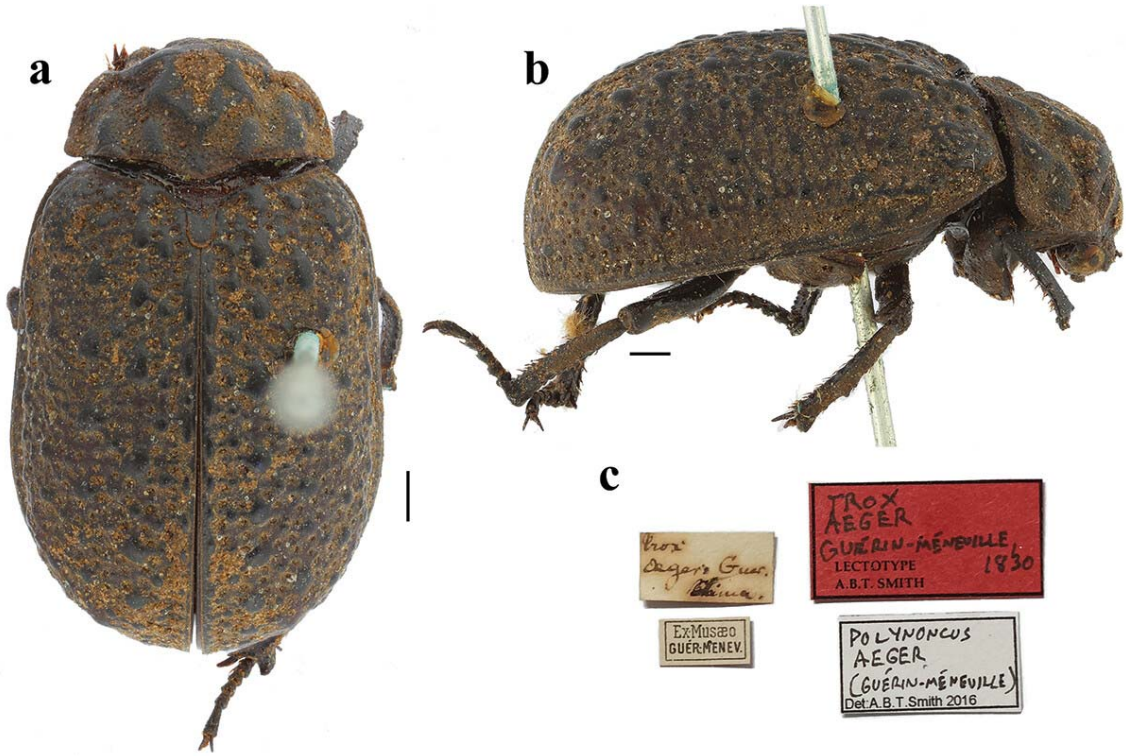


Figure 6. Lectotype of *Trox aeger* Guérin-Meneville, 1830 (now *Polynoncus aeger*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.

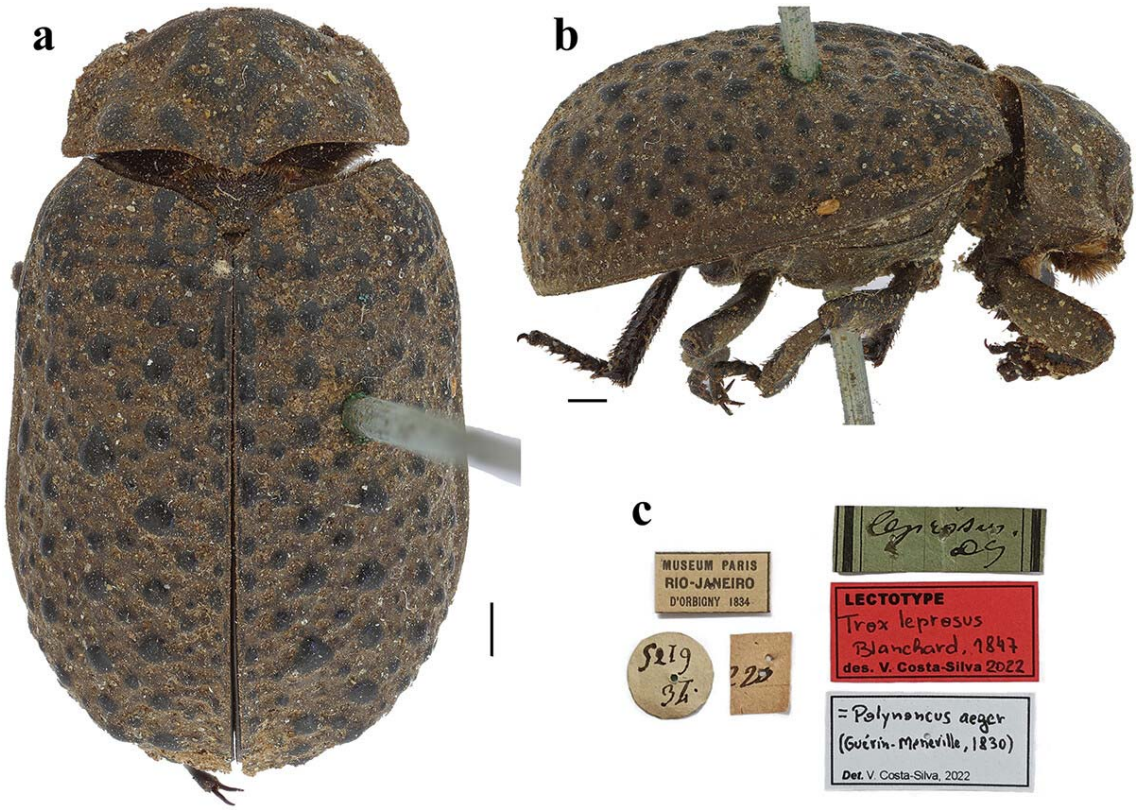


Figure 7. Lectotype of *Trox leprosus* Blanchard, 1847 (=*Polynoncus aeger*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.



Figure 8. Distribution map of *Polynoncus aeger* (red circles), *P. aricensis* (green triangles), and *P. diffluens* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species. ? = dubious record.

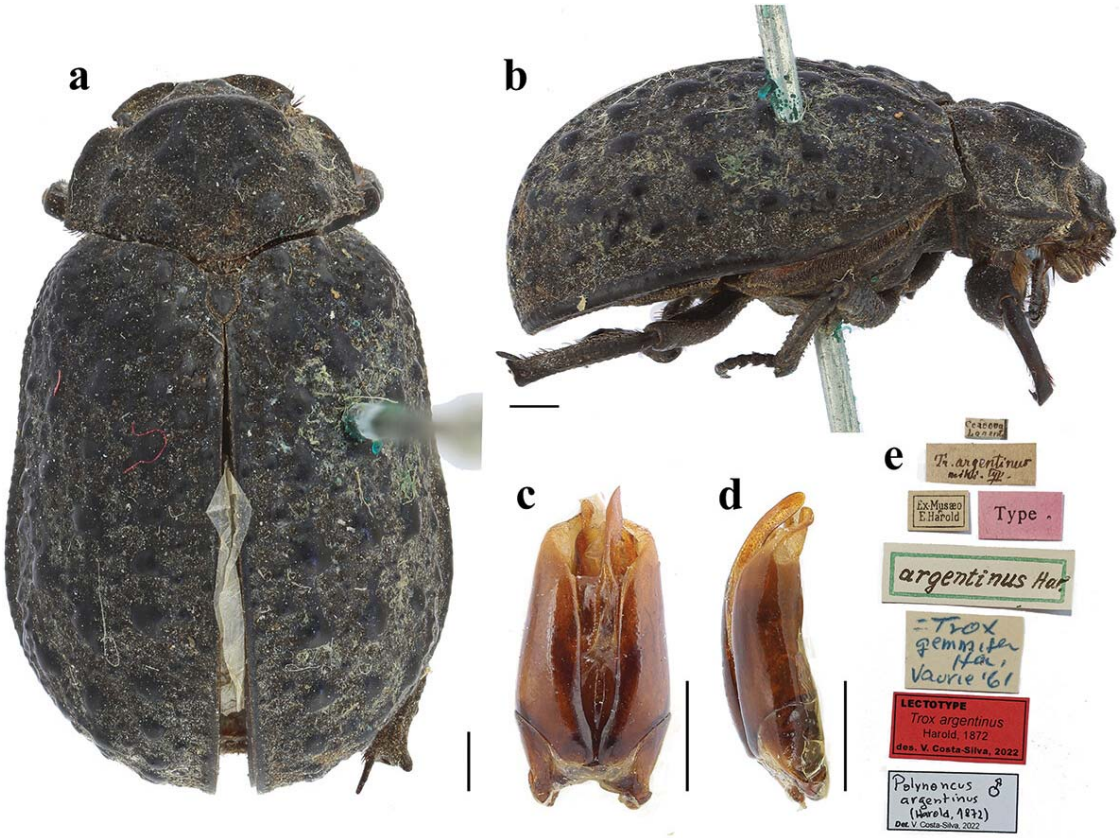


Figure 9. Lectotype of *Trox argentinus* Harold, 1872 (now *Polynoncus argentinus*) here designated: habitus in **A)** dorsal and **B)** lateral view. Male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Scale bar: 1 mm.

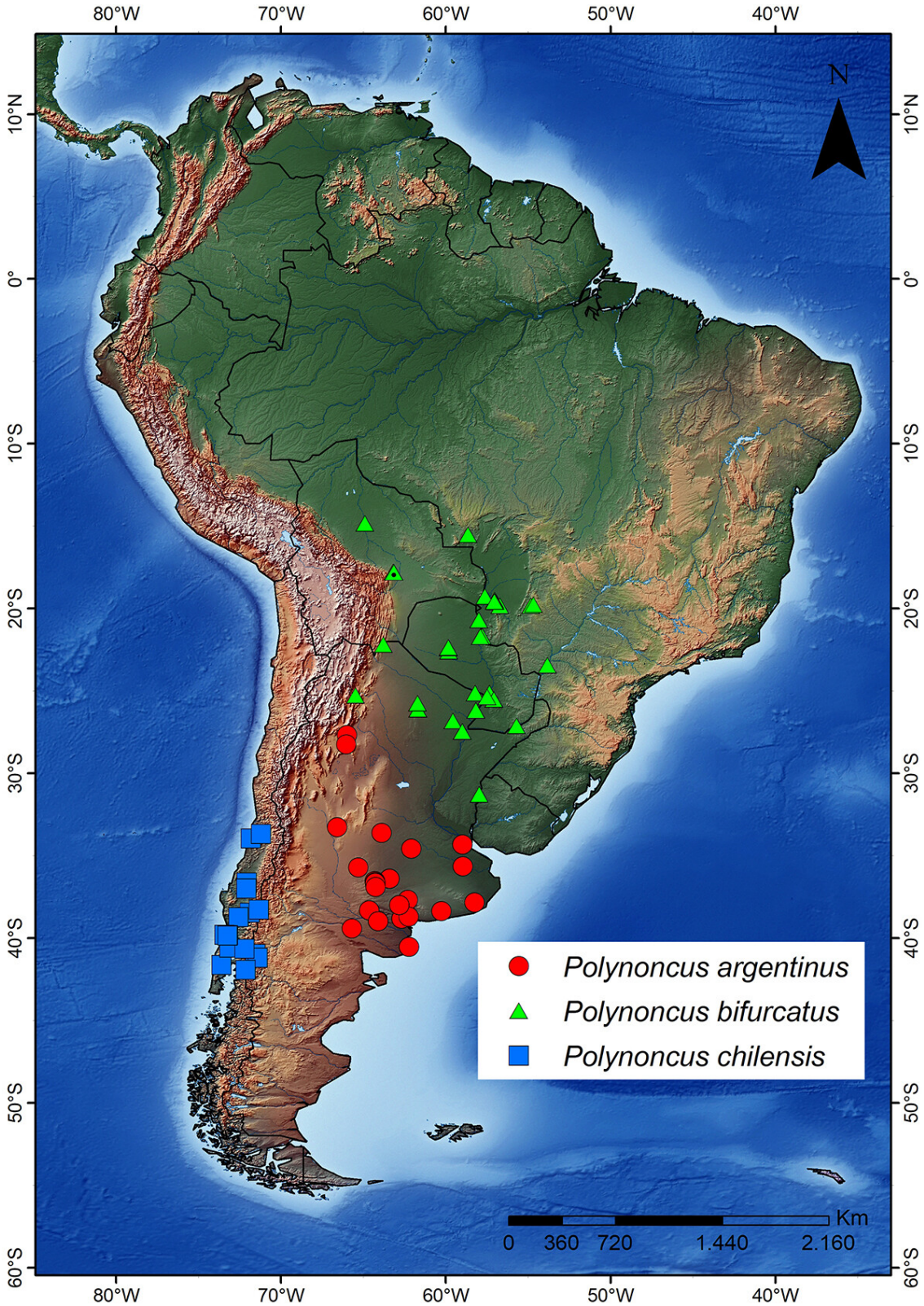


Figure 10. Distribution map of *Polynoncus argentinus* (red circles), *P. bifurcates* (green triangles), and *P. chilensis* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

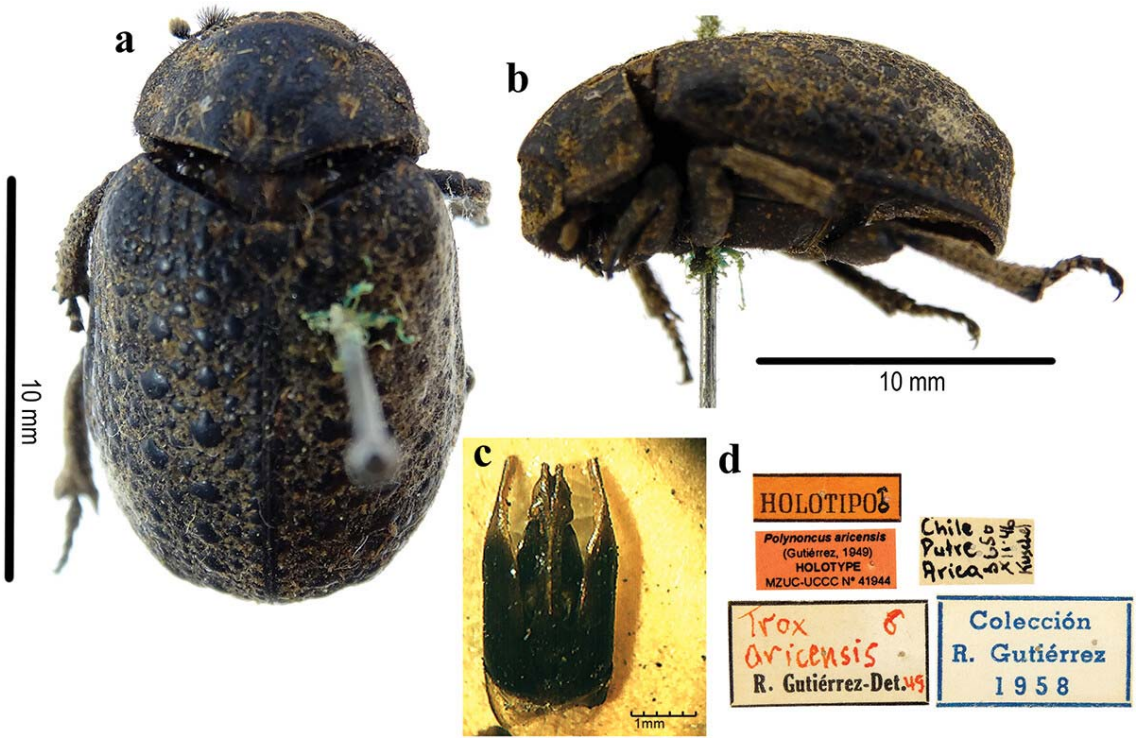


Figure 11. Holotype of *Trox aricensis* Gutiérrez, 1950 (now *Polynoncus aricensis*): **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal view of; **D)** labels. Photos by Marina Fuentes (UCCH).

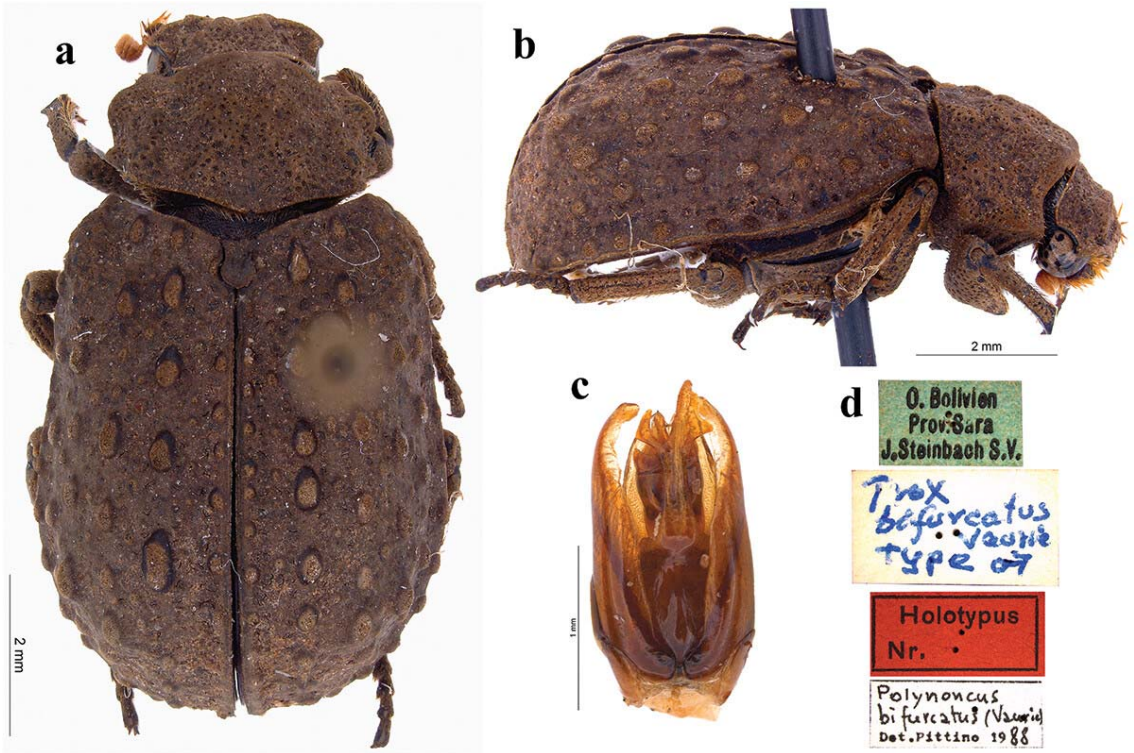


Figure 12. Holotype of *Trox bifurcatus* Vaurie, 1962 (now *Polynoncus bifurcatus*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal view; **D)** labels.

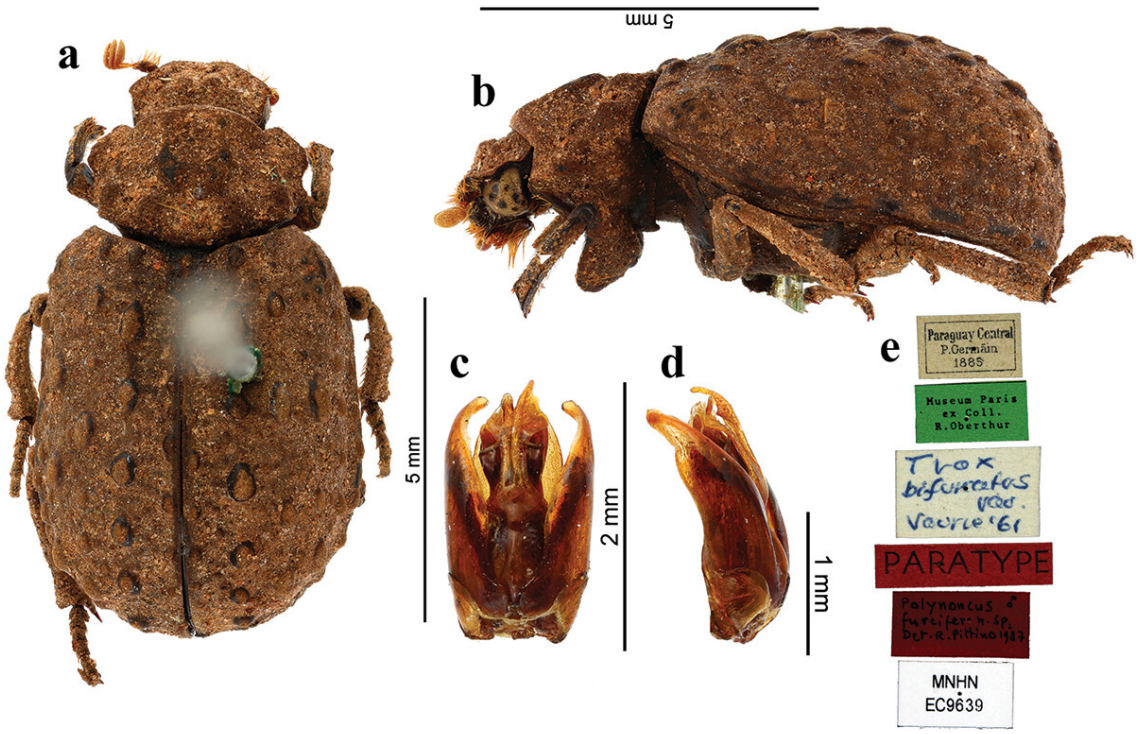


Figure 13. Paratype of *Polynoncus furcifer* Pittino, 1987: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Christophe Rivier (MNHN).

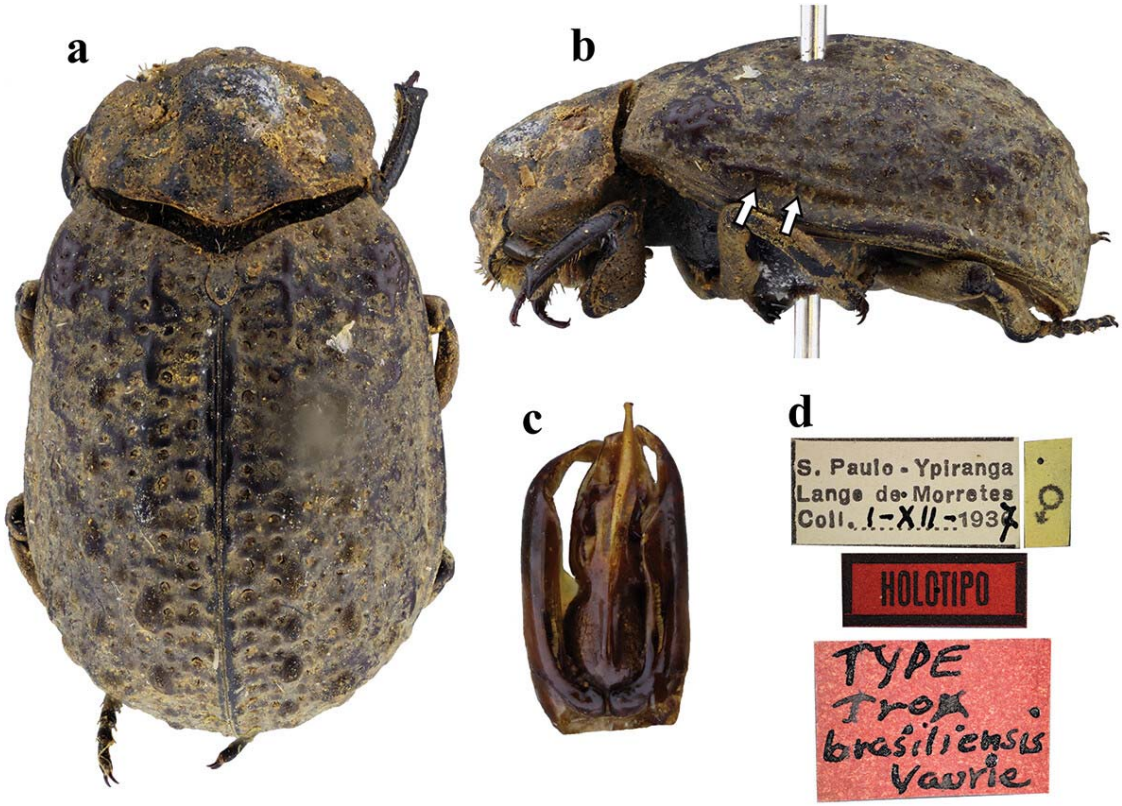


Figure 14. Holotype of *Trox brasiliensis* Vaurie, 1962 (now *Polynoncus brasiliensis*): habitus in **A)** dorsal and **B)** lateral view (white arrows showing the subhumeral edge); male genitalia in **C)** dorsal view; **D)** labels. Photos by Rafael Sousa (MZSP). Length of specimen: 11 mm.

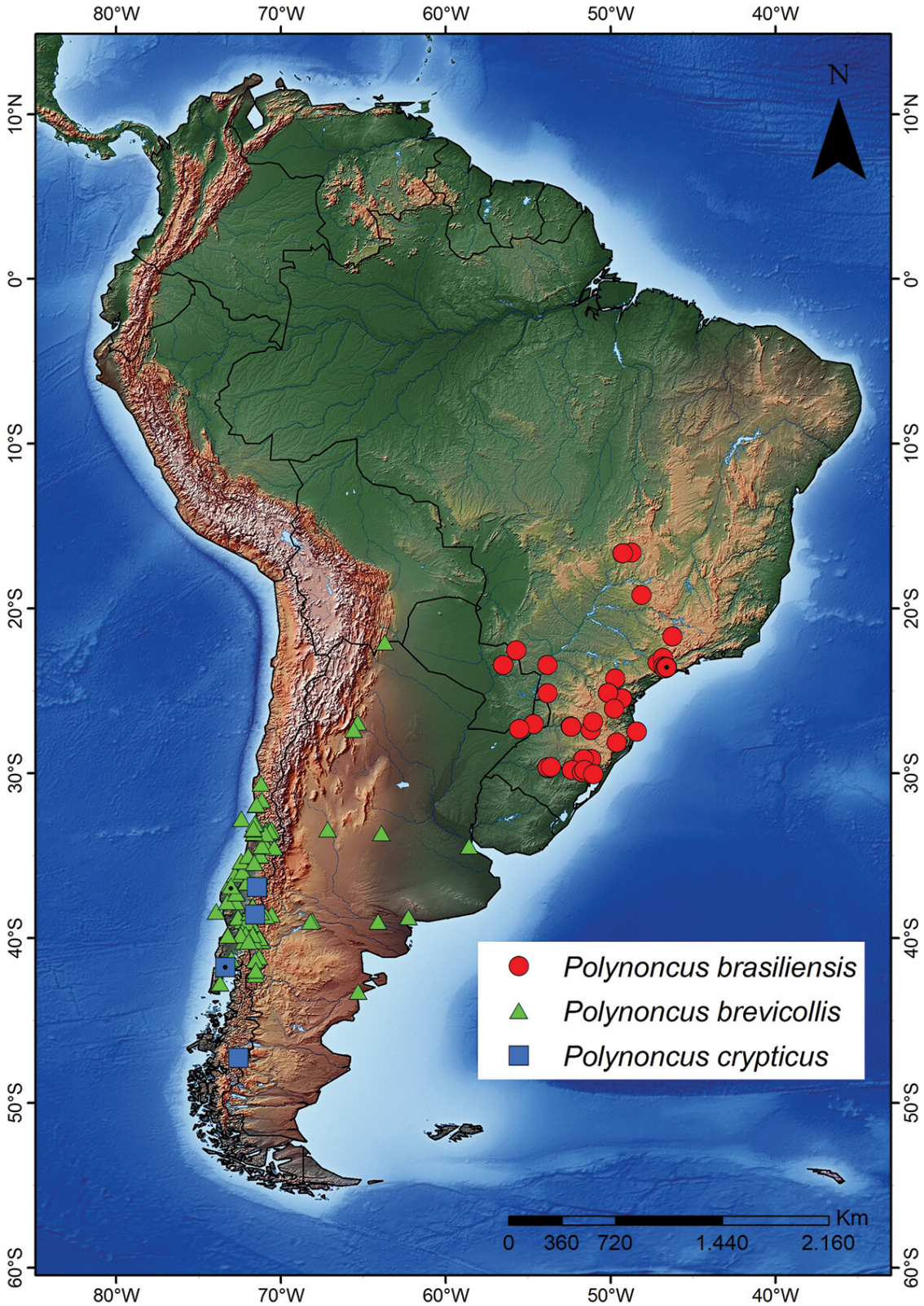


Figure 15. Distribution map of *Polynoncus brasiliensis* (red circles), *P. brevicollis* (green triangles), and *P. crypticus* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

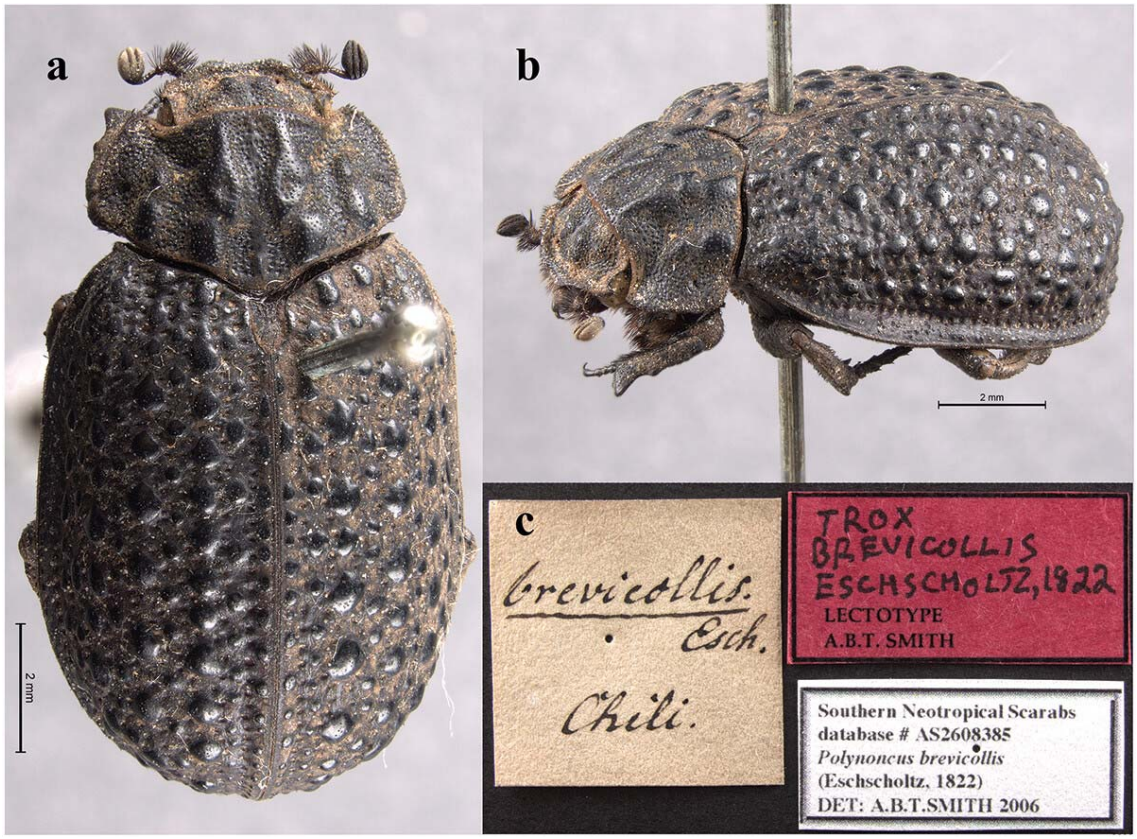


Figure 16. Lectotype of *Trox brevicollis* Eschscholtz, 1822 (now *Polynoncus brevicollis*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Andrew Smith (CMNC).

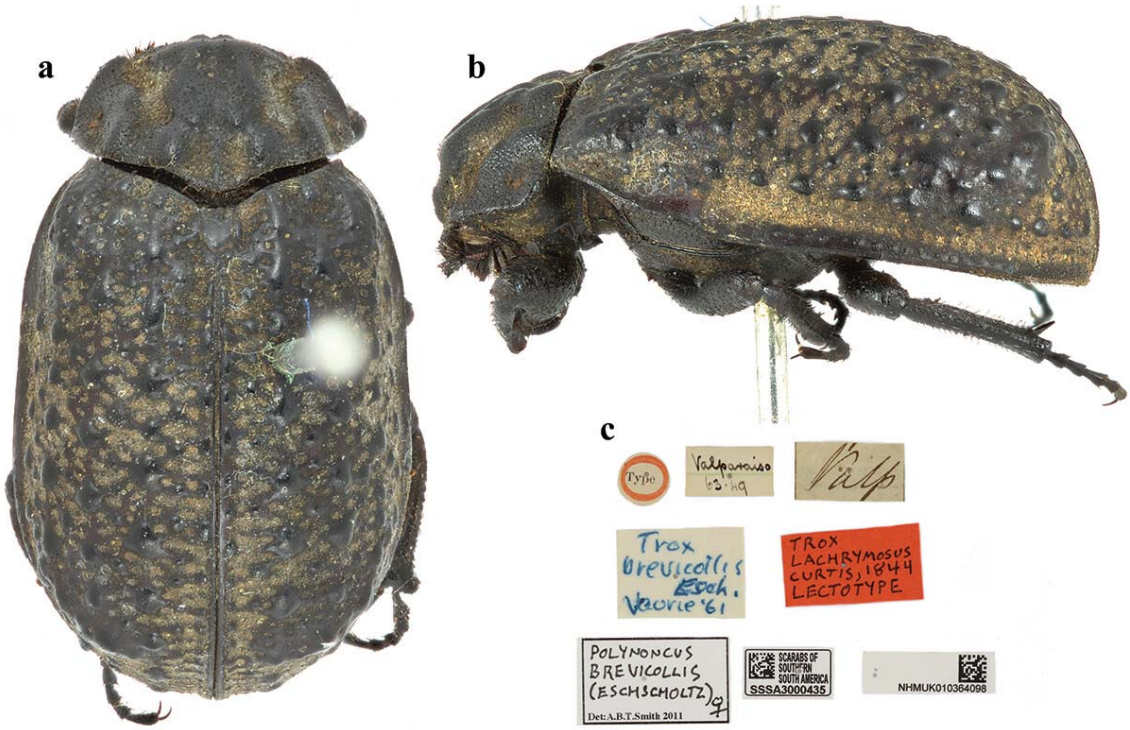


Figure 17. Lectotype of *Trox lachrymosus* Curtis, 1844 (=*Polynoncus brevicollis*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Keita Matsumoto (BMNH). Length of specimen: 10.85–12.70 mm; width: 6.35–8.47 mm.

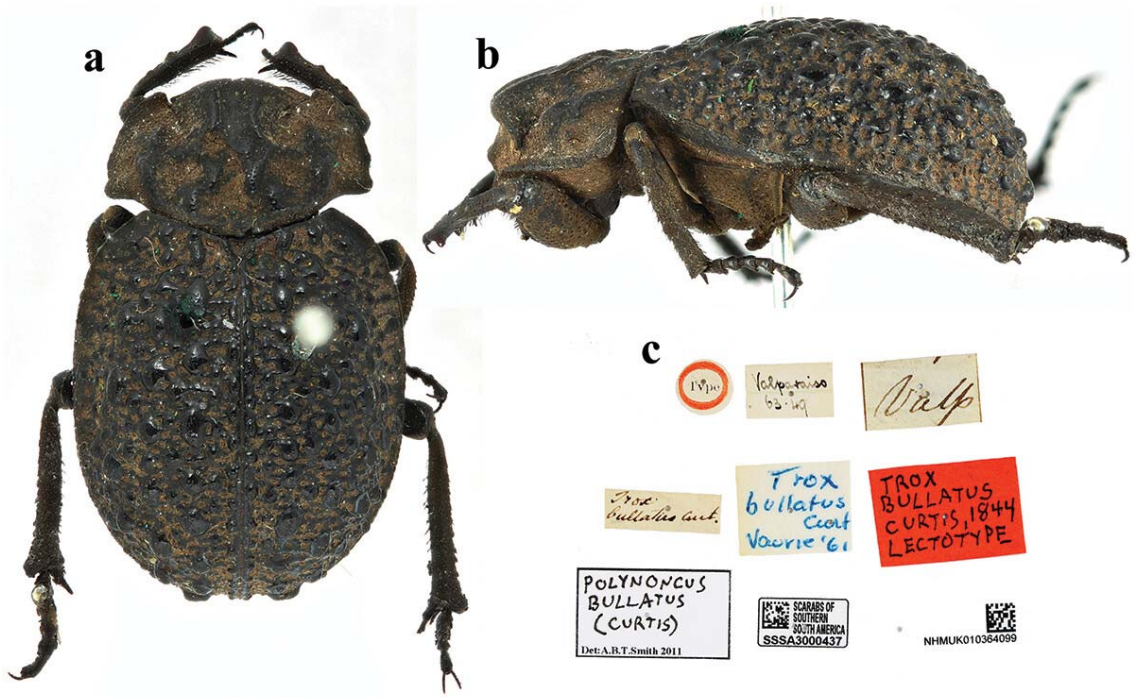


Figure 18. Lectotype of *Trox bullatus* Curtis, 1844 (now *Polynoncus bullatus*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Keita Matsumoto (BMNH). Length of specimen: 15.87 mm.



Figure 19. Distribution map of *Polynoncus bullatus* (red circles) and *P. burmeisteri* (green triangles) in South America.

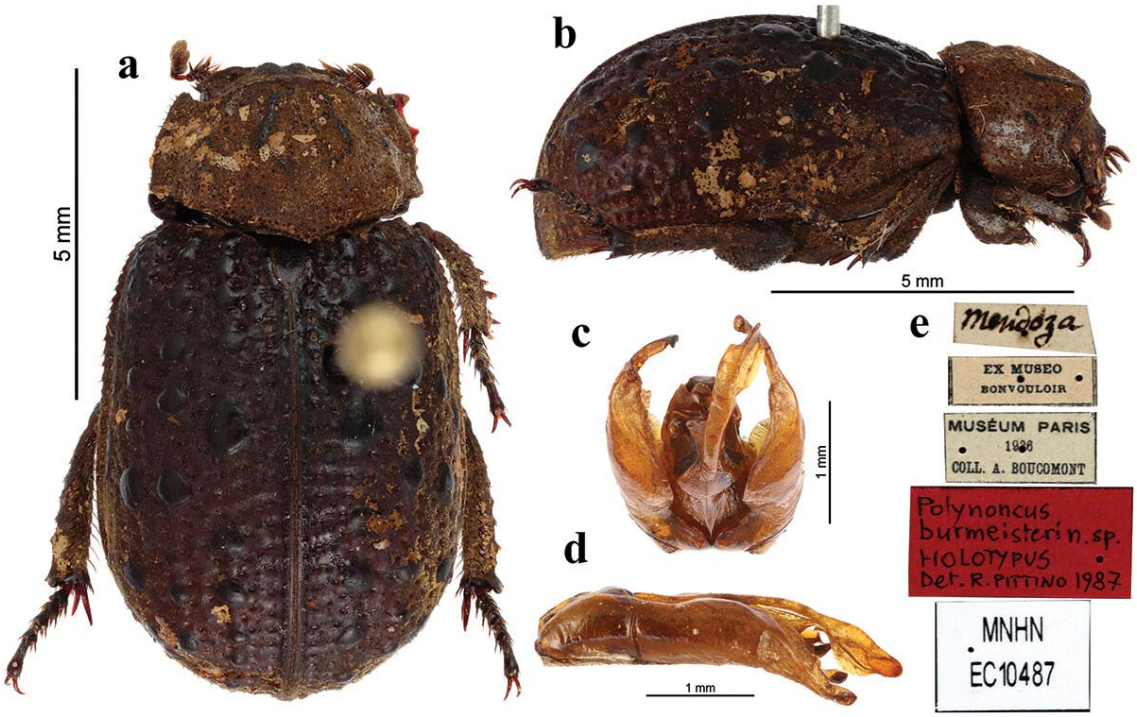


Figure 20. Holotype of *Polynoncus burmeisteri* Pittino, 1987: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Christophe Rivier (MNHN).

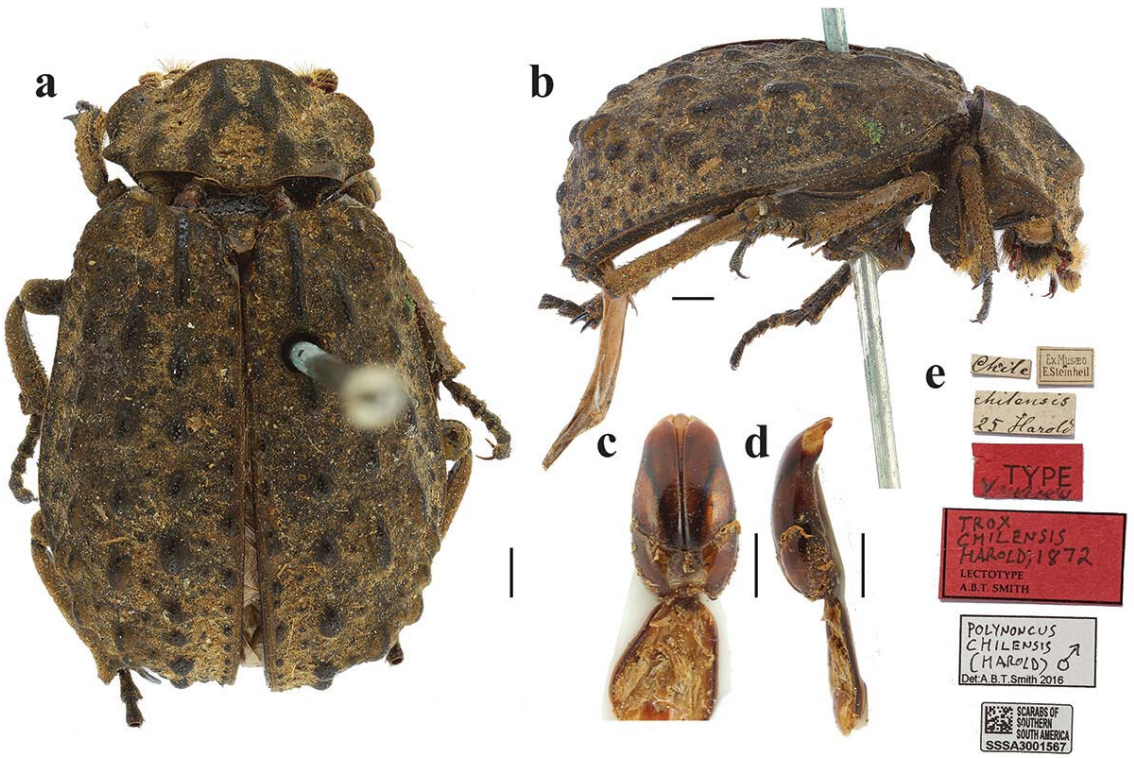


Figure 21. Lectotype of *Trox chilensis* Harold, 1872 (now *Polynoncus chilensis*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Scale bar: 1 mm.

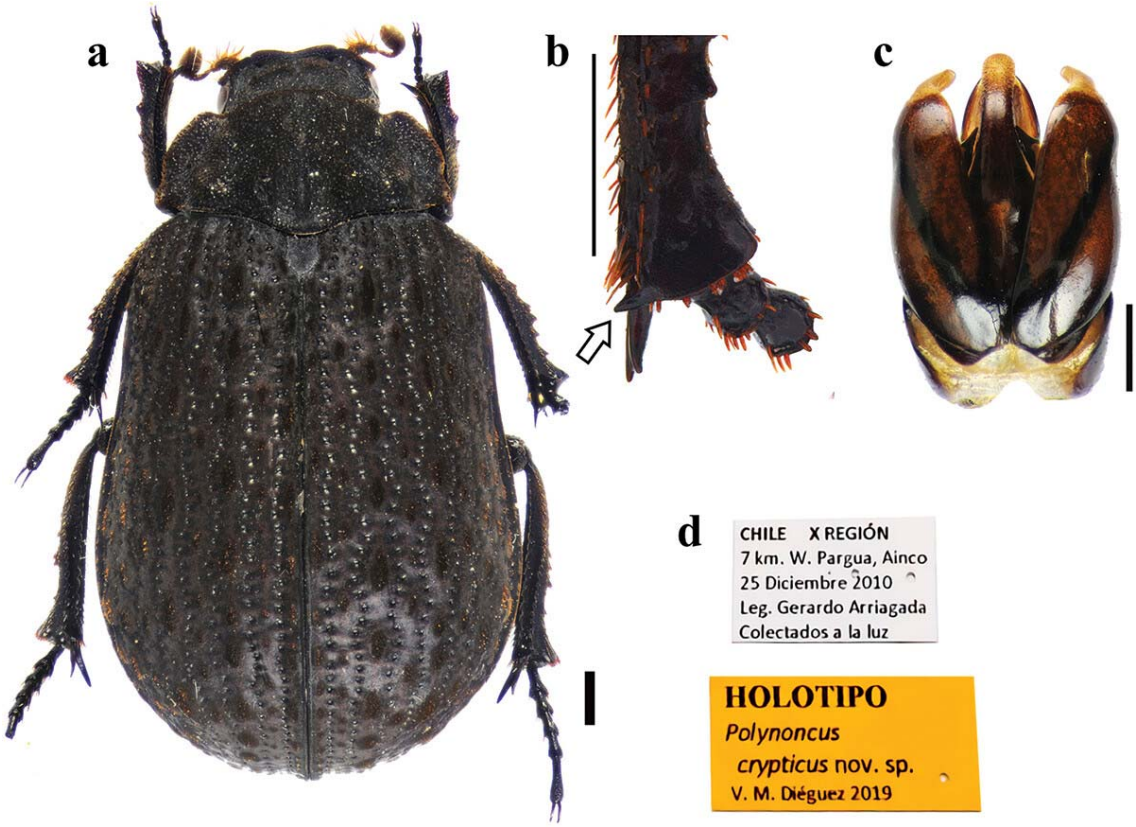


Figure 22. Holotype of *Polynoncus crypticus* Diéguez, 2019: habitus in **A)** dorsal view; **B)** apex of mesotibia of males in ventral view (in a non-type specimen): white arrow showing the tooth in the inner margin; male genitalia in **C)** dorsal view of; **D)** labels. Photos **A**, **C**–**D** by Marcelo Guerrero. Scale bar: 1 mm.

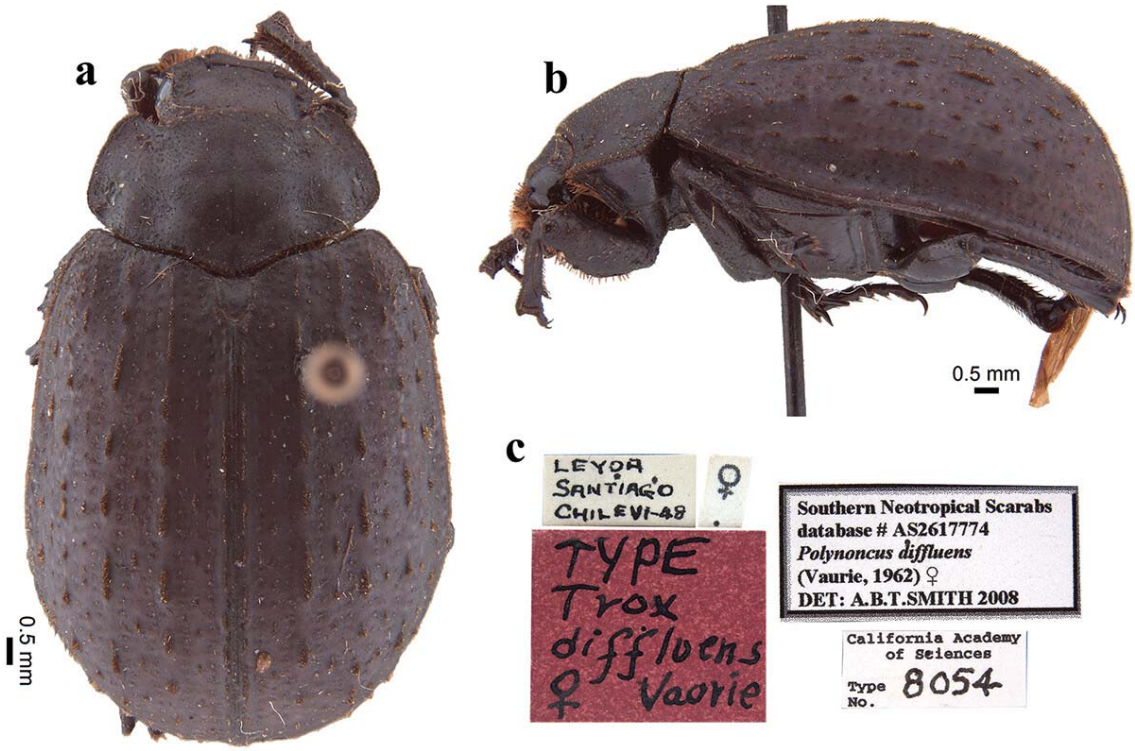


Figure 23. Holotype of *Trox diffluens* Vaurie, 1962 (now *Polynoncus diffluens*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Rachael Diaz-Bastin (CASC).

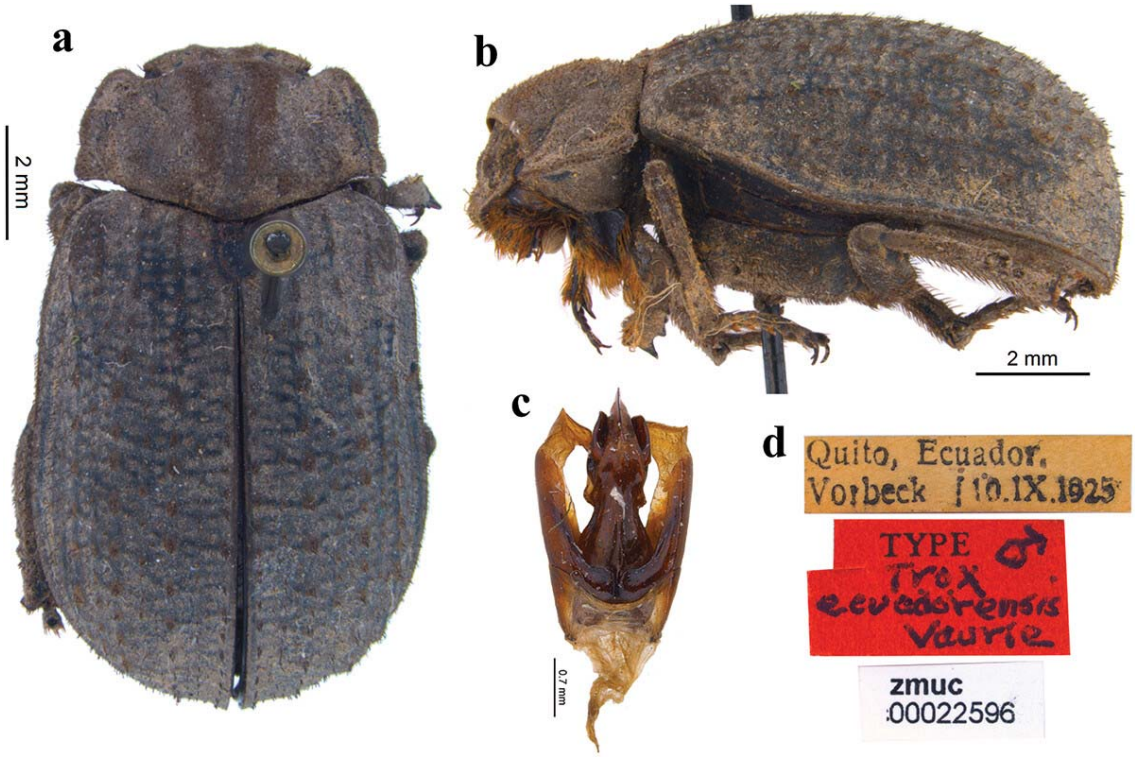


Figure 24. Holotype of *Trox ecuadorensis* Vaurie, 1962 (now *Polynoncus ecuadorensis*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal view; **D)** labels. Photos by Eliana Buenaventura (ZMUC).



Figure 25. Distribution map of *Polynoncus ecuadorensis* (red circles), *P. longitarsis* (green triangles), and *P. pampeanus* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

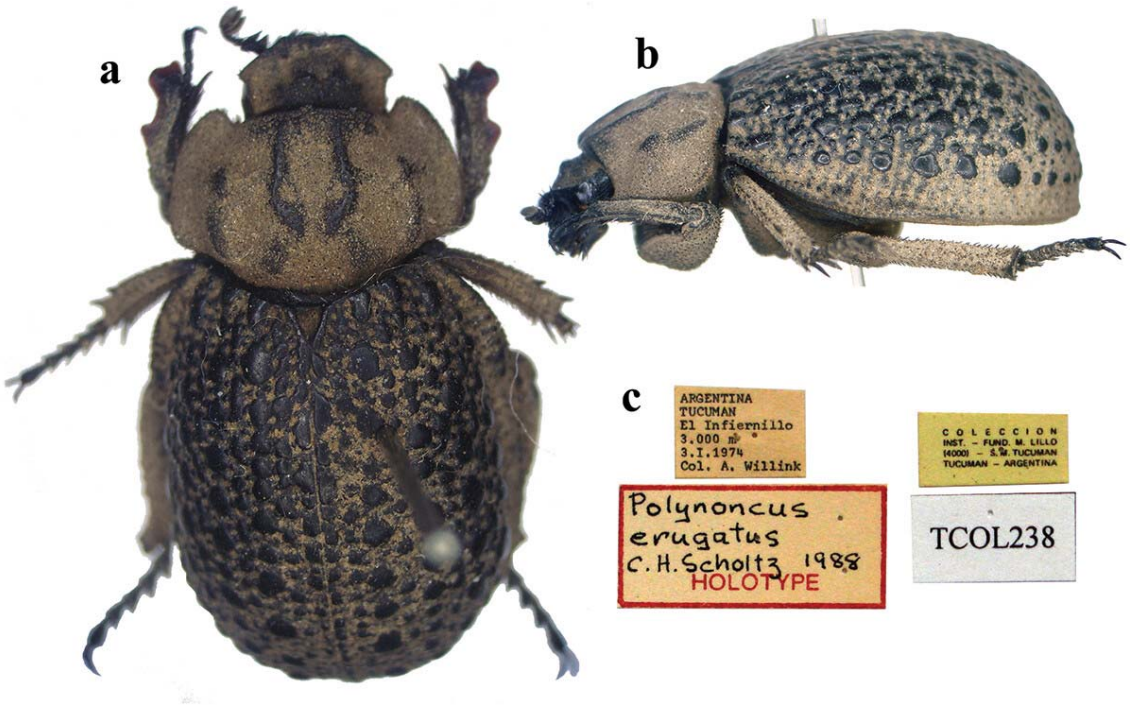


Figure 26. Holotype of *Polynoncus erugatus* Scholtz, 1990: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Emília Perez (IFML). Length of specimen: 15 mm.

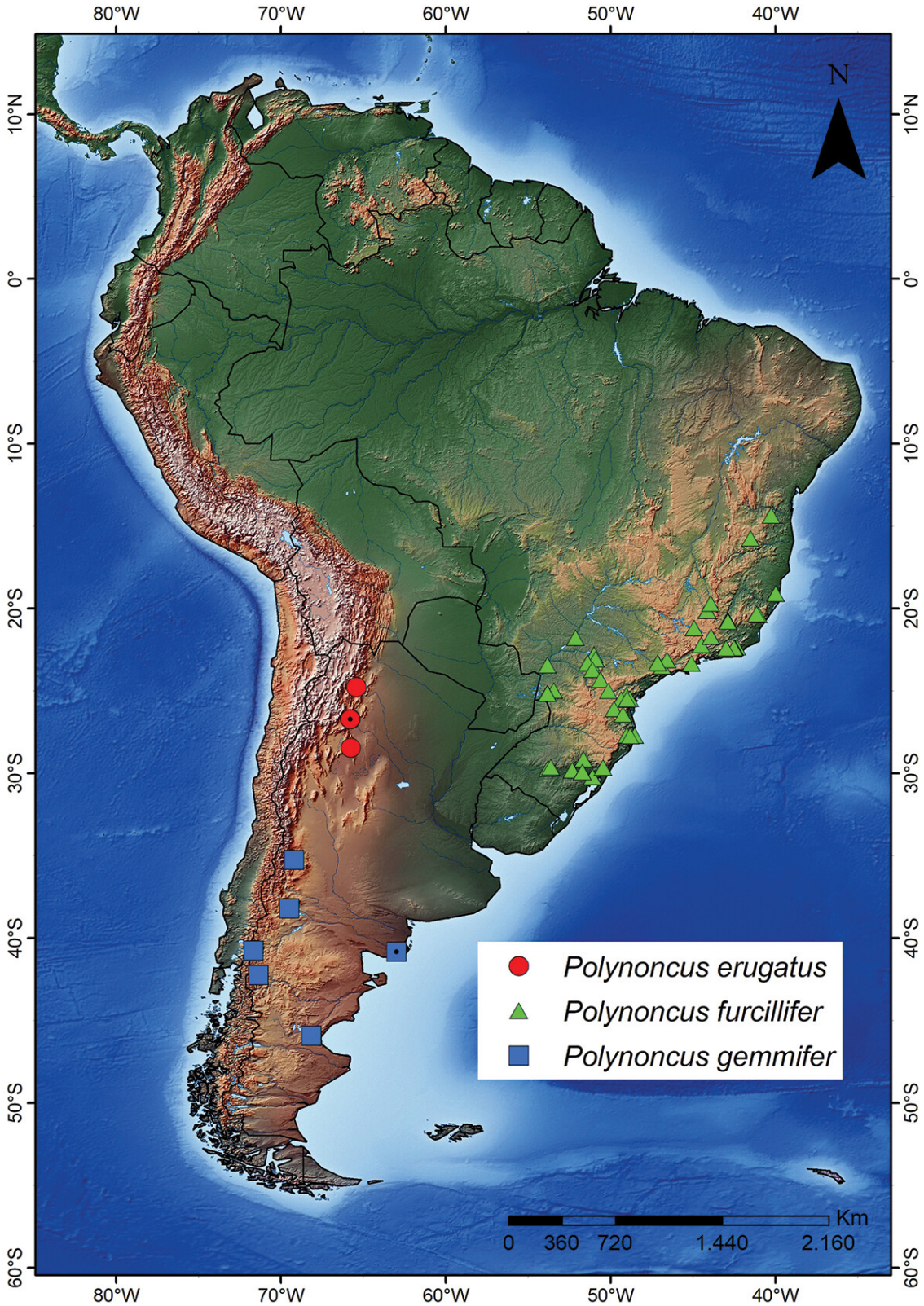


Figure 27. Distribution map of *Polynoncus erugatus* (red circles), *P. furcillifer* (green triangles), and *P. gemmifer* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

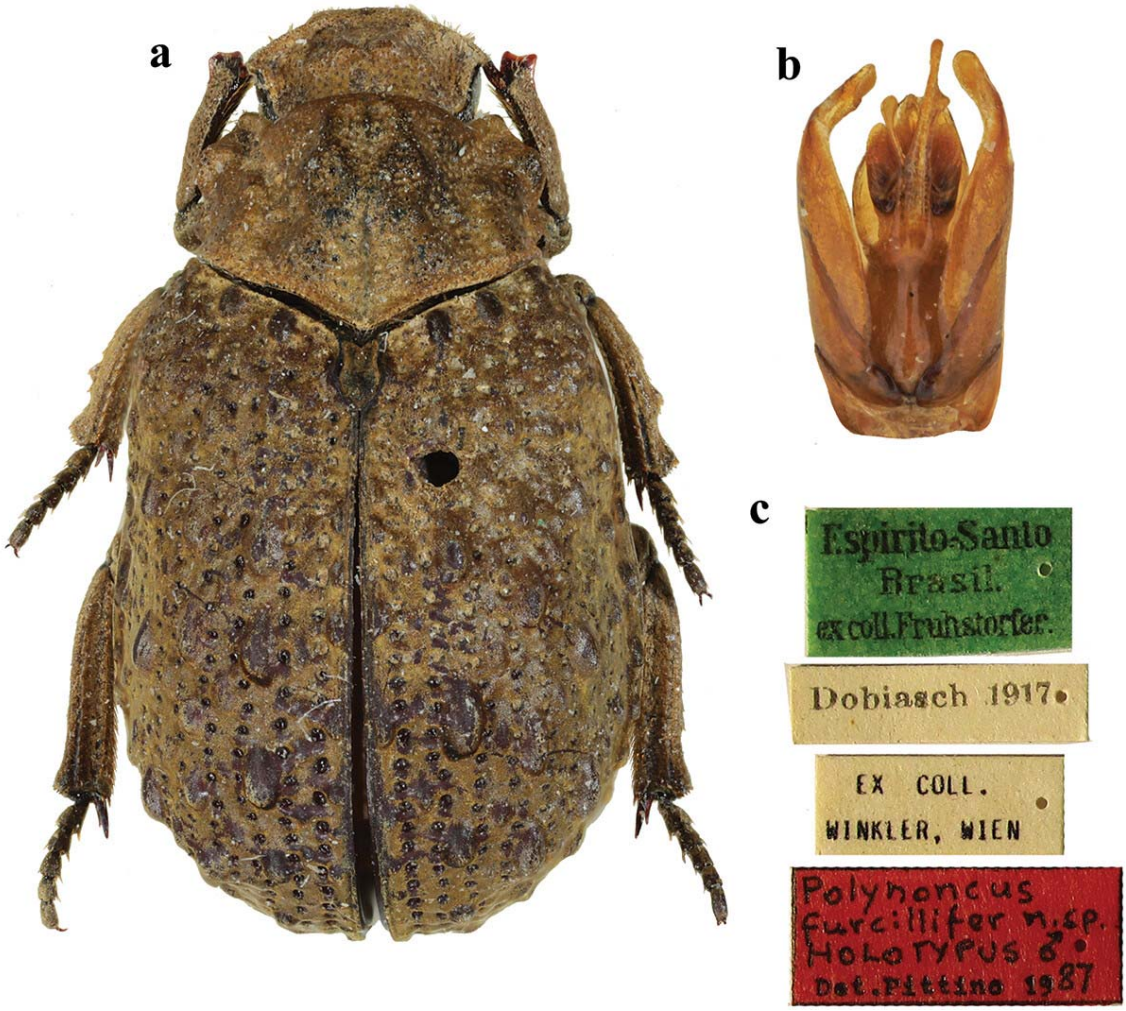


Figure 28. Holotype of *Polynoncus furcillifer* Pittino, 1987: habitus in **A)** dorsal view; male genitalia in **B)** dorsal view; **C)** labels. Photos by Alberto Ballerio. Length of specimen: 10.5 mm.

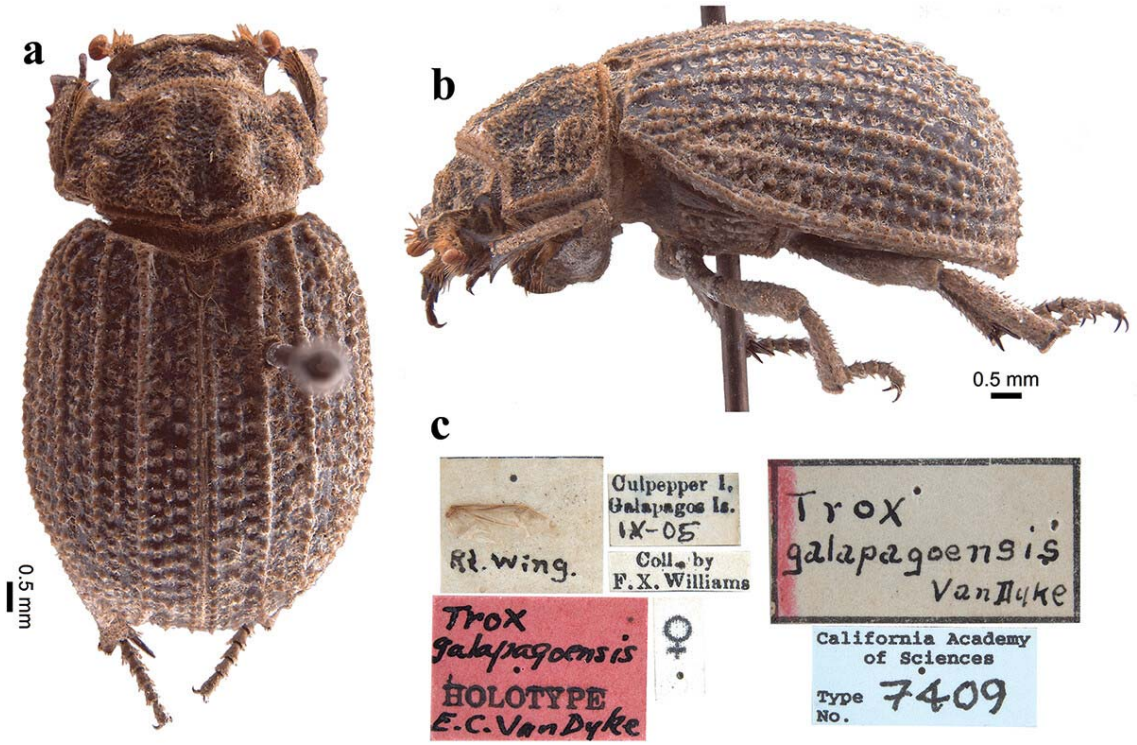


Figure 29. Holotype of *Trox galapagoensis* Van Dyke, 1953 (now *Polynoncus bullatus*): habitus in **A)** dorsal and **B)** lateral view; **C)** right wing and labels. Photos by Rachael Diaz-Bastin (CASC).



Figure 30. Distribution map of *Polynoncus galapagoensis* (red circle) and *P. seymourensis* (green triangles) in Galapagos Islands, South America. The records with a black dot in the centre refers to the type locality of the respective species.

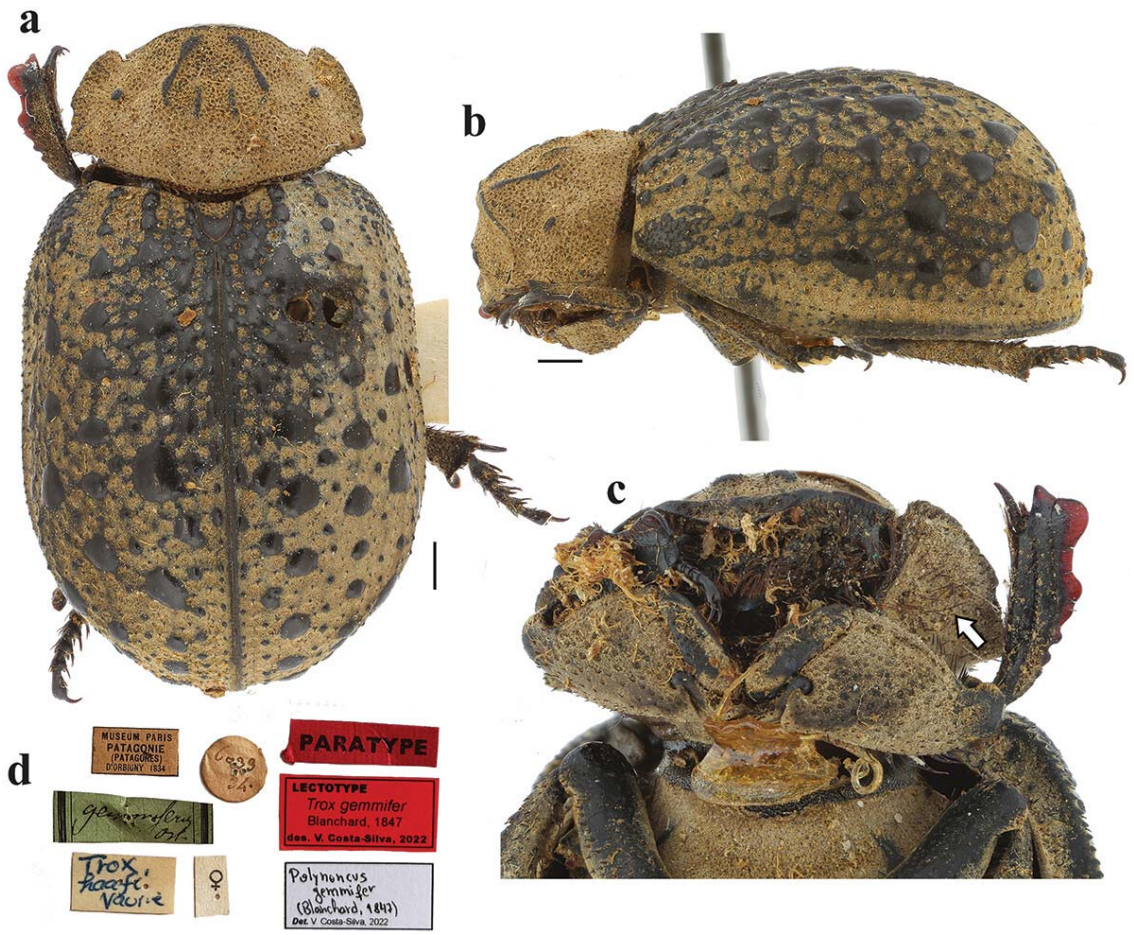


Figure 31. Lectotype of *Trox gemmifer* Blanchard, 1847 (now *Polynoncus gemmifer*) here designated: habitus in **A)** dorsal, **B)** lateral and **C)** ventral view (white arrow showing the setose surface of hypomeron); **D)** labels. Scale bar: 1 mm.

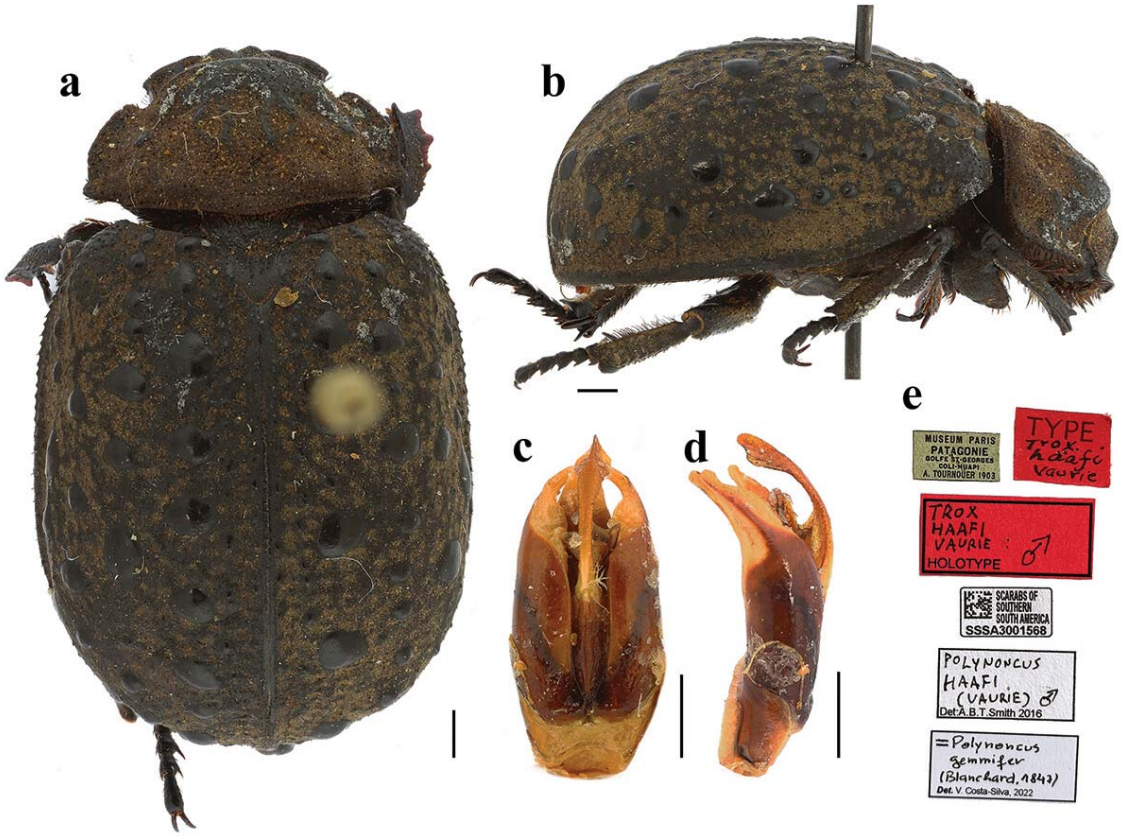


Figure 32. Holotype of *Trox haafi* Vaurie, 1962 (=*Polynoncus gemmifer*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Scale bar: 1 mm.

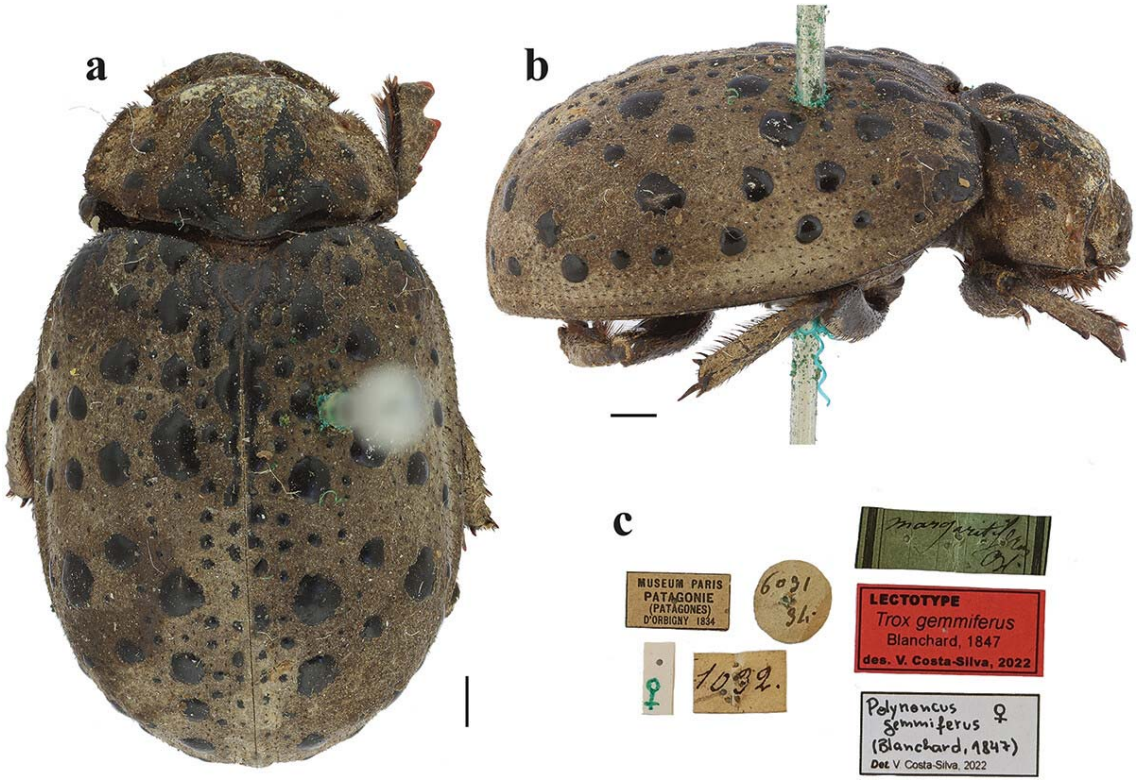


Figure 33. Lectotype of *Trox gemmiferus* Blanchard, 1847 (now *Polynoncus gemmiferus*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.

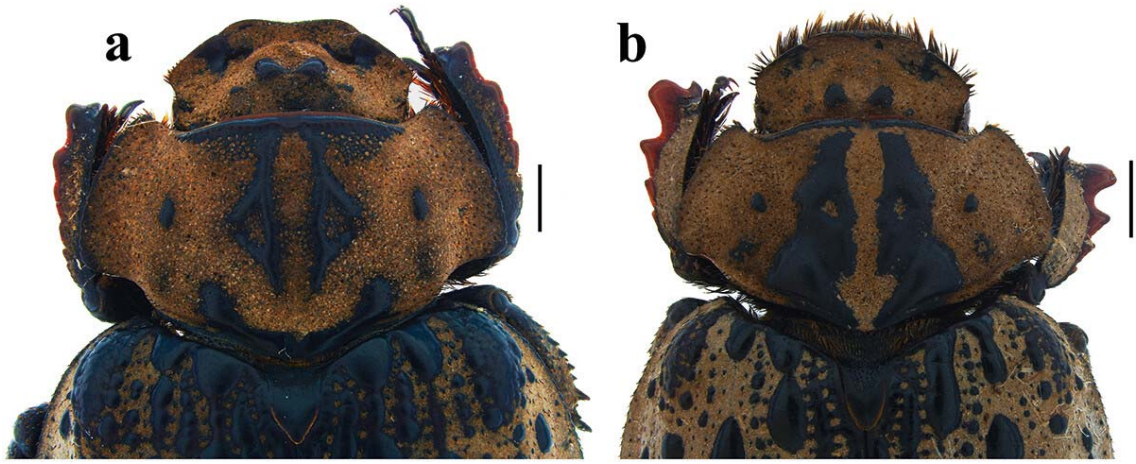


Figure 34. Sexual dimorphism in *Polynoncus gemmiferus* (Blanchard, 1847): **A)** male, pronotal ridges thin and distinctly separated of the basal tubercles; and **B)** female, pronotal ridges broader and connected with the basal tubercles. Scale bar 1 mm.

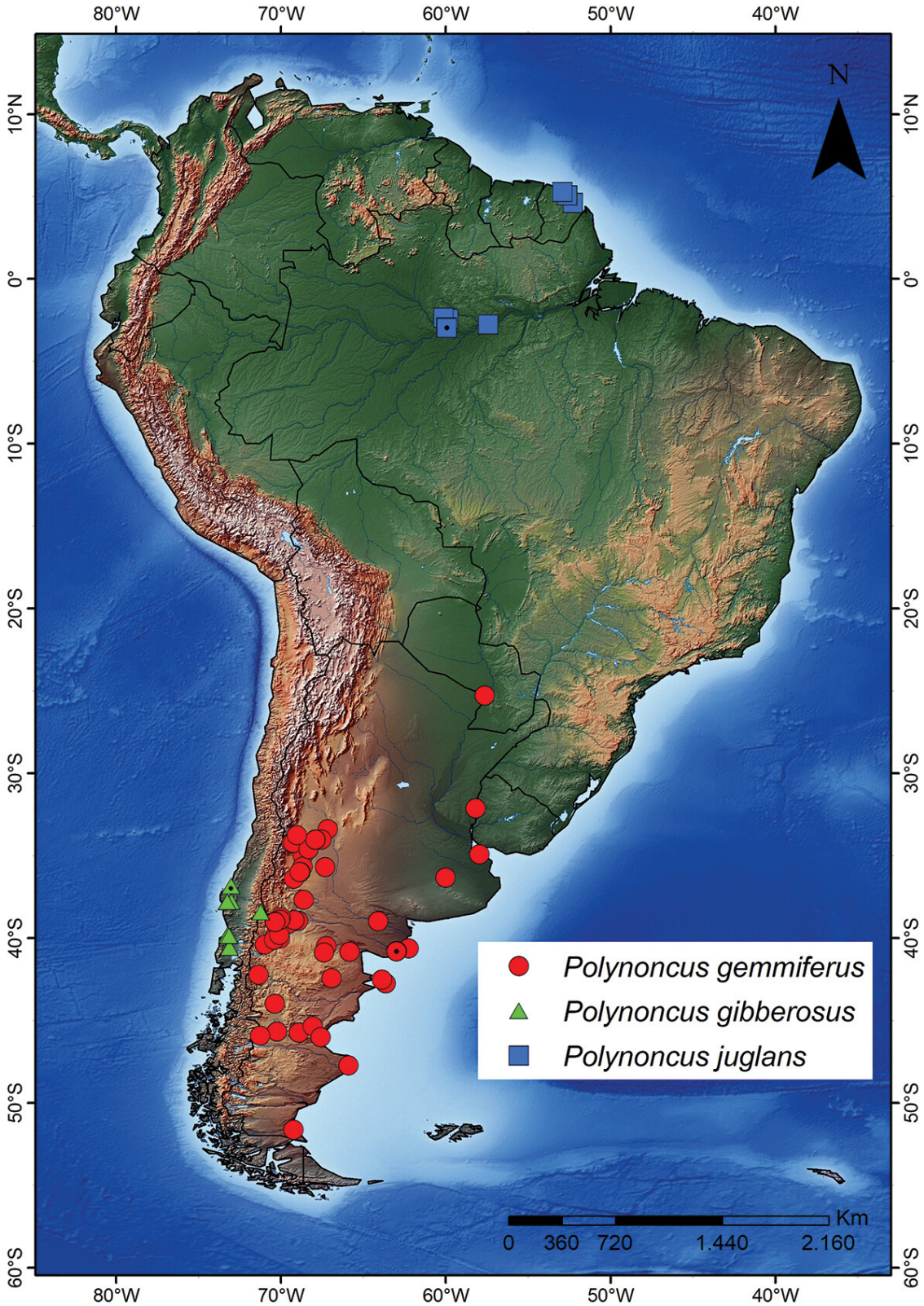


Figure 35. Distribution map of *Polynoncus gemmiferus* (red circles), *P. gibberosus* (green triangles), and *P. juglans* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

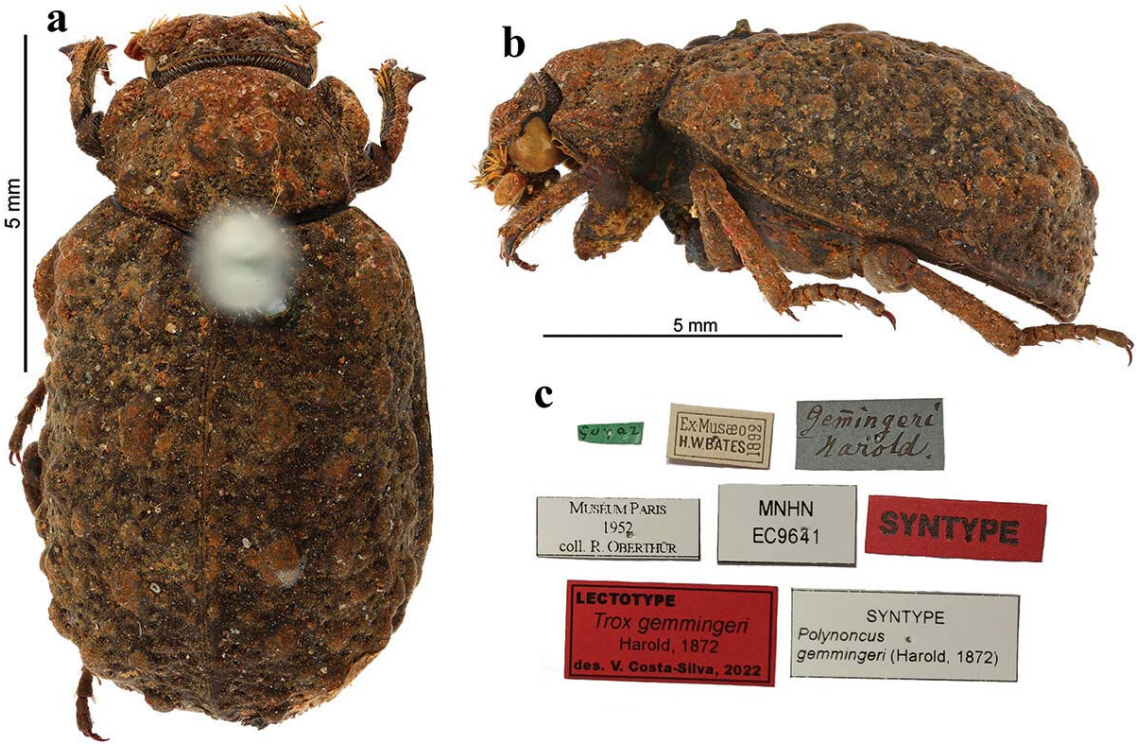


Figure 36. Lectotype of *Trox gemmingeri* Harold, 1872 (now *Polynoncus gemmingeri*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Antoine Mantilleri (MNHN).



Figure 37. Distribution map of *Polynoncus gemmingeri* (red circles), *P. gordoni* (green triangles), and *P. hemisphaericus* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

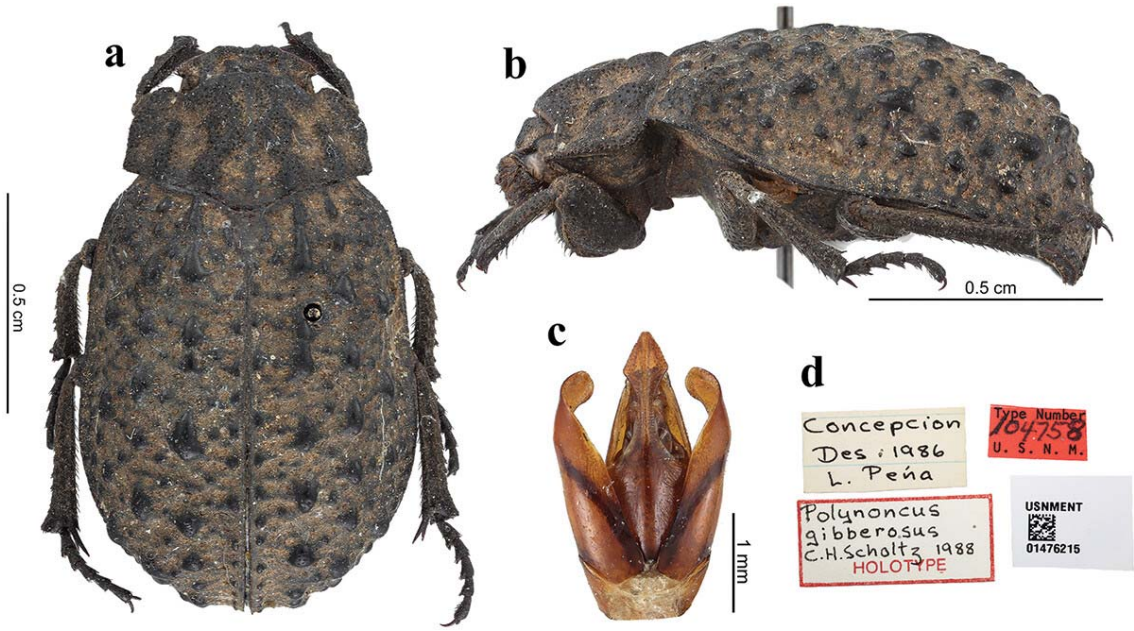


Figure 38. Holotype of *Polynoncus gibberosus* Scholtz, 1990: habitus in **A)** dorsal and **B)** lateral view; **C)** dorsal view of male genitalia; **D)** labels. Photos by Karolyn Darrow (USNM).

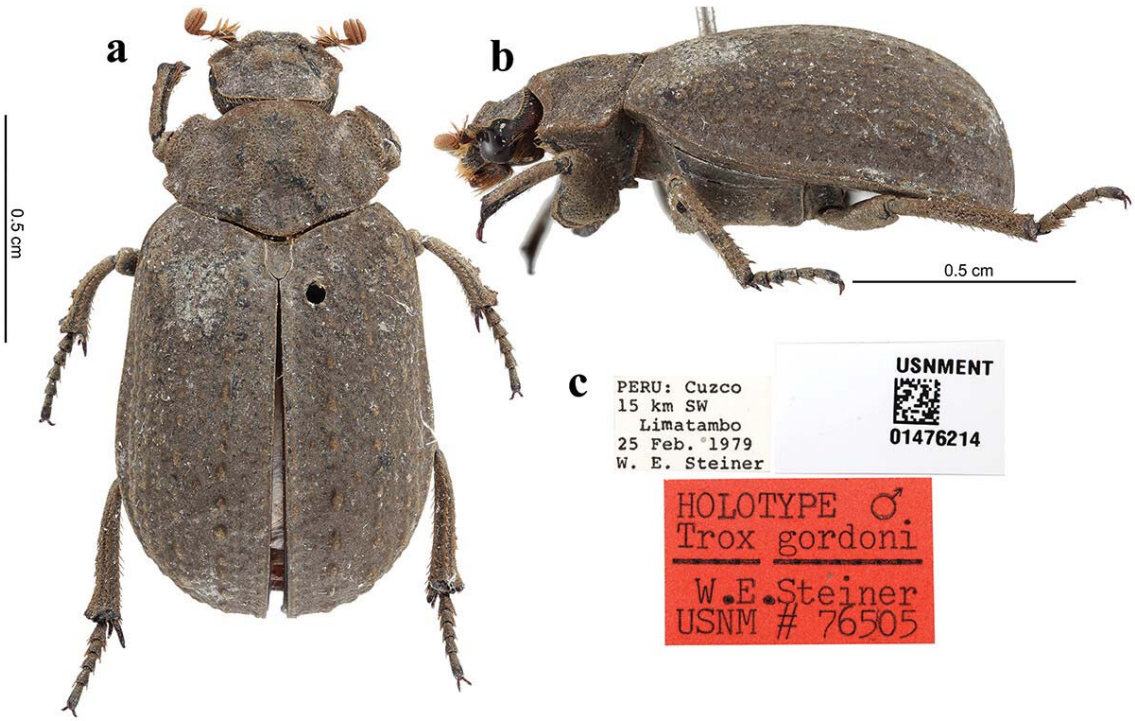


Figure 39. Holotype of *Trox gordoni* Steiner, 1981 (now *Polynoncus gordoni*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Karolyn Darrow (USNM).

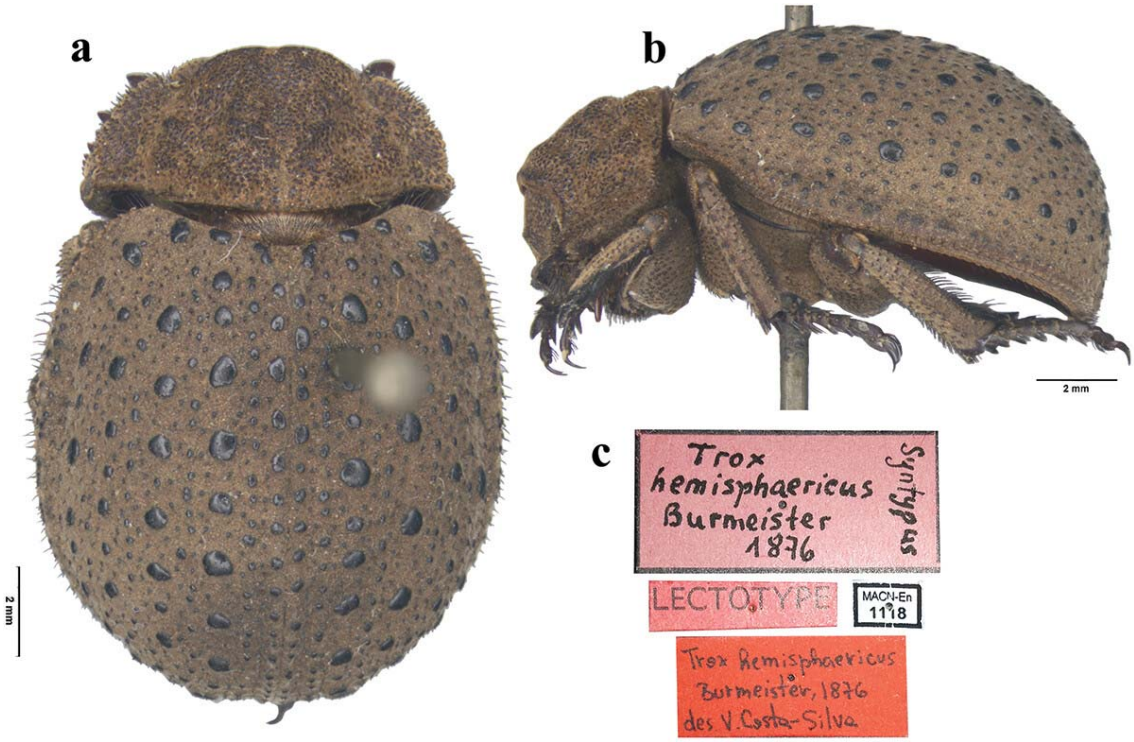


Figure 40. Lectotype of *Trox hemisphaericus* Burmeister, 1876 (now *Polynoncus hemisphaericus*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Luis Compagnucci (MACN).

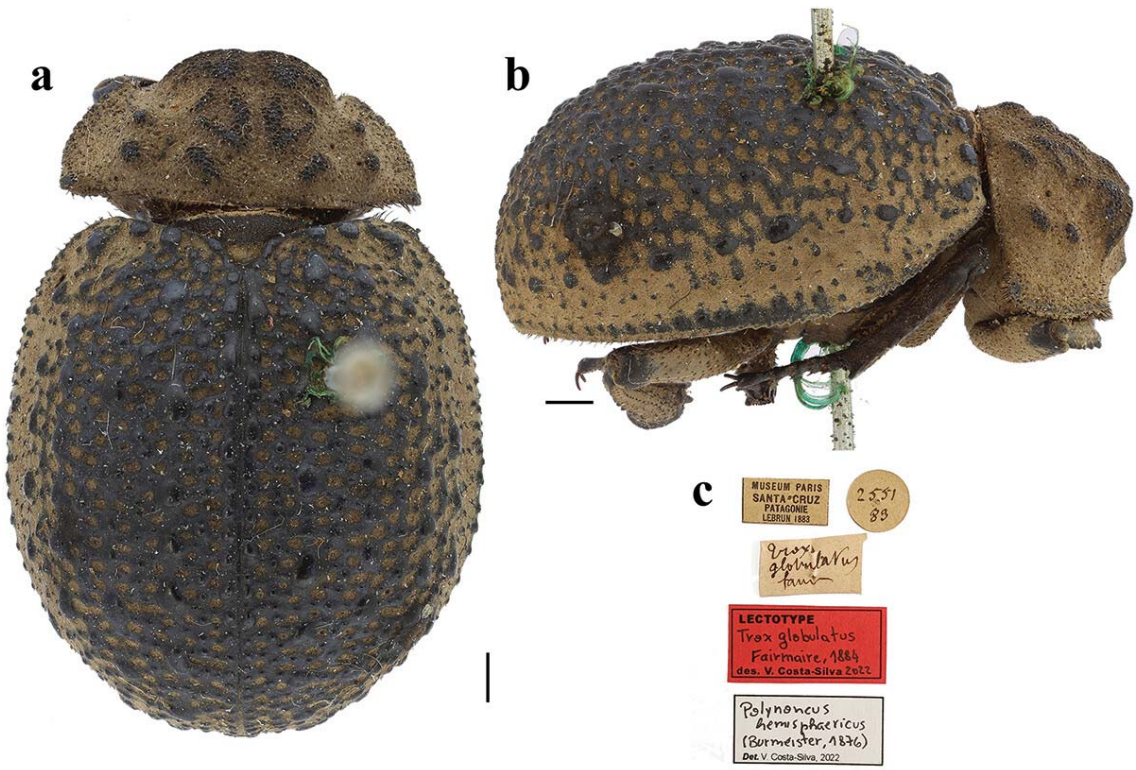


Figure 41. Lectotype of *Trox globulatus* Fairmaire, 1884 (=*Polynoncus hemisphaericus*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.

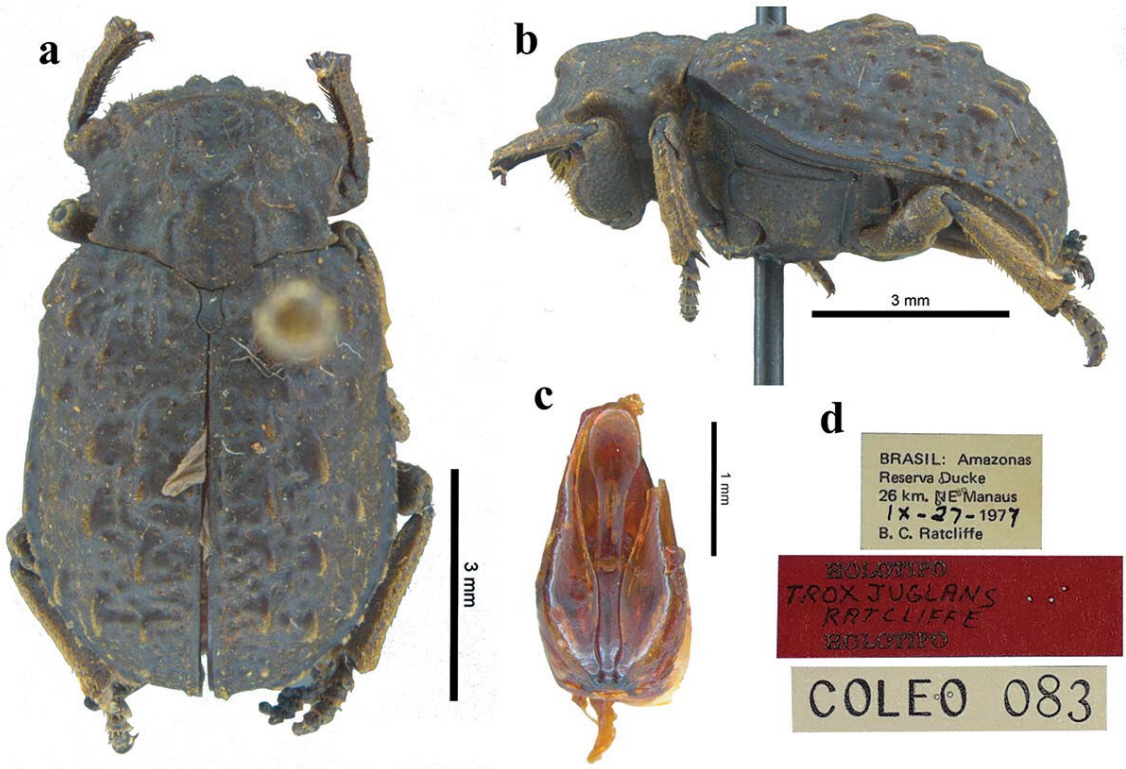


Figure 42. Holotype of *Trox juglans* Ratcliffe, 1978 (now *Polynoncus juglans*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal view; **D)** labels. Photos by Rafael Sobral (INPA).

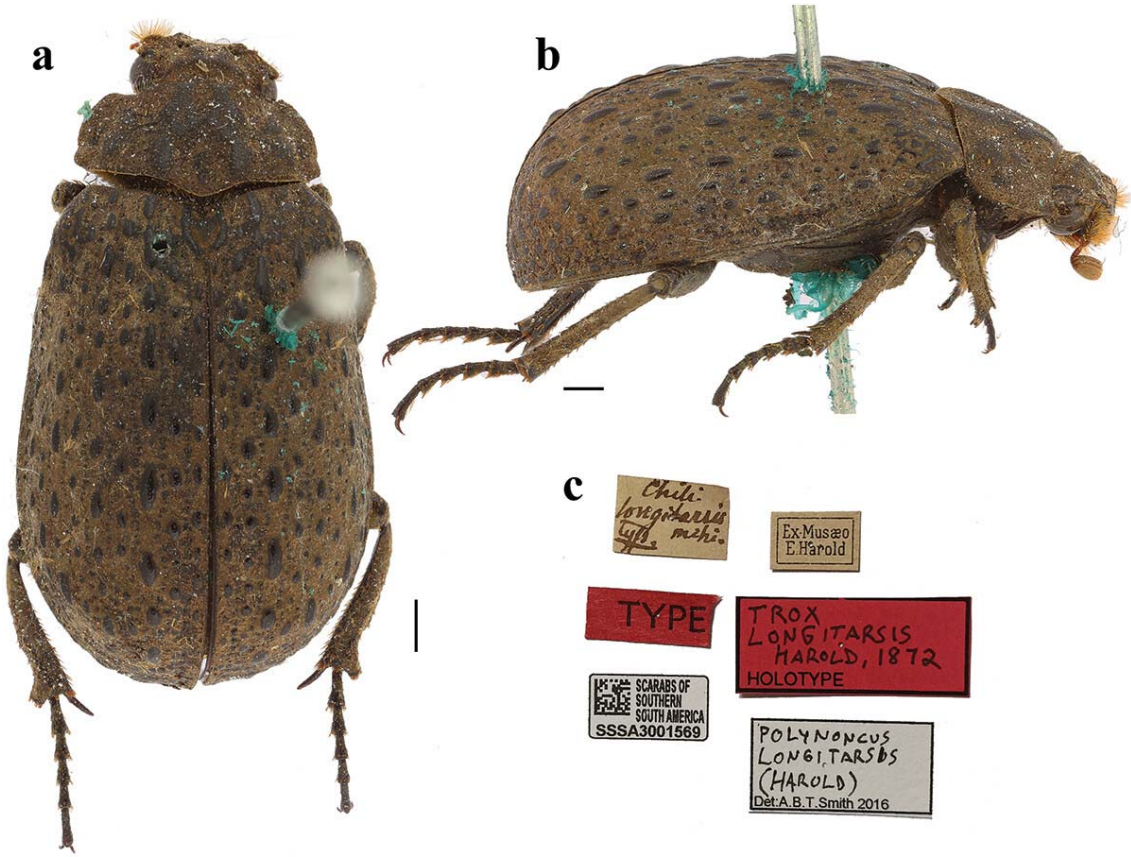


Figure 43. Lectotype of *Trox longitarsis* Harold, 1872 (now *Polynoncus longitarsis*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.

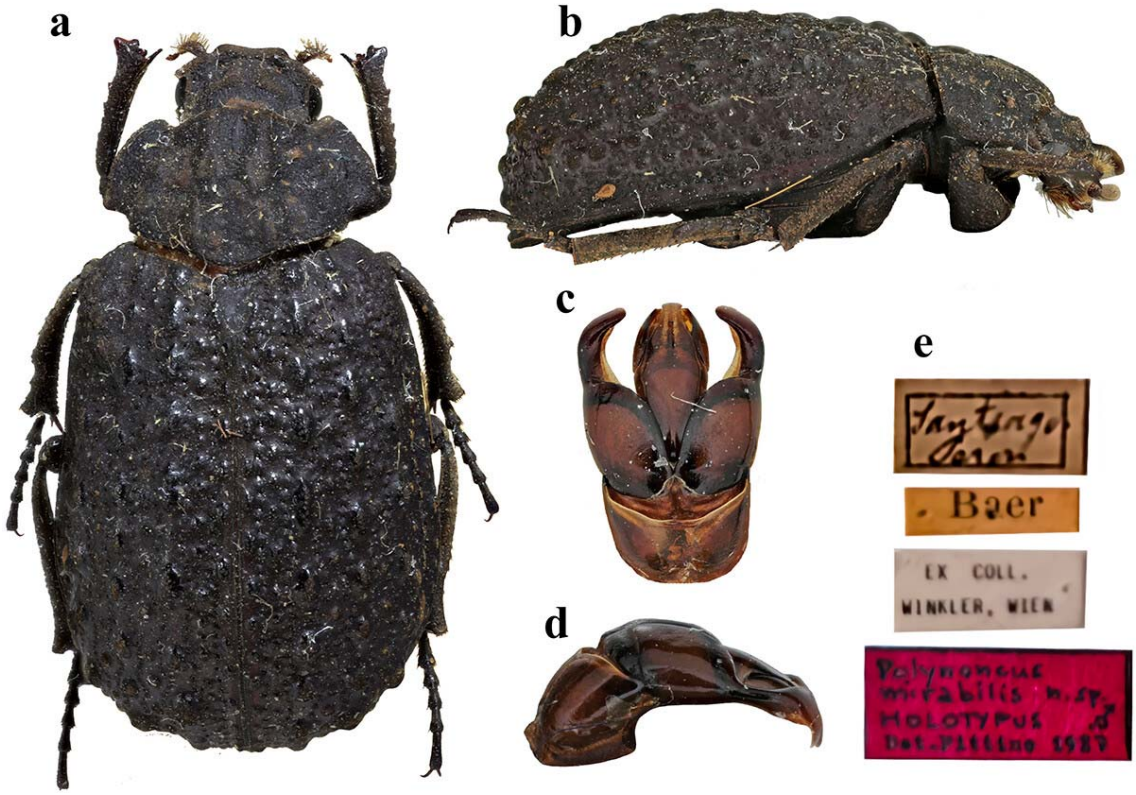


Figure 44. Holotype of *Polynoncus mirabilis* Pittino, 1987: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Alberto Ballerio. Length of specimen: 16.3 mm.

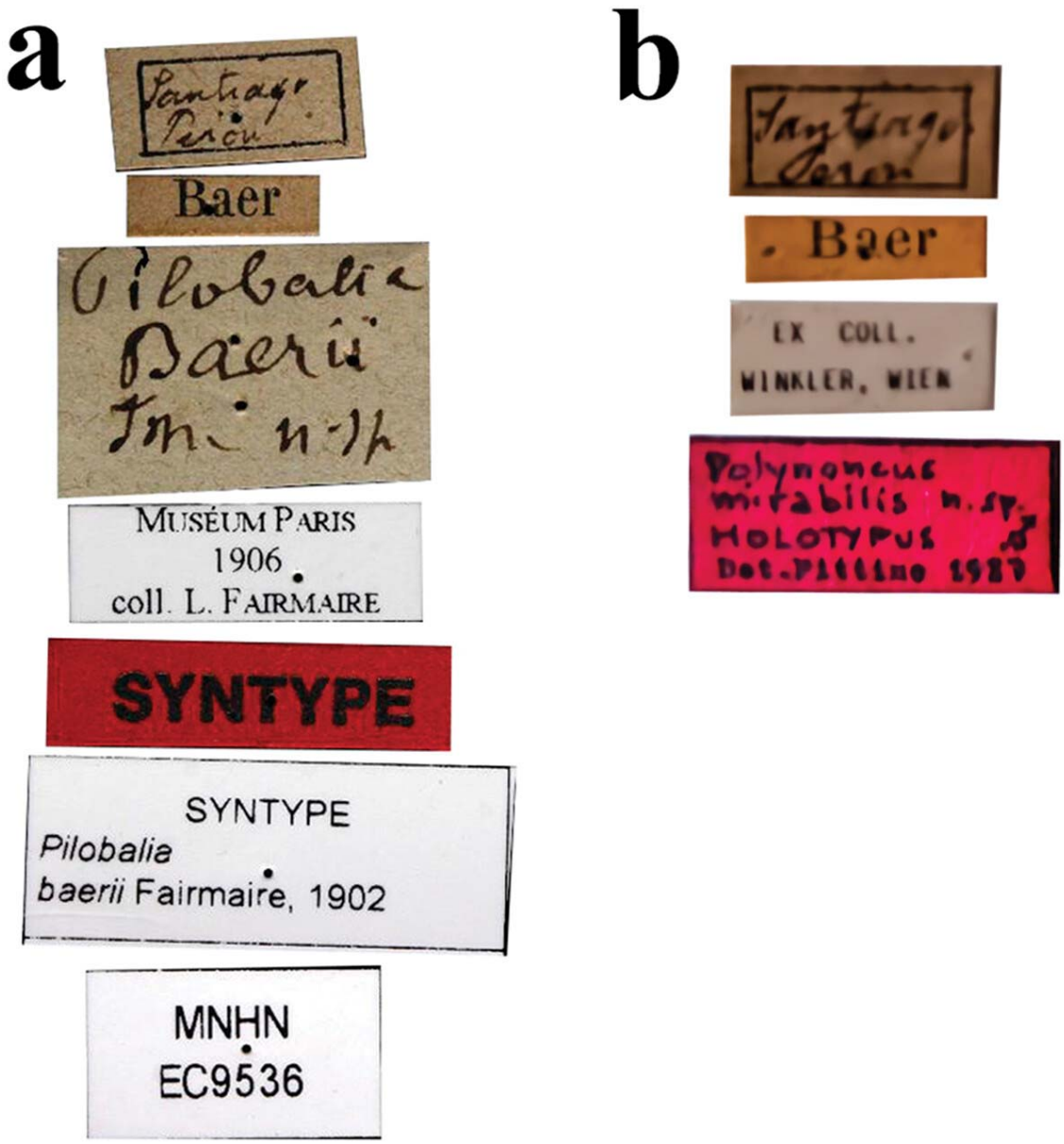


Figure 45. Type labels of **A)** *Pilobalia baerii* Fairmaire, 1902 (Tenebrionidae) and **B)** *Polynoncus mirabilis* Pittino 1987, both species collected by Gustave Adolphe Baer between 1896 and 1906. Copyright of photos to MNHN (available in https://science.mnhn.fr/institution/mnhn/collection/ec/item/ec9536?listIndex=1&listCount=7) and Riccardo Pittino, respectively.

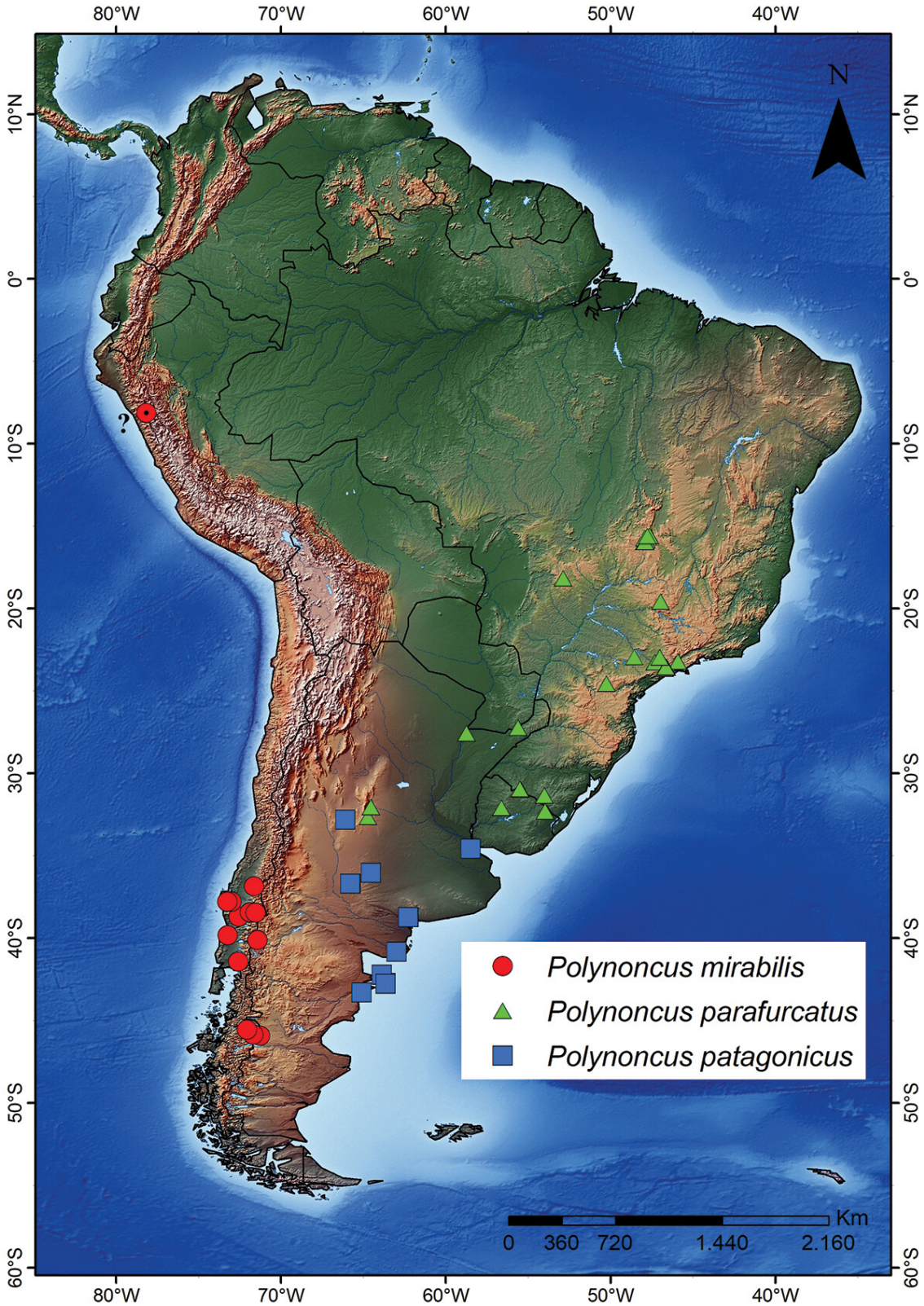


Figure 46. Distribution map of *Polynoncus mirabilis* (red circles), *P. parafurcatus* (green triangles), and *P. patagonicus* (blue squares). The records with a black dot in the centre refers to the type locality of the respective species. ? = dubious record.

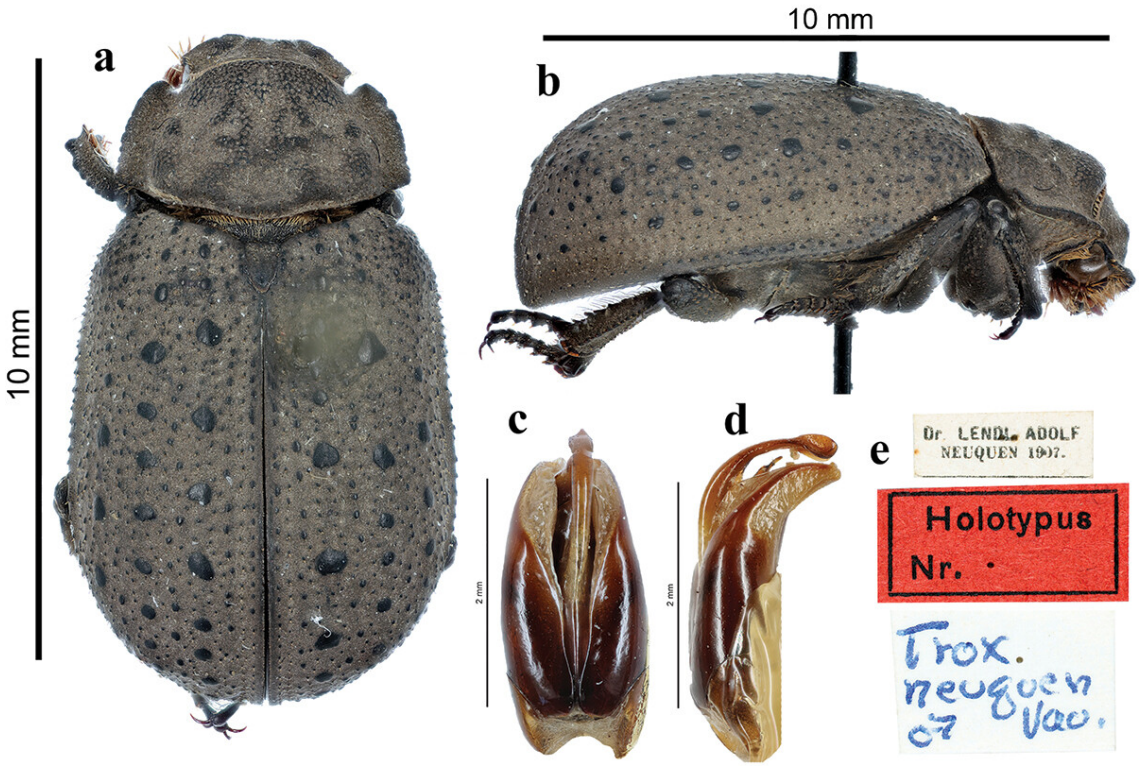


Figure 47. Holotype of *Trox neuquen* Vaurie, 1962 (now *Polynoncus neuquen*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Bernd Jäger (MFNB).

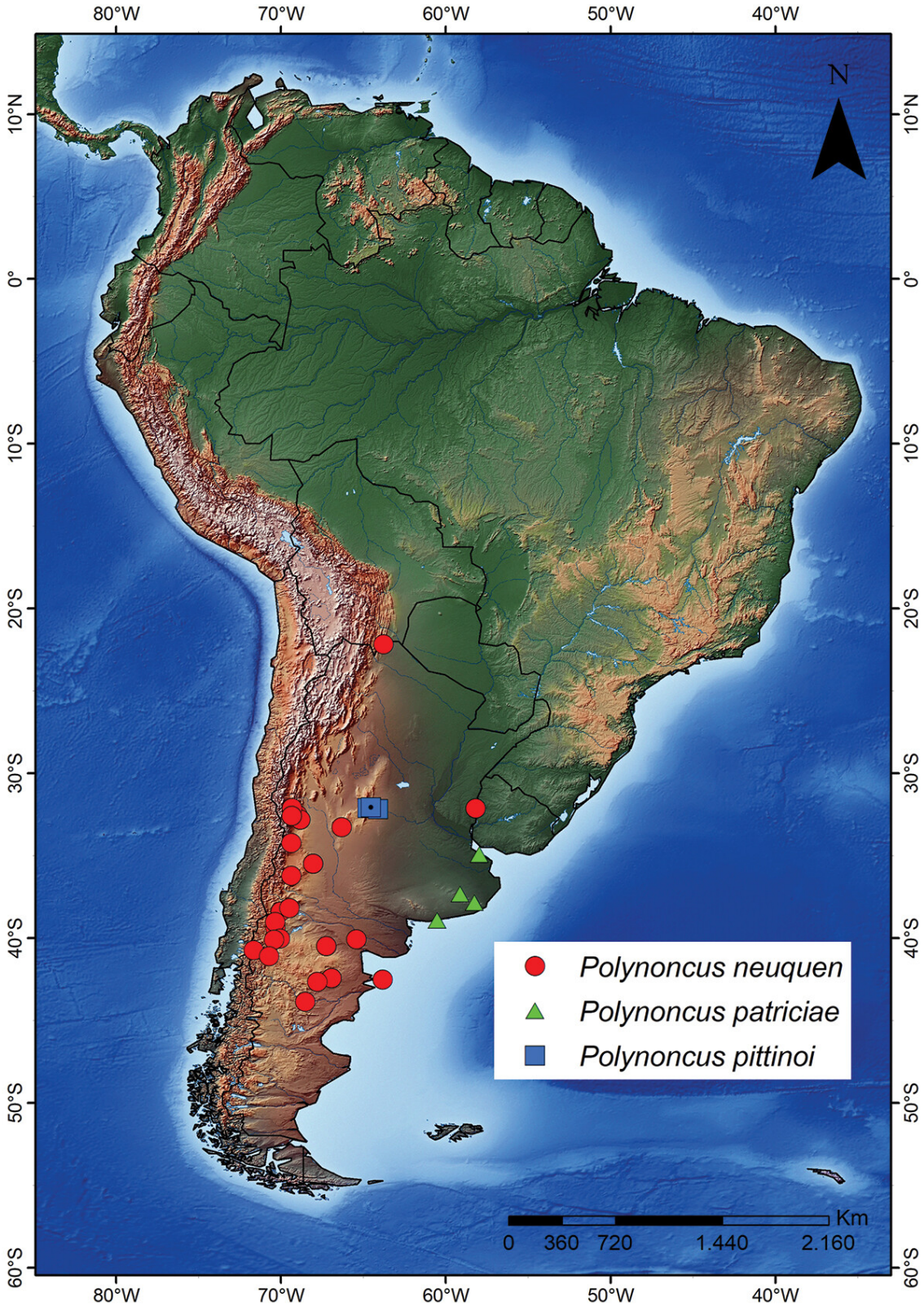


Figure 48. Distribution map of *Polynoncus neuquen* (red circles), *P. patriciae* (green triangles), and *P. pittinoi* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

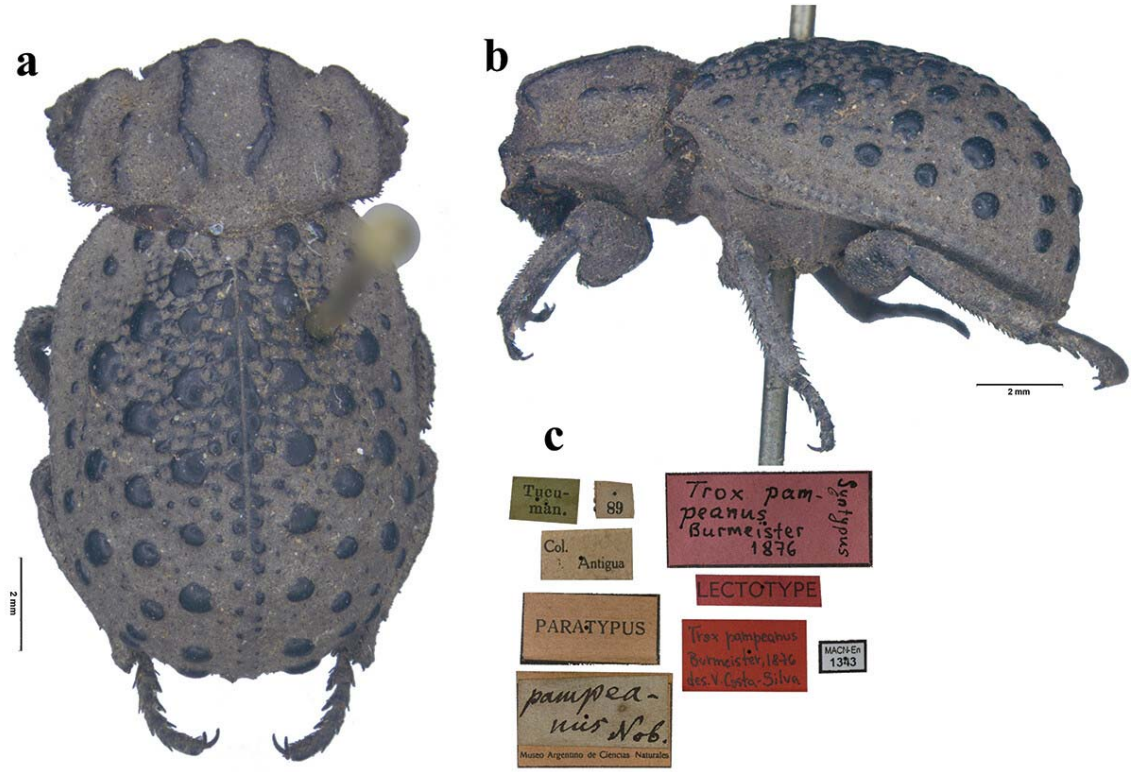


Figure 49. Lectotype of *Trox pampeanus* Burmeister, 1876 (now *Polynoncus pampeanus*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Luis Compagnucci (MACN).

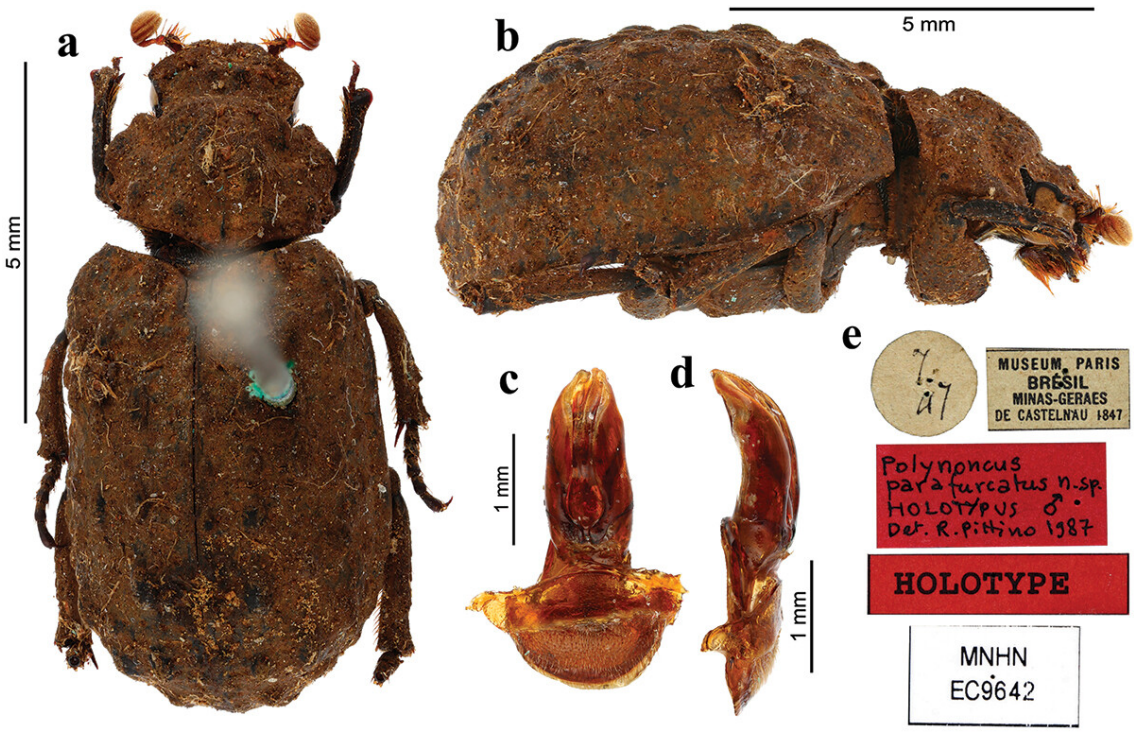


Figure 50. Holotype of *Polynoncus parafurcatus* Pittino, 1987: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Antoine Mantilleri (MNHN).

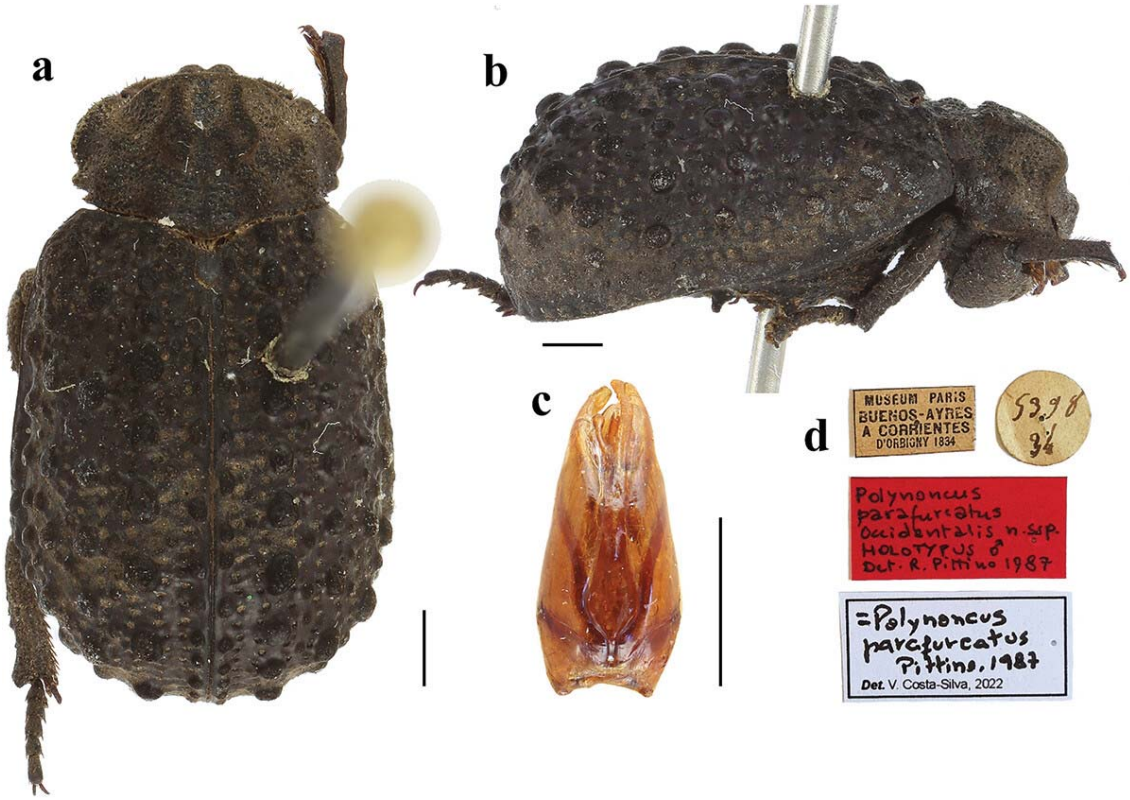


Figure 51. Holotype of *Polynoncus parafurcatus occidentalis* Pittino, 1987 (=*Polynoncus parafurcatus*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal view; **D)** labels. Scale bar: 1 mm.

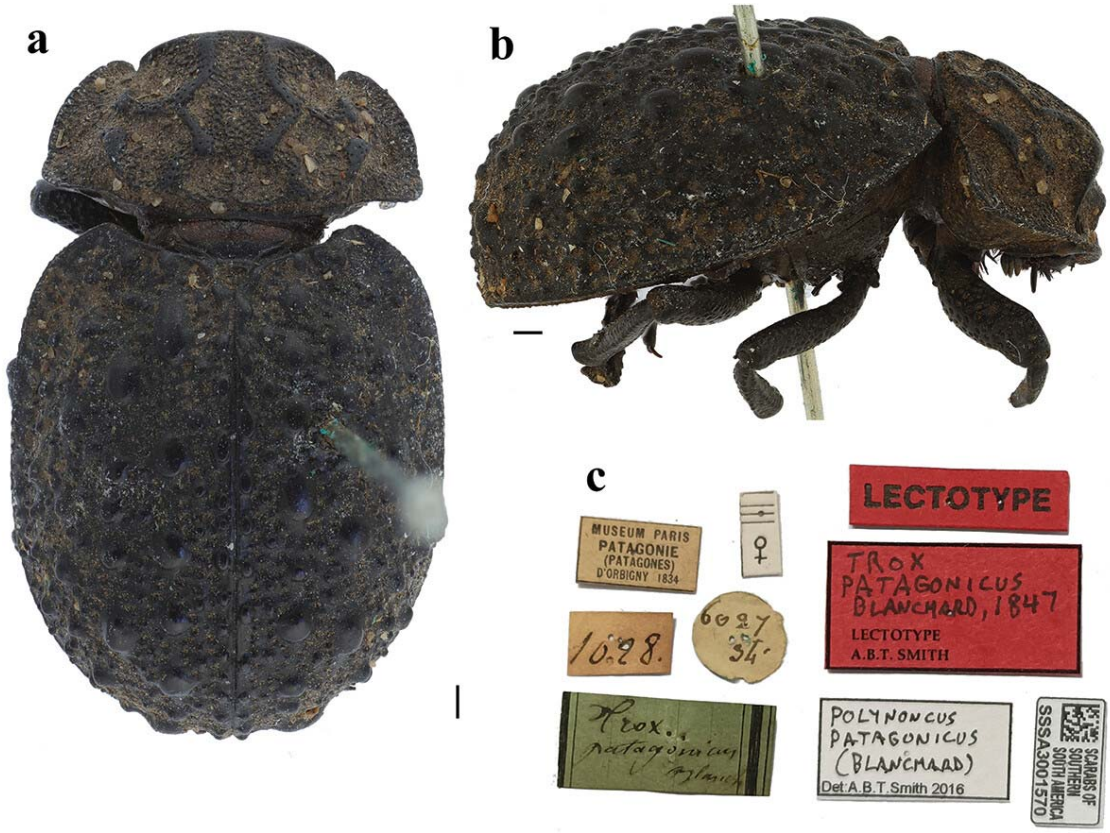


Figure 52. Lectotype of *Trox patagonicus* Blanchard, 1847 (now *Polynoncus patagonicus*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.

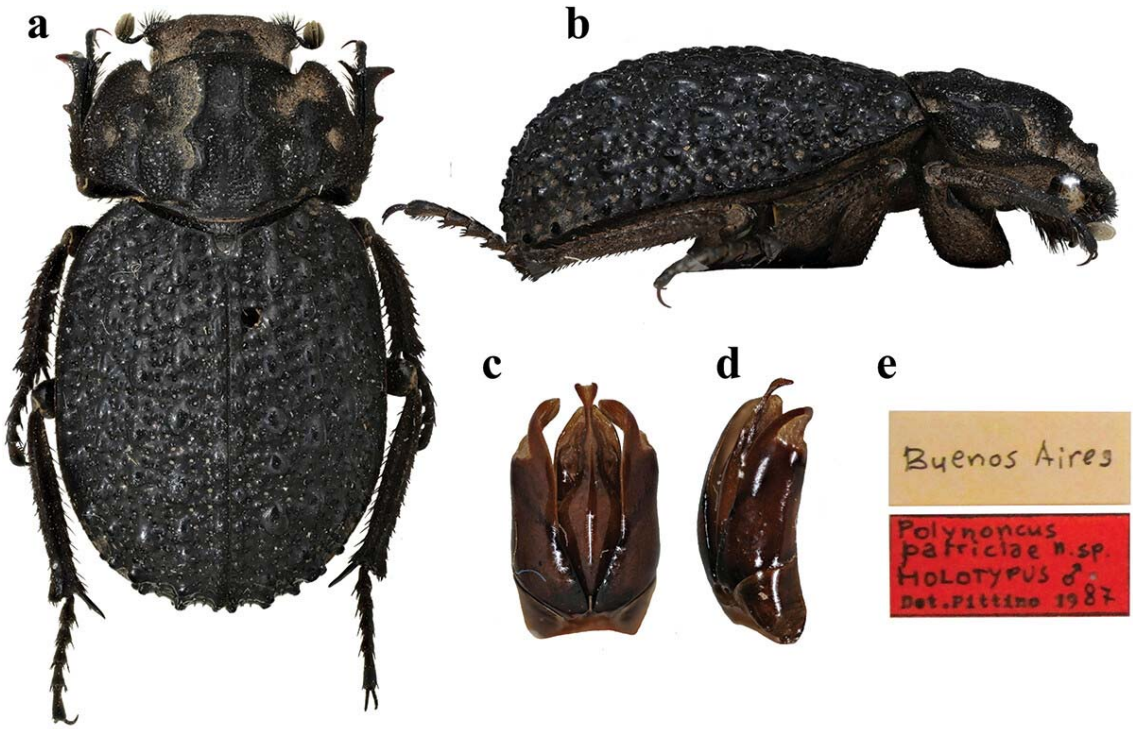


Figure 53. Holotype of *Polynoncus patriciae* Pittino, 1987: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Alberto Ballerio. Length of specimen: 18 mm.

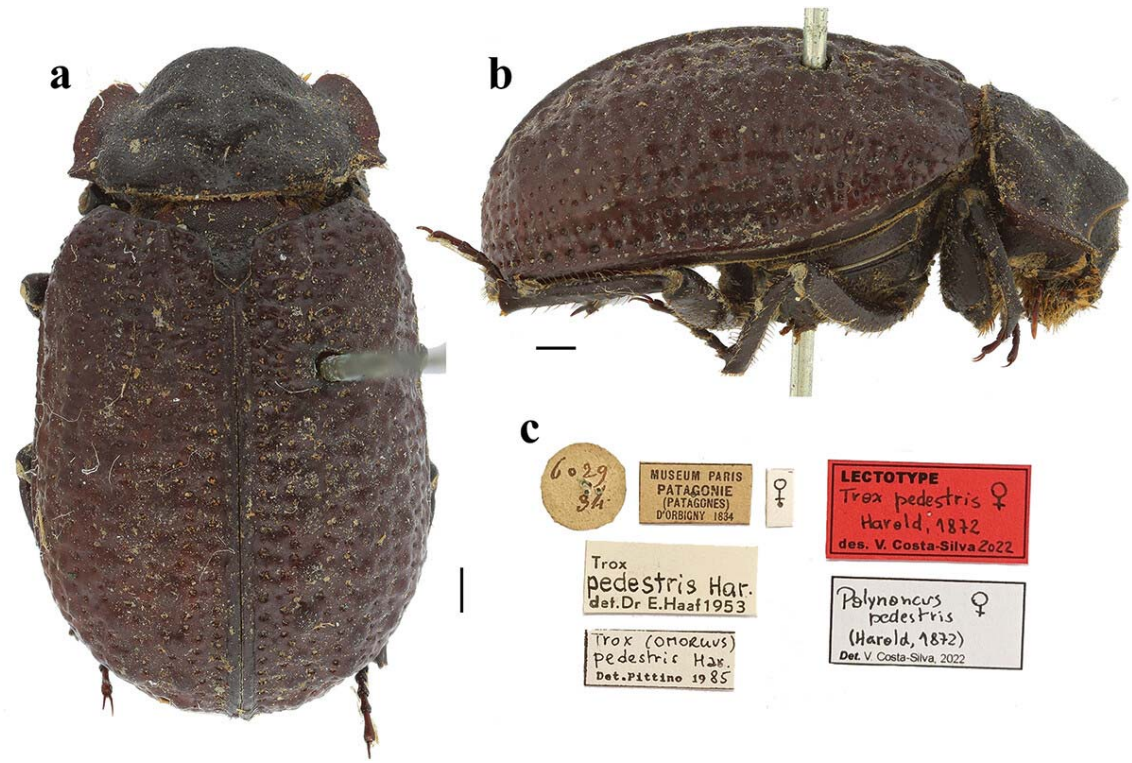


Figure 54. Lectotype of *Trox pedestris* Harold, 1872 (now *Polynoncus pedestris*), here designated: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.



Figure 55. Distribution map of *Polynoncus pedestris* (red circles) and *P. peruanus* (green triangles) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

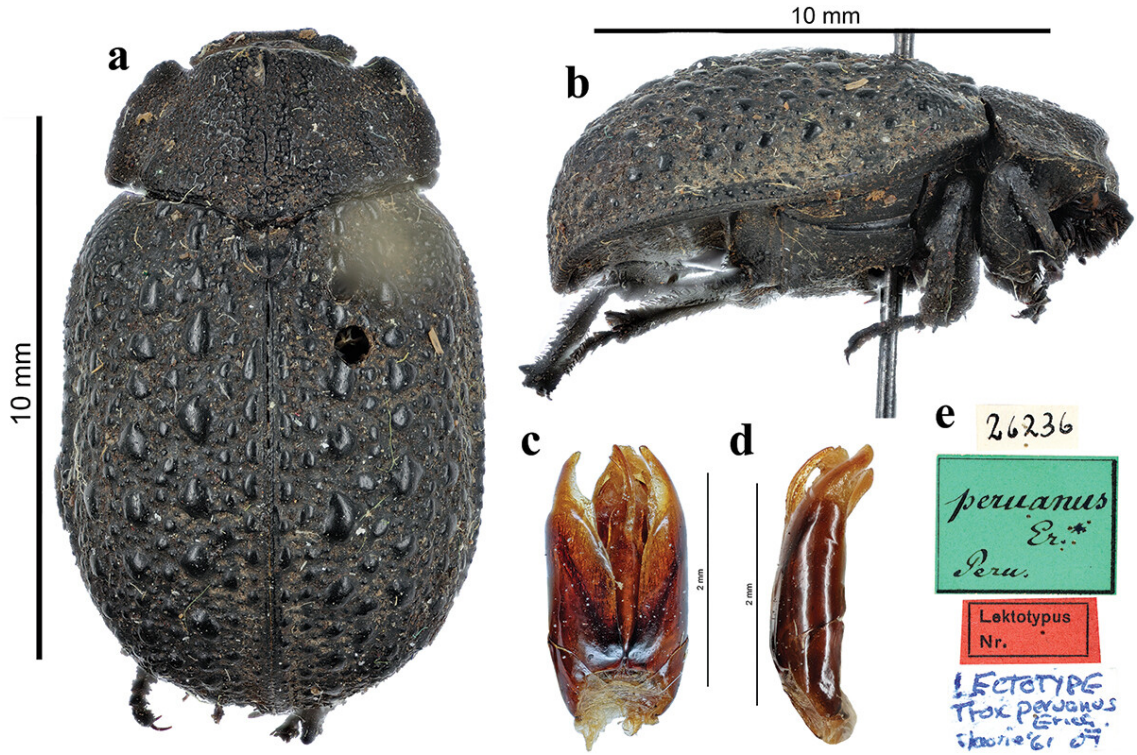


Figure 56. Lectotype of *Omorgus peruanus* Erichson, 1847 (now *Polynoncus peruanus*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Bernd Jäger (MFNB).

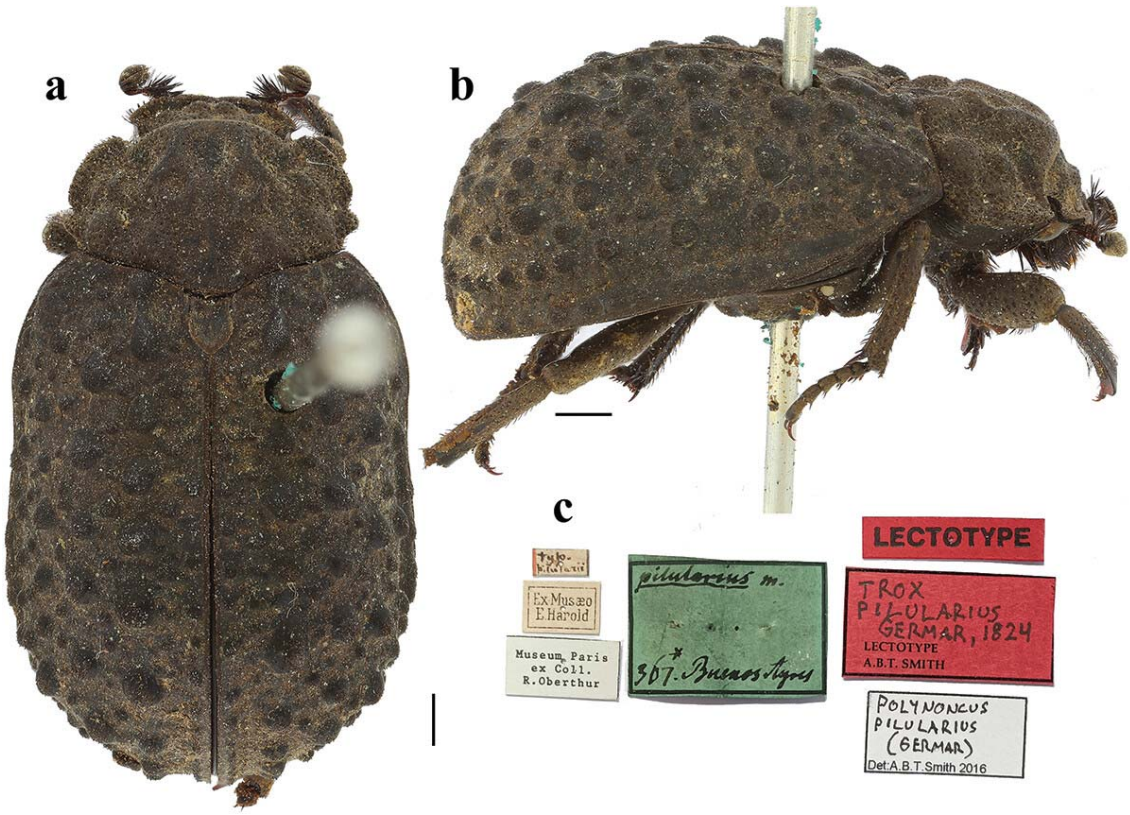


Figure 57. Lectotype of *Trox pilularius* Germar, 1823 (now *Polynoncus pilularius*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Scale bar: 1 mm.

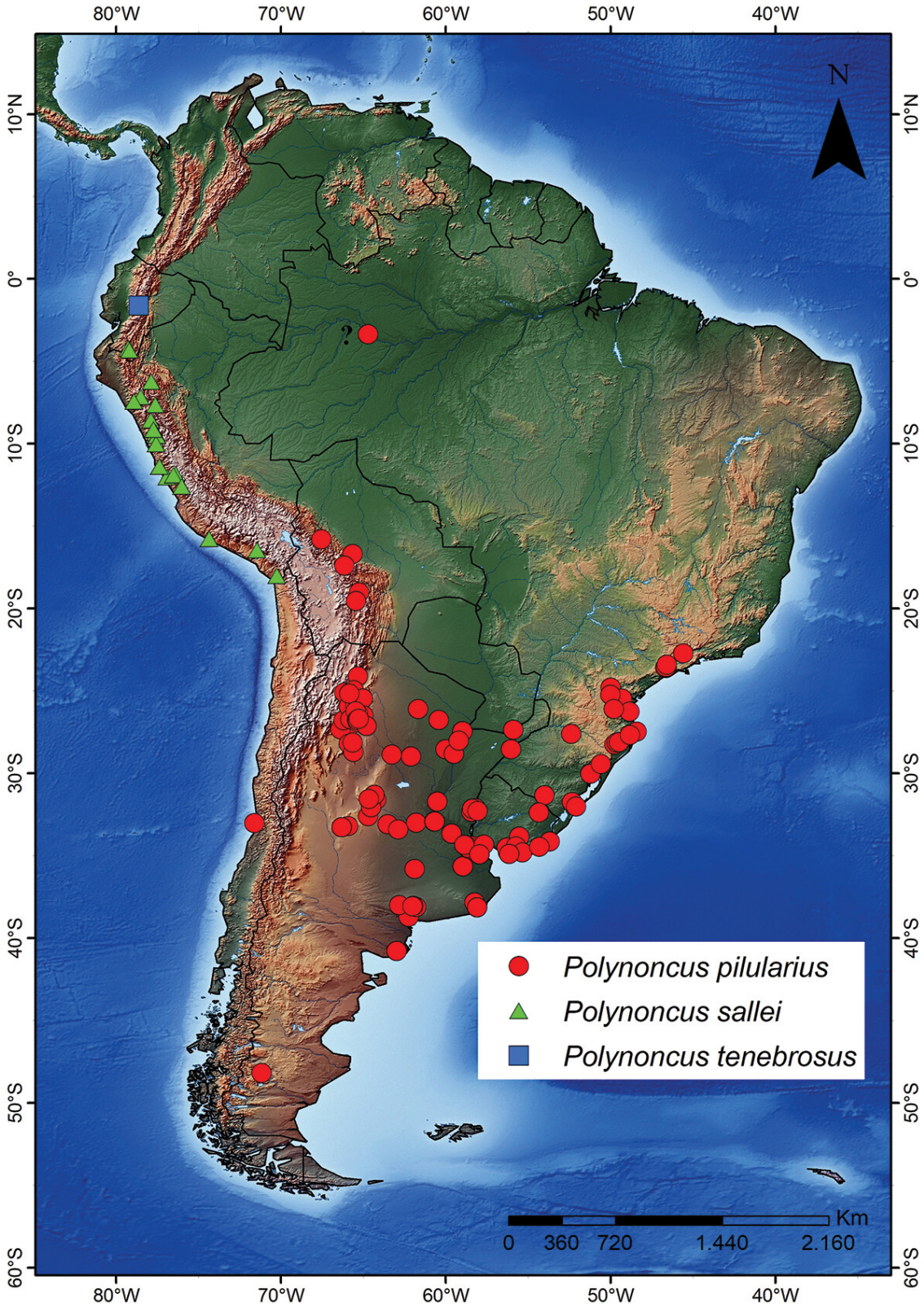


Figure 58. Distribution map of *Polynoncus pilularius* (red circles), *P. sallei* (green triangles), and *P. tenebrosus* (blue squares) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

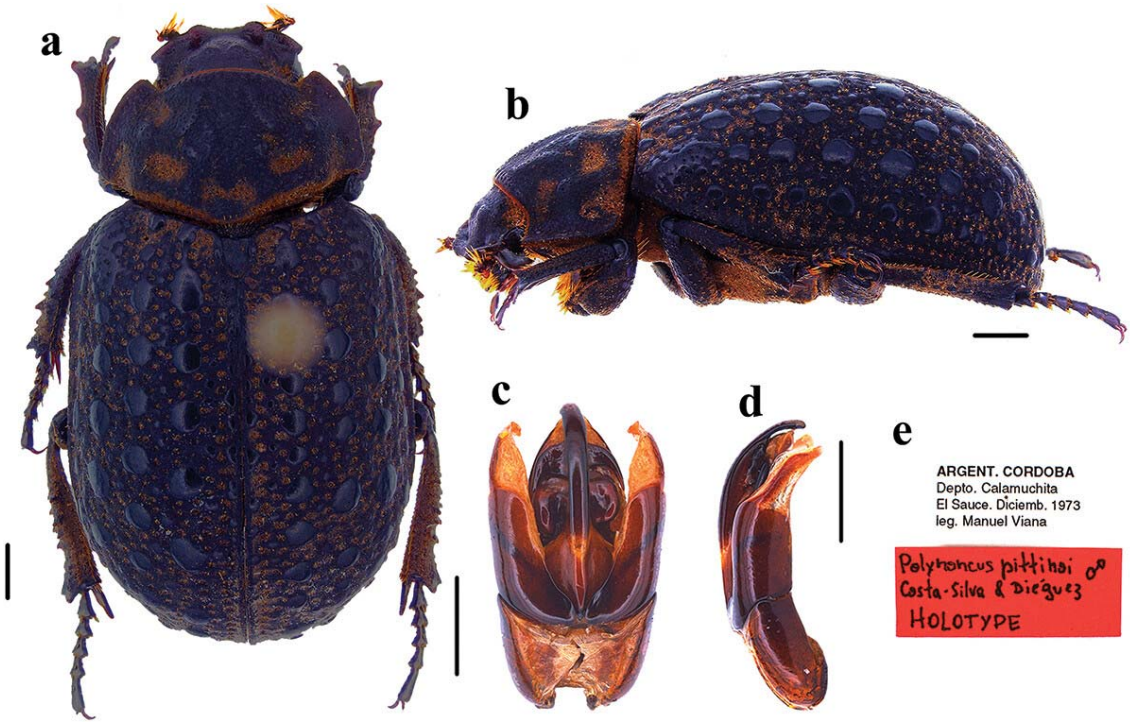


Figure 59. Holotype of *Polynoncus pittinoi* Costa-Silva & Diéguez, 2020: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Scale bar: 1 mm.

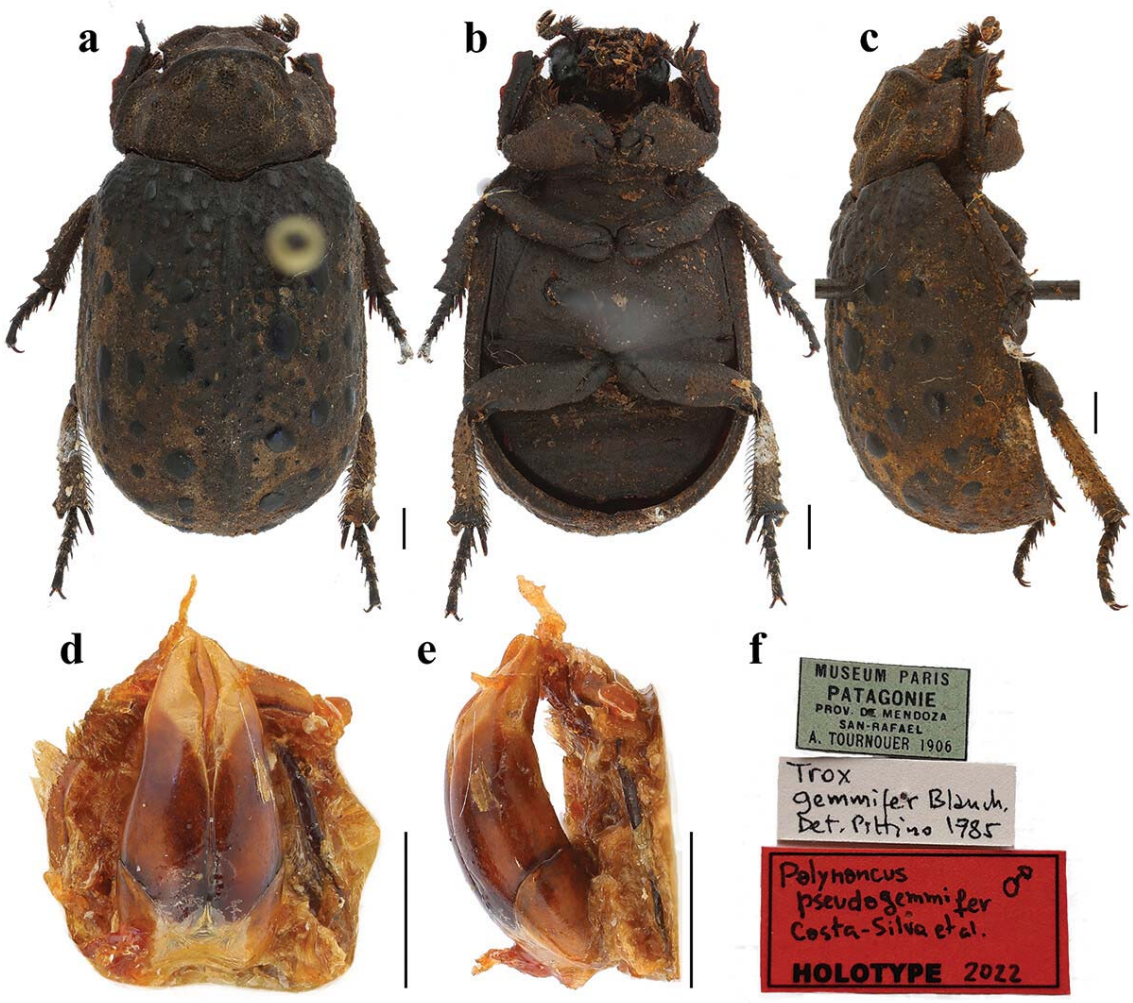


Figure 60. Holotype of *Polynoncus pseudogemmifer* **n. sp.**: habitus in **A)** dorsal, **B)** ventral and **C)** lateral view; male genitalia in **D)** dorsal and **E)** lateral view; **F)** labels. Scale bar: 1 mm.



Figure 61. Distribution map of *Polynoncus pseudogemmiger* **n. sp.** (red circles) and *P. vazdemelloi* (green triangles) in South America. The records with a black dot in the centre refers to the type locality of the respective species.

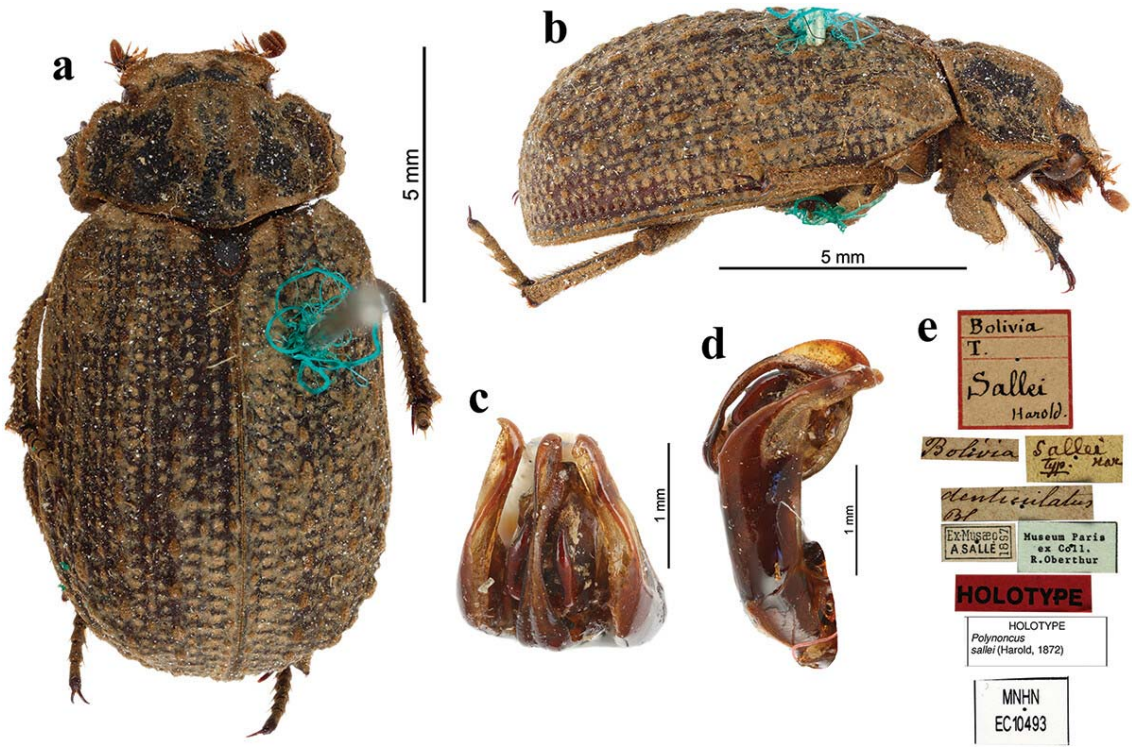


Figure 62. Holotype of *Trox sallei* Harold, 1872 (now *Polynoncus sallei*): habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** dorsal and **D)** lateral view; **E)** labels. Photos by Christophe Rivier (MNHN).

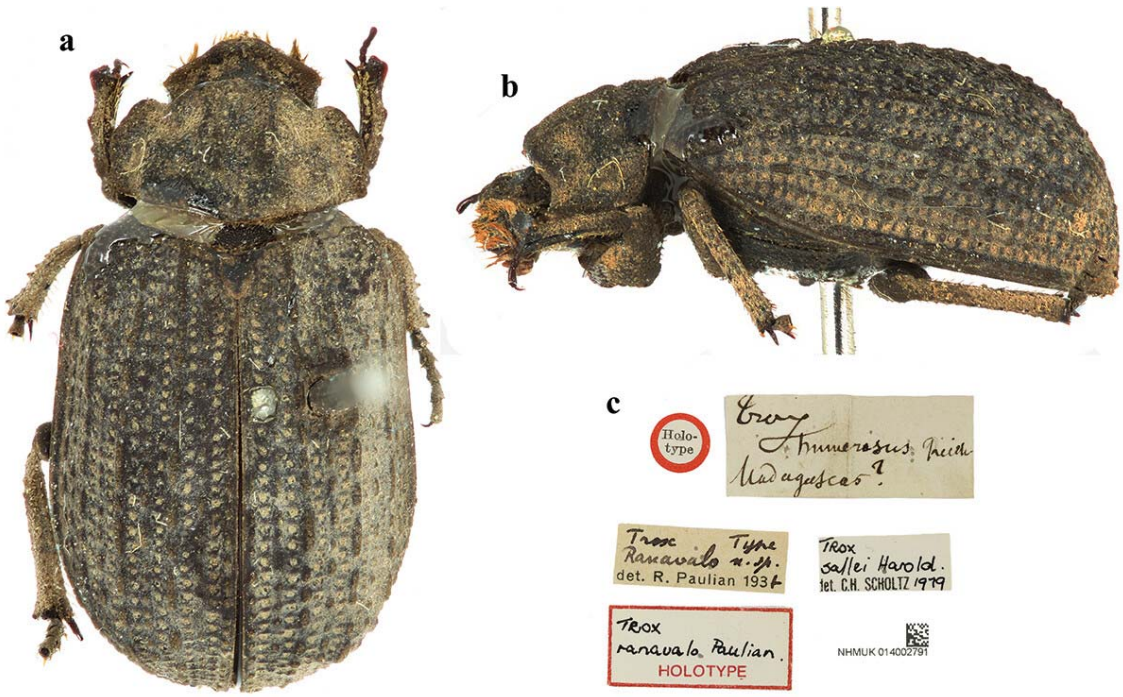


Figure 63. Holotype of *Trox ranavalo* Paulian, 1936 (=*Polynoncus sallei*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Keita Matsumoto (BMNH). Length of specimen: 12 mm.

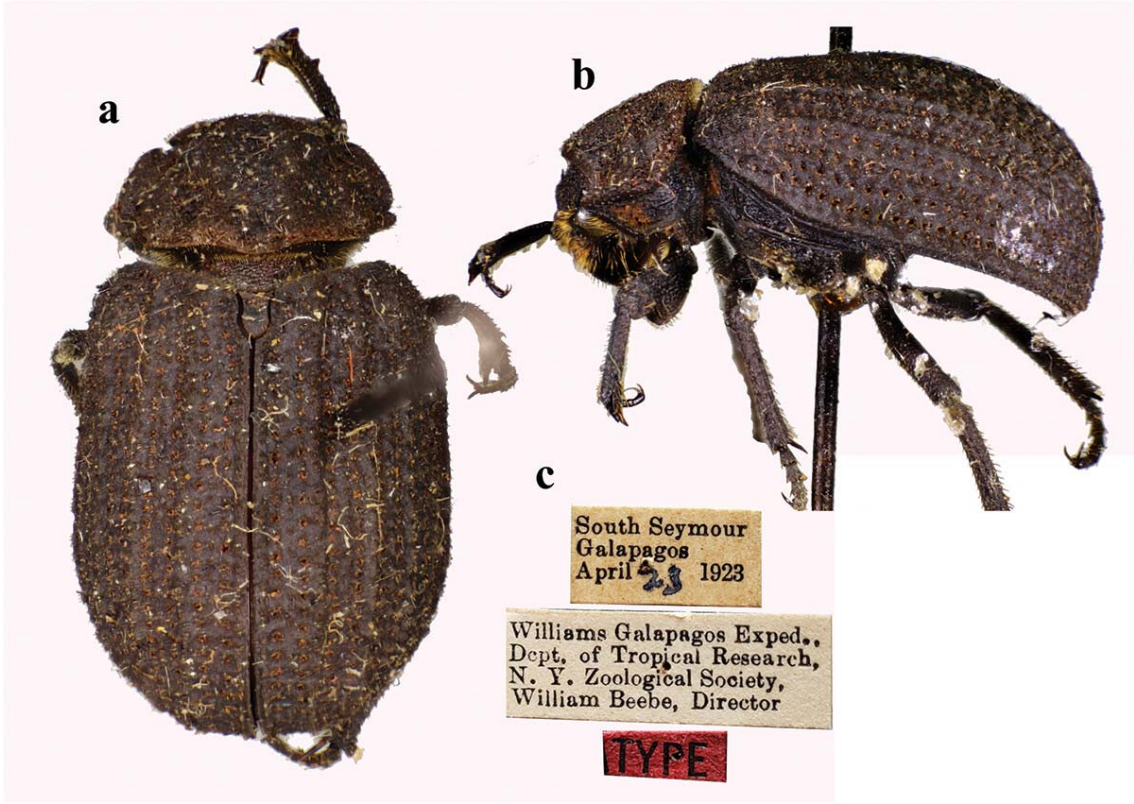


Figure 64. Holotype of *Trox seymourensis* Mutchler, 1925 (now *Polynoncus seymourensis*): habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Lee Herman (AMNH). Length of specimen: 10.5 mm.

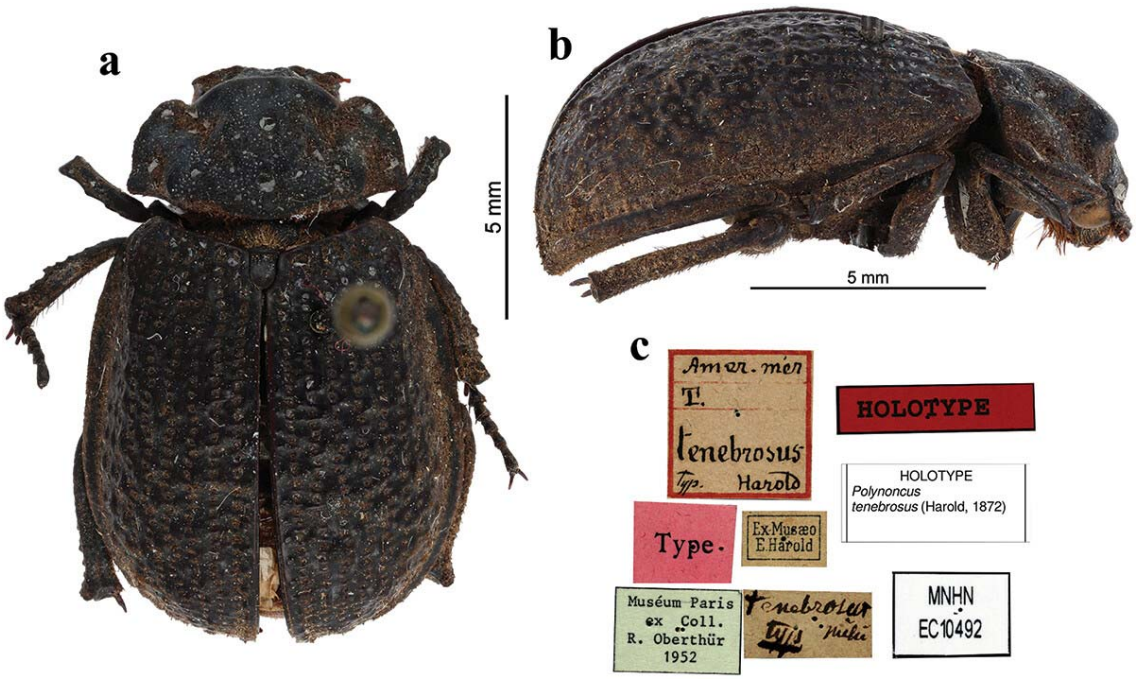


Figure 65. Holotype of *Trox tenebrosus* Harold, 1872 (now *Polynoncus tenebrosus)*: habitus in **A)** dorsal and **B)** lateral view; **C)** labels. Photos by Christophe Rivier (MNHN).

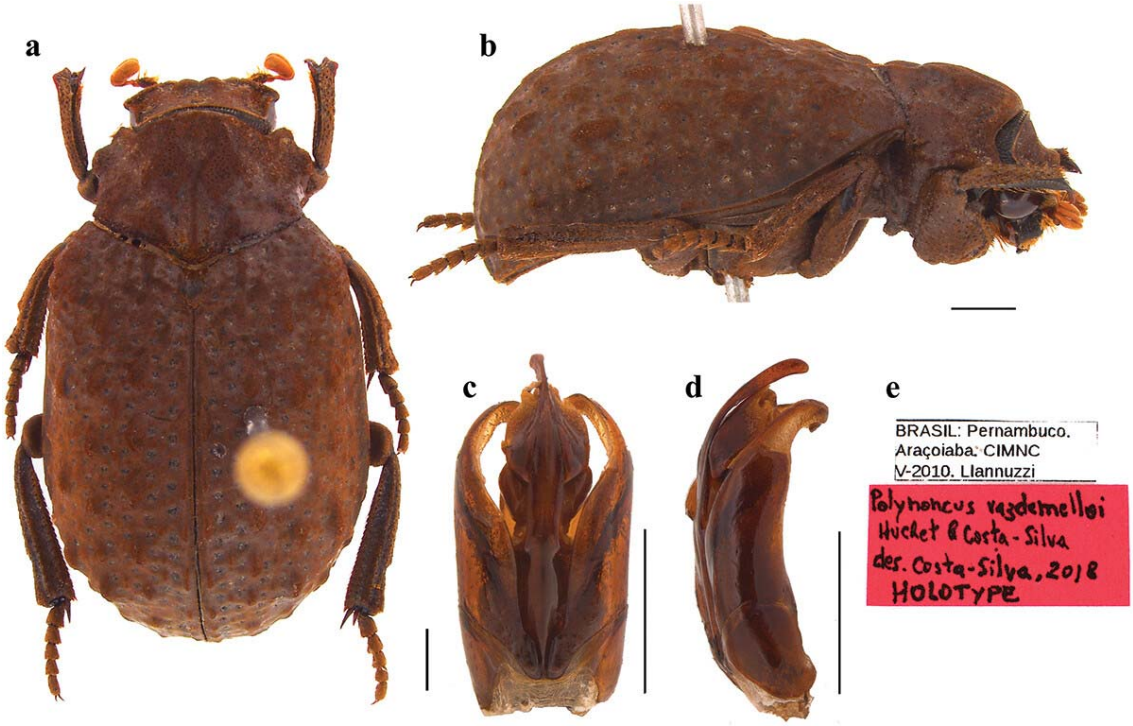


Figure 66. Holotype of *Polynoncus vazdemelloi* Huchet & Costa-Silva, 2018: habitus in **A)** dorsal and **B)** lateral view; male genitalia in **C)** lateral and **D)** dorsal view; **E)** labels. Scale bar: 1 mm.

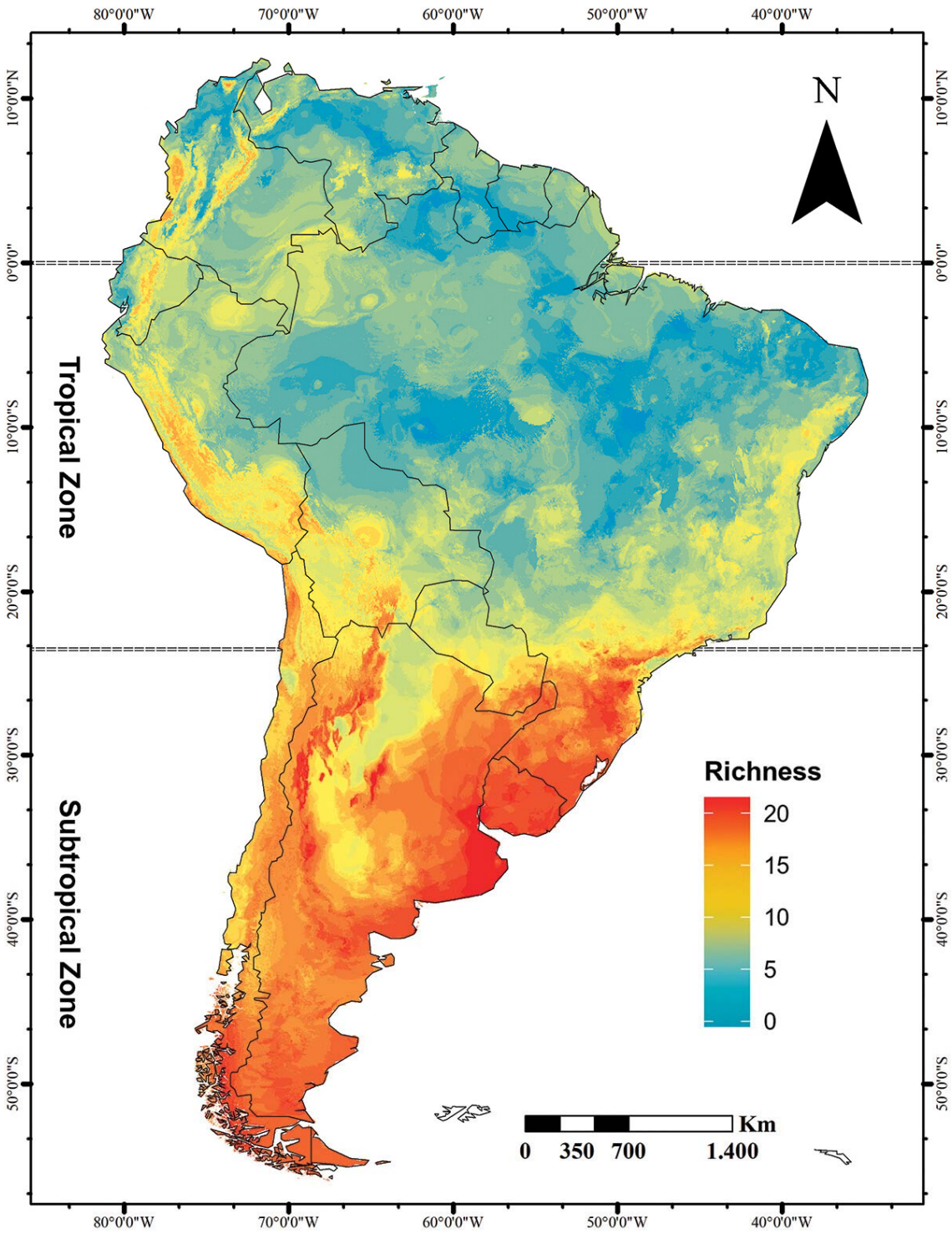


Figure 67. Map of the geographic distribution and richness of *Polynoncus* species in South America.