Biologia Serbica, 2026, 48(1):52-88 DOI: 10.5281/zenodo.22049193

Review paper

On the true identity of *Scolopendra robusta* Kraepelin, 1903 (Chilopoda: Scolopendromorpha: Scolopendridae), with corrections to records of centipedes from Monterrey, Nuevo León, Mexico

Carlos A. MARTÍNEZ-MUÑOZ

Senckenberg Research Institute and Natural History Museum Frankfurt, Senckenberganlage 25, 60325, Frankfurt am Main, Germany

Accepted: 26 May 2026 / Published online: 20 September 2025

Citation: Martínez-Muñoz CA. 2026. On the true identity of *Scolopendra robusta* Kraepelin, 1903 (Chilopoda: Scolopendromorpha: Scolopendridae), with corrections to records of centipedes from Monterrey, Nuevo León, Mexico. In: Antić D, Makarov S, guest editors. Myriapoda in a Fractured World. Proceedings of the 20th International Congress of Myriapodology (Srebrno Jezero, Serbia). Biologia Serbica. 48(1):52-88. https://doi.org/10.5281/zenodo.22049193

Summary. The Chilopoda of Monterrey, Nuevo León, Mexico have been poorly studied until now. In this work, the historical literature is reviewed, old Scolopendromorpha specimens are (re)examined, and updated locality records are provided. One of the species, *Scolopendra robusta* Kraepelin, 1903, previously considered a potential synonym of *Scolopendra viridis* Say, 1821, *Scolopendra polymorpha* Wood, 1861, or *Arthrorhabdus pygmaeus* (Pocock, 1895), is here regarded as a junior synonym of *Scolopendra gigantea* Linnaeus, 1758, and is formally deleted from the fauna of Mexico. A published Mexican record of *Scolopendra dehaani* Brandt, 1840 is considered either as a mislabeling or as a transient introduction and the species is deleted from Mexico. A museum specimen and unpublished record of *Scolopendra subspinipes* Leach, 1816 from a Mexican locality is considered to be mislabeled and the species is here simultaneously reported and deleted from Mexico. The count of species of *Scolopendra* Linnaeus, 1758 regarded to occur in the country is updated to 12, of which seven are endemic, four are native, and one is introduced. The species *Scolopendra heros* Girard, 1853 and *Hemiscolopendra marginata* (Say, 1821) are reported from the state of Nuevo León for the first time. Further, two museum specimens and an unpublished record of the genus *Ethmostigmus* Pocock, 1898 and the species *Ethmostigmus trigonepoda* (Leach, 1816) from Monterrey, Mexico are considered mislabelled and simultaneously reported and deleted. As a methodological contribution, this work also discusses 21 morphological terms and suggests updates to the common terminology for the external anatomy of centipedes (Chilopoda).

Keywords: biodiversity informatics, centipedes, Colombia, incorrect locality, Myriatrix, redescription, terminology.

INTRODUCTION

The literature on centipedes (Chilopoda) from the Monterrey municipality, state of Nuevo León, northeast Mexico is scarce. The primary species and locality records related to "Monterrey" stem from only five publications spanning a 102-year period from 1903-2004. The species diversity is low, as only seven species have been reported: three Scolopendromorpha, namely *Scolopendra robusta* Kraepelin, 1903, *Newportia* (*Newportia*) *spinipes* Pocock, 1896, and *Arthrorhabdus pygmaeus* (Pocock, 1895); two Geophilomorpha, *Garrina leona* Chamberlin, 1943 and *Chomatophilus smithi* Pocock, 1896; and two Lithobiomorpha, *Lithobius michoacanus* Chamberlin, 1942 and *Neolithobius aztecus* (Humbert & Saussure, 1869).

Scolopendra robusta was described by Kraepelin (1903) based on one holotype specimen from "Mexiko (Monterey)" and one juvenile paratype from Colombia. Forty years later,

E-mail: archilegt@gmail.com.

one specimen of *Newportia* (*Newportia*) *spinipes* was reported from "Neuvo (sic!) Leon: Monterrey, Chipinque" by Chamberlin (1943: 9); *Garrina leona* was described from four syntypes with type locality in Chipinque (Chamberlin 1943: 21-22); and *Lithobius michoacanus* and *Neolithobius aztecus* were reported from Chipinque based on two and four specimens, respectively (Chamberlin 1943: 27). Later Crabill (1968: 329) reported *Chomatophilus smithi* from "Chipinque mesa near Monterrey" but did not specify the number of specimens. Approximately 35 years later, two other publications mentioned a seventh species, *Arthrorhabdus pygmaeus*, and two new records involving Monterrey (Shelley 2002: 48; Shelley and Chagas-Jr. 2004: 535).

Regarding the genus *Scolopendra* Linnaeus, 1758, there are 14 species currently recorded for Mexico, 13 of which were summarized by Cupul-Magaña (2013b), and one additional species was mentioned by Siriwut et al. (2016). Regarding the first work, Cupul-Magaña (2013b: 22) mistakenly counted 10 species instead of the 13 he listed, a number later corrected by Flores-Guerrero et al. (2015: 70). From the 13 species listed, 8 are endemic to Mexico: *Scolopendra aztekorum* Verhoeff, 1934, *Scolopendra chlora* Chamberlin, 1942, *Scolopendra malkini* Chamberlin, 1955, *Scolopendra michoacana* Chamberlin, 1941, *Scolopendra octodentata* Verhoeff, 1934, *Scolopendra pachygnatha* Pocock, 1895, *Scolopendra pomacea* Koch, 1847, and *Scolopendra robusta* Kraepelin, 1903.

The name *Scolopendra aztekorum* Verhoeff, 1934 deserves a separate mention. The species was recently revised by Martínez-Muñoz et al. (2016), who chose the original spelling "*aztecorum*" in Verhoeff (1934) over the alternative original spelling "*aztekorum*". Martínez-Muñoz et al. (2016: 410) wrote: "The most frequently cited *Scolopendra aztecorum* Verhoeff, 1934 is here selected as the correct original spelling. The *Scolopendra aztekorum* spelling is incorrect (Art 24.2.3, ICZN) and unavailable (Art. 32.4, ICZN). We are the First Revisers (Art. 24.2.3, ICZN)." I have now revised a subsequent paper by Verhoeff which changes the previous outcome. Verhoeff (1938: 282), in a key to the species of the group of *Scolopendra viridis* Say, 1821, used the spelling "*aztekorum*". Consequently, Article 24.2.4 of the Code is applicable, Verhoeff as the original author is deemed to be the First Reviser of the spellings, and the spelling *Scolopendra aztekorum*, which he (Verhoeff, 1938: 282) used as valid, becomes the correct original spelling.

Continuing with the list by Cupul-Magaña (2013b), there are 4 native species: *Scolopendra heros* Girard, 1853, *Scolopendra polymorpha* Wood, 1861, *Scolopendra sumichrasti* Saussure, 1860, and *Scolopendra viridis* Say, 1821. One record of the non-native, South American species *Scolopendra gigantea* Linnaeus, 1758 was deleted from Mexico by Shelley and Kiser (2000: 159, 163). Shelley (2006: 5) mentioned the record again and did not include Mexico in the species distribution. *Scolopendra gigantea* was not mentioned by Cupul-Magaña (2013b). Another, misidentified record of *S. gigantea* from Mexico was corrected by Cupul-Magaña (2014a: 75) to *S. polymorpha*.

The only introduced species recorded by Cupul-Magaña (2013b) is *Scolopendra morsitans* Linnaeus, 1758, from Asia. The Mexican references for this species were summarized by López-Bonel et al. (2019) under the misspelled name "*Scolopendra morsitants*". Another Asian species, *Scolopendra dehaani* Brandt, 1840 was recorded from Mexico by Siriwut et al. (2016: 51). The record is based on one specimen deposited at the Natural History Museum, London but collected by the California Academy of Sciences. For this record, Siriwut et al. (2016) noted "probably introduced, if not mislabeled". Here I consider that record either as a mislabeling or as a transient introduction and delete the species from Mexico. Nevertheless, I recommend keeping the name under a "Deleted species" section whenever a complete account of *Scolopendra* species reported from Mexico is to be given.

The Asian species *Scolopendra subspinipes* Leach, 1816 is here both reported and deleted from Mexico. This record is based on one specimen at the American Museum of Natural History, New York. The specimen is in bad condition, lacks the ultimate pair of legs, and does not yet have an AMNH_IZC catalog number. The information on the labels is as follows: |Cat. No 1622|, handwritten, ink. |Bolso Sto. Nr. City of Mexico|, handwritten, ink. |Scolopendra alternans Leach.|, handwritten, pencil. |Scolopendra subspinipes Leach, 1816 Det: C. Mtnez 10.x.2019|, handwritten, ink. This record is most likely a locality mislabeling.

In summary, there are currently 13 species of *Scolopendra* considered to occur in Mexico, and three deleted records of non-native species (*S. gigantea*, *S. dehaani*, and *S. subspinipes*). However, part of this work is dedicated to reevaluating the purported Mexican endemic *Scolopendra robusta*, a species which I also delete from the country. *Scolopendra robusta* has a puzzling combination of character states, no illustrations, and an irregular situation regarding its type material, with an adult holotype apparently from "Monterey, Mexico" in North America and juvenile paratype from Colombia in South America. The paratype from Colombia at the Zoological Museum Hamburg, Germany, was examined by Shelley (2006: 26) and reidentified as *Scolopendra gigantea* Linnaeus, 1758. The holotype was never located, and Shelley (2006) referred to it as "not known to exist, not present in the original repository, the Musée Zoologique de Strasbourg, France". The holotype was also not located by the author of the present work during a visit to Strasbourg in March, 2017. The search was continued by the museum staff and on June 1st, 2017, the holotype was found in a hidden cupboard in

the most unlikely place in the permanent exhibitions of the museum. The specimen was finally examined during a subsequent visit by the author in May-June 2018.

Objectives

This work continues the efforts by Meister and Martínez-Muñoz (2019) and by Martínez-Muñoz et al. (2022) of revitalizing the Myriapoda collection at the Musée Zoologique de Strasbourg (MZS) and encouraging its use by present day myriapodologists. The main objectives are: 1) to curate and database the literature records of Chilopoda from Monterrey, 2) to redescribe the type specimens of *Scolopendra robusta*, and 3) to provide new records of Scolopendromorpha from the municipality.

MATERIALS AND METHODS

1. Institutional repositories

MZS: Musée zoologique de la ville de Strasbourg, Strasbourg, France. **GRSciColl URI:** http://grscicoll.org/institution/universite-de-strasbourg-musee-de-zoologie

ZMH: Zoologisches Museum Hamburg, University of Hamburg, Germany. **GRSciColl URI:** http://grscicoll.org/institution/zoologisches-museum-hamburg

Nine lots and 14 specimens of Scolopendridae Leach, 1814 were examined, of which one lot containing the paratype of *Scolopendra robusta* Kraepelin, 1903 from Colombia is housed at the ZMH and eight lots and 13 specimens are housed at the MZS. One MZS lot containing 1 non-type specimen of *S. robusta* from Colombia was included for completeness. All of the seven remaining MZS lots and 12 specimens are labeled as collected in Monterrey, but after this work only four lots and 9 specimens can be truly assigned to that locality. The lot containing the *S. robusta* holotype and two lots of *Ethmostigmus trigonepoda trigonepoda* (Leach, 1816) with 1 specimen each are considered to be erroneously labeled as coming from Monterrey.

2. Classification and publication dates

2.1. Higher classification names

The classification in this work is rooted in the subphylum Myriapoda Latreille, 1797 and is implemented in Myriatrix (The Fellegship of the Rings, 2020 onwards). The reference to Latreille (1797) [1796] is given in the References section. That work is commonly dated as 1796, but we follow the publication date of 13/01/1797 set by Evenhuis (1997: 437). The classification from class to family ranks follows Minelli (2011), with a date correction for Chilopoda Latreille from 1817 to 1816, which follows agreement in year by Whitehead (1967), Cowan (1969), and Roux (1976). The reference to Latreille (1816) [1817] is given in the References section. The publication date of Pocock (1895) [Order Scolopendromorpha] follows Lyal (2011: 79, table 14). No classification for the species in the orders Lithobiomorpha Pocock, 1895 and Geophilomorpha Pocock, 1896 is presented, as the work on those species is limited to the curation of the Chipinque locality, which is addressed in the account of the species *Newportia spinipes* Pocock, 1896.

2.2. Family-group names

The presentation of the two addressed families within the order Scolopendromorpha starts with the "typical" family Scolopendridae Leach, 1814, even if the International Code of Zoological Nomenclature (ICZN 1999) rules no typification above the family-group and therefore defines no term such as "type family". Under Scolopendridae, the nominotypical subfamily Scolopendrinae Leach, 1814 is presented first. Article 36.1 of the Code (ICZN 1999), "Statement of the Principle of Coordination applied to family-group names" is applied to coordinated nominal taxa, and those names bear the same authorship and date at every rank. The work "Crustaceology" by Leach, an entry in Brewster's *Edinburgh Encyclopaedia*, was published in parts (two) in the sense of Article 21.5 of the Code (ICZN 1999). The publication date of the second part, Leach (1814) [Scolopendridae, Scolopendrinae] follows Sherborn (1937: 112). The publication date of Pocock (1896a) [Scolopocryptopidae, Newportiinae] follows Lyal (2011: 79, table 14).

The subfamily Scolopocryptopinae Pocock, 1896 included two genera, *Scolopocryptops* Newport, 1844 and *Dinocryptops* Crabill, 1953, but the latter was synonymized to the former by Edgecombe et al. (2012: 768, 773). Scolopocryptopinae is thus currently regarded as monotypic. The subfamily Newportiinae Pocock, 1896 is also regarded as monotypic, as the former genera *Tidops* Chamberlin, 1915, *Ectonocryptops* Crabill, 1977 and *Ectonocryptoides* Shelley & Mercurio, 2005 were all reduced to the rank of subgenera of *Newportia* Gervais, 1847 by Vahtera et al. (2013). Nevertheless, the two monotypic subfamilies are not yet redundant in a classification, as Kethopinae Shelley, 2002, the third component of Scolopocryptopidae Pocock, 1896, contains two genera. Consequently, Newportiinae is kept in the classification, even if Scolopocryptopinae and Kethopinae are not recorded from Monterrey.

Tribes are not used in the classification. The tribe Scolopendrini Leach, 1814 is now superfluous, as its former sister taxon, the tribe Asanadini Verhoeff, 1907 was synonymized with Scolopendrini by Vahtera et al. (2013: 578, 591). Those authors based the synonymy on the results from

analyses of both 1) molecular and 2) combined morphological and molecular datasets, which nested Asanadini within Scolopendrini.

2.3. Genus-group names

Presentation of genera within families and subfamilies starts with the type genus (if recorded from Monterrey) and continues in alphabetical order. The publication date of Linnaeus (1758) [*Scolopendra*] is governed by the International Code of Zoological Nomenclature (ICZN 1999), Article 3, where it is arbitrarily set to 01/01/1758. The publication date of Pocock (1891) [*Arthrorhabdus*] follows Evenhuis (2003: 32). The publication date of Pocock (1898) [*Ethmostigmus*] follows Evenhuis (2003: 34).

In the myriapodological tradition, the publication date of Gervais' "Classe II. Chilopodes" in Gervais and Walckenaer *Aptères*, volume 4 [*Newportia*] has been given as 1847. The accepted date follows Jeekel (1971: 382, note 70), who wrote "Gervais, 1847. In: Gervais and Walckenaer, Histoire naturelle des Insectes. Aptères. Vol. 4. The date, V.1847, is taken from Sherborn, Index Animalium 1801-1850: xxxiii.". The date was repeated by Jeekel (2005: 61), without clarification of the original source. The reference to Sherborn (1922) is given in the References section of this work. The source page for the genus *Newportia* Gervais, 1847 was corrected by Martínez-Muñoz and Perez-Gelabert (2018: 88) to 298, but it is still incorrect in ChiloBase 2.0 as 243. We here use the subgenus *Newportia* (*Newportia*) Gervais, 1847 following the revalidation of the subgenus *Newportia* (*Newportides*) Chamberlin, 1921 by Chagas-Jr. (2018).

2.4. Species-group names

In this work, all mentioned genera contain one named species recorded from Monterrey, except *Scolopendra* for which two species needed to be addressed. The other two *Scolopendra* species known to occur in Nuevo León were included as their occurrence in Monterrey is plausible and a synthesis of the US and Mexican states distribution as well as deleted records was considered useful. Presentation of species within *Scolopendra* is alphabetically ordered. The publication date of Say (1821) [*Scolopendra viridis*, *Hemiscolopendra marginata*] follows Nolan and Fox (1913: vii). The publication date of Girard (1853) [*Scolopendra heros*] follows Marcy and McClellan (1853: ii), the publication date being the "presentation date" of a copy to the U.S. Senate. The publication date of Wood (1861) [*Scolopendra polymorpha*] follows Nolan and Fox (1913: xii), with date of signatures 1-3, pages 1-48 (printed together) set to the earliest plausible date, that of signature 4 (31/03/1861). Real date of signatures 1-3 cannot be earlier than February 26th, 1861, the date of a meeting reported on page 24 of the volume. The publication date of Pocock (1895) [*Arthrorhabdus pygmaeus*] follows Lyal (2011: 79, table 14). The publication date of Leach (1816) [*Ethmostigmus trigonepoda*] follows Raphael (1970: 64) and Martínez-Muñoz and Perez-Gelabert (2008: 81). The publication date of Pocock (1896a) [*Newportia spinipes*] follows Lyal (2011: 79, table 14).

A running "List of resources for dating articles and other publications" (https://github.com/Archilegt/Myriatrix/wiki/List-of-resources-for-dating-articles-and-other-publications) and a running "List of curated authorship of higher classification names" (https://github.com/Archilegt/Myriatrix/wiki/List-of-curated-authorship-of-higher-classification-names) are maintained and regularly updated by the author.

2.5. Deleted taxa, synonyms, and names used in places other than the main classification

Deleted taxa (*Scolopendra robusta*, *Ethmostigmus*, and *Ethmostigmus trigonepoda*) are listed at the end of the account of their parent taxon. One species name synonym (*Scolopendra robusta*) reported from the municipality is given under the valid species name (*Scolopendra gigantea*). The publication date of *Scolopendra eydouxiana* Gervais in Eydoux & Gervais, 1838 (a synonym of *E. trigonepoda*) follows Sherborn and Woodward (1901: 334). The publication date of *Scolopendra canidens hannoensis* Turk, 1951 follows Evenhuis (2003).

Author and year of scientific names used in the Terminology section below: 1) *Newportia* (*Scolopendrides*) Saussure, 1858 follows Jeekel (2005: 59). 2) *Newportia* (*Newportides*) *amazonica* Brölemann, 1905 follows Camargo-Andrade (1936: 695). 3) *Newportia* (*Newportides*) *pilosa* González-Sponga, 1997 follows the date interval of "Julio/diciembre 1997" for volume 57, issue 148, stated in González-Sponga (1997: 33), supported by the manuscript acceptance date of "Noviembre 1997" stated in González-Sponga (1997: 47). The publication and species have been often given the year 1998, which seems to originate from the literature record in MyriaLit/CIMLIT, but which ultimate source has not been possible to clarify. Therefore, the printed year of 1997 is used here.

3. Terminology

Nomenclatural terminology follows the International Code of Zoological Nomenclature (ICZN 1999). This list includes the names of the genera and species in italics, authors, years of publication and one or more of the reference sources with page number in which the species is recorded from Monterrey. The citation of dates in the text follows the ICZN (ICZN 1999), article 22, recommendation 22A.2.2.

Dates in bibliographic references follow recommendation 22A.2.3. The citation of the author of an unavailable name follows Recommendation 51F and the citation of a person making a new combination follows Recommendation 51G.

The names of geographic areas in the distribution of *Ethmostigmus trigonepoda trigonepoda* (Leach, 1816) are in alignment with the World Geographical Scheme for Recording Plant Distributions (WGSRPD) (Brummitt 2001), which was apparently followed by Simaiakis and Edgecombe (2013: 174).

The terminology for the external morphology of the centipedes primarily follows Bonato et al. (2010), with some additions, exceptions, and updates based on Chamberlin (1943), Crabill (1958, 1960), Shelley (2002; 2006), Lewis et al. (2005), Dugon et al. (2012), Schileyko (2013), Vahtera et al. (2013), Lewis (2016), Martínez-Muñoz et al. (2016), and Baiocco et al. (2017). Updates are listed below. Abbreviated terminology for the genital region follows Siriwut et al. (2016: 5).

Updates to the terminology in Bonato et al. (2010)

mandible

mandibular manubrium/manubria: slender projection of the mandible opposite to the gnathal edge with respect to the mandibular condyle. Bonato et al. (2010: 26, fig. 16). Crabill (1960: 15). Syn.: shank/shanks.

Remarks: This term is maintained by adding "mandibular", to keep it consistent with the syntax for other mandibular parts as used by Bonato et al. (2010), and to disambiguate the mandibular manubrium from the newly proposed term ultimate manubrium (see section "ultimate leg-bearing segment").

second maxillae

(second maxillary) **lateral spur**/spurs: [Sco] spur on the lateral internal side of article 2 of the second maxillary telopodite. Martínez-Muñoz et al. (2016: 408).

(second maxillary) **ventral ridge**/ridges: [Sco] the flanges on the ventral side of articles 2 and 3 of the second maxillary telopodite. Shelley (2002: 12, 29, fig. 28). Syn.: (second maxillary) ventral lamella/lamellae (Shelley 2002: 11, 12), (second maxillary) palpal lamella/lamellae (Shelley 2002: 11), (second maxillary) palpal flange/flanges (Shelley 2006: 18), (second maxillary) ventral flange/flanges (Shelley 2006: 26).

Remarks: 1) The term "palpal flanges" was attributed to Shelley (2002) by Shelley (2006) but as the exact term was not found in the former source, the latter is cited instead. 2) The term in its different variants was traditionally used to describe a diagnostic character state for *Scolopendra heros* (see Shelley 2002) but it was more recently used for a juvenile of *S. gigantea* (see Shelley 2006: 26). It seems that the character states of the ventral ridges need to be reevaluated in other New World *Scolopendra* species, where it may be variably developed. The degree of development is known to vary intraspecifically in *S. heros*, where the ventral ridges are inconspicuous in early juveniles (see Shelley 2002: 11).

accessory spur/spurs (of second maxillary claw): [Cra, Lit, Sco] spur ankylosed to the base of the second maxillary claw. Lewis et al. (2005: 2 [table 1], 3). Martínez-Muñoz et al. (2016: 406, fig. 2d). Syn.: digit/digits (of second maxillary claw) (Bonato et al. 2010: 32, fig. 26).

Remarks: Lewis et al. (2005: 2 [table 1]) recommended the term accessory spur (singular) for the second maxillae of Scolopendromorpha and coded it as not applicable to the second maxilla of Geophilomorpha. The term's source in Lewis et al. (2005: 3) is an article on Geophilomorpha by Crabill (1958). Crabill (1958: 157) did not refer to accessory spurs on the second maxillary claw but to pretarsal accessory spines [Geo] and potentially homologous pretarsal accessory (articulated) spurs [Lit, Sco] on the locomotory legs. Lewis et al. (2005: 2 [table 1, last cell]) recommended again the term accessory spurs (plural), this time referring to (walking/locomotory) legs 1–20, which is the usage that exactly matches that of Crabill (1958). Lewis et al. (2005: 3) noted that "The possible homology between the accessory claws/sensory spines of the second maxillae and legs is unclear, though they are similar in the Scolopendridae." The term "**accessory spur**/spurs (of second maxillary claw)" did not appear in the terminology by Bonato et al. (2010), but the term "digit/digits (of second maxillary claw)" did, circumscribed to Craterostigmomorpha and Lithobiomorpha. Meanwhile, Bonato et al. (2010: 41) cited Lewis et al. (2005: 2, 3) but used "accessory spine/spines" instead of the previously recommended term accessory spur/spurs for the leg structures. Martínez-Muñoz et al. (2016: 406, fig. 2d) restituted accessory spur/spurs for the leg structures following Crabill (1958) and Lewis et al. (2005) and noted the increase in terminological consistency as, according to Crabill (1960: 6), the "accessory claws" are "actually spurs ankylosed to base of pretarsus". Martínez-Muñoz et al. (2016: 406) then wrote "As the terms for the homologous structures on the second maxillae are not listed by Bonato et al. (2010) we use the ones recommended here." and subsequently (Martínez-Muñoz et al. 2016: 408) used the term in a description of the second maxillae: "Claw with 2 accessory spurs". Here the term, the updated definition, and the synonymy with the "digit/digits (of second maxillary claw)" [Cra, Lit] are given together for the first time.

dorsal accessory spur/spurs (of second maxillary claw): the dorsal accessory spur of (usually) two of a second maxillary claw.

ventral accessory spur/spurs (of second maxillary claw): the ventral accessory spur of (usually) two of a second maxillary claw.

forcipular segment

forcipular apparatus: the structure composed by the forcipules articulated to [Scu] the forcipular coxae or [Cra, Dev, Geo, Lit, Sco] the anterior margin of the forcipular coxosternite. Dugon et al. (2012, fig. 3), Baiocco et al. (2017: 11, fig. 1).

Remarks: The term "forcipular apparatus" was defined by Baiocco et al. (2017: 11). The inclusion of "coxosternite" in their definition implies that the term can be applied to Lithobiomorpha, Craterostigmomorpha, Devonobiomorpha, Geophilomorpha, and Scolopendromorpha, but not to Scutigeromorpha. However, the term forcipular apparatus is used and illustrated in the earlier work by Dugon et al. (2012), which was not cited by Baiocco et al. (2017). Because of the inclusion of Scutigeromorpha within the taxonomic scope of the term in Dugon et al. (2012), the definition is updated here.

(coxosternal) **transverse suture**: [Sco] transverse suture on the anterior third of the forcipular coxosternite. Vahtera et al. (2013: 598, Appendix 1, character 30), as "transverse suture on forcipular coxosternite". Lewis (2016: 22, 23, fig. 2, 24, table 1), as "transverse coxosternal suture". Syn.: transverse groove (Koch 1893: 799, 800, fig. 1), transversal suture (Martínez-Muñoz et al. 2016: 408).

Remarks: The adjective "transverse" should be kept consistent across related morphological terms in other body regions, for example the cephalic transverse suture (Bonato et al. 2010: 21), the anterior transverse sulcus or suture of tergite (Bonato et al. 2010: 36), and the transverse sulcus of sternite, (Bonato et al. 2010: 39), among others. Vahtera et al. (2013) coded the transverse suture for *Scolopendra alternans* Leach, 1816 and *S. valida* Lucas, 1840 as "(0) absent" but the correct character state is "(1) present".

leg

(leg) **claw**/claws: leg pretarsus in shape of a claw. Lewis et al. (2005: 2 [table 1], 3). Bonato et al. (2010: 40, fig. 44). Syn.: apical claw/claws, end claw/claws, tarsal claw/claws.

Remarks: This term is maintained by adding "(leg)", to keep it consistent with the syntax for other leg articles as used by Bonato et al. (2010), support the consistent definition of "accessory spur/spurs (of leg claw)" below, and to disambiguate the leg claw from the related terms "(second maxillary) claw/claws" and "(gonopodal) claw/claws" presented by Bonato et al. (2010).

accessory spur/spurs (of leg claw): spur ankylosed to the base of the leg claw. Crabill (1958: 157, 1960: 6). Lewis et al. (2005: 2 [table 1], 3). Martínez-Muñoz et al. (2016: 406, 408, 410), as pretarsal accessory spurs. Syn.: accessory spine/spines (Bonato et al. 2010: 41, fig. 47), accessory claw/claws, accessory seta/setae, basal bristle/bristles, basal spine/spines, basal spur/spurs, claw spine/spines, parunguis/parungues, sensory spine/spines, sensory spur/spurs.

Remarks: See remarks for "accessory spur/spurs (of second maxillary claw)" above and Martínez-Muñoz et al. (2016: 406).

anterior accessory spur/spurs (of leg claw): the anterior accessory spur of two of a leg claw. Syn.: anterior accessory spine/spines (Bonato et al. 2010: 41, fig. 47), anterior accessory claw/claws, anterior parunguis/parungues.

posterior accessory spur/spurs (of leg claw): the posterior accessory spur of two of a leg claw. Syn.: posterior accessory spine/spines (Bonato et al. 2010: 41, fig. 47), posterior accessory claw/claws, posterior parunguis/parungues.

ultimate leg-bearing segment

prefemoral spine/spines: [Sco] thorn-like, strongly sclerotised spine on the prefemur of ultimate and/or penultimate legs in Scolopendridae Leach, 1814, which can sometimes be dislodged leaving a faint rounded hump. Lewis et al. (2005: 3, 5, 7, figs. 8-9). Bonato et al. (2010: 43, fig. 55). Syn.: prefemoral dorsal spur/spurs, prefemoral tooth/teeth.

Remark: The reference to Lewis et al. (2005: 7), clarifying the applicability of the term prefemoral spine is missing in Bonato et al. (2010: 43), and is added here, along with further characteristics of the structure as described by Lewis et al. (2005).

distomesal prefemoral process/processes: [Sco] an immovable, multicellular, inarticulate process, usually bearing two or more spines, on the distal end, on the mesal side, of the prefemur of the ultimate legs in Scolopendridae Leach, 1814. Lewis et al. (2005: 3, 5, fig. 8). Bonato et al. (2010: 43), partim. Syn.: (distomedial) prefemoral process (Lewis et al. 2005: 3), distomedial prefemoral tubercle/tubercles (Shelley 2002).

Remarks: This term was given by Lewis et al. (2005: 3) as "(distomedial) prefemoral process". Its meaning was subsumed into "prefemoral (spinous) process/processes" by Bonato et al. (2010: 43) but this resulted in an ambiguous term representing two different structures separately mentioned and illustrated by Lewis et al. (2005). Contrary to the citation by Bonato et al. (2010: 43), Lewis et al. (2005: 7) did not refer to this term.

prefemoral spinous process/processes: [Sco] an immovable, multicellular, inarticulate process, bearing one spine, on the prefemur of the ultimate legs in Scolopocryptopidae Pocock, 1896. Lewis et al. (2005: 5, 7, fig. 14). Bonato et al. (2010: 43), partim.

Remarks: Lewis et al. (2005: 3) did not refer to this term. The "(spinous)" syntax in Bonato et al. (2010: 43) is here changed to "spinous" to facilitate disambiguation. Lewis et al. (2005: 5, 7, fig. 14) used this term for structures on the prefemur of the ultimate legs in *Scolopocryptops* Newport, 1844. However, similar structures ending in one spine can be found in *Newportia* Gervais, 1847 and also in members of the Scolopendridae, such as *Ethmostigmus* Pocock, 1898 and *Scolopendra* Linnaeus, 1758. See remarks for "distomesal prefemoral process/processes". See also "femoral spinous process/processes" and "tibial spinous process/processes" below.

distomesal prefemoral spinous process/processes: [Sco] an immovable, multicellular, inarticulate process, bearing one spine, on the distal end, on the mesal side, of the prefemur of the ultimate legs in Scolopendromorpha Pocock, 1895.

Remarks: This term is typified by the structure on the prefemur of L21 of *Ethmostigmus trigonepoda* (Leach, 1816).

corner spine/spines: [Sco] single spine on the distal end, on the mesal side, of the prefemur and rarely femur of ultimate legs. Lewis et al. (2005: 3, 5). Bonato et al. (2010: 43). Schileyko (2014: 175, 176, fig. 47). Syn.: (prefemoral) distomedial spine/spines.

Remarks: The corner spine in the sense of Lewis et al. (2005), and based on one of two uses of Eckdorn by Attems (1930), is a single spine. Schileyko (2014: 176, fig. 47) misused the term for the distomesal spines on the very short prefemoral process of *Scolopendra angulata* Newport, 1844 but his use of corner spine for the single distomesal spine on the ultimate leg femora of the mentioned species is deemed acceptable and used here to refine the definition. Schileyko (2014: 188, key) also misused the term corner spine(s) for the two distomesal spines on the prefemur of *Cormocephalus brasiliensis* Humbert & Saussure, 1870 (see Attems 1930: 101). The "(prefemoral)" syntax in Bonato et al. (2010: 43) is incompatible with the new definition but prefemoral/femoral corner spine can be used when specifying leg articles on which the corner spine is located.

femoral spinous process/processes: [Sco] an immovable, multicellular, inarticulate process, bearing one spine, on the femur of the ultimate legs in *Newportia* Gervais, 1847. Schileyko (2013: 42, figs. 9-10).

tibial spinous process/processes: [Sco] an immovable, multicellular, inarticulate process, bearing one spine, on the femur of the ultimate legs in *Newportia* Gervais, 1847. Schileyko (2013: 42, figs. 9-10).

ultimate manubrium/manubria: [Sco] the basalmost article of the ultimate tarsus in *Newportia* Gervais, 1847. Syn.: basal joint of tarsus (Chamberlin 1943: 6), first tarsal division (Chamberlin 1943: 7, 8), basal article of tarsus (Chamberlin 1943: 7), first article of tarsus (Chamberlin 1943: 8).

Remarks: The use of a new term prevents confusion with "tarsus/tarsi 1" or "first tarsal article/articles". This is proposed for the genus *Newportia* Gervais, 1847, since what is frequently described as the basalmost article of the ultimate tarsus may not always be homologous to the ultimate tarsus 1. An example can be found in the review of the subgenus *Newportia* (*Newportides*) Chamberlin, 1921 by Chagas-Jr. (2018), where the ultimate tarsus division varies from the most ancestral state in *N.* (*N.*) *pilosa* González-Sponga, 1997, to an intermediate state in *N.* (*N.*) *amazonica* Brölemann, 1905, and then to the most derived state in *N.* (*N.*) *unguifer* Chamberlin, 1921. The character state in the latest species was derived enough to confuse the scoring of the true tarsus 1 and 2 by the author, resulting in the basal undivided portion of tarsus 1 being described as tarsus 1 and the distal divided portion of tarsus 1 and the divided tarsus 2 being jointly described as tarsus 2. The work by Chagas-Jr. (2018) is very relevant, as it shows that 1) indistinctly divided articles occur in both tarsus 1 and tarsus 2 in *Newportia* (*Newportides*), and that 2) a tarsus 1 with the posterior portion indistinctly divided can be longer than the tibia and the tarsus 2. Consequently, species of *Newportia* (*Scolopendrides*) Saussure, 1858 which have a more derived indistinctly divided ultimate tarsus without a claw, the true division between tarsus 1 and tarsus 2 may be unnoticeable. Therefore, 1) what has been traditionally described as a short tarsus 1 in many *Newportia* species may be just the undivided basal portion of the tarsus 1, and 2) the true tarsus 1 may have not suffered an evolutionary reduction in length and the true tarsus 2 be less elongated than currently accepted. Given the available evidence, for some species it is now more plausible that the length of the true tarsus 1 and 2 is closer to the plesiomorphic character state than what can be accurately scored. Overall, any species of *Newportia* with a "tarsus 1" much shorter than the tibia and no clear articulation between the purported "tarsus 1" and "tarsus 2" should be treated with circumspection and described using the proposed term ultimate manubrium instead.

ultimate flagellum/flagella: [Sco] the portion of the tarsus distal to the ultimate manubrium in *Newportia* Gervais, 1847. Syn.: tarsal flagellum (Chamberlin 1943: 6, 7).

Remarks: As the previous term, the proposal of this term is aimed at preventing false homologies when describing species of *Newportia* with a "tarsus 1" that is much shorter than the tibia, and no clear articulation between the purported "tarsus 1" and "tarsus 2".

4. Biodiversity Informatics recording

This section is based on Martínez-Muñoz and Bu (2021) and builds upon it.

1) Publications: All myriapodological publications cited in the reference list at the end of this work are registered in the literature database of Myriatrix (The Fellegship of the Rings, 2020 onwards), the virtual research environment for Myriapoda and Onychophora proposed by Martínez-Muñoz (2019). Recording of publications included filling the "Date Published" field with the most accurate date available, in the format DD/MM/YYYY. When only the year was available, the "Date Published" field was left blank, as there is a mandatory "Year" field for publications.

2) Names: All the taxonomic names used in the classification are recorded in Myriatrix. Recording includes author, date, original publication linked to the literature database in Myriatrix, page, and a permanent URL to the exact page of publication if available in external repositories. A supplementary Scientific names Excel table is also provided.

3) Species concepts: Some authors regard species "concepts" as lines of evidence to delineate species, e.g., categorical criteria used to determine whether a group of organisms qualifies as a species, rather than metaphysical explanations of the nature of species (see Sigwart 2018 and references therein). Other authors regard species concepts as hypotheses about what species are in general, and a researcher might apply a single species concept to all species in a major diverse group (Packer et al. 2018: 2). In a paper focused on Araneology, Bond et al. (2021) recommended that all taxonomic works should clearly state the species concept being applied. This was quickly followed by Shear and Marek (2022: 462) in a paper on Diplopoda where the authors explicitly stated a morphological species hypothesis and more broadly reasoned from the Biological Species Concept. Taxonomic works on Chilopoda, and generally on Myriapoda, would definitely benefit from explicitly stating species concepts. For example, if Mercurio (2016) had stated a species concept as Shear and Marek (2022) did, it would have been evident that the evaluated populations of *Scolopendra alternans* Leach, 1816 were different but not distinct, and that revalidation of synonymized names for island populations was unwarranted due to the absence of unbridged gaps in phenotypic characters. In the present work, species are defined (diagnosed) by their different and distinct form, e.g., the species concept is morphological. Because there is no dedicated field in Myriatrix for recording species concepts, a note reading "Species concept: Morphological Species Concept" was added to the field "Diagnostic description" on the respective taxon pages, along with the species and subspecies diagnoses (see below).

4) Species diagnoses: Comparative diagnoses of taxa are testable hypotheses, subject to evaluation by other lines of evidence (Shear and Marek 2022: 462). Diagnoses embody taxon concepts and are essential tools for validating taxonomic identifications, the latter being the object of quite a few recent publications focused on the replicability of biological research (see Meier 2017; Packer et al. 2018; Simon 2018; Monckton et al. 2020). The need for "online databases where meaningful revisional taxon concepts can be maintained, updated whenever necessary and cited" has also been highlighted (Packer et al. 2018), and is in line with the maximal use that modern -omics studies would make of digitized, computationally accessible taxonomic metadata, including morphological characters (Bik 2017). Bond et al. (2021) called for systematics and taxonomy to stop accumulating data that are not electronically accessible and recommended to immediately begin a mandate to electronically archive such data, including morphology. In Myriapodology, Martínez-Muñoz and Bu (2021) used a combination of diagnoses recorded on taxon pages stored in the online database Myriatrix and additionally in a supplementary file uploaded to the Zenodo repository (European Organization for Nuclear Research and OpenAIRE 2013) for making the information digitally accessible. A similar approach was used here. Diagnoses for seven species and one subspecies were compiled and rewritten with the necessary standardization and corrections. To the extent possible, the diagnoses follow a morphological progression from anterior to posterior and from dorsal to ventral. Taxon pages were created in Myriatrix and all diagnoses were recorded in the section "Diagnostic description". The diagnoses were also included in the main text of this work.

5) Terminology: Bond et al. (2021), drawing from Vogt et al. (2013), argued that "Digitally archived morphological data should conform to field/organismal anatomy ontologies whenever possible". Here it is argued that the focus which would engage a large community of practice is not one as narrow as creation and maintenance of ontologies but of biological glossaries in the broad sense. Many types of biological data, not only morphological but also nomenclatural and ecological, to mention just two more, can be and actually are managed as glossaries. For example, taxonomy ontologies are glossaries of scientific names and ecological ontologies are glossaries of terms such as those related to biotic interactions. Ultimately, any glossary can be converted into an ontology, but the glossaries themselves have more immediate applications. Searchable, online glossaries with definitions and sources are a useful resource per se. Additionally, they can be used to enhance platforms like Scratchpads, where they can be deployed to brute-force text string matching and indexing, therefore allowing easy retrieval of terms along with their context. Glossaries in Scratchpads can also be customized to display ontology terms and their related Uniform Resource Identifiers (URIs). That is the case of the Ecological Interactions module (Baker et al. 2019: 6, 7, fig. 2), which features a glossary of terms on ecological interactions, and two fields for recording the ontology term URL and its reverse from the Relations Ontology (https://github.com/oborel/

obo-relations). In the specific case of the morphological glossary in Myriatrix, it can be used to maintain terminologies such as that by Bonato et al. (2010) and also to match text strings in Taxon Description content type fields such as "Diagnostic description" and automatically index their contents. All of the terms addressed in section "3. Terminology" and their definitions were recorded in the morphology glossary of Myriatrix. With the newly added Ontology Term URL field, the terms in the morphology glossary could be linked in the future to ontologies such as the Chilopoda Anatomy Ontology (ChilAO) (Martínez-Muñoz et al. 2022) by recording the ontology URIs.

6) Distribution: All the geographic updates were written in the taxon descriptions in Myriatrix, section Distribution. The state of Nuevo León was marked in the maps of all taxa except the deleted taxa. The distribution of *Ethmostigmus trigonepoda trigonepoda* was also recorded, following the WGSRPD terminology (Brummitt 2001), the distribution given by Simaiakis and Edgecombe (2013: 174), and the updates done in this work.

7) Localities: Precise localities in Scratchpads can be recorded using the Location content type. A location record conforms to Darwin Core 1.2.1 fields and can be used independently or in association with the Specimen/Observation content type (see Smith et al. 2009). Three localities were recorded:

1. Location ID (Myriatrix): Nuevo León: Monterrey municipality: Monterrey. **locationID (DarwinCore):** https://myriatrix.myspecies.info/content/nuevo-león-monterrey-municipality-monterrey.

Sources: Shelley and Chagas-Jr. (2004: 535) and this work. **Source remark:** Kraepelin (1903) is not considered to be a source for this locality, as there it is associated with the holotype of *Scolopendra robusta*, in this work synonymized with *S. gigantea*, and therefore representing a spurious record. **Locality remarks:** The locality is given a coordinate corresponding to Monterrey: La Alameda (lat 25.6761000°, lon -100.3211000°, 544 m a.s.l., datum WGS84). Currently under the name of Alameda Mariano Escobedo, the park is located in the center of Monterrey and dates back to the 19th century.

2. Location ID (Myriatrix): Nuevo León: San Pedro Garza García municipality: Mesa de Chipinque. **locationID (DarwinCore):** https://myriatrix.myspecies.info/content/nuevo-león-san-pedro-garza-garcía-municipality-mesa-de-chipinque.

Sources: Chamberlin (1943: 9), Crabill (1968: 329), and this work. **Locality remarks:** The locality "Monterrey, Chipinque" by Chamberlin (1943: 9) is here transferred to the municipality of San Pedro Garza García, by disambiguating "Chipinque" to Mesa de Chipinque following the locality "NUEVO LEON. Chipinque mesa near Monterrey" in Crabill (1968: 329). Beginning in the first half of the 20th century, the locality was reachable by car from Monterrey and offered both a panoramic view and a point of access for climbing to the peaks nearby. The locality is given a coordinate corresponding to Mesa de Chipinque (lat 25.6075000°, lon -100.3550000°, 1300 m a.s.l., datum WGS84). This curated locality is to be applied to the literature records of *Newportia spinipes*, *Garrina leona*, *Lithobius michoacanus*, *Neolithobius aztecus*, and *Chomatophilus smithi* (see Results).

3. Location ID (Myriatrix): Nuevo León: García municipality: Cuesta de los Muertos. **locationID (DarwinCore):** https://myriatrix.myspecies.info/content/nuevo-león-garcía-municipality-cuesta-de-los-muertos.

Sources: Shelley (2002: 48) and this work. **Locality remarks:** The locality is given a coordinate corresponding to "Halfway between Monterrey and Saltillo, Cuesta los Muertos, 4000 ft." by Shelley (2002: 48). The elevation of the literature record was taken into account, approximated to 1200 m a.s.l., and placed on a point where the old road, a short secondary road, and the 1200 m elevation line meet (lat 25.6533000°, lon -100.7409000°, 1200 m a.s.l., datum WGS84).

All decimal degrees coordinates have seven digits after the decimal separator, not to indicate precision but to allow reversible transformation between coordinate formats without introducing rounding errors (see Zermoglio et al. 2020). A supplementary Localities Excel table is provided, with the "Location identifier (Myriatrix)" field and fields matching the current DarwinCore standard (locationID, continent, country, stateProvince, county, locality, decimalLatitude, decimalLongitude, geodeticDatum, coordinateUncertaintyInMeters, verbatimCoordinateSystem, maximumElevationInMeters, georeferencedBy, georeferencedByID, georeferenceProtocol, georeferenceSources, georeferenceRemarks) as per the Darwin Core Quick Reference Guide (Darwin Core Maintenance Group 2021).

8) People: Collectors and identifiers of specimens can be managed through Scratchpads "biographic profiles", the expression used by Smith et al. (2009), which are basically Scratchpads user profiles. The biographic profiles can be linked to specimens through the Specimen/Observation content type fields "Collector" (corresponding to the recordedBy DarwinCore property) and "Identified by" (corresponding to the identifiedBy DarwinCore property). Disambiguation of people was achieved through recording the date of birth, place of birth, and date of death (when applicable), as well as by linking the profiles to their respective Wikipedia and Wikidata pages (when available).

Among the nine lots examined in this work, only five had "collector" information, as "Speyer". The person referred to is nevertheless not a field collector but a collectionist and

vendor. His correct name is difficult to standardize. Unresolved name and spelling variants have been addressed by Schultz (2016: 5). The primary name variant chosen for recording in Myriatrix is "Arthur Johannes Speyer", as it was widely circulated through announcements in the periodical "*Insekten-Börse - Internationales Wochenblatt der Entomologie*". The alternative names "Arthur Karl Hans Friedrich August Speyer" and "Arthur Speyer I" are also recorded as provided by Schultz (2016: 5).

Regarding people as identifiers of specimens, Karl Kraepelin and the author of the present work were the final identifiers of the nine lots. However, it should be noted that information on both first and subsequent identifiers may end up in the "Remarks" field for a specimen, rather than in the "Identified by" field. For example, Karl Kraepelin was the first identifier of a specimen as *Scolopendra viridis*, but the specimen was reidentified by the author of this work as *Hemiscolopendra marginata*. Therefore, the information of the first identifier was recorded in the "Remarks" field. In the case of the three specimens of *Scolopendra robusta*, it was deemed convenient to keep the original, invalid scientific name, as the valid name *Scolopendra gigantea* can be retrieved from the classification in Myriatrix, which displays the parent-child relationship among the two names. Therefore, the first identifier (Karl Kraepelin) was entered in the "Identified by" field, while subsequent identifiers of the paratype (Rowland Shelley) and the holotype and non-type (the author of this work) as *S. gigantea* were relegated to the "Remarks" field of the respective specimens.

9) Specimens: In Scratchpads, specimen records are based on the Darwin Core version 1.2.1 fields (see Smith et al. 2009), implemented in the Specimen/Observation content type. All of the nine lots and 14 specimens from the MZS and the ZMH mentioned in this publication are recorded in the specimen database of Myriatrix. Only the two species (*S. heros*, *H. marginata*), four lots and 9 specimens considered to be truly coming from Monterrey were linked to the "Nuevo León: Monterrey municipality: Monterrey" location. The holotype of *S. robusta* and the two specimens of *E. trigonepoda trigonepoda*, for which the locality Monterrey is undoubtedly spurious, were not linked to a location in Myriatrix but supplemented with geographic remarks. The paratype and non-type of *S. robusta*, which have no definite locality but just country information, were also not linked to a location but supplemented with geographic remarks. A supplementary Specimens Excel table is provided.

10) Images: Scratchpads has an Image content type and modules which allow bulk upload, organization of images into galleries, and image annotation with keywords and controlled vocabularies on preparation and imaging techniques (see Smith et al. 2009).

These capabilities make Scratchpads suitable for managing collections of images such as scanned card indexes. Having this in mind, the card index "Myriapodes - Fichier allemand", from the German period (1870-1920) of the Musée Zoologique de Strasbourg was scanned on 14 May 2018. The resulting 78 images include the card index wrapping sheet, 39 card images of Chilopoda, 2 images of a recent (2004) list of donated Chilopoda which acts as physical card separator, and 36 card images of Diplopoda. All the images were uploaded to Myriatrix, tagged with the "Imaging technique" vocabulary term "Scan", and organized in the image gallery "Myriapodes - Fichier allemand" (https://myriatrix.myspecies.info/content/myriapodes-fichier-allemand).

In Scratchpads, images can be associated with specimens (see Smith et al. 2009). This capability was used to associate individual catalog card images to the specimens recorded on them, for example the catalog card MZS-CA-MA_0033 (https://myriatrix.myspecies.info/file/20887) was associated with both the holotype and the non-type of *Scolopendra robusta*. In total, 6 lots and 11 MZS specimens were associated with catalog cards in the card index "Myriapodes - Fichier allemand".

There is also a card index at the ZMH, but no complete scan exists at the moment. The author volunteered to scan the card index in January 2019 but there was not enough time to complete the process. Therefore, rather than creating an incomplete image gallery, a picture of the ZMH catalog card (https://myriatrix.myspecies.info/file/41180) taken in November 2017 and corresponding to the paratype of *S. robusta* was associated with the specimen.

Unlike the ZMH card index, Kraepelin's Scolopendromorpha catalog was scanned in full by the author in January 2019. The scanning was done with a book scanner at the City and University Library, Hamburg, using the predefined settings. The acquisition quality was variable, not good overall, time-consuming, and with frequent capture errors. Some pages were re-scanned after the first round, with better results. Re-scanning Kraepelin's Scolopendromorpha catalog with a press (flatbed) scanner is recommended for creating a definitive digital version of archival quality. There are two entries for the paratype of *S. robusta* in the catalog, one on page 68, which is crossed out, and a second, clean entry on page 69. A composite image of the relevant fragments of both pages was made and associated with the *S. robusta* paratype entry in Myriatrix.

5. Supplementary files

Supplementary tables. 1. Scientific names Excel table. 2. Localities Excel table. 3. Specimens Excel table. 4. *Scolopendra robusta* holotype spines distribution Excel table. All

supplementary tables were uploaded to Zenodo (https://doi.org/10.5281/zenodo.20021186).

RESULTS

Systematic account

Subphylum Myriapoda Latreille, 1797
https://myriatrix.myspecies.info/myriatrix/myriapoda
Class Chilopoda Latreille, 1816
https://myriatrix.myspecies.info/myriatrix/chilopoda
Subclass Pleurostigmophora Verhoeff, 1901
https://myriatrix.myspecies.info/myriatrix/pleurostigmophora
Order Scolopendromorpha Pocock, 1895
https://myriatrix.myspecies.info/myriatrix/scolopendromorpha
Family Scolopendridae Leach, 1814
https://myriatrix.myspecies.info/myriatrix/scolopendridae
Subfamily Scolopendrinae Leach, 1814
https://myriatrix.myspecies.info/myriatrix/scolopendrinae
Genus *Scolopendra* Linnaeus, 1758
https://myriatrix.myspecies.info/myriatrix/scolopendra

***Scolopendra heros* Girard, 1853**

Figs 1-3

Synonymy list: See Shelley (2002: 28, 2006: 39).
Scolopendra heros Girard, 1853: 272.
https://myriatrix.myspecies.info/myriatrix/scolopendra-heros

Diagnosis: Antennae with 24-26 antennal articles. Basal 2-6 (usually 3-5) antennal articles sparsely hirsute. Cephalic plate with 2 anteriorly diverging longitudinal paramedian sutures. Articles 2 and 3 of second maxillae with ventral ridges ending in teeth. Forcipular coxosternite with transverse suture. T1 with anterior transverse sulcus. T21 without median longitudinal suture. LL19-20 without dorsodistal prefemoral spines. Distomesal prefemoral process of L21 with 5-20 (usually 6-9) distal spines. See Shelley (2002: 12, 29-30) and Lewis (2016: 24, Table 1).

Distribution: *Scolopendra heros* occurs in the USA and Mexico. **USA:** Louisiana, Arkansas, Missouri, Kansas, Oklahoma, Texas, New Mexico, and Arizona (see Shelley 2002: 33-34), and Colorado (Guarisco et al. 2007). **Mexico:** Chihuahua, Coahuila, Sonora, Sinaloa, and Nayarit (see Shelley 2002: 34-35), and Colima (Cupul-Magaña 2010b: 133). Shelley (2006: 26) considered *S. heros* a plausible inhabitant of Monterey, Nuevo León. The seventh Mexican state, Nuevo León, is indeed added here, based on specimens from Monterrey (see material examined). The new record is given a coordinate corresponding to Monterrey: La Alameda (lat 25.6761000°, lon -100.3211000°, 544 m a.s.l., datum WGS84). Currently under the name of Alameda Mariano Escobedo, the park is located in the center of Monterrey and dates back to the 19th century.

Despite other specimens of Scolopendromorpha from Monterrey at the MZS being discussed as bearing an incorrect locality label in this work, the record of *S. heros* is credible because of the known distribution of the species and also because additional specimens from Monterrey existed at the Stuttgart museum and were identified by Kraepelin. The specimens were destroyed during World War II and the catalogs containing arthropods in Stuttgart have not been digitized (Dr. Joachim Holstein, pers. comm., 4 July 2023), but there are two records from Stuttgart in Kraepelin's catalog, page 68 (see Fig. 1).

Deleted records: USA: Deleted from New York by Underwood (1887: 64). Deleted from Florida, Georgia, Alabama, Kentucky, Nebraska, Colorado, Utah, California and eastern Louisiana by Shelley (2002: 33). **Mexico:** The species

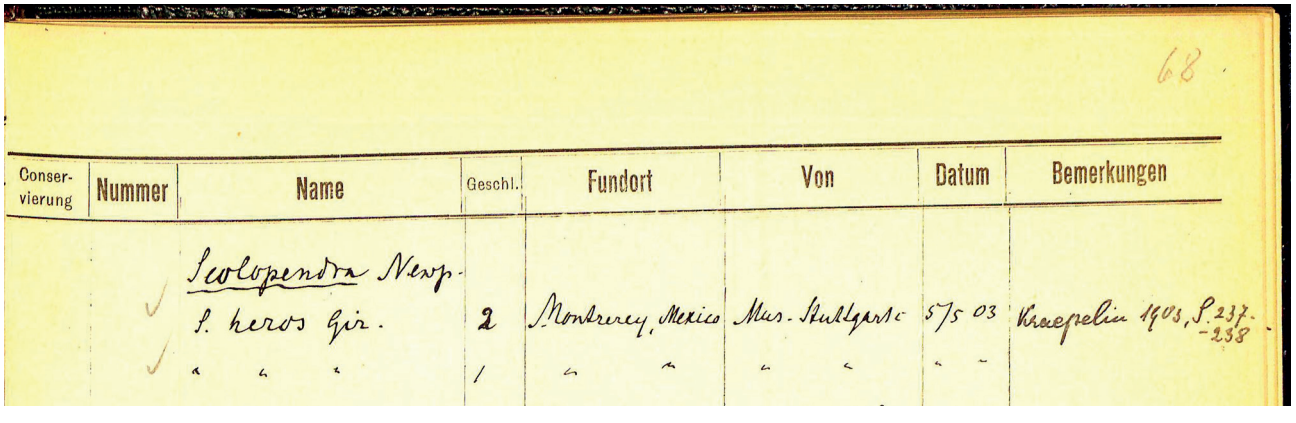

Fig. 1. Kraepelin's Scolopendromorpha catalog at the ZMH, page 68, showing two entries for *Scolopendra heros* Girard, 1853 from Monterrey, Mexico.

was reported from Yucatán by Cupul-Magaña and Bueno-Villegas (2015: 8) and the record was added to the modifications of localities of *S. heros* made by Flores-Guerrero et al. (2015: 74). The record was based on a misidentification of a specimen of *S. sumichrasti* (Cupul-Magaña et al. 2018: 86).

Material examined: |**MZS Myr 235**|, handwritten, pencil, Marie Meister's label. |Scolopendra heros Gir. // Mexico Monterey Speyer 1903|, part printed, part handwritten (not Kraepelin's handwriting), ink. Three specimens, of which one is a male with visible gonopods (Fig. 2). |**MZS Myr 236**|, handwritten, pencil, Marie Meister's label. |Monterey Mexico 1901 // Monterey Mexico 1901|, handwritten, ink. |Scolopendra heros Gir|, handwritten, pencil, Karl Kraepelin's label. One specimen. |**MZS Myr 261**|, handwritten, pencil, Marie Meister's label. |Monterey Mexico Speyer 1901|, handwritten, ink. |Scolopendra heros Gir.|, handwritten, pencil, Karl Kraepelin's label. Four specimens.

Morphological remark: The presence of male gonopods in *Scolopendra heros* was not reported in the consulted literature. Therefore, it was documented here (Fig. 2).

Curatorial remarks: The card catalog ("Fichier allemande") has a card (Fig. 3) which attributes the *S. heros* identifications to Kraepelin. The collection year for the specimens registered on the catalog cards are 1900 and 1901, but not 1903. The year chosen for databasing MZS Myr 235 is 1900, the year on the card, which was deemed to be more consistent with Kraepelin identifying the specimens early in 1903. MZS Myr 236 has no collector stated on the label, but it was databased as "Speyer" following the catalog card. The date on which the specimens were identified by Kraepelin was set to 1903, the latest possible year as per the publication of Kraepelins's Scolopendromorpha catalog (Kraepelin 1903).

***Scolopendra polymorpha* Wood, 1861**

Synonymy list: See Shelley (2002: 20, 2006: 39).

Scolopendra polymorpha Wood, 1861: 11.

https://myriatrix.myspecies.info/myriatrix/scolopendra-polymorpha

Remark: Expected to occur in but not yet recorded from Monterrey, Nuevo León.

Diagnosis: Antennae with (21)25-31 antennal articles. Basal 3-16 (usually 7-12) antennal articles sparsely hirsute (but see remarks). Cephalic plate without longitudinal paramedian sutures. Articles 2 and 3 of second maxillae ventrally rounded, without ventral ridges. Forcipular coxosternite without transverse suture. T1 with anterior transverse sulcus.

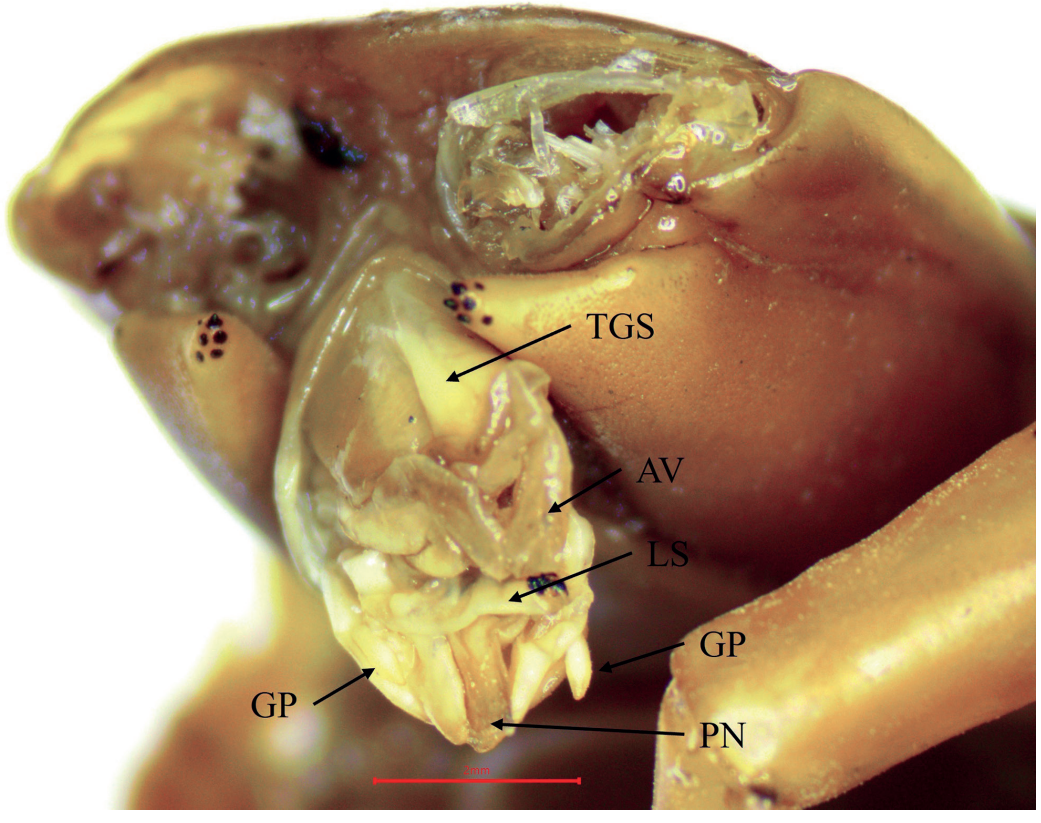

Fig. 2. MZS Myr 235, *Scolopendra heros* Girard, 1853, one of three specimens in the lot, adult male. AV, anal valve; GP, gonopod; LS, lamina subanalis; PN, penis; TGS, tergite of genital segment. (Scale bar: 2 mm.)

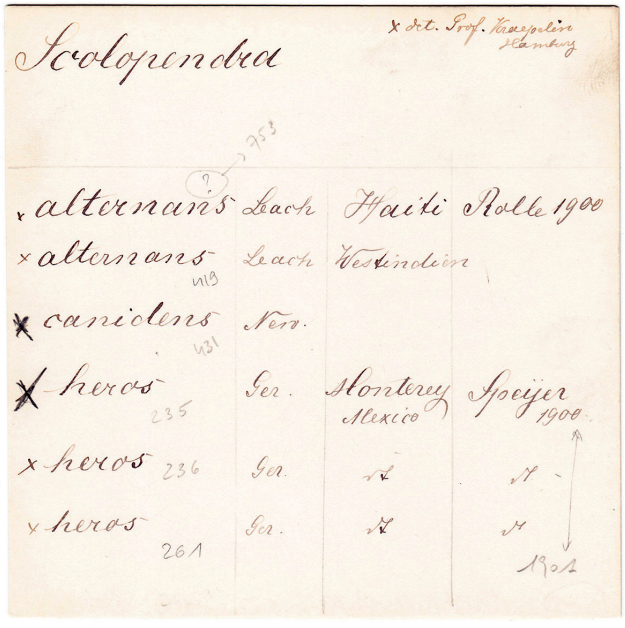

Fig. 3. Card CAMA_0025 in the card catalog ("Fichier allemande") from the MZS, attributing *Scolopendra heros* specimen identifications to Karl Kraepelin ("det. Prof. Kraepelin Hamburg"). https://myriatrix.myspecies.info/sites/default/files/MZS-CAMA_0025%20Scolopendra.tif.

T21 with median longitudinal suture. LL19-20 without dorsodistal prefemoral spines. Distomesal prefemoral process of L21 with 4-12 (usually 4) distal spines. See Shelley (2002: 13, 22) and Lewis (2016: 24, Table 1).

Distribution: *Scolopendra polymorpha* occurs in the USA and Mexico, and it has been introduced into the Hawaiian Islands. **USA:** Texas, Oklahoma, Kansas, Nebraska, New Mexico, Arizona, Utah, Nevada, and California (see Shelley 2002: 23). Recorded from the Hawaiian Islands by Selley (2000: 44). Recorded from Louisiana, South Dakota, Montana, Wyoming, Colorado, Idaho, Oregon, and Washington by Shelley (2002: 25-27). It does not occur at high elevations in the Rocky Mountains and associated ranges in the USA, from northern New Mexico northward and in the eastern Colorado Plateau, so its range is not continuous in the north (Shelley 2002: 24; Shelley 2006: 16). **Mexico:** Baja California (Norte), Baja California Sur, Chihuahua, Sonora, Querétaro, and Puebla (see Shelley 2002: 23). Recorded from Coahuila, Nuevo León, Durango, Zacatecas, and Guerrero by Shelley (2002: 28). Recorded from Jalisco by Cupul-Magaña (2009a: 81-82). Recorded from México City (as the former Distrito Federal), Hidalgo, Morelos, Oaxaca, Sinaloa, and Tamaulipas by Cupul-Magaña (2010a: 4-5). Recorded from Michoacán by Cupul-Magaña (2013a: 5). Recorded from Tres Marías Islands (offshore Nayarit) by Pocock (1895: 19-20) under the name *Scolopendra copeana*, a subsequent spelling of *Scolopendra copeiana* Wood, 1862. The first definite island record from the archipelago is from María Cleofas Island by Flores-Guerrero et al. (2018: 3). See remarks.

Deletions: Central America, Belize, Honduras, Venezuela, and Brazil were deleted by Shelley (2002: 25). Shelley (2006: 16) wrote "possibly Belize". Reported from Iraq by Ahmed and Hussen (2017) but their figure 3 depicts *Scolopendra valida* Lucas, 1840. The record from Iraq was repeated by Flores-Guerrero et al. (2018: 1) without comment.

Remarks on distribution: Shelley (2002: 13) gave the basal 7-12 antennal articles sparsely hirsute in his key to North American *Scolopendra* species. Shelley (2002: 22) gave the basal 3-16 antennal articles sparsely hirsute in his diagnosis of *S. polymorpha*. Shelley (comm. pers. to CAMM) was not scoring the number of tarsal spurs on the locomotory legs. Therefore, he may have inadvertently lumped *S. aztekorum* with *S. polymorpha*, which would have in turn artificially extended the interval of basal antennal articles sparsely hirsute beyond the 7-12 that he gave in the key towards the higher values (e.g., 13 to 16) that he gave in the diagnosis. A revision of the material of *S. polymorpha* examined by Shelley (2002), especially that of California, Nevada, and Arizona in the USA and Baja California (Norte), Baja California Sur, and Sonora in Mexico could help in disentangling the variation in these two species and to improve our knowledge of the geographic range of *S. aztekorum*. Shelley (2002: 12) also discussed that *S. polymorpha* appears to hybridize with *S. viridis* in central and western Texas and New Mexico, but the two species occur sympatrically and are distinct in Utah, Arizona, and Nevada.

Scolopendra viridis Say, 1821

Synonymy list: See Shelley (2002: 13, 2006: 37).

Scolopendra viridis Say, 1821: 110.

https://myriatrix.myspecies.info/myriatrix/scolopendra-viridis

Remark: Expected to occur in but not yet recorded from Monterrey, Nuevo León.

Diagnosis: Antennae with 21-31 antennal articles. Basal 4-7 antennal articles sparsely hirsute. Cephalic plate without longitudinal paramedian sutures. Articles 2 and 3 of second maxillae ventrally rounded, without ventral ridges. Forcipular coxosternite without transverse suture. T1 with anterior transverse sulcus. T21 with median longitudinal suture. LL19-20 without dorsodistal prefemoral spines. Distomesal prefemoral process of L21 usually with 2 distal spines. See Shelley (2002: 12-14) and Lewis (2016: 24, Table 1).

Distribution: *Scolopendra viridis* occurs in the USA, Mexico, and Central America. **USA:** North Carolina, South Carolina, Georgia, Florida, Louisiana, and Texas (see Shelley 2002: 15-16). Recorded from Alabama, Mississippi,

Oklahoma, Kansas, Colorado, New Mexico, Arizona, Utah, and Nevada by Shelley (2002: 16, 17-18). **Mexico:** Baja California Sur, Sonora, Nuevo León, Veracruz, Colima, Mexico City (as Distrito Federal), Morelos, and Puebla (see Shelley 2002: 16). Recorded from Chihuahua, Coahuila, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, México, Michoacán, Nayarit, Oaxaca, Querétaro, San Luis Potosí, Sinaloa, Tamaulipas, and Zacatecas by Shelley (2002: 19-20). Recorded from Baja California (Norte) and Chiapas by Cupul-Magaña (2010a: 5). Recorded from Aguascalientes by Lucio-Palacio (2010: 147). **Central America:** Guatemala, Honduras, El Salvador, Nicaragua, and Costa Rica (see Shelley 2002: 16). Reported from Panama (including Pearl Islands: San José Island) by Shelley (2002: 20).

Deletions: Canada; USA: Virginia, Tennessee, Oregon, and Washington; Venezuela; Brazil, all by Shelley (2002: 16).

DELETED SPECIES

Scolopendra gigantea Linnaeus, 1758

Figs 4-10

Synonymy list: See Shelley (2006: 36) and this work.

Scolopendra gigantea Linnaeus, 1758: 638.

https://myriatrix.myspecies.info/myriatrix/scolopendra-gigantea

Scolopendra robusta Kraepelin, 1903: 228 [key], 238 [description], **syn. nov.**

https://myriatrix.myspecies.info/myriatrix/scolopendra-robusta

Scolopendra robusta: Attems (1930a: 45-46); Bücherl (1939: 202); Bücherl (1942: 288); Weidner (1960: 71); Shelley (2006: 1, 26, 40, 42); Cupul-Magaña (2009: 51); Cupul-Magaña (2013b: 19, 22, 23, 36); Lewis (2016: 24, 25); Cupul-Magaña et al. (2018: 86, 89); Martínez-Coronel et al. (2019: 2); Thofern et al. (2021: 77, 98, 102); Díaz and Reinoso-Flórez (2023: 2, 3, 7). Omitted by Bücherl (1974).

Scolopendra gigantea robusta: Sandefer, 1998: unnumbered page.

https://myriatrix.myspecies.info/myriatrix/scolopendra-gigantea-robusta

Diagnosis: Antennae with 17 antennal articles. Basal 7-10 (usually 8-9) antennal articles sparsely hirsute. Cephalic plate with 2 anteriorly diverging longitudinal paramedian sutures. Article 3 of second maxillae with ventral ridge and with a small, pointed and sclerotized ventrodistal tip. Forcipular coxosternite with transverse suture. T1 with anterior transverse sulcus. T21 without median longitudinal suture. LL(1)2-20 with 2-4(5) dorsodistal prefemoral spines. Distomesal prefemoral process of L21 with 6-8 distal spines. See Kraepelin (1903: 233), Attems (1930a: 39-40), Shelley and Kiser (2000: 160-161), Shelley (2006: 26), and Lewis (2016: 24, Table 1).

Distribution: Panama (Quintero Arias and Cupul-Magaña 2013: 13), the Caribbean coastline of northern South America including Colombia, Venezuela, Guyana, and Suriname (Shelley 2006: 5), and the islands of Aruba, Curaçao, Margarita Island, and Trinidad (Shelley and Kiser 2000: 163; Shelley 2006: 5).

Records needing confirmation: Brazil: Goiás and Alagoas states (Bücherl 1942b; Shelley 2006: 5).

Deletions: Specimens of *S. gigantea* from the US Virgin Islands, Haiti, Mexico, and Honduras are assumed to represent accidental human importations or perhaps labeling errors; with only one individual from each of these areas, the species does not appear to be established in any of them (Shelley and Kiser 2000: 163, Shelley 2006: 5). Kraepelin (1903: 233) and Attems (1930a: 40) cited Brazil and Chile for *S. gigantea*, which were deleted by Shelley and Kiser (2000: 163, 165). A misidentified record of *S. gigantea* from Sinaloa state, Mexico by Sánchez Vargas (2002: 218, unnumbered figure) was corrected by Cupul-Magaña (2014a: 75) to *S. polymorpha*. Regarding the synonym *S. robusta*, Díaz and Reinoso-Flórez (2023: 8) cited Thofern et al. (2021) for the precise locality "Distribución en Colombia: Bogotá". This is a clear example of why specimens with only country-level data should not be given precise localities as Thofern et al. (2021: 77) did. The locality, which was used for assigning arbitrary coordinates to the ZMH paratype and not to the species itself, ended up being cited by Díaz and Reinoso-Flórez (2023: 8) as if it were a true Colombian locality. The locality "Bogotá" is here deleted for the species. Ideally, the paratype should also not bear such coordinates but the coordinates for the country centroid, or no coordinates at all. The *S. robusta* MZS holotype, supposedly from Monterrey, is deleted from Mexico in this work. This regrettable, anomalous case is the combined result of a species being inaccurately described and based on a holotype with incorrect locality data.

Material examined: Three specimens: the holotype from Mexico at MZS, one juvenile paratype from Colombia at ZMH, and one juvenile non-type from Colombia at MZS, probably from the same original lot as the paratype. The transcriptions of labels are given along with the description of each specimen.

Redescription of the holotype of *Scolopendra robusta*

Transcription of labels: Eight labels. Two labels glued onto the glass lid of the jar containing the holotype. |Scolopendra robusta Kraepelin nov. spec. Typus. Mexico Monterey Speyer 1900|, handwritten, ink. |**SCOLOPENDRA robusta** Krpln. MEXIQUE|, printed. One label tied to the jar. |MZS Myr 504 // Scolopendra Holotype|, handwritten, pencil, Marie Meister's label. One label glued onto the jar. |TYP.|, printed. Four labels inside the jar. |MZS Myr 504|,

handwritten, pencil, Marie Meister's label. |Monterey Mexico Speyer 1902|, handwritten, ink. |Scolopendra robusta Krpn. Typus n.sp|, Karl Kraepelin's handwriting, pencil. |Scolopendra gigantea Linnaeus, 1758 Det: C. Mtnez 22.v.2018|, handwritten, ink, Carlos Martínez's label. See Fig. 4.

Curatorial remarks: One label glued to the glass lid states the collecting date as 1900, while one label inside the jar states it as 1902. The related MZS catalog card also states 1902 (see Fig. 5). The latter year was selected for databasing.

Specimen preservation: The specimen is relatively well preserved (Fig. 6), with some damage to tarsungula and legs. It is in a straight-angled glass jar, topped with a glass lid (a simple rectangle of glass). The specimen is tied with a wire to a long rectangular glass plate. Legs are stretched to the sides, embracing the glass plate.

The text below contains parts by Kraepelin (1903) and the redescription proper.

Antennae: With 17 antennal articles, very elongated, reaching until the middle of the 7th leg-bearing segment according to Kraepelin (1903: 238). The right antennae do seem to be likely to reach the middle of the 7th segment in what was the non-extended living specimen. Now it reaches at least until the posterior border of the 6th segment. Antennae with the 9 basal articles, smooth, glossy, sparsely setose, abruptly becoming setose from the 10th antennal article onwards. Articles progressively becoming longer from the first, which is submoniliform, to the 9th, which is about 3 times as long as wide. Elongation continues progressively until reaching the length:width proportion of 4:1 mentioned by Kraepelin (1903: 238).

Fig. 4. MZS Myr 504, *Scolopendra robusta* Kraepelin, 1903, holotype, adult. Images of specimen labels.

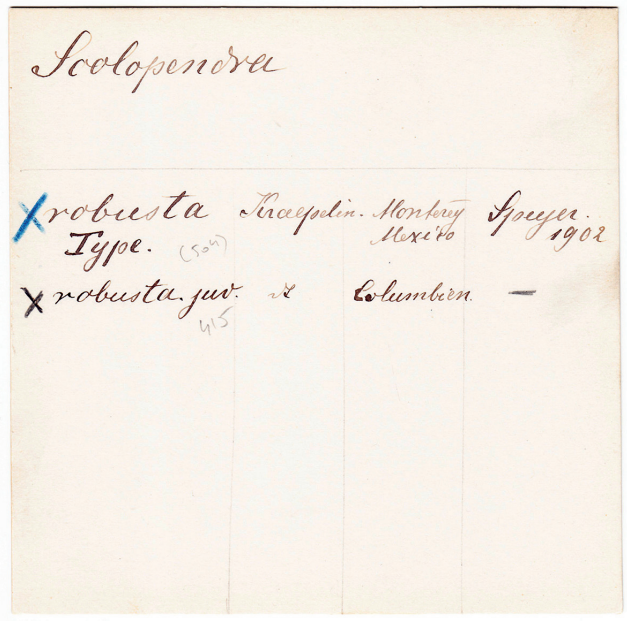

Fig. 5. Card CAMA_0033 in the card catalog ("Fichier allemande") from the MZS, mentioning two specimens of *Scolopendra robusta* Kraepelin, 1903, including the holotype. https://myriatrix.myspecies.info/sites/default/files/MZS-CAMA_0033%20Scolopendra.tif.

Cephalic plate (Fig. 7A): Sparsely punctate. With two anteriorly diverging, complete paramedian sutures. With an arched transverse posterior marginal suture whose lateral ends extend forward for about ¼ to 1/3 of the length of the cephalic plate, the median part of the suture is reticulated.

Second maxillae (Fig. 7D): Second maxillary articles 1 and 2 without distal triangular cusp but with a ventrodistal bulge. Kraepelin (1903: 239) also reported article 2 (vorletztes Tasterglied) as having no triangular cusp (dreieckiger Zahnhöcker). Article 2 also with dorsodistal internal spur(s), one on the right second maxilla and abnormally two, close to each other, on the left second maxilla. Article 3 with ventral ridge and with a small, pointed and sclerotized ventrodistal tip. Dorsal brush with distal bristles not projected. Claw-shaped pretarsus with two accessory spurs. Accessory spurs about half the length of the pretarsus, pointed ventrodistal tip of article 3 slightly longer than half the length of the ventral accessory spur.

Forcipular apparatus: Forcipules dark ferruginous, punctate. Median anterior suture of coxosternite bifurcated posteriorly, the ends diverging and reaching the anterior transverse suture (Fig. 7B). The oblique sutures that form the sides of the typical suture-triangle are also bifurcated to define the basal suture-sulcus of the tooth-plates. A single short strong seta is present in a small, rounded depression approximately in the middle of tooth-plate. The basal sulci of the tooth-plates form an obtuse angle of 106° (measured with camera software) when they meet at the middle, different from "almost in an acute (or right) angle" mentioned by Kraepelin (1903: 239). Tooth-plates approximately as long as wide, with one external tooth and what is assumed as three internal teeth fused in a truncate anterior margin, however,

Fig. 6. MZS Myr 504, *Scolopendra robusta* Kraepelin, 1903, holotype, adult male. Specimen photographed out of its glass jar. Flat glass lid of jar shown on the left, with two glued labels. Photo by Dr. Marie Meister.

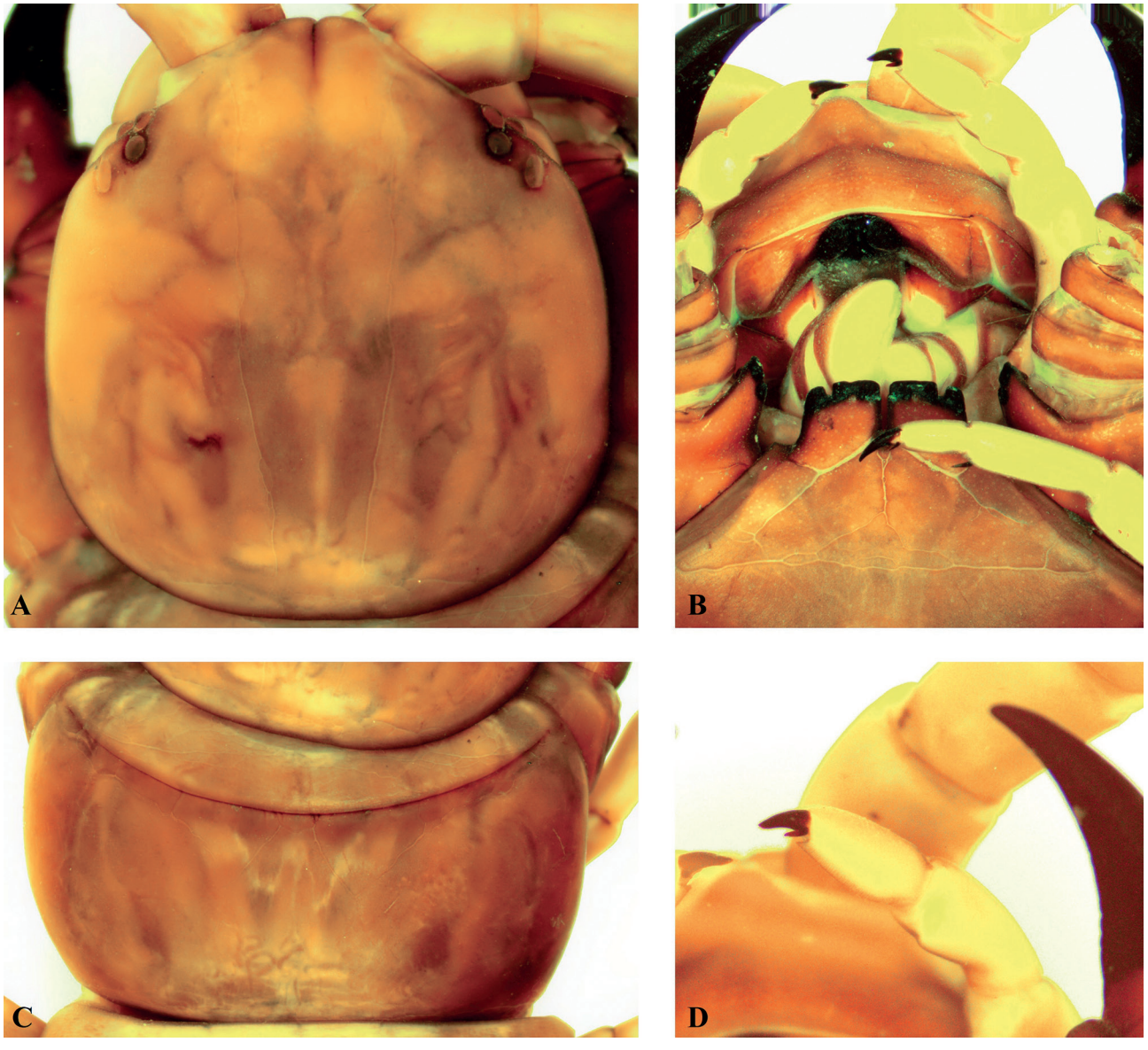

Fig. 7. MZS Myr 504, *Scolopendra robusta* Kraepelin, 1903, holotype. **A**, cephalic plate with two paramedian sutures; **B**, coxosternite with anterior transverse suture; **C**, T1 with anterior transverse sulcus and fine sutures; **D**, left second maxilla, article 2 with ventrodistal bulge, article 3 with ventral ridge and ventrodistal tip.

no individual internal teeth are defined. Kraepelin (1903: 239) mentioned the teeth count as "4,4 Zähnen". Process of trochanteroprefemur surpassing the anterior margin of the tooth-plates, with two (apical and median) well-developed teeth. Tarsungula breaking, probably damaged during specimen mounting. Tarsungula with one well-defined and somewhat serrated ridge, a second less marked ridge in a more ventral position.

Tergites: Anterior margin of T1 (Fig. 7C) covered by posterior margin of cephalic plate. T1 with anterior transverse sulcus. T1 without the usual fine longitudinal paramedian sutures or, more precisely, without their posterior parts, but the anterior bifurcations present, the lateral external branch of each suture extending outwards and touching the transverse sulcus with fine secondary ramifications about 5 times left/right. There are also some sutures anterior to the transverse sulcus. T2 with very fine longitudinal paramedian sutures distinguishable on its posterior half. TT3-20 with complete longitudinal paramedian sutures. According to the composite description of Kraepelin (1903: 238), the paramedian sutures start on T2, T3, or T4. T5 with anterior lateral oblique sutures, not seen on other tergites. TT4-21 with margination, on T4 the elevated margins present anteriorly, from T5 onwards complete. T21 not punctate, with

smoothly arched projected posterior margin, without median longitudinal suture, as described by Kraepelin (1903: 238). T21 (Fig. 8A) with median longitudinal elevation but not sufficiently defined from its surroundings to be called a keel.

Sternites: SS2-3 with longitudinal paramedian depressions, sutures not marked. Sutures marked anteriorly on S4 and onwards, most sternites with a transverse suture on posterior third, at which the paramedian sutures end, except for S20 where the paramedian sutures are complete. This slightly differs from Kraepelin (1903: 239), who described SS2-20 as having "not totally complete longitudinal sutures". S21 longer than basal width, sides convergent, posterior border straight but with posterior corners rounded. Anterior and posterior transverse suture networks present in some sternites. Anterior suture network from S1, reduced on S17, not seen on SS18-20. Posterior suture network from S2 onwards, on S2 with very few posterior oblique reticles, developing progressively from S3, on S17 and S20 reduced again, on SS18-19 nearly absent. Posterior transverse suture present from S2, it is anterior to the posterior suture network, and it is related to the point where the paramedian sutures end.

Locomotory legs: Some anterior legs were detached at some point and were mounted back by an unknown person, using metallic pins to reattach the legs to the specimen. However, the original arrangement of the legs was not preserved. No LL1-4 and LL9-21 were broken or fully detached, so problems related to the original position of the detached legs are confined to trunk segments 5-8. Previous restoration of LL5-8 right seemed accurate, with the exception of L7. The position L7 right was occupied by a left side leg, as revealed by the dorsodistal spines being in anterior position rather than in posterior position. The original L7 right seemed to be in position L8 left.

Previous restoration of left side legs was inaccurate. L5 left was occupied by a relatively large leg, which seemed to be the original L8 left. Position L5 left could be filled with the left leg that was attached to position L7 right. As mentioned above, position L8 left was occupied by a right-side leg. Positions L6 left and L7 left could have the original legs attached, as they corresponded with size progression. However, anterior legs are usually paler and mid-body legs darker, while the reattached L6 left was darker and the reattached L7 left was paler. Those two legs might be in an abnormal position or might belong to another specimen.

Three was the minimum number of changes to make in order to restore a more natural position of the legs. Therefore, L7 right went to position L5 left, L5 left went to position L8 left and L8 left went to position L7 right. L6 left and L7 left were not moved. The spine count of locomotory legs was performed after final restoration by CM, but it should be taken into account that the specimen may have been previously restored using legs from another specimen. Consequently,

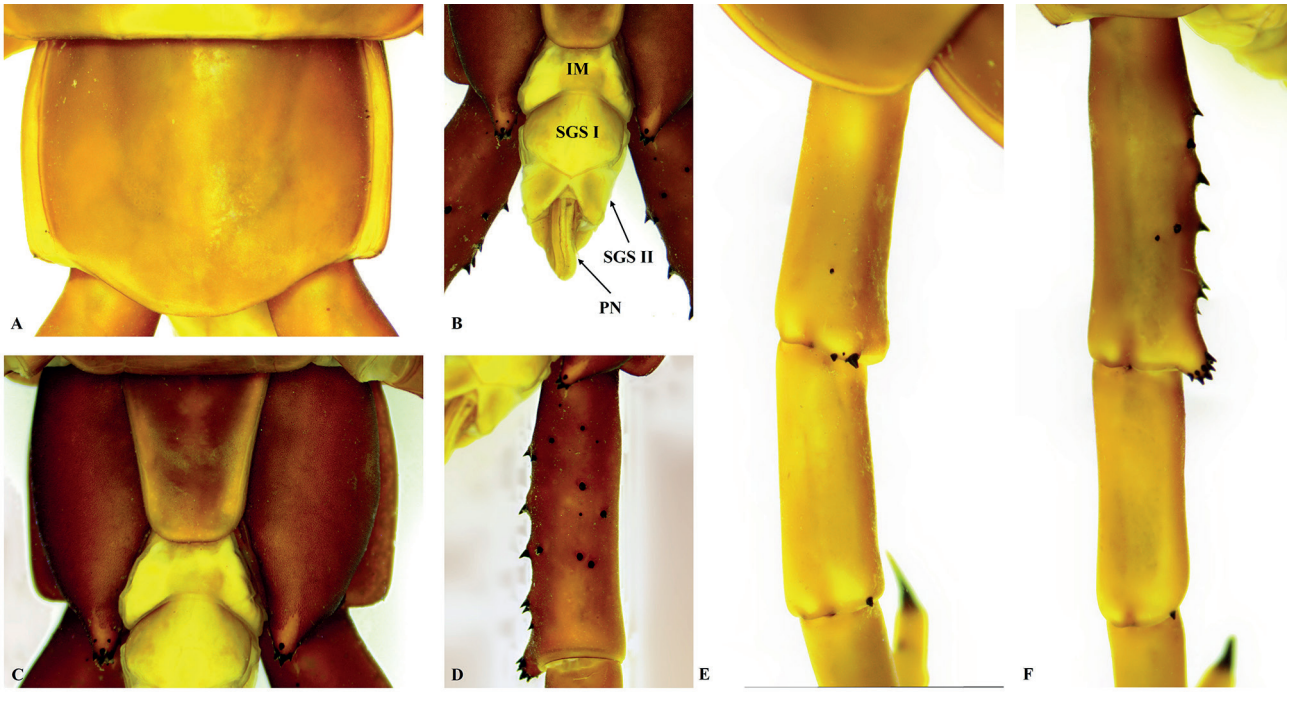

Fig. 8. MZS Myr 504, *Scolopendra robusta* Kraepelin, 1903, holotype. **A**, T21; **B**, postpedal segments, ventral view. IM, intermediate membrane; PN, penis; SGS I, sternite of genital segment 1; SGS II, sternite of genital segment 2; **C**, S21 and coxopleura; **D**, L21 left prefemur, ventral view; **E,** L20 left prefemur and femur, dorsal view; **F**, L21 left prefemur and femur, dorsal view. A minute spine on the coxopleura is also visible.

the prefemoral and femoral spine count from LL5-8 is not trustable.

The spur count is as follows: L1 right with one prefemoral, one femoral, and one tibial lateral anterior spur, and with one lateral anterior and one ventral tarsal spur on tarsus 1. L1 left broken, only prefemur and a basal fragment of the femur remaining, prefemur with one lateral anterior spur. LL2-20 with one ventral tarsal spur. Kraepelin (1903: 239) stated that LL1-20 had one tarsal spur, while L1 actually have two.

Contrary to Kraepelin's description, the prefemora and femora of locomotory legs present distal spines. The spine count is presented in table I. L1 does not present prefemoral or femoral spines. LL2-20 prefemora have 2-5 dorsodistal spines, the most frequent number being 3 spines, present in 28 out of 38 legs. One dorsodistal spine is present in less than half (12 out of 38) of LL2-20 femora, their presence being neither regular nor strictly bilaterally symmetric and confined to L4, L5, L7, L8, and LL16-20. Four of the reattached LL5-8 have femoral spines. L20 left (Fig. 8E) with 4 prefemoral dorsodistal spines, 2 of regular size and 2 smaller ones, 1 prefemoral dorsal spine on distal third, and 1 femoral dorsodistal spine. L20 right with 5 prefemoral dorsodistal spines, 4 of regular size and 1 smaller one, 1 prefemoral dorsal spine on distal third, and 1 femoral dorsodistal spine. It is inexplicable how Kraepelin (1903: 239) missed the spines on the prefemora and femora of the locomotory legs. For more details on the leg armature of the holotype, see supplementary table 4.

Coxopleura (Fig. 8C): Shape described by Kraepelin (1903: 239) as "blunt conically projected" (stumpf kegelförmig vorgezogen). Distoectal corner of coxopleura, close to the junction with T21, with one spine (Fig. 8F), as typical in *S. gigantea*. Internal region of the coxopleura bumped, covered by a pore-field which extends to the basal part of the coxopleural process. The pore-free stripe typical in *Scolopendra* species is present but very short, being confined to the coxopleural process, and is sharply defined from the pore-field. Pores small, very numerous, densely aggregated. No spines on posterior margin of the coxopleura, which is covered by pores. Right coxopleural process with ten spines, of which one dorsal medial, one laterodorsal internal medial, four distal, one subdistal lateral external, one subdistal ventral and two ventral medial. Left coxopleural process with seven spines, of which five distal, one dorsal medial and one subdistal ventral spine. In his composite description, Kraepelin (1903: 239) mentioned the coxopleural processes as having 5-8 apical spines and presenting basal spines, the count of the latter not being stated.

Ultimate leg telopodites: L21 long and slender. Prefemora with ventral spines (ventral external *sensu* Kraepelin, 1903) in a double row, and additionally lateral (mesal) and dorsolateral internal (dorsomesal) spines. Left prefemur with 5 large ventral spines and 2 minute spines intercalated among those. Right prefemur with 3 big ventral spines on medial third and 1 minute basal spine. The ventral (ventral external) spine count of the holotype seems to match that of Kraepelin (1903: 239), who described "3-5 (-7)" ventral external spines, the count of 3 most likely corresponding to L21 right prefemur and that of 5 (-7) to L21 left prefemur of the holotype.

Kraepelin (1903: 239) counted the ventral-internal (ventromesal), inner (mesal) and dorsal prefemoral spines together, gave the interval as "about 11-17" and stated that the spines are irregularly arranged. The arrangement of those spines is indeed irregular, but their number does not seem to match that of Kraepelin's count. L21 left prefemur (Fig. 8D, F) has 14 spines, of which 2 are in a ventromesal position on the basal third of the prefemur, the basalmost spine being minute, the other big; 2+2 spines occupy a mesal position; 1+1+1+1+2 are dorsomesal; 2 are dorsal medial. L21 right prefemur has 13 spines, of which 1+2+2+1 are mesal spines, 3+3 are dorsomesal internal, and 1 is dorsal medial.

Kraepelin (1903: 239) described the prefemoral process "as in the former species", namely *S. heros*, which has the process "nearly cylindrical, usually elongated". L21 prefemoral processes with 9 spines, arranged as a circlet of 8 spines and 1 central spine, in agreement with Kraepelin (1903: 239). Kraepelin (1903: 239) did not describe distal spines on L21 femora, an important character. Each L21 femur bears 1 distomesal spine (Fig. 8F). Pretarsus of L21 with two accessory spurs.

Postpedal segments (Fig. 8B): Intermediate membrane, sternite of genital segment 1, sternite of genital segment 2, and penis projected, visible in ventral view. Sternite of genital segment 1 somewhat rounded, slightly pointed posteriorly, without median suture. Sternite of genital segment 2 well-developed, almost bipartite, posterior border deeply and angularly excavated at the middle, the two resulting lobes rounded. Gonopods absent. Male. Sex of the specimen not mentioned by Kraepelin (1903).

Color: Dark brown (adult) to clay yellow (juvenile) (Kraepelin, 1903: 239). Adult holotype with cephalic plate, T1, and posterior tergites brownish. Anterior tergites (TT2-10) paler than posterior tergites. Antennae and anterior legs paler than anterior tergites. Posterior legs paler than posterior tergites but darker than anterior legs. Coxopleura dark ferruginous.

Length: Up to 180 mm (Kraepelin, 1903: 239). Current length 190 mm due to relaxation of mid-body segments, which in turn might be due to the specimen hanging for decades and tied with only one wire between the second and the third segments.

Nomenclatural remarks: The specimen of *Scolopendra*

robusta preserved at the MZS, Strasbourg, is the **holotype by original designation**. Kraepelin (1903: 239) wrote "Von dieser Art liegt mir ein prächtiges altes Exemplar (Typus) aus Mexiko (Monterey) vor, sowie ein junges Individuum aus Kolumbien...". The applicable articles of the Code (ICZN 1999) are: 73.1. Holotypes. A holotype is the single specimen upon which a new nominal species-group taxon is based in the original publication. 73.1.1. If an author when establishing a new nominal species-group taxon states in the original publication that one specimen, and only one, is the holotype, or "the type", or uses some equivalent expression, that specimen is the holotype fixed by original designation. The holotype has been previously mentioned indirectly by Shelley (2006: 26) as a holotype, and by Thofern et al. (2021: 77, entry 131) as a "syntype". Thofern et al. (2021: 77) evaluated the same primary information as in this work, but failed to identify the relevant Code articles governing the type status of the holotype. The specimen has no corresponding entry in Kraepelin's Scolopendromorpha catalog.

Geographic remarks: The type locality of *S. robusta* is ruled by Article 76.1 (ICZN 1999). The name bearing type being the holotype, the type locality is Monterrey, Nuevo León, Mexico. Shelley (2006: 1, 26) deleted *S. robusta* from Colombia, believing that the holotype and paratype were not conspecific. Cupul-Magaña (2009b: 51) subsequently listed the species as endemic to Mexico. In this work the holotype and paratype are reinstated as conspecific and so is the mention of the name in Colombian lists. The species is to be mentioned in Mexican lists under a "Deleted taxa" section, if any.

Redescription of the paratype of *Scolopendra robusta*

Transcription of labels: Six labels. |Scolopendra robusta Kraepelin|, borders printed, mecanuscript, glued to the jar. |Scolopendra robusta Kraepelin|, red label, mecanuscript, glued to the jar. |ZMH-A0000630|, printed. |Scolopendra robusta Krpln juv. Co-Typus Mus. Strassburg Columbien 5.V.03.|, borders printed, handwritten, ink, Karl Kraepelin's label. |Scolop. robusta Krpln. Co-Typ. Mus. Strassburg Columbien 5.V.03|, handwritten, ink, Karl Kraepelin's label. |Zoologisches Museum Hamburg Scolopendra robusta Kraepelin 1 Ex, Paratypus|, borders printed, handwritten, ink. See Fig. 9A.

Antennae: 17 antennal articles, the six basal sparsely setose, article 7 dorsally sparsely setose, ventrally densely setose, article 8 onwards densely setose. First article submoniliform, from the second onwards progressively more cylindrical and elongated, ultimate article longer than penultimate.

Cephalic plate: With two anteriorly diverging longitudinal paramedian sutures and a transverse posterior submarginal suture. Posterior margin overlapping anterior margin of T1.

Second maxillae: Ventral ridges developed on articles 2 and 3, more projected on the former. Article 2 with one dorsolateral internal spur. Article 3 with a relatively short dorsal brush, distal setae not reaching beyond the half of the claw-shaped pretarsus. Article 3 with a small ventrodistal projection. Pretarsus with two accessory spurs present, one dorsal and one ventral. Shelley (2006: 26) noted "small flanges on the telopodal articles of the second maxillae, thus conforming to *S. heros* Girard, 1853…".

Forcipular apparatus: Coxosternite with transverse suture, which forms a triangle with the deep oblique sutures that separate the tooth-plates from the rest of the coxosternite. Median longitudinal anterior suture present, starting from the angle where the tooth-plate sutures meet and not reaching the transverse suture. Tooth-plates wider than long, each with the typical strong seta. Teeth 3+3, the external tooth separated by a diastema from the two internal teeth, internal teeth more or less truncated and almost fused. No third internal tooth (fourth tooth) could be distinguished, in disagreement with the composite "4,4" teeth count by Kraepelin (1903: 239). Forcipular trochanteroprefemora with the internal process well-developed, bearing two teeth, one distal and one subdistal. Tarsungula with two internal ridges, the ventral one more developed the dorsal. Tarsungula crossing the midline of the body.

Tergites: The specimen seems close to molting or already molted, which made the observation of some tergal characters difficult. T1 with anterior transverse sulcus. Residual paramedian sutures faint, bifurcated anteriorly. TT2-20 with two fine longitudinal paramedian sutures. T21 without median longitudinal suture or keel. Margination not evident on T4, and not well-marked on other tergites but definitely present from TT5-21. Posterior border of T1 overlapped by T2, posterior border of T2 overlapped by T3, T3 overlapping anterior border of T4. Lateral oblique sutures seen on TT4-5.

Sternites: With two paramedian longitudinal sutures on at least the anterior half. Sutures associated with longitudinal depressions that continue to the posterior half of the sternite. Sternite 21 longer than wide, posterior margin slightly rounded.

Locomotory legs: Some detached and lost, including LL2-4 right, LL2-6 left, and L7 left with only prefemur remaining. L1 left with 1 prefemoral, 1 femoral, and 1 tibial anterior lateral distal spur, and 2 distal tarsal spurs, one anterior and one ventral. L1 right with ventral tarsal spur missing, socket not seen. One well-developed, long, ventral tarsal spur on all preserved legs other than L1 and until L20. With 2 or 3 dorsodistal spines on the prefemur of almost all remaining locomotory legs, and as many as 5 spines. L19 left with 3, L20 left with 5, L19 right with 4, and L20 right with 3 spines. L20 left/right with one middorsal posterior spine on

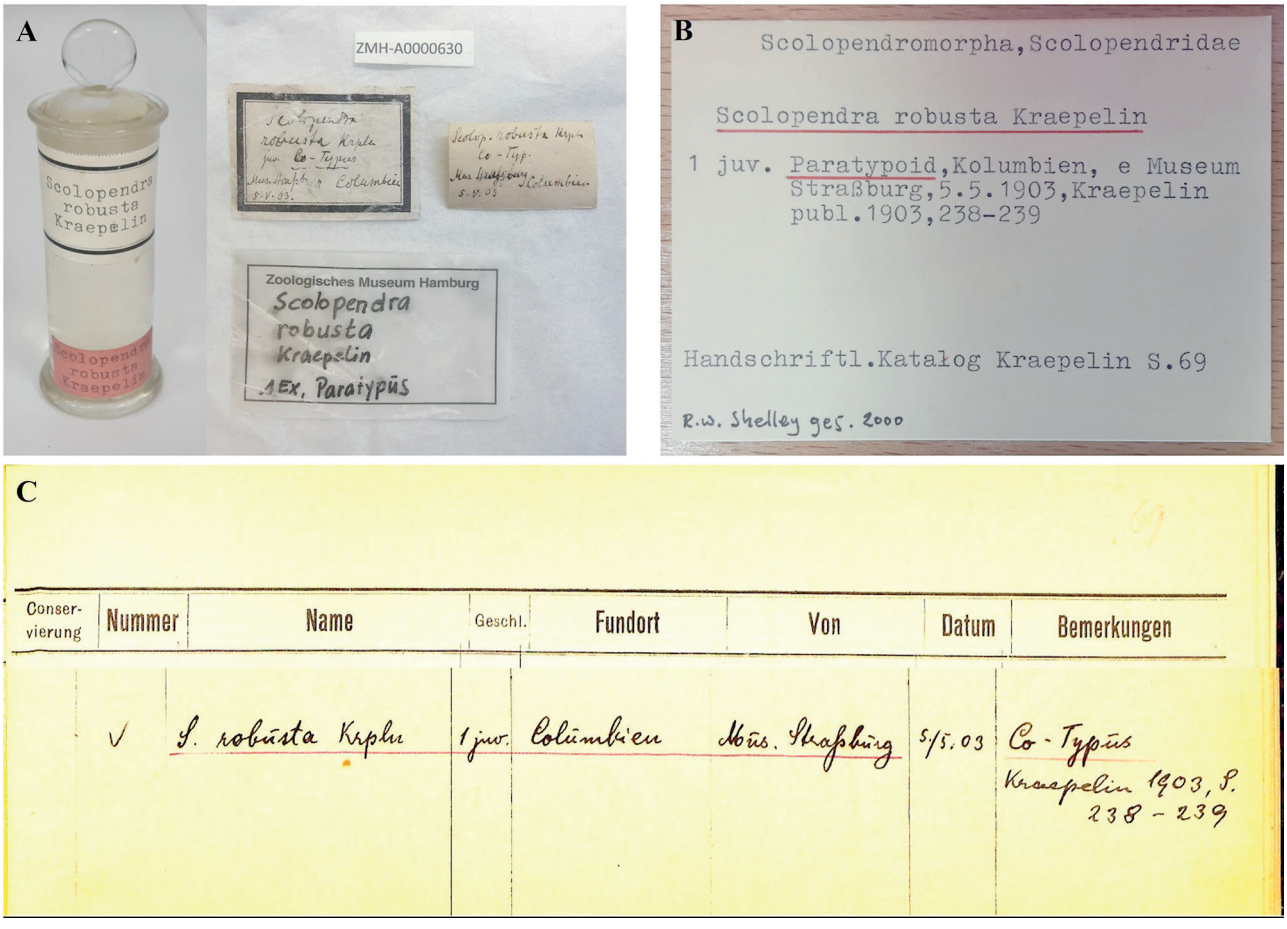

Fig. 9. ZMH-A0000630, *Scolopendra robusta* Kraepelin, 1903, paratype, juvenile. **A**, images of labels in the glass jar; **B**, catalog card at the ZMH, corresponding to the paratype; **C**, Kraepelin's Scolopendromorpha catalog at the ZMH, page 69, composite image, showing the entry corresponding to the paratype.

the distal third of the prefemur. Femora without spines, with 1 dorsodistal spine, or exceptionally with 2 on L20 left/right.

Coxopleura: Distoectal spine present, close to where the coxopleura meet T21. Internal portion of coxopleura bumped, almost completely covered by the pore-field, with just a small internal and a posterior area free of pores, including a small pore-free embayment (but not "narrow pore-free area or stripe") anterior to the coxopleural process. Posterior margin with one small spine close to where the internal portion meets the external portion of the coxopleura. Left coxopleural process with 1 lateral external subdistal, 2 ventral subdistal, 1 lateral internal subdistal, 2 distal and 1 dorsal subdistal spines. Right coxopleural process with 1 lateral external medial, 1 internal subdistal, 2 external subdistal and 2 distal spines, without dorsal spines.

Ultimate leg telopodites: Long and slender, maybe regenerated, almost detached. Prefemora with many spines, not counted to avoid manipulation, but irregular, not organized in rows. Distomesal process of prefemur blunt, left process with 6, right process with 7 spines. Femora with one distomesal spine. Without tarsal spurs. Claw-shaped pretarsus with two accessory spurs.

Color: Forcipules dark brown, tergites and sternites brown, legs and antennae yellowish brown.

Length: Approximately 57 mm.

Nomenclatural remarks: The specimen of *Scolopendra robusta* preserved at the ZMH, Hamburg, is a paratype. As explained above, Kraepelin (1903: 239) designated a (holo) type and mentioned a second specimen: "Von dieser Art liegt mir (...) ein junges Individuum aus Kolumbien...". The applicable article of the Code (ICZN 1999) is: 72.4.5. When an author designates a holotype [Art. 73.1], then the other specimens of the type series are paratypes. The paratype has been previously mentioned by Weidner (1960: 71, entry 85) as a "paratypoid", by Shelley (2006: 26) as a paratype, and by Thofern et al. (2021: 77, entry 131) as a "syntype". Thofern et al. (2021: 77) evaluated the same primary information as in this work, but failed to identify the relevant Code article governing the type status of the paratype. The specimen has an entry in Kraepelin's Scolopendromorpha catalog as a

"Co-Typus" (Fig. 9C), and a catalog card entry as a "Paratypoid" (Fig. 9B). Unlike for other type specimens, the provenance of the paratype is not mentioned by Weidner (1960), but it was noted as "Museum Strasbourg" by Thofern et al. (2021). Kraepelin (1903: 239) gives it as "Mus. Straßburg", which agrees with Kraepelin's Scolopendromorpha catalog, page 69, and with the associated ZMH catalog card.

Taxonomic remarks: Having examined the paratype alone, Shelley (2006: 26) had all the reasons to think that the paratype was not conspecific with the holotype, as it is *S. gigantea*, and that it was not suitable for designating a neotype. In this work, the paratype is regarded as conspecific with the holotype. As the holotype has been found, no neotype designation is needed.

Description of the non-type of *Scolopendra robusta*

Transcription of labels: Five labels. One label tied to the jar. |MZS Myr 415|, handwritten, pencil, Marie Meister's label. |MZS Myr 415|, handwritten, pencil, Marie Meister's label. |Scolop. robusta Krpl. juv.|, handwritten, pencil, Karl Kraepelin's label. |Scolopendra gracilis Witte. Columbien.|, handwritten, ink. |Scolopendra gigantea L., 1758 Det: C. Mtnez 13.iii.2017|, handwritten, ink, Carlos Martínez's label. See Fig. 10. See also Fig. 5 for the corresponding MZS catalog card.

Specimen preservation: Specimen soft, left antenna damaged, some legs detaching, others already detached inside the vial. Most likely collected after a recent molt.

Summary description: Antennae as in the paratype. Left antennae with about 14 articles remaining, article 5 also damaged. Cephalic plate, T1, and tergite overlapping pattern as in the paratype. Oblique sutures not seen on TT4-5 or any other tergite. Second maxillae as in the paratype, including the small ventrodistal projection on article 3. Forcipular apparatus, sutures of coxosternite, teeth, trochanteroprefemoral processes, and the two internal ridges of the tarsungula as in the paratype.

Locomotory legs: L1 left/right with 1 prefemoral, 1 femoral, and 1 tibial anterior lateral distal spur, and 2 distal tarsal spurs, one anterior and one ventral. L1 left/right without dorsal spines on prefemora or femora. LL2-20 with 1 ventral distal tarsal spur. LL2-20 with 3 prefemoral dorsodistal spines on most legs, occasionally 2 or 4. Femora of most of the remaining locomotory legs with 1 dorsodistal spine. L19 left with 4 prefemoral and 2 femoral dorsodistal spines. L20 left prefemora with 4 dorsodistal spines and with 2 middorsal posterior spines on the distal half. L20 left femora with 2 dorsodistal spines. L19 right with 3 prefemoral and 1 femoral dorsodistal spine. L20 right prefemora with 4 dorsodistal spines and with 2 middorsal posterior spines on the distal half, plus a third spine forming under the cuticle of the distal fifth. L20 right femora with 1 dorsodistal spine.

Coxopleura: left/right with distoectal spine present, and with an additional minute spine on the left. Posterior internal margin left/right with 1 spine. Left coxopleural process with 6 ventral or distal and 2 dorsodistal spines. Right coxopleural process with 7 ventral or distal and 2 dorsodistal spines.

Ultimate leg telopodites: L21 left detached, with 11 dorsal, dorsomesal, and mesal spines, not organized in rows, and other 12 spines, from normal size to minute, on ventral and ventroectal position. Exact positions are difficult to judge because the leg is detached. Left prefemoral distomesal process blunt, with 5 spines of normal size and 1 minute spine nearby. Femur with 1 minute distomesal spine. L21 right almost detached, manipulation was avoided. Spines not organized in rows. Prefemoral distomesal process blunt, six spines and one minute spine nearby. Femur with 1 minute distomesal spine.

Color: Very pale, yellowish, most likely related to the specimen being recently molted when collected.

Length: Approximately 75 mm, some posterior segments damaged and loose.

Nomenclatural remarks: Both specimens from Colombia, the one in Strasbourg and the one in Hamburg, have labels handwritten by Kraepelin and were regarded as "juv." (= juvenis, juveniles) by him. Both are labeled as *Scolopendra robusta*, which suggests that at the time of the description Kraepelin had seen not two but three specimens that he regarded as belonging to that species. Only the juvenile specimen from Hamburg is labeled as Co-Typ and Co-Typus by Kraepelin. The juvenile specimen from Strasbourg is not mentioned in the publication, has no type label, and is thus a non-type.

Genus *Arthrorhabdus* Pocock, 1891b

https://myriatrix.myspecies.info/myriatrix/arthrorhabdus

Remarks: The genus *Arthrorhabdus* is composed of four species (Lewis 2010: 86). *Arthrorhabdus pygmaeus* is the only known representative of the genus in the Western Hemisphere (Shelley and Chagas-Jr. 2004: 533).

***Arthrorhabdus pygmaeus* (Pocock, 1895) Kraepelin, 1903**

Synonymy list: See Shelley (2002: 46).

Scolopendra pygmaea Pocock, 1895: 15.

https://myriatrix.myspecies.info/myriatrix/scolopendra-pygmaea

Arthrorhabdus pygmaeus (Pocock, 1895) Kraepelin, 1903: 222.

https://myriatrix.myspecies.info/myriatrix/arthrorhabdus-pygmaeus

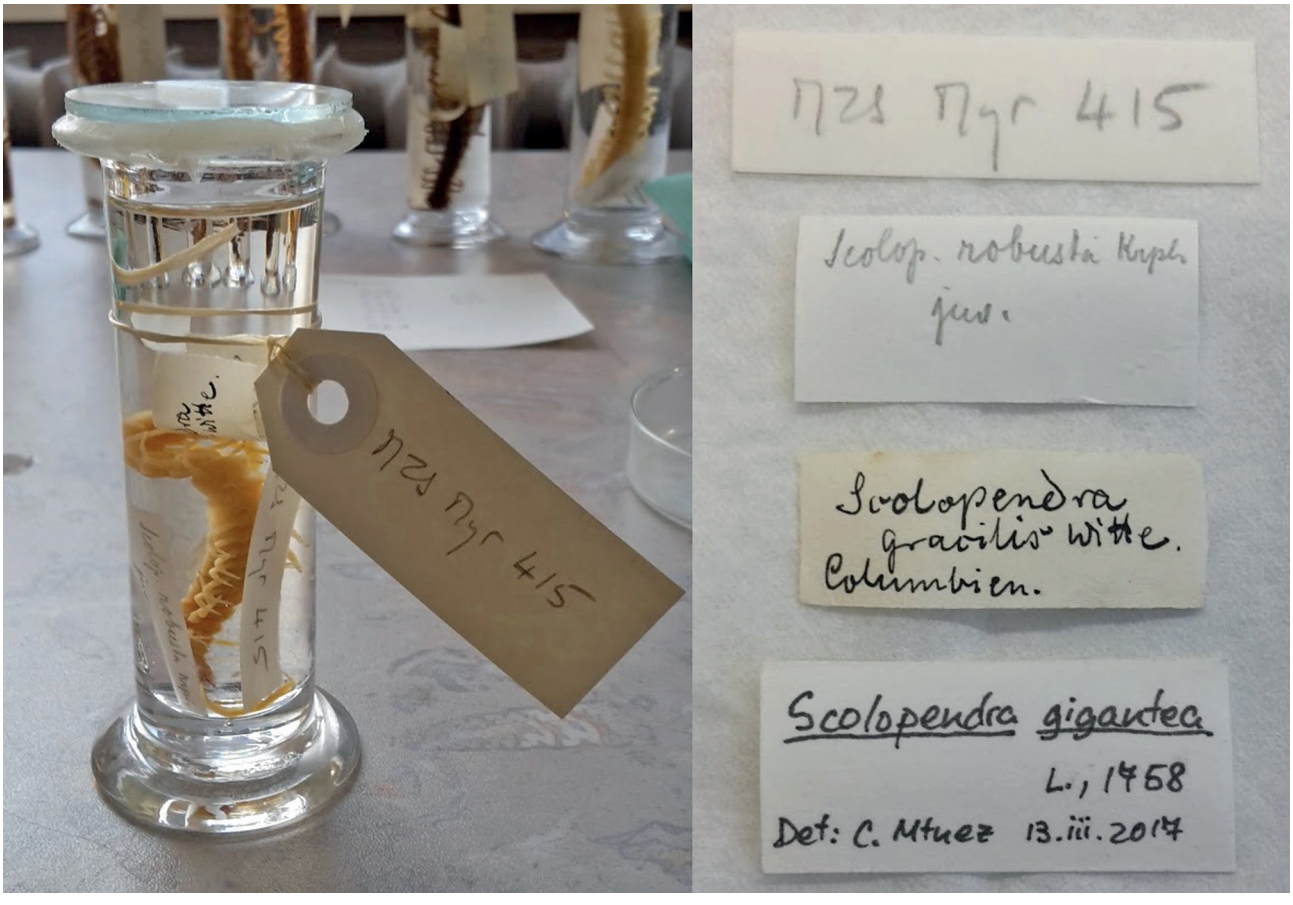

Fig. 10. MZS Myr 415, *Scolopendra robusta* Kraepelin, 1903, non-type. Images of glass jar containing the specimen and images of specimen labels.

Arthrorhabdus (*Arthrorhabdinus*) *pygmaeus*: Verhoeff, 1907: 262.

https://myriatrix.myspecies.info/myriatrix/arthrorhabdus-arthrorhabdinus-pygmaeus

Diagnosis: Antennae long, with 20-26 antennal articles. Cephalic plate and T1 entirely separate. T1 without an anterior transverse sulcus. Coxosternal tooth-plates elongated, with 4 large divergent teeth extending beyond the forcipular trochanteroprefemoral process. Tarsal spurs minute and on LL1-15 only. L21 with about 22 prefemoral spines. See Shelley (2002: 46) and Lewis (2010: 86).

Distribution: *Arthrorhabdus pygmaeus* is found in the USA (Arizona and Texas), Mexico, and probably Belize (see Shelley and Chagas-Jr. 2004: 535). Samples from West Texas: Loving and Lynn counties, were misidentified as *Hemiscolopendra marginata* by Shelley (2002: 46) and corrected to *A. pygmaeus* by Shelley (2008: 183). In Mexico, this species has been reported from the states of Baja California Sur, Coahuila, Colima, Durango, Guerrero, Hidalgo, Jalisco, Morelos, Nuevo León, Oaxaca, Puebla, San Luis Potosí, Sinaloa (see Shelley 2002: 47-48), and Nayarit and Tamaulipas (Shelley and Chagas-Jr. 2004: 535; see also Cupul-Magaña 2013b, 2015). Regarding Nuevo León, the literature record from "Halfway between Monterrey and Saltillo, Cuesta los Muertos, 4000 ft." by Shelley (2002: 48) is given a coordinate corresponding to García municipality: Cuesta de los Muertos (lat 25.6533000°, lon -100.7409000°, 1200 m a.s.l., datum WGS84). The elevation of the literature record was taken into account, approximated to 1200 m a.s.l., and placed on a point where the old road, a short secondary road, and the 1200 m elevation line meet. Therefore, the only true record from Nuevo León: Monterrey is that by Shelley and Chagas-Jr. (2004: 535), which is given a coordinate corresponding to Monterrey: La Alameda (lat 25.6761000°, lon -100.3211000°, 544 m a.s.l., datum WGS84), as discussed under *S. heros*.

Deletions: Previous deletions were USA: California, Arizona, and New Mexico by Shelley (2002: 47), of which only California remains deleted. Shelley and Chagas-Jr. (2004: 535) restored Arizona by adding the first definite locality record and New Mexico (from Crabill 1960: 10) by it being included in the Arizona-Texas geographic span.

Genus *Hemiscolopendra* Kraepelin, 1903

https://myriatrix.myspecies.info/myriatrix/hemiscolopendra

Remark: *Hemiscolopendra marginata* (Say, 1821) is the only species in this genus.

***Hemiscolopendra marginata* (Say, 1821) Hoffman & Shelley, 1996**

Fig. 11

Synonymy list: See Hoffman & Shelley (1996: 37), Shelley (2002: 41), and Shelley (2008: 175).

Scolopendra marginata Say, 1821: 110.

https://myriatrix.myspecies.info/myriatrix/scolopendra-marginata

Hemiscolopendra marginata (Say, 1821) Hoffman & Shelley, 1996: 37.

https://myriatrix.myspecies.info/myriatrix/hemiscolopendra-marginata

Diagnosis: Antennae with transition from sparsely to densely hirsute articles varying from antennal articles 6-9. Cephalic plate overlapping anterior margin of T1. T1 with anterior transverse sulcus, with or without variably complete or incomplete paramedian sutures. TT2-20 with complete paramedian sutures. T21 with complete or variably incomplete median suture. Tarsus 1 of locomotory legs without spurs. L21 articles generally elongate; spines on ventral surfaces of prefemora arranged generally in three variably sublinear rows, two lateral and one medial to midlines. Distomesal prefemoral process relatively short and bulbous, with two apical/subapical spines, more distal curved caudad. Diagnosis modified from Shelley (2008: 174).

Distribution: USA, from the southern Atlantic Coast to west Texas, and Mexico (Shelley 2008: 172). The occurrence in Mexico was discounted by Shelley (2002) but confirmed by Shelley (2008), who summarized the records from Tamaulipas, Guerrero, and Chiapas states. Cupul-Magaña et al. (2018: 2) provided the first record from San Luis Potosí. The fifth Mexican state, Nuevo León, is added here based on one specimen from Monterrey and given a coordinate corresponding to Monterrey: La Alameda (lat 25.6761000°, lon -100.3211000°, 544 m a.s.l., datum WGS84), as discussed under *S. heros*.

Material examined: Transcription of labels: Three labels. |MZS Myr 424|, handwritten, pencil, Marie Meister's label. |Scolopendra viridis Say Speyer 1901 Monterey Mexico|, handwritten, pencil, Karl Kraepelin's label. |Hemiscolopendra marginata (Say, 1821) Det: C. Mtnez 15.iii.2017|, handwritten, ink, Carlos Martínez's label. One specimen.

Taxonomic remarks: A label in the jar containing the MZS-Myr-424 specimen vial attributes the identifications to Kraepelin. The misidentification of the specimen as *S. viridis* by Kraepelin is noticeable because he (Kraepelin 1903) established the genus *Hemiscolopendra*. The MZS-Myr-424 specimen lacks tarsal spurs on all legs.

Curatorial remarks: The card catalog ("Fichier allemande") has a related card (Fig. 11), referring to the previous misidentification as *Scolopendra viridis*. The date on which the specimen was misidentified by Kraepelin was set to 1903, the latest possible year as per the publication of Kraepelins's Scolopendromorpha catalog (Kraepelin 1903).

Subfamily Otostigminae Kraepelin, 1903

https://myriatrix.myspecies.info/myriatrix/otostigminae

DELETED GENUS

Genus *Ethmostigmus* Pocock, 1898

https://myriatrix.myspecies.info/myriatrix/ethmostigmus

Deletions: Kohlrausch (1881: 60) mentioned *Heterostoma sulcidens* (Newport, 1844), a current synonym of *Ethmostigmus rubripes* (Brandt, 1840), as occurring in America. This record has not been traced to a specimen, and it is deleted. Chamberlin (1958: 185-186) described the new species *Ethmostigmus californicus* Chamberlin, 1958 based on one specimen from USA: California. The record of *Ethmostigmus* from California was repeated by Crabill (1960: 8). Bücherl (1974: 99) stated that the genus *Etmostigmus* is not known

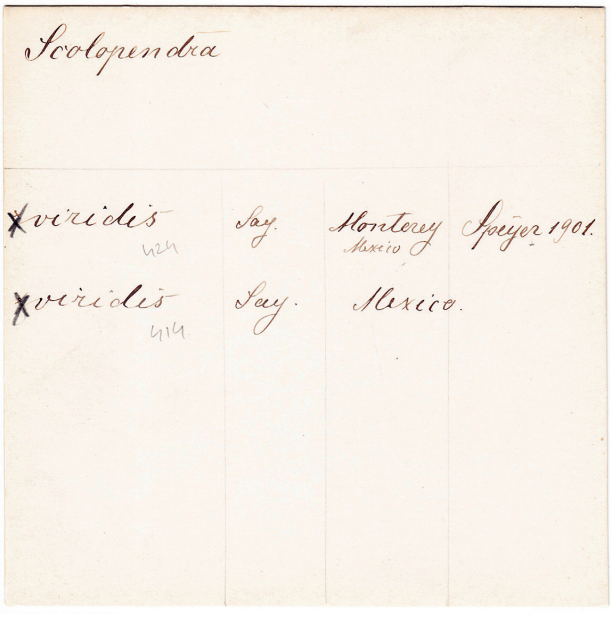

Fig. 11. Card CAMA_0037 in the card catalog ("Fichier allemande") from the MZS, mentioning two specimens of *Scolopendra viridis* Say, 1821, including the misidentified MZS Myr 424 specimen of *Hemiscolopendra marginata* (Say, 1821). https://myriatrix.myspecies.info/sites/default/files/MZS-CAMA_0037%20Scolopendra.tif.

from the neotropical region. Shelley (2002: 5-6) considered that the record from California "undoubtedly represents a labeling error" and deleted the genus and species from the New World. Below, a genus and species specimen-based occurrence is again both recorded and deleted from the New World.

***Ethmostigmus trigonepoda* (Leach, 1816) Kraepelin, 1903**

https://myriatrix.myspecies.info/myriatrix/ethmostigmus-trigonepoda

***Ethmostigmus trigonepoda trigonepoda* (Leach, 1816) Kraepelin, 1903**

Fig. 12

Synonymy list: See Attems (1930a: 176), Schileyko and Stagl (2004: 114), and this work.

Scolopendra trigonepoda Leach, 1816a: 384.

https://myriatrix.myspecies.info/myriatrix/scolopendra-trigonepoda

Scolopendra trigonepoda: Jeekel (2005: 54).

Scolopendra trigonopoda: Leach (1816b: 431), **incorrect subsequent spelling**.

https://myriatrix.myspecies.info/myriatrix/scolopendra-trigonopoda

Scolopendra trigonopoda: Leach (1817: 41). Gervais (1837: 51). Lucas (1840: 545). Newport (1844: 99). Kohlrausch (1881: 62). Meinert (1886: 181). Kraepelin (1903: 157). Attems (1930a: 176). Schileyko and Stagl (2004: 114). Joshi and Edgecombe (2018: 1320).

Scolopendra trigonopodus: Lawrence (1953: 417). Weijola et al. (2026: 6).

https://myriatrix.myspecies.info/myriatrix/scolopendra-trigonopodus

Scolopendra eydouxiana Gervais, 1837: 50, **nomen nudum**. [Myriatrix Taxon ID: 39127]

https://myriatrix.myspecies.info/myriatrix/scolopendra-eydouxiana-0

Scolopendra eydouxiana Gervais in Eydoux and Gervais, 1838a: 180, pl. 53. [Myriatrix Taxon ID: 11895]

https://myriatrix.myspecies.info/myriatrix/scolopendra-eydouxiana

Scolopendra eydouxiana: Eydoux and Gervais (1838b: 4). Lucas (1840: 545). Newport (1844: 99). Gervais (1847: 245, 261). Kohlrausch (1881: 62). Porat (1894: 15). Kraepelin (1903: 157). Attems (1930a: 176).

Heterostoma trigonopoda (Leach, 1816) Newport 1845: 413.

https://myriatrix.myspecies.info/myriatrix/heterostoma-trigonopoda

Heterostoma trigonopoda: Gervais (1847: 245). Lucas (1859: 444). Kohlrausch (1881: 62). Meinert (1886: 181). Kraepelin (1903: 157). Attems (1930a: 176). Schileyko and Stagl (2004: 114).

Heterostoma trigonopodum: Haase (1887: 90). Porat (1894: 15). Mbenoun Masse and Makon (2020: 673).

https://myriatrix.myspecies.info/myriatrix/heterostoma-trigonopoda

Dacetum capense C.L. Koch, 1847: 171.

https://myriatrix.myspecies.info/myriatrix/dacetum-capense

Dacetum capense: C.L. Koch (1863: 103). Kohlrausch (1881: 62). Kraepelin (1903: 157). Attems (1930a: 176). Simaiakis and Edgecombe (2013: 173).

Heterostoma newporti Lucas, 1859: 444.

https://myriatrix.myspecies.info/myriatrix/heterostoma-newporti

Heterostoma newporti: Kraepelin (1903: 157). Attems (1930a: 176).

Heterostoma newportii: Porat (1894: 15).

Dacetum trigonopoda (Leach, 1816) Pocock 1896b: 435.

https://myriatrix.myspecies.info/myriatrix/dacetum-trigonopoda

Dacetum trigonopodum: Kraepelin (1903: 157). Attems (1930a: 176).

https://myriatrix.myspecies.info/myriatrix/dacetum-trigonopodum

Ethmostigmus trigonopodus (Leach, 1816) Kraepelin, 1903: 157.

https://myriatrix.myspecies.info/myriatrix/ethmostigmus-trigonopodus

Ethmostigmus trigonopodus: Grobbelaar (1921: 248). Chamberlin (1927: 187; 1944: 182). Attems (1928: 107; 1930a: 176; 1930b: 288; 1937a: 327; 1937b: 4; 1953: 133). Verhoeff (1941: 202). Lawrence (1953: 417; 1955: 38; 1959: 368; 1966: 232; 1975: 40). Kraus (1958a: 1). Kraus (1958b: 11). Lewis (1967: 199; 1968: 174; 1972: 406; 1992: 450). Würmli (1980: 351). Schileyko and Stagl (2004: 114). Simaiakis and Edgecombe (2013: 173). Vahtera et al. (2011: 14). Vahtera et al. (2012: 226). Vahtera et al. (2013: 595). Vahtera and Edgecombe (2014: 5). Joshi and Edgecombe (2018: 1317). Joshi and Edgecombe (2019: 6). Pallett et al. (2019: 204). Veijola et al. (2026: 2, 6, 14).

Ethmostigmus trigonepodus: Mbenoun Masse and Makon (2020: 673).

https://myriatrix.myspecies.info/myriatrix/ethmostigmus-trigonepodus

Ethmostigmus trigonopodus trigonopodus: Lewis (1992: 450; 2001: 44). Schileyko and Stagl (2004: 114).

https://myriatrix.myspecies.info/myriatrix/ethmostigmus-trigonopodus-trigonopodus

Ethmostigmus trigonepoda trigonepoda (Leach, 1816) Kraepelin, 1903. [This work]

https://myriatrix.myspecies.info/myriatrix/

ethmostigmus-trigonepoda-trigonepoda

Ethmostigmus australianus stechowi Verhoeff, 1941: 202. https://myriatrix.myspecies.info/myriatrix/ethmostigmus-australianus-stechowi

Ethmostigmus australianus stechowi: Lewis (1968: 173). Schileyko and Stagl (2004: 114).

Scolopendra canidens hannoensis Turk, 1951: 37. https://myriatrix.myspecies.info/myriatrix/scolopendra-canidens-hannoensis

Scolopendra canidens hannoensis: Würmli (1980: 351).

Non *Scolopendra trigonopoda*: Gervais (1844: xxii). See Gervais (1847: 245).

Non *Heterostoma sulcidens*: Kohlrausch (1881: 59). Meinert (1886: 181).

Bibliographic remarks: Page of taxonomic treatment in Leach (1817) incorrectly given as 36 by Newport (1845: 413), Gervais (1847: 245), Meinert (1886: 181), Kraepelin (1903: 157), Attems (1930a: 176), Lawrence (1953: 417, 1966: 232), Kraus (1958: 11), Lewis (1967: 199), Lewis (2001: 44), and Schileyko and Stagl (2004: 114), among others. Gervais (1837: 51), Lucas (1840: 545), Porat (1894: 15), Chamberlin (1927: 187), and Lawrence (1975: 40) correctly cited page 41. It seems that all authors have cited an incorrect source publication (Leach 1817) instead of the original work (Leach 1816a) where the name was proposed, with the honorable exception of Jeekel (2005: 54), who cited the authorship and original source of *Scolopendra trigonepoda* as "Leach, 1815 (Trans. Linn. Soc., 11: 384)". The date of "Leach, 1815" was later corrected to January 24th, 1816, by Martínez-Muñoz and Perez-Gelabert (2018: 81) based on Raphael (1970).

Nomenclatural remarks: 1) The species-group name *trigonepoda* is a compound noun in apposition, and as such needs not agree in gender with the generic name with which it is combined. The original spelling is to be retained, with gender ending unchanged. See Article 31.2.1 and Article 34.2.1 (ICZN 1999). The first author treating the specific epithet as an adjective seems to be Haase (1887: 90), who declined it as neuter in the combination *Heterostoma trigonopodum*. This was followed by Kraepelin (1903: 157), who treated it as a neuter adjective in the combination *Dacetum trigonopodum* and as a masculine adjective in the combination *Ethmostigmus trigonopodus*. **2)** The compound nouns *trigonepoda* (original) and *trigonopoda* (subsequent) are variant spellings of the same species-group name and nominal taxon and therefore have the same derivation and meaning. The use of the connecting vowel *e* in the original publication of the compound noun, even if it were deemed inappropriate, cannot be considered an inadvertent error (Article 32.5.1, ICZN 1999) and therefore does not need correction. Despite the subsequent spelling *trigonopoda* being in prevailing usage with respect to the connecting vowel (as *trigonopodus*), it is not attributed to the publication of the original spelling (Leach 1816a) but to a subsequent publication (Leach 1817) which is also not the first in which the subsequent spelling appeared (preceded by Leach 1816b). Therefore, *trigonopoda* is to be treated as an incorrect subsequent spelling and it is not an available name. See Article 33.3 and 33.3.1 (ICZN 1999). **3)** For consistency, the subspecies name *Ethmostigmus trigonopodus pygomenasoides* Lewis, 1992 is mentioned here and the spelling corrected to *Ethmostigmus trigonepoda pygomenasoides* Lewis, 1992.

Diagnosis: Antennae with 20 antennal articles, the 4 basal antennal articles sparsely hirsute. Second maxillary claw with two accessory spurs. Forcipular coxosternite with 4 + 4 teeth of equal or almost equal size. Tergites from T3 or T4 to T20 with two longitudinal paramedian sutures. Tergites from T4 or T5 to T21 marginated. Sternites from S2 to S19 or S20 with longitudinal paramedian sulci. S21 usually with a longitudinal median sulcus. L1 with 2 tarsal spurs, LL2-19 with 1 spur, L20 with or without spur. Coxopleura relatively short, exceeding S21 by its length at most. Dorsal border of the coxopleura almost semicircular when seen from the side. Coxopleura lateral with 1-2 spines, dorsal with 2-3 spines, apical with 2 spines situated in proximity. Ultimate leg prefemora ectal ventral with 3 (2), mesal ventral with 2 (3), and dorsal usually with 4 prefemoral spinous processes in two rows and 1 distomesal prefemoral spinous process. See Kraepelin (1903: 156 [key], 158 [redescription]), Attems (1930a: 175 [key], 176 [redescription]), and Lewis (1968: 173-174).

Distribution: Africa: Macaronesia: Cape Verde (CV). **West Tropical Africa:** Benin (BJ), Ghana (GH), Guinea (GN) (= Republic of Guinea, Guinea-Conakry), Ivory Coast (CI), Liberia (LR), Nigeria (NG), Senegal (SN), Sierra Leone (SL), Togo (TG). **West-Central Tropical Africa:** Cameroon (CM), Central African Republic (CF), Congo (CG) (= Republic of the Congo), Equatorial Guinea (GQ), Gabon (GA), Gulf of Guinea Is.: Bioko (GQ) (= Fernando Po Is., belonging to Equatorial Guinea), Zaïre (CD) (= Democratic Republic of the Congo, former Belgian Congo). **Northeast Tropical Africa:** Ethiopia (ET), Somalia (SO), Sudan (SD). **East Tropical Africa:** Kenya (KE), Tanzania (TZ) including Zanzibar, Uganda (UG). **South Tropical Africa:** Angola (AO), Malawi (MW), Mozambique (MZ), Zimbabwe (ZW). **Southern Africa:** Namibia (NA) (= South West Africa), South Africa (ZA). **Asia: Western Asia:** Turkey (TR). See Schileyko & Stagl (2004: 116), Simaiakis & Edgecombe (2013: 174), and this work.

Remarks to distribution: The distribution of *Ethmostigmus trigonepoda* (as *E. trigonopodus* and including the two recognized subspecies) was summarized by Simaiakis and Edgecombe (2013: 174). From that list are notably missing Sierra Leone (SL) and Somalia (SO), which are supported

by the specimen-based records by Simaiakis and Edgecombe (2013: 173 [text], 174, fig. 3 [map]). The species was previously recorded from Sierra Leone by Kraepelin (1904: 250) as *E. trigonopodus* and by Turk (1951: 38) as *Scolopendra canidens hannoensis*, later synonymized with *E. trigonopodus* by Würmli (1980: 351). The following countries and sub-country units were not listed by Simaiakis and Edgecombe (2013: 174) but there are explicit published records or localities that can be assigned to them: Liberia by Meinert (1886: 181), Cameroon (CM) by Porat (1894: 15), Kenya (KE) by e.g., Pocock (1896b: 435) and Lawrence (1953: 417), Cape Verde, Guinea, Ivory Coast, Central African Republic, Equatorial Guinea, and Gabon by Kraepelin (1904: 249-250), Zaïre (= Belgian Congo) by e.g., Attems (1930b: 288, 1937a: 327, 1937b: 4-5), Namibia (= South West Africa) by Lawrence (1975: 40), and Bioko, mentioned as Fernando Po Island by Schileyko and Stagl (2004: 116). The inclusion of Cape Verde adds the region Macaronesia. See also "Doubtful records" and "Deletions" for further comments on Simaiakis and Edgecombe (2013: 174).

Doubtful records: 1) The distribution "**Africa: Northern Africa:** Algeria (DZ)" from Simaiakis and Edgecombe (2013: 174) is classified as a doubtful record. It can be traced back to Kraepelin (1903: 158) and it is most likely explained by a specimen-based record from Kraepelin (1904: 250) where "Algérie?" is mentioned with doubt as the provenance of the specimen is "ménagerie des Reptiles du Mus. de Paris". Joshi and Edgecombe (2018: 1317, fig. 1A) cited Simaiakis and Edgecombe (2013) but did not include Algeria in the mapped geographic distribution of the genus *Ethmostigmus*. Two similar inset maps appear in Joshi and Edgecombe (2019: 2, fig. 1B; 5, fig. 3). **2)** According to ChiloBase 2.0, in both the pages for *Ethmostigmus trigonopodus* (Leach, 1817) and *Ethmostigmus trigonopodus trigonopodus* (Leach, 1817) (the latter mislabeled as "*Scolopendra*" *trigonopodus trigonopodus* Leach, 1817), in the section "Notes", it reads "Records from Turkey and Bismarck Archipelago (Witu Islands) are questionable". The record from Turkey by Schileyko and Stagl (2004: 114) is here left as doubtful following Bonato et al. (2016). The record from "Bismarck Archipelago (Witu Islands)" is deleted below.

Absences: Absent from the "Cape Peninsula" in South Africa according to Lawrence (1955: 38). Notably absent from Eritrea according to Lewis (1969: 469). Not mentioned from Tunisia by Akkari et al. (2008). Not mentioned from Socotra or Yemen by Lewis and Wranik (1990). Not mentioned from the Arabian Peninsula by Lewis (1996). Not mentioned from Iraq by Lewis (2002).

Deletions: 1) New Holland (= Australia) based on Gervais (1844: xxii) incorrectly considering a specimen from that continent, collected by "Lord Montmorris" (should be Lord Mount Morris, see https://www.gutenberg.org/files/54639/54639-h/54639-h.htm), as the type of *Scolopendra trigonopoda* (see Gervais, 1847: 245). **2)** The presence of the species in "Kaplande" mentioned by Kraepelin (1903: 158) is not backed by records in Kraepelin (1904: 249-250) and might be based on the synonym *Dacetum capense* and/or on unpublished specimen records. "Kaplande" was translated to "Cape Peninsula" by Attems (1928: 107) and mentioned as such by Lawrence (1955: 38), the latter being misquoted by Schileyko and Stagl (2004: 116) as writing "Cape Province". Lawrence (1955: 38) deleted the "Cape Peninsula" from the distribution of *E. trigonopodus*. **3)** The record from "Tourane (Eydoux, 1862)" by Kraepelin (1904: 250) has issues involving the collecting date, the locality, and the species identity. The specimen(s) must have been collected by Joseph Fortuné Théodore Eydoux during the expedition of La Bonite (6 February 1836 - November 1837). La Bonite visited Tourane (also spelled Touranne) from 25 January 1837 to 4 February 1837 (https://www.biodiversitylibrary.org/page/11256111). The locality is not in Africa but in present day Vietnam, its modern name being Da Nang. Therefore, the species should not be *E. trigonepoda* and the record is here deleted. It merits further evaluation by researchers working on African and Southeast Asian *Ethmostigmus*. **4)** The mention of "Witu Islands" (= Vitu Islands) for *Ethmostigmus trigonopodus* by Schileyko and Stagl (2004: 116), followed by Simaiakis and Edgecombe (2013: 174), is a mistake. The record is also mentioned by Bonato et al. (2016) as "Bismarck Archipelago (Witu Islands)". This doubtful record was not addressed by Schileyko and Stoev (2016), even if it was within the scope of their work on the Scolopendromorpha of New Guinea and adjacent islands. The mistake seems to come from a misinterpretation of a locality by Lawrence (1953: 417), given as "Mombosasa, 100 feet, near Witu, K.C.", where "K.C." stands for "Kenya Colony" (= Kenya). **5)** The distribution of *S. c. hannoensis* on ChiloBase 2.0 is given as "within Pacific: Cook Is.; Fiji" by Bonato et al. (2016 onwards) but those records are deemed a database artifact and also deleted. **6)** The record from Mexico: Nuevo León: Monterrey is here both published and deleted.

Material examined: Two adult specimens, originally in the jar MZS Myr0218. The smaller specimen was separated on 26.viii.2020 and given the number MZS Myr0870. The locality label was copied verbatim, including the spelling "Monterey". The locality "Monterey Mexico" is here considered a labeling error. This mislabeling is very important, as the same must have happened to *Scolopendra robusta*. The transcriptions of labels are given along with the description of each specimen. The two specimens match *E. trigonopodus* in Attems (1930a) key except that the teeth are not serrated or "buckelig" and that the pretarsi of the second maxillae do

have two small, partially fused accessory spurs, but those characters were discussed and updated by Lewis (1968: 173-174).

Description of the specimen MZS Myr0218

Transcription of labels: Three labels. |MZS Myr0218|, handwritten, pencil, Marie Meister's label. |Monterey Mexico|, handwritten, pencil, round handwriting. |Ethmostigmus trigonopodus (Leach, 1816) Det: C. Mtnez 14.iii.2017|, handwritten, ink, Carlos Martínez's label. One specimen, L21 attached.

Antennae: 20 antennal articles, the three basal sparsely setose, article 4 with the anterior surface and anterior half of the ventral surface densely setose; dorsal, posterior, and posterior half of ventral surface sparsely setose. Article 5 onwards densely setose. Most articles are longer than wide. Left antenna reaching trunk segment 5 when reflexed.

Cephalic plate: Without sutures. Posterior margin overlapped by anterior margin of T1.

Second maxillae: Pretarsus with two small accessory spurs, one dorsal (= anterior) and one ventral (= posterior). The accessory spurs are mostly fused to the pretarsus, leaving just the apex free. The point at which the spurs separate from the pretarsus is relatively more basal for the ventral spur and more distal for the dorsal spur. Because of size, position and surroundings, it is easy to miss the dorsal accessory spur.

Forcipular apparatus: Forcipular coxosternite with a short anterior median longitudinal suture, about ¼ the length of the coxosternite, and as long as the length of the level of the posterior end of the basal sutures of the toothplates. There is a small rhomboidal sclerite, apparently also drawn by Attems (1930: 176, fig. 215). Basal sulci of toothplates meeting at an obtuse angle. Tooth-plates broader than mesal length, approximately as broad as ectal length. Toothplate strong seta absent. 4+4 teeth, well defined, rounded, with some slight irregularities but not "buckelig" sensu Attems (1930). The three external teeth on each side have no cusps, and only the internal margin of the internal tooth could be defined as "buckelig", slightly serrated but without sharp denticles or cusps ("ohne Höckerbildung" sensu Attems, 1930). The closest teeth match is that of *E. pygomegas* in Attems (1930: 177, fig. 218). Internal margins of toothplates and of the basal part of the internalmost tooth on each side touching each other. The two external and the two internal teeth of each tooth-plate are closer to each other than teeth 2 and 3 ("middle teeth"), but the difference between the separation of teeth 1 and 2 and of teeth 2 and 3 is very slight. Teeth 1, 2, and 3 do not share the base but teeth 3 and 4 have their bases very close, even if they are not fused. Forcipular trochanteroprefemoral process absent.

Tergites: TT3-20 with longitudinal paramedian sutures, very faint and shallow on the anterior half of T3 and on TT19-20. Margination starts on T5, on TT5-6 anteriorly and posteriorly incomplete, on TT7-13 posteriorly incomplete, on T14 almost complete, except for the posteriormost portion, complete on TT15-21. It should be noted that the completeness of tergal margination is a variable character and should be handled carefully. It may vary because of the relative degree of distension among tergites.

Pleura: Spiracles on pleura of trunk segments 3, 5, 7, 8, 10, 12, 14, 16, 18, and 20. 3rd pair of spiracles massive, extended across most of the pleural length. Orientation of spiracles: Spiracle 3 diagonally elongated, 5 transitional, from 7 to 18 vertically elongated, 20 less elongated, more rounded.

Sternites: SS2-20 with longitudinal paramedian suture-sulci, the sulci evident from S2, more marked on the central portion of the sternites. Sutures evident from S4, fine but complete, more marked on SS5-19, faint again on posterior third of S20. S21 without median longitudinal or posterior depression, posterior border markedly emarginate.

Locomotory legs: L1 with one anterior distal spur on prefemur, femur, tibia, and tarsus 1, and with one distal ventral spur on tarsus 1. LL2-20 with one ventral tarsal spur, on L20 left detached but the spur socket is visible. LL1-20 with two well-developed accessory spurs.

Coxopleura: About two times the length of S21. Coxopleural process with two adjacent distal spines (left/right), one ectal spine (left/right), and three (left, one of which is very small and close to the normal-sized, more anterior spine) and two (right) dorsal spines. Coxopleura match *E. trigonepoda* (*E. trigonopodus*) in Attems (1930: 176, fig. 217). The area on which the distal spines are located is poreless.

Ultimate leg telopodites: L21 left prefemur with one-pointed corner spine and 9 spinous processes, of which 2 dorsomesal, 2 mesal (which are each slightly more "posterior" than the corresponding distomesal processes), 2 ventromesal, and 3 ventroectal. L21 right regenerated, shorter, with abnormal, smaller spinous processes. With two short corner spines, with independent bases. Dorsomesal processes 2, not in line, the posterior one more mesodorsal in position. Mesal processes 4, of which 3 scattered, on a more anterior position (one tiny and brownish instead of black) and 1 on posterior third. Mesoventral processes 3, in one row. Ventromesal processes 2, smaller than usual. Ventroectal processes 2, the third, basalmost, only insinuated as a differentiated, darker cuticular region, not elevated, and therefore not counted. Pretarsi with two small accessory spurs each.

Length: Approximately 115 mm. Specimen curved and rigid in some parts, measured by sections.

Width (T10): 9 mm.

Description of the specimen MZS Myr0870

Transcription of labels: Three labels. |MZS Myr0870|, handwritten, ink, Carlos Martínez's label. |Monterey Mexico|, ink, Carlos Martínez's label. |Ethmostigmus trigonopodus (Leach, 1816) Det: C. Mtnez 14.iii.2017|, handwritten, ink, Carlos Martínez's label. One specimen, L21 attached.

Antennae: Left antenna regenerated, with 19 articles. Right antenna with 14 articles, 14th article cicatrized in life. Article setation as in the previous specimen. Most articles are longer than wide. Left antenna well reaching trunk segment 5 when reflexed.

Cephalic plate: Without sutures. Posterior margin overlapped by anterior margin of T1.

Second maxillae: Pretarsus with two small accessory spurs, one dorsal and one ventral, as in the previous specimen.

Forcipular apparatus: Forcipular coxosternite with a short anterior median longitudinal suture, about ¼ the length of the coxosternite, and slightly longer than the length of the level of the posterior end of the basal sutures of the tooth-plates. Small rhomboidal sclerite present. Basal sulci of tooth-plates meeting at an obtuse angle. Tooth-plates broader than mesal length, approximately as broad as ectal length. Tooth-plate strong seta absent. 4+4 teeth, well defined, truncated. Truncated appearance is probably due to natural wear of the teeth. Teeth not serrated (not "buckelig" sensu Attems, 1930), only the internal margin of the internal tooth of the right tooth-plate could be defined as "buckelig", slightly serrated but without sharp denticles or cusps ("ohne Höckerbildung" sensu Attems, 1930). The homologous margin of the homologous tooth of the left tooth-plate is not serrated. Teeth disposition as in the previous specimen. Forcipular trochanteroprefemoral process absent.

Tergites: TT3-20 with longitudinal paramedian sutures, as in the previous specimen. Margination starts on T5, it is nearly complete except for the posteriormost portion until T8, complete on TT9-21.

Pleura: Spiracles on pleura of trunk segments 3, 5, 7, 8, 10, 12, 14, 16, 18, and 20. 3rd pair of spiracles massive, extended across most of the pleural length. Orientation of spiracles: Spiracle 3 diagonally elongated, from 5 to 18 vertically elongated, 20 less elongated, more rounded. Compared with the previous specimen, for which the orientation of spiracle 5 was scored as "transitional", some slight variation on the orientation of the spiracles on the 5th trunk segment can be expected.

Sternites: SS2-20 with longitudinal paramedian suture-sulci, as in the previous specimen. S21 without median longitudinal but with rounded depression near posterior border, posterior border markedly emarginate.

Locomotory legs: L1(left/right) with one anterior distal spur on prefemur, femur, tibia, and tarsus 1. L1 left with one distal ventral spur on tarsus 1, L1 right without. LL2-20 with one ventral tarsal spur. LL1-20 with two well-developed accessory spurs.

Coxopleura: About two times the length of S21 (Fig. 12). Coxopleural process with two adjacent distal spines (left/right), one ectal spine (left/right), and three (left/right) dorsal spines. The distribution of the dorsal spines is not even, maybe due to damage and regeneration. Left: two dorsal more anterior + one more posterior. Right: one dorsal more anterior + two dorsal more posterior. The area on which the distal spines are located is poreless.

Ultimate leg telopodites: Both prefemora with one-pointed corner spine (Fig. 12). L21 left prefemur with 9 spinous processes, of which 2 dorsomesal, 2 mesal (of which the anterior is found at a length "between" the two distomesal spines and the posterior is "after" the posterior distomesal spinous process), 2 ventromesal, and 3 ventroectal. L21 right prefemur with the same count of 9 spinous processes and relative position of dorsomesal and mesal processes. However, the ventromesal row of 2 spines is abnormal, there is a more anterior ventromesal spine with the tip broken, followed by one complete spine but more mesoventral in position, followed by a posterior ventromesal spineless bump without spine corresponding to the position of the posterior ventromesal spine on L21 left. Pretarsi with two small accessory spurs each.

Length: Approximately 112 mm. Specimen curved and rigid on some parts, legs breaking, not possible to extend it, measured by sections.

Width (T10): 9 mm.

Family Scolopocryptopidae Pocock, 1896a

https://myriatrix.myspecies.info/myriatrix/scolopocryptopidae

Subfamily Newportiinae Pocock, 1896a

https://myriatrix.myspecies.info/myriatrix/newportiinae

Genus *Newportia* Gervais, 1847

https://myriatrix.myspecies.info/myriatrix/newportia

Subgenus *Newportia* (*Newportia*) Gervais, 1847

https://myriatrix.myspecies.info/myriatrix/newportia-newportia

***Newportia* (*Newportia*) *spinipes* Pocock, 1896a**

Synonymy list: There is no comprehensive account for this Mexican endemic species. The literature is consolidated below.

Newportia spinipes Pocock, 1896a: 32 [key], 33 [description], 35 [mention], unnumbered [explanation of plate], pl. 3, figs. 5, 5a-d.

https://myriatrix.myspecies.info/myriatrix/

Fig. 12. MZS Myr0870, *Ethmostigmus trigonepoda trigonepoda* (Leach, 1816). S21, coxopleura, and L21 prefemora, ventral view. Scale bar: 2 mm.

newportia-spinipes

Newportia spinipes: Kraepelin (1903: 82 [key], 88 [description], 89 [figs. 41-42], 274 [index]). Ribaut (1913: 74 [key]). Chamberlin (1915: 501 [mention]). Attems (1930a: 269 [key], 275 [description], 303 [index]). Bücherl (1942a: 133 [mention], 135 [mention]). Bücherl (1942b: 258 [index], 335 [summary], page missing in BHL). Schileyko & Minelli (1999: 267 [mention], 270 [table 1], 287 [mention], 288 [mention], 291 [summary], 297 [key]). Shelley (2002: 6 [mention]). Chagas-Jr. & Shelley (2003: 1 [mention], 10 [fig. 17, map], 12-14 [mentions], 15 [summary], 18 [mention]). Cupul-Magaña (2009: 51 [mention]). Cupul-Magaña (2011: 59 [mention]). Cupul-Magaña (2013a: 1 [mention], 8 [summary]). Schileyko (2013: 46 [mention], 49 [key]). Cupul-Magaña (2013b: 33 [mention]). Cupul-Magaña (2014b: 289 [mention]). Flores-Guerrero et al. (2015: 72 [mention]).

Newportia (*Newportia*) *spinipes*: Chamberlin (1943: 5 [mention], 7 [key], 9 [summary]).

https://myriatrix.myspecies.info/myriatrix/newportia-newportia-spinipes

Newportia (*Scolopendrides*) *spinipes*: Bücherl (1959: 230 [mention], 231 [mention], 234 [mention], 235 [key], 236 [mention]). Bücherl (1974: 126 [fig. 73], 127 [mention]).

https://myriatrix.myspecies.info/myriatrix/newportia-scolopendrides-spinipes

Diagnosis: Cephalic plate with 2 short posterior paramedian sutures. T1 with complete anterior transverse sulcus, sulcus angled at middle. T1 with omegoid paramedian sutures, outer branches of omegoid sutures extending in front of the anterior transverse sulcus. Locomotory legs tibiae with 1 distal anterior and 1 distal ventral spur, tarsi with 1 distal ventral spur. L23 with 4 ventral prefemoral spinous processes and 3 femoral spinous processes. L23 tibiae longer than femora. L23 tarsi composed of 14 articles, ultimate manubrium slightly shorter or as long as the tibia, ultimate flagellum distinctly divided into 13 articles. L23 without a claw. See Pocock (1896a: 32, 33-34, pl. 3, figs. 5, 5a-d), Chamberlin (1943: 7), and Schileyko (2013).

Distribution: Mexico: Guerrero (Pocock, 1896a: 34; Chagas-Jr. & Shelley, 2003: 15), Nuevo León (Chamberlin, 1943: 9), and Jalisco (Cupul-Magaña, 2013a: 8). The latter state is missing in Cupul-Magaña (2013b: 33) and was not updated by Flores-Guerrero et al. (2015: 72-73). One of the northernmost species in the genus *Newportia* (Shelley

2002: 6). Regarding Nuevo León, the record of *N. spinipes* from "Monterrey, Chipinque" by Chamberlin (1943: 9) is here transferred to the municipality of San Pedro Garza García, by disambiguating "Chipinque" to Mesa de Chipinque (25.6075000, -100.3550000, 1300 m a.s.l., datum WGS84). See "NUEVO LEON. Chipinque mesa near Monterrey" in Crabill (1968: 329). Beginning in the first half of the 20th century, the locality was reachable by car from Monterrey and offered both a panoramic view and a point of access for climbing to the peaks nearby. This curated locality is to be applied to the corresponding records of *Garrina leona*, *Lithobius michoacanus*, *Neolithobius aztecus*, and *Chomatophilus smithi*.

Faunistic summary

Shortlist of species with definite records from Nuevo León, Monterrey municipality:

1. *Scolopendra heros* Girard, 1853, **new state record**.
2. *Arthrorhabdus pygmaeus* (Pocock, 1895).
3. *Hemiscolopendra marginata* (Say, 1821), **new state record**.

Shortlist of records transferred to other municipalities:

1. *Arthrorhabdus pygmaeus* (Pocock, 1895). The record from "Halfway between Monterrey and Saltillo, Cuesta los Muertos, 4000 ft." by Shelley (2002: 48) is assigned to **Nuevo León: García** municipality.

2. *Newportia spinipes* Pocock, 1896. The record from "Monterrey, Chipinque" by Chamberlin (1943: 9) is transferred to **Nuevo León: San Pedro Garza García** municipality.

3. *Garrina leona* Chamberlin, 1943. The record from "Monterrey, Chipinque" by Chamberlin (1943: 22) is transferred to **Nuevo León: San Pedro Garza García** municipality.

4. *Lithobius michoacanus* Chamberlin, 1942. The record from "Monterrey, Chipinque" by Chamberlin (1943: 27) is transferred to **Nuevo León: San Pedro Garza García** municipality.

5. *Neolithobius aztecus* (Humbert & Saussure, 1869). The records from "Monterrey, Chipinque" by Chamberlin (1943: 27) are transferred to **Nuevo León: San Pedro Garza García** municipality.

6. *Chomatophilus smithi* Pocock, 1896. The record from "Chipinque mesa near Monterrey" by Crabill (1968: 329) is transferred to **Nuevo León: San Pedro Garza García** municipality.

Shortlist of deleted records extralimital to Nuevo León and Mexico:

1. *Scolopendra gigantea* Linnaeus, 1758 (= *S. robusta* Kraepelin, 1903).
2. *Ethmostigmus trigonepoda* (Leach, 1816).

Shortlist of species of Scolopendra Linnaeus, 1758 occurring in Mexico:

1. *Scolopendra aztekorum* Verhoeff, 1934. Endemic.
2. *Scolopendra chlora* Chamberlin, 1942. Endemic.
3. *Scolopendra heros* Girard, 1853. Native.
4. *Scolopendra malkini* Chamberlin, 1955. Endemic.
5. *Scolopendra michoacana* Chamberlin, 1941. Endemic.
6. *Scolopendra morsitans* Linnaeus, 1758. Introduced.
7. *Scolopendra octodentata* Verhoeff, 1934. Endemic.
8. *Scolopendra pachygnatha* Pocock, 1895. Endemic.
9. *Scolopendra polymorpha* Wood, 1861. Native.
10. *Scolopendra pomacea* Koch, 1847. Endemic.
11. *Scolopendra sumichrasti* Saussure, 1860. Native.
12. *Scolopendra viridis* Say, 1821. Native.

Shortlist of species of Scolopendra Linnaeus, 1758 deleted from Mexico:

1. *Scolopendra dehaani* Brandt, 1840.
2. *Scolopendra gigantea* Linnaeus, 1758.
2.1. *Scolopendra robusta* Kraepelin, 1903.
3. *Scolopendra subspinipes* Leach, 1816.

CONCLUSION

The redescription of the holotype of *Scolopendra robusta* clarified an evolutionary anomaly and allowed us to advance in curating the list and character states of the New World *Scolopendra* species. The work done with *S. robusta*, combined with the curation of the literature records of Chilopoda from "Monterrey" showed that only one (*Arthrorhabdus pygmaeus*) of seven species and its corresponding legacy record could be ascribed to the current municipality. Additional work with older specimens enabled correct identification (from *Scolopendra viridis* to *Hemiscolopendra marginata*) of one unpublished specimen, the deletion of one extralimital genus and species (*Ethmostigmus trigonepoda*) as a mislabeling, and increased the true species count of the municipality from one (*Arthrorhabdus pygmaeus*) to three with the additions of *Scolopendra heros* and *Hemiscolopendra marginata*.

ACKNOWLEDGMENTS

The staff of the Musée Zoologique de Strasbourg (France), especially Dr. Marie Meister, David Carita, and Antoine Wagner, received CAMM and loaned Monterrey Scolopendromorpha material. One visit of CAMM to

Strasbourg in 2018 was supported by the Musées de la Ville et Eurométropole de Strasbourg. Dr. Danilo Harms and Nadine Dupérré (CeNak, Hamburg) loaned the paratype of *Scolopendra robusta* and facilitated access to archival material in 2017 and 2019. Dr. Steffen Harzsch and his working group (Department of Cytology and Evolutionary Biology, Greifswald University, Greifswald) provided workspace and technical assistance in 2017. Dr. Varpu Vahtera, University of Turku, Finland, also provided workspace and assistance. Some parts of this work that were carried out in Finland were supported by an EDUFI Fellowship from the Finnish National Agency for Education and a funded doctoral researcher position from the University of Turku. The debt of gratitude was honored with a hunger strike against university budget cuts. A Collection Study Grant made possible a short visit to the American Museum of Natural History, New York in 2019, during which Dr. Lorenzo Prendini, Dr. Pío Colmenares, and Louis Sorkin, staff of the Arachnida & Myriapoda Collection, were most supportive. Dr. Alessandro Minelli, University of Padova, Italy, checked nomenclatural compliance of the spelling correction to *Ethmostigmus trigonepoda*. Dr. Manuel de Luna, Universidad Nacional Autónoma de México, provided valuable feedback on the manuscript. The Biodiversity Heritage Library provided access to literature. The Natural History Museum, London courageously supported the maintenance of Myriatrix and other Scratchpads in absence of external funding and continues hosting the websites. Dr. Dragan Antić, University of Belgrade, Serbia, and many Serbian colleagues contributed to the organization of the 20th International Congress of Myriapodology, at which this work was presented. Thanks are also due to the Serbian colleagues contributing to organizing and editing the Congress Proceedings.

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