



A contribution to the knowledge of scolopendromorph centipedes of Martinique Island, with descriptions of two new species (Chilopoda: Scolopendromorpha)

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Abstract

The paper provides new data on seven scolopendromorph centipede species collected in Martinique Island. Two new species are described: *Otostigmus (Parotostigmus) salticus* n. sp. and *Cryptops (Trigonocryptops) martinicensis* n. sp.; their systematic position is discussed. Notes on the system of subgenus *Trigonocryptops* Verhoeff, 1906 are given and *Cryptops sarasini* var. *furcata* Ribaut, 1923 is confirmed as subspecies. *Cormocephalus guildingii* Newport, 1845, *Newportia longitarsis guadeloupensis* Demange, 1981 and *N. pusilla* Pocock, 1893 are reported from Martinique for the first time. A list of the Scolopendromorpha of this island is given.

Key words: Lesser Antilles, Martinique, *Otostigmus (Parotostigmus)*, *Cryptops (Trigonocryptops)*, new species, taxonomy, list of species

Introduction

Martinique Island is one of the French Antilles and along with Grenada, Saint Lucia, Saint Vincent and Grenadines and Dominica belongs to the Windward Islands (part of Lesser Antilles) (Fig. 1). There is no comprehensive contribution specific to the Chilopoda of this volcanic island (1128 km²). Information on Martinique scolopendromorph centipedes is scattered among a number of taxonomic papers: Marshall (1878), Meinert (1886), Pocock (1893), Kraepelin (1904), Chamberlin (1918), Attems (1930), Demange (1981), Shelley (2000, 2006), Chagas-Júnior (2003, 2008, 2010), Shelley *et al.* (2005), Questel (2012) and Chagas-Júnior *et al.* (2014). These authors recorded from “Martinique” (without any precise locality) the following eight species: *Scolopendra alternans* Leach, 1816, *S. viridicornis* Newport, 1844, *S. morsitans* L., 1758, *S. subspinipes subspinipes* Leach, 1816, *S. dehaani* Brandt, 1840, *Scolopocryptops ferrugineus* (L., 1767), *S. melanostoma* Newport, 1845 and *S. miersii* Newport, 1845. A geographic search in the World Catalogue of Chilopoda (Bonato *et al.* 2016; http://chilobase.biologia.uniud.it/searches/geographic_search) returns for “Windward Is., Martinique (MQ)” only one scolopendromorph species *Scolopocryptops miersii* Newport, 1845.

Investigated material includes seven species, of which two are new for science and three are new for Martinique (marked by (!) in the corresponding **Range** paragraphs). Thus the main aim of this paper is to describe the new species and to make a list of species of the Scolopendromorpha of this island.

Material and methods

The studied 27 specimens were collected in 2015–2018 by the third author, mainly by hand. Also a few standard soil samples have been taken; extraction was made using Berlese–Tullgren funnel. Appendix 1 summarizes the data on both localities and the collecting methods. Measurements have been taken by a 0.1 mm micrometer.



PLATE 1, FIGURES 1–3. **1:** Location of Martinique in the Caribbean region (white square) and detailed map of the island (from Open Street Map under ODbL licence and layers from Stamen Design under CC-BY 3.0). **Figures 2–3.** *Otostigmus* (*Parotostigmus*) *salticus* **n. sp.** **2:** Adult female preying on cockroach at 1 meter height in the understory vegetation of moist tropical forest, alt. 550 m (picture by D. Romé); **3:** Adult male (the holotype, No P2 in MNHN) alive in a storing box just after collection.

Conventions and abbreviations:

“ad.”—adult(s),

“sad.”—subadult(s),

“juv.”—juvenile(s) (age was determined based on size and degree of sclerotisation of anatomical features such as tarsungula and spines),

“spm.”—specimen(s),

“LBS”—leg-bearing segment(s),

Scale bar—1 mm, if not otherwise indicated.

Schileyko (2014: 177) showed that characters such as tergal spinulation are not always clearly visible by light microscopy in the specimens of *Otostigmus* (*Parotostigmus*) Pocock, 1895 completely immersed in a liquid. So the

specimens were examined both wet and dry at various angles of direct illumination. The main part of the pictures have been taken by the second author using a digital camera Moticam 5 on a trinocular lens Motic SMZ–168–TLED.

The holotype (male No P2) and a paratype (female No ACA2) of *Otostigmus (P.) salticus* **n. sp.** are deposited in the Muséum National d'Histoire Naturelle of Paris (MNHN) as well as the holotype of *Cryptops (Trigonocryptops) martinicensis* **n. sp.** (adult No P1C). One paratype of *Otostigmus (Parotostigmus) salticus* (female No ACA1) is deposited in the personal collection of E. Iorio (CEI). Other seven paratypes of *O. (P.) salticus* (females and immatures) and the paratype of *Cryptops (Trigonocryptops) martinicensis* (adult No P8A) are deposited in the collection of the French Agricultural Research Centre for International Development (CIRAD) of Martinique. Non type material is also deposited in CIRAD.

In the descriptions we have followed the standardized terminology proposed by Bonato *et al.* (2010).

Results

Order Scolopendromorpha Pocock, 1895

Family Scolopendridae Leach, 1814

Subfamily Scolopendrinae Leach, 1814

Genus *Scolopendra* Linnaeus, 1758

Type species. *Scolopendra morsitans* Linnaeus, 1758 (by ruling of the ICZN, 1957, Opinion 454).

Range. All tropical, subtropical and warm temperate regions.

Scolopendra subspinipes subspinipes Leach, 1816

Locus typicus: not designated.

Material. Parcelle Aubéry, Basse-Pointe, 24.11.2017, lat. 14.85735, long. -61.10902, 75 m, 1 spm.; Cap Est, Le François, 19.08.2017, lat. 14.57873, long. -60.85677, 35 m, 1 spm.; Quartier Réunion, Le François, 10.12.2017, lat. 14.603209, long. -60.921862, 42 m, 1 spm.; Petite Poterie, Le Marin, 22.11.2017, lat. 14.4535, long. -60.8931, 7 m, 1 spm.

Range (after Schileyko & Stoev 2016). All tropical and subtropical regions of Asia; a few peripheral localities in Africa; Madagascar; Seychelles; Comoros; Rodriguez Island; Philippines; East Indonesia; North Papua New Guinea; Christmas Island; Australia; New Zealand; Oceania; introduced in the New World: Bermuda, Caribbean, South America.

Genus *Cormocephalus* Newport, 1844

Type species. *Scolopendra rubriceps* Newport, 1843 (by subsequent designation of Attems, 1930: 61).

Range. All tropical and subtropical regions with temperate climate.

Cormocephalus guildingii Newport, 1845

Terra typica: Hispaniola Island, Greater Antilles.

Material. Morne Aca, Le Marin, 22.11.2017, lat. 14.4614, long. -60.9002, 213 m, 1 spm.

Range. Antilles: from Cayman Islands and Jamaica (no records from Cuba) to Bonaire Island near Curaçao; Martinique (!).

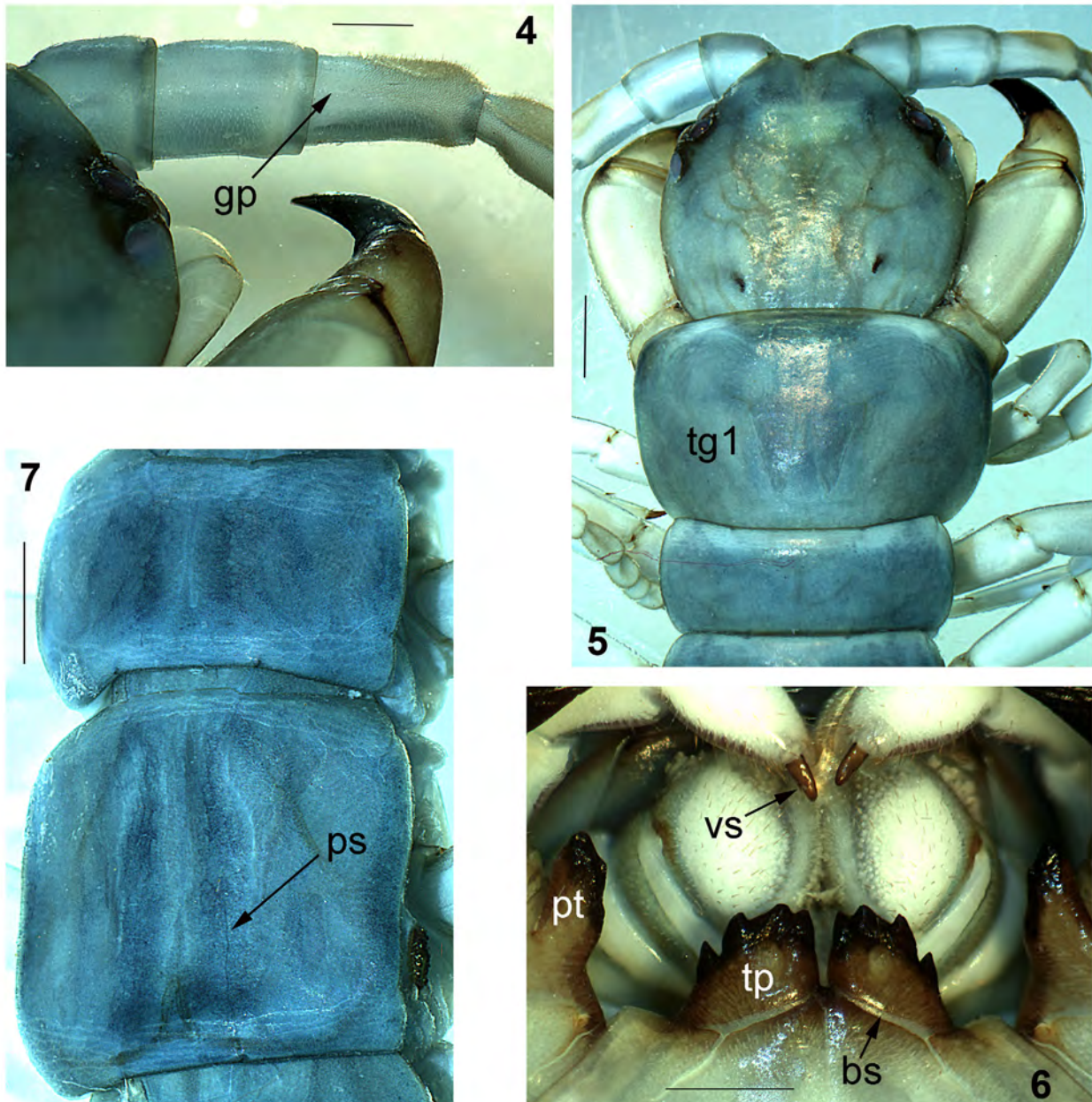


PLATE 2, FIGURES 4–7. *Otostigmus* (*Parotostigmus*) *salticus* **n. sp.**, holotype (No P2 in MNHN). **4:** Antennal articles 1–4, dorso-lateral view (scale bar: 0.5 mm); **5:** Head plate and LBS 1–2, dorsal view; **6:** Maxillae 2 and anterior margin of forcipular coxosternite, ventral view (scale bar: 0.7 mm); **7:** LBS 4–5, dorsal view.

Abbreviations: (bs)—basal suture of tooth-plate, (gp)—glabrous basal portion of antennal article 3, (ps)—paramedian suture, (pt)—process of trochanteroprefemur, (tg1)—tergite 1, (tp)—tooth-plate, (vs)—ventral accessory spine.

Subfamily Otostigminae Kraepelin, 1903

Genus *Otostigmus* Porat, 1876

Subgenus *Parotostigmus* Pocock, 1896

Type species. *Branchiostoma scabricauda* Humbert & Saussure, 1870 (by subsequent designation of Attems, 1928).

Range. Central and South America, including Caribbean; North-East, East, South and West-Central Tropical Africa.

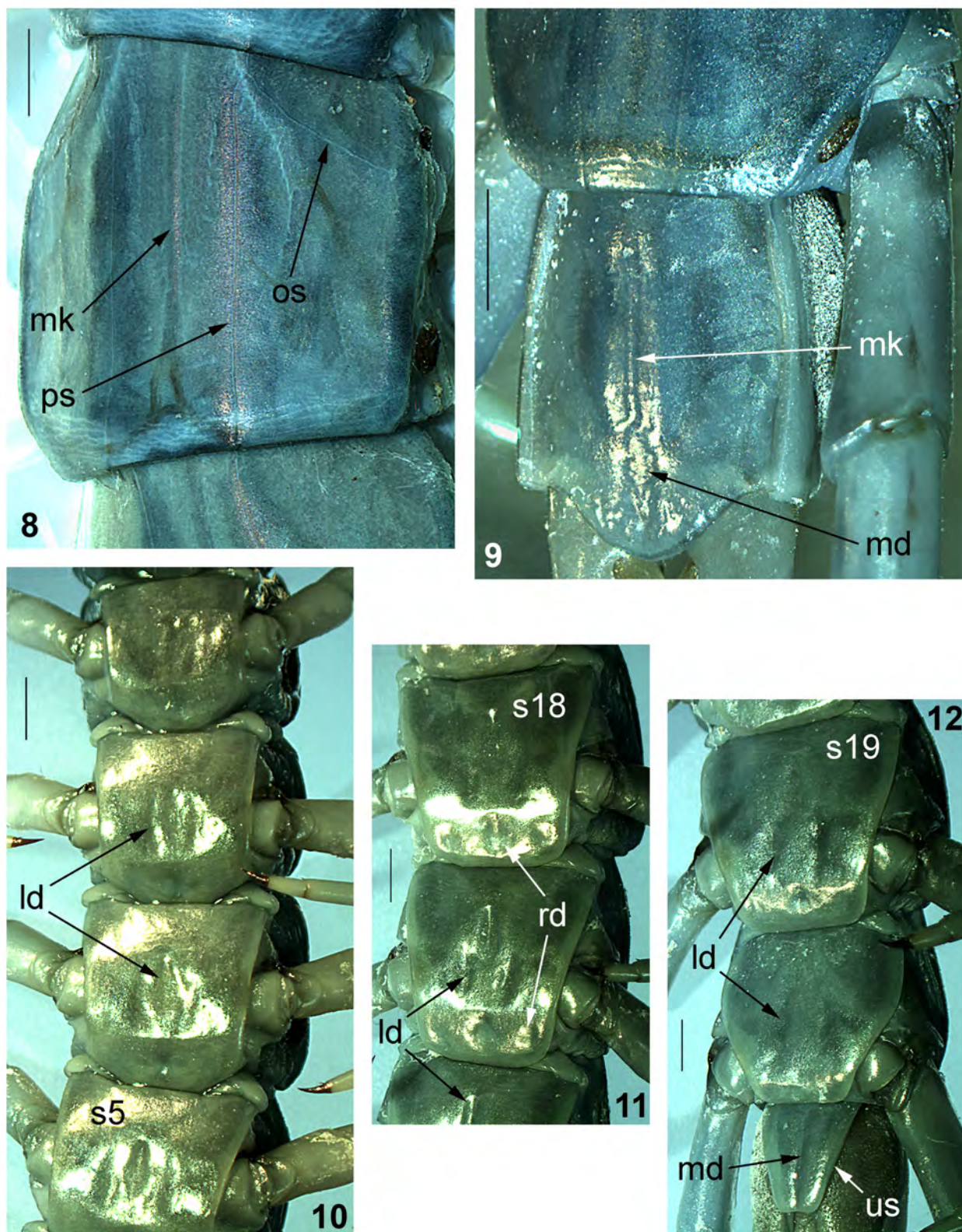


PLATE 3, FIGURES 8–12. *Otostigmus (Parotostigmus) salticus* n. sp., holotype (No P2 in MNHN). **8:** LBS 10, dorsal view; **9:** LBS 20–21, dorsal view; **10:** LBS 2–5, ventral view; **11:** LBS 18–19, ventral view; **12:** Sternites 19–21, ventral view.

Abbreviations: (ld)—sternal longitudinal depressions, (md)—median depression, (mk)—tergal median keel, (os)—oblique suture, (ps)—paramedian suture, (rd)—sternal rounded depressions, (s5)—sternite 5, (s18)—sternite 18, (s19)—sternite 19, (us)—ultimate sternite.

***Otostigmus (Parotostigmus) salticus* n. sp.**

Figs 2–18

Locus typicus: Morne Platine, Le Lorrain, Martinique Island, Lesser Antilles.

Material. Holotype: Le Lorrain, Morne Platine, 28.04.2016, lat. 14.7591, long. -61.0698 (WGS84), 451 m, 1 ad. ♂ [No P2 MNHN]. **Paratypes:** Morne Moulinguet, Morne Vert, 20.07.2015, lat. 14.7039, long. -61.1477, 460 m, 1 sad. [No TP, CIRAD]; Plateau Fond Laillet, Bellefontaine, 23.12.2016, lat. 14.6663, long. -61.1452, 300 m, 1 juv. [No Z3B, CIRAD]; summit of Piton Boucher, Fond-Saint-Denis, 21.05.2017, lat. 14.7146, long. -61.1050, 1059 m, 1 juv. [No P6, CIRAD]; Morne Manioc, summit, Sainte-Anne, 27.05.2017, lat. 14.4335, long. -60.8574, 146 m, 2 ad. ♀ [No MT1, CIRAD]; Morne Aca, Le Marin, 22.11.2017, lat. 14.4614, long. -60.9002, 213 m, 1 ad. ♀ [No ACA2, MNHN]; Morne Aca, Le Marin, 22.11.2017, lat. 14.4634, long. -60.8991, 254 m, 1 ad. ♀ [No ACA1, CEI]; Canyon Gendarme, Fonds-Saint-Denis, 23.10.2016, lat. 14.72398, long. -61.105, 561 m, 1 spm. [No LJ, CIRAD]; Jardin Xavier, Claplet, Le Morne Vert, 29.04.2018, lat. 14.70773, long. -61.13128, 561 m, 1 spm. [No XG, CIRAD].

Diagnosis. Length of body up to 77 mm. Antennae mainly of 17 articles, *ca* 2.2 basal ones with a few long setae dorsally and *ca* 2.8 ones ventrally. Pretarsus of the second maxillae with ventral accessory spine. Forcipular tooth-plate with 4 teeth; trochanteroprefemur with long process, with two median tubercles. Posterior tergites spinulated; tergites (4)6–20 with complete paramedian sutures; well-developed lateral margination at tergites 11–19 and 21. Sternite 21 narrowed towards the slightly concave posterior margin, with posterior longitudinal median depression. Only legs 1 (rarely legs 1–2) with two tarsal spurs. Coxopleural process extremely short with rounded and spineless tip. Male's digitiform process nearly as long as 2/3 of the ultimate prefemur, its flattened dorsal surface deeply excavated. The tuft of short hairs is located in a shallow dorsal pit on the shorter and bulbous apical part (or “head”) of the digitiform process.

Derivatio nominis: Jumping behaviour was observed in this animal (see below), so this species has been named after this habit (“salticus” means “jumping” or “dancing”) as it makes one remember the well-known spiders of genus *Salticus* Latreille, 1804 which can jump well.

Description of the holotype (adult ♂, No P2, MNHN).

Length of body 77 mm (the largest of specimens). Color of living specimen: head and body purple with metallic sheen, ultimate legs violet, prefemur of locomotory legs yellow, more distal leg articles and antennae blue (Figs 2, 3). Color in 70% ethanol (preserved for approximately 2 years): entire body uniformly dark blue to grayish-blue, with paler legs and antennae; forcipular segment pale brown. Body with very few minute setae; three distal articles of legs slightly more setose.

Left antenna composed of 18 articles (the right one is broken apically and only 11 articles are left), reaching nearly the anterior margin of tergite 4 when reflexed. 2.25 basal articles with few long setae dorsally (Fig. 4) and *ca* 2.7–2.8 ones ventrally, subsequent articles densely pilose. Basal articles cylindrical.

Cephalic plate (Fig. 5) 3.5 mm long, approximately round in outline and without sutures, its posterior margin covered by tergite 1.

Second maxillae: article 2 of telopodite with the usual dorso-distal spur. Pretarsus with one (ventral) well-developed accessory spine (Fig. 6).

Forcipular segment: coxosternite with short median suture. Tooth-plates (Fig. 6) somewhat wider than long (right plate visibly wider than the left one); each plate with 4 teeth, lateral tooth much lower than the others. The basal sutures of tooth-plates form an obtuse angle, their lateral ends are bifurcate. Trochanteroprefemur with a large process, with two median tubercles; this process extends much beyond the tooth-plates. Tarsungula normal, its interior surface with two longitudinal ridges, of which the ventral one is more pronounced.

Tergites 6–21 visibly spinulated; more developed on tergites 10–20. Tergite 2 very short (only as long as 1/3 of tergite 1) (Fig. 5). Tergites 1–4 without sutures; tergite 5 with incomplete paramedian sutures in the posterior half (Fig. 7), tergites 6–20 with these sutures complete and well-developed (Fig. 8). Tergites 6–12 with paired oblique anterior sutures (Fig. 8). Tergites 4–21 with a median keel (Figs 8, 9), which is incomplete in tergite 21, slightly paler than the corresponding tergites. Tergite 21 with shallow median depression in the posterior third and very poorly-developed incomplete depressions along the median keel (Fig. 9). Tergite 21 somewhat longer than wide, not narrowed posteriorly; its sides curved, the posterior margin rounded in the middle. Lateral margination virtually absent on tergites 6 and 7, incomplete on 8, complete and well-developed on 9–21.

Sternites (4)5–21 narrowed posteriorly, sternites 4–19 with very short, poorly-developed paramedian sutures anteriorly. Sternite 1 with shallow median depression, sternites 2–3 with two hardly visible longitudinal (paramedian) depressions in the middle. Sternites 4–20 with three longitudinal depressions in the middle (Figs 10–12), these depressions are better developed on sternites 6–19. Sternites 2–6 and 19 with one and sternites 7–17(18) with three small rounded depressions posteriorly (Figs 11, 13). Sternite 20 without posterior depressions, these are better developed on the mid-body sternites. Ultimate sternite (Figs 12, 14) somewhat longer than wide, distinctly narrowed towards the slightly concave posterior margin, with longitudinal median depression in the posterior half. Endosternites not recognizable.

Legs: two tarsal spurs on legs 1 (Fig. 15); legs 2–20 with one tarsal spur (Fig. 16). Legs 1 with one tibial and one femoral spur; pretarsus of legs 1–20 with two accessory spines.

Coxopleuron (Fig. 14) considerably longer than ultimate sternite, almost completely covered with coxal pores of various sizes. Coxopleural process extremely short, its tip rounded and spineless (Fig. 14). Coxopleural surface without setae; posterior margin of ultimate pleuron rounded.

Ultimate legs glabrous and without spines, *ca* 21.5 mm long (prefemur—5.7 mm, femura—5.6, tibia—5, tarsus 1—4.1, tarsus 2—1.8) and rather slender (Fig. 3); all their articles cylindrical. Pretarsus with a very small accessory spine. Prefemur with digitiform process (Figs 17, 18), which is nearly as long as 2/3 of the length of prefemur. This process definitely broadens caudad and consists of longer basal part (described below as “neck”) and shorter bulbous/clavate apical part (below as “head”); the length of the “head” constitutes nearly 22–23% of the total length of the process. The dorsal surface of the “neck” is deeply excavated (Fig. 17); a small tuft of short brownish hairs is located in a shallow dorsal pit on the “head” (Figs 17, 18), the latter is strongly swollen/protruding. The ventral surface of the digitiform process is rounded in its posterior half.

Range. Martinique Island (Lesser Antilles).

Variation. Body length 70–75 mm in adults ♀♀, 31.5–54 mm in subadults and juveniles. Antennae mainly of 17 articles (one adult ♀ has 15 articles in the right antenna and one subadult has 16 in the right antenna). Both topography and structure of the setae at the antennal articles identical to that of the holotype. One subadult (No TP) has one forcipular tooth-plate with 5 teeth, an abnormality common in the Scolopendridae.

Tergal spinulation of adult females is as in the holotype, but poorly developed in subadults and virtually absent in juveniles. In one adult female tergite 3 has very short (1/5 of tergite length) paramedian sutures posteriorly. Sutures on tergite 4 in the paratypes complete, incomplete or absent (in the last case, incomplete paramedian sutures from tergite 5). Tergites (6)7–(12)14 with paired oblique anterior sutures (sometimes lacking or almost lacking on tergites 9, 11 and 13). Median keel well-developed from tergite 6; tergal lateral margination essentially as in the holotype.

Sternites 4–19 of all paratypes with much shortened anterior paramedian sutures; configuration and topography of sternal depressions (Fig. 13) virtually the same as in the holotype. Legs as in the holotype (one juvenile has legs 2 with two tarsal spurs).

Remarks. At the moment, *O. (P.) spiculifer* Pocock, 1893 is the only representative of the subgenus *Parotostigmus* recorded from the Windward Islands (namely from St. Vincent) (Bonato *et al.*, 2016). According to Chagas-Júnior (2016: 46), *O. spiculifer* is probably a synonym of *O. occidentalis* Meinert, 1886, described from Haiti; the males' digitiform process of the ultimate prefemur is not recorded for either of these poorly-known species, described from one specimen of unknown sex each. *O. (P.) salticus* **n. sp.** differs from both of them by the number and configurations of the sternal depressions—the mid-body sternites of the former species bear three median longitudinal depressions plus three small posterior rounded ones (see above) vs. “sternite 3–17 with a very shallow rounded depression at center” in *O. occidentalis* (Chagas-Júnior 2016: 45) and “sternites ... anteriorly rugose, posteriorly marked with four abbreviated longitudinal impressions, two median, in a line, and one on each side” in *O. spiculifer* (Pocock 1893: 461). In *O. occidentalis* two tarsal spurs are present on legs 1–9, but only on legs 1 in *O. (P.) salticus*. Most remarkably the latter differs from both *O. spiculifer* and *O. occidentalis* by having all tergites smooth vs. tergites of the posterior body-half strongly wrinkled or “densely tuberculate” (Chagas-Júnior 2016: 45, 46).

According to the keys of Attems (1930) and Chagas-Júnior (2012) the studied animals seem to be quite close to *O. (P.) rex* Chamberlin, 1914, but in 2016 Chagas-Júnior synonymized the latter (together with *O. (P.) casus* and *O. (P.) samacus*, all three described by Chamberlin (1914) from the same locality) with *O. (P.) suitius* Chamberlin, 1914. According to the drawing of the male's digitiform process of *O. samacus* and all the details (including the

range) given for *O. rex* and *O. suitius*, our specimen from Martinique is not conspecific with the latter. In particular, both *O. samacus* and *O. suitius* have the dorsal surface of the “neck” of the male’s digitiform process practically flat or slightly rounded (see fig. 24 in Chagas-Júnior, 2016), not deeply excavated as in the new species (Fig. 17); also the process’ “head” is virtually not swollen/protruding in *O. suitius*.

Ecology. A peculiar behaviour has been observed for this species, which seems to be able to jump down, when escaping from a potential predator. *O. salticus* has been found in all bioclimatic zones of Martinique ranging from dry forest to cloud forest (top of Pitons du Carbet mountain), which is a notable feature since the mean annual precipitation ranges from 1500 mm to more than 5000 mm. Direct observations (at least three of them performed at nighttime) show a contrasted behaviour of this species according to the moisture level. In dry localities, *O. salticus* has been found under rotting logs, bark or stones at the soil level, but in the moist localities, this species has been observed preying among the understory vegetation (Fig. 2) at a height of approximately 1 m.

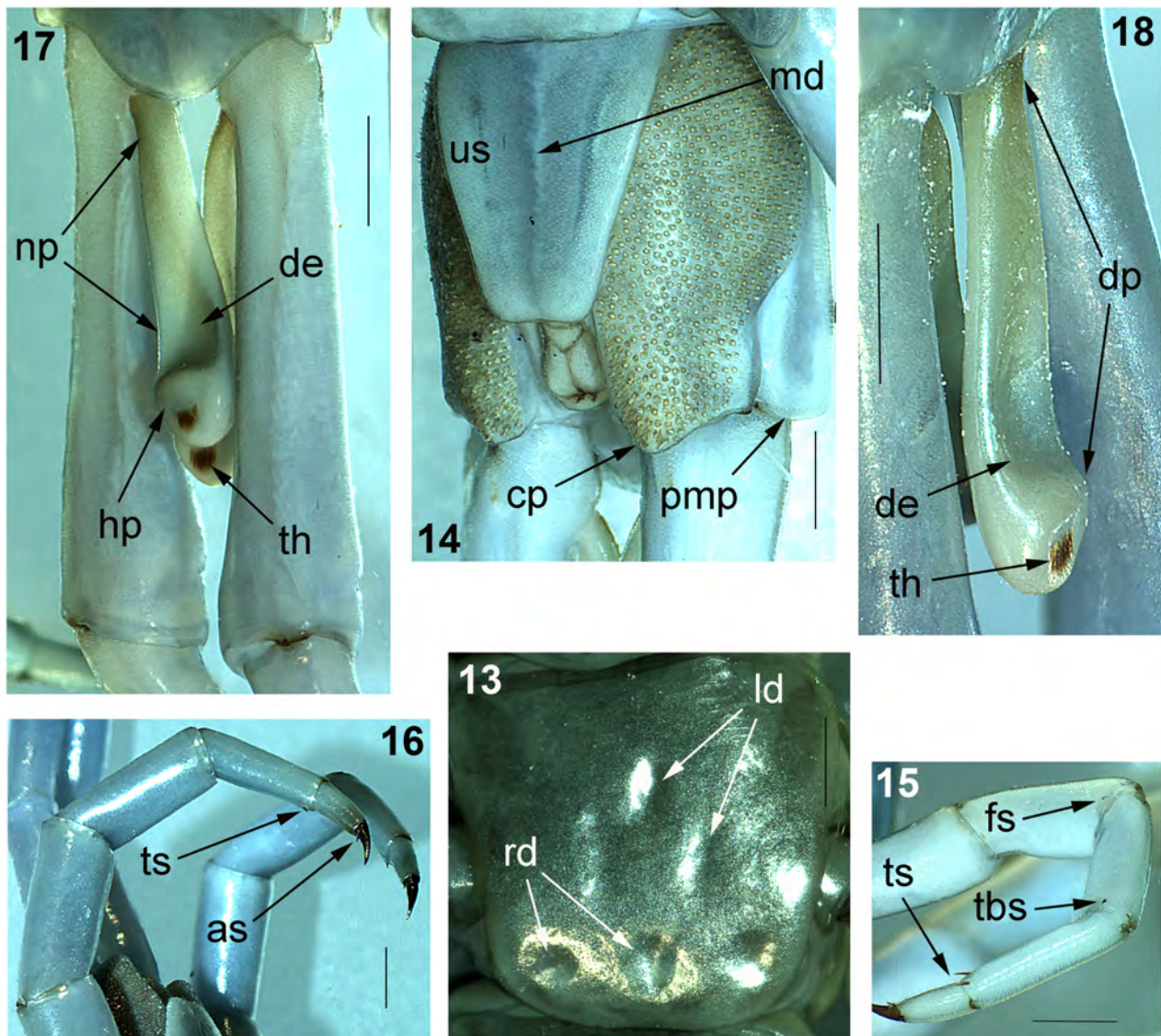


PLATE 4, FIGURES 13–18. *Otostigmus (Parotostigmus) salticus* n. sp. **13:** Paratype (♀ No ACA1): sternite 14, ventral view; **14:** Holotype (No P2 in MNHN): LBS 21, ventro-lateral view (scale bar: 0.7 mm); **15:** Paratype (juvenile No P6): leg 1, interior view (scale bar: 0.4 mm); **16:** Paratype (♀ No ACA1): left leg 20, lateral view; **17:** Holotype (No P2 in MNHN): prefemora of ultimate legs, dorsal view; **18:** Holotype (No P2 in MNHN): digitiform process of right ultimate prefemur, dorso-medial view. **Abbreviations:** (as)—accessory spines, (cp)—coxopleural process, (de)—dorsal excavation of “neck” of digitiform process, (dp)—digitiform process of ultimate prefemur, (fs)—femoral spur, (hp)—“head” of digitiform process, (ld)—sternal longitudinal depressions, (md)—median depression, (np)—“neck” of digitiform process of ultimate prefemur, (pmp)—posterior margin of ultimate pleuron, (rd)—sternal rounded depressions, (tbs)—tibial spur, (th)—tuft of hairs at “head” of digitiform process, (ts)—tarsal spur, (us)—ultimate sternite.

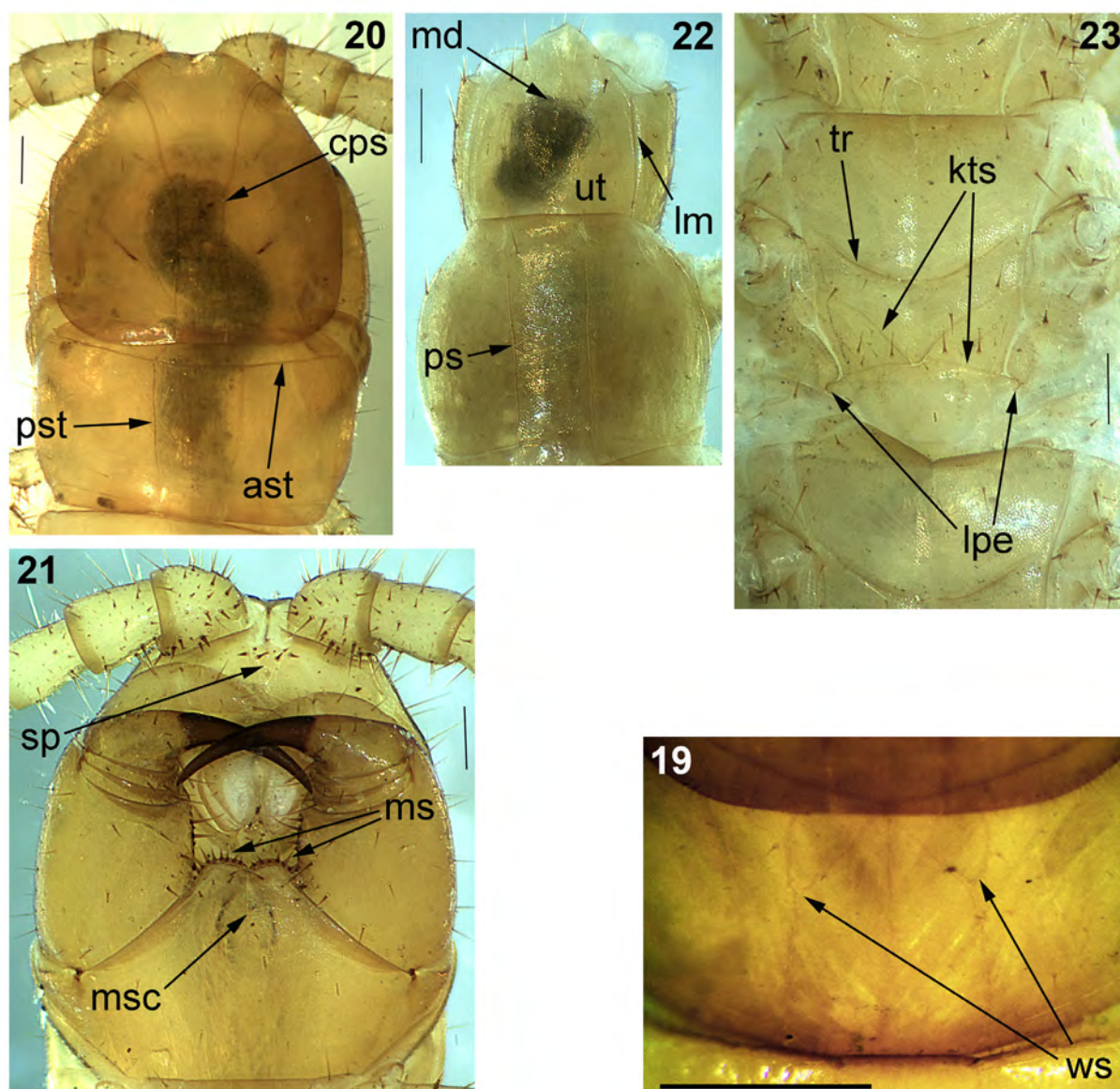


PLATE 5, FIGURE 19. *Cryptops (Trigonocryptops) sarasini furcatus* (Ribaut, 1923), adult No 7502 in ZMMU: LBS 1, dorsal view. **Figures 20–23.** *Cryptops (Trigonocryptops) martinicensis* n. sp., holotype (No PIC, MNHN). **20:** Head plate and LBS 1, dorsal view (scale bar: 0.2 mm); **21:** Head and forcipular segment, ventral view (scale bar: 0.2 mm); **22:** LBS 20–21, dorsal view (scale bar: 0.3 mm); **23:** LBS 2–4, ventral view (scale bar: 0.2 mm).

Abbreviations: (ats)—anterior transverse suture of tergite 1, (cps)—cephalic paramedian suture, (kts)—K-shaped sternal trigonal suture, (lm)—lateral margination, (lpe)—lateral projections of the anterior corners of the endosternite, (md)—median depression, (ms)—marginal setae, (msc)—median suture of forcipular coxosternite, (ps)—paramedian suture, (pst)—paramedian suture of tergite 1, (sp)—clypeal setose plate, (tr)—sternal transverse ridge, (ut)—ultimate tergite, (ws)—W-shaped paramedian sutures of tergite 1.

Family Cryptopidae Kohlrausch, 1881

Genus *Cryptops* Leach, 1814

Subgenus *Trigonocryptops* Verhoeff, 1906

Type species. *Cryptops gigas* Kraepelin, 1903 (by subsequent designation of Attems, 1930).

Range (after Schileyko & Stoev 2016). Caribbean Islands: Cuba; South America: Peru, South-East Brazil (São

Paulo State, Rio de Janeiro State, Minas Geras State), Argentina (Buenos Aires, Sierra de la Ventana); Europe: Spain; Africa: Algeria, Morocco, Ivory Coast, Guinea, Tanzania, Somalia, Yemen (Sokotra Island), Gabon, Benin, Cameroon, Congo; South-East Asia: India (Nagpur), Vietnam; Pacific: Australia (Queensland, Western Australia), Sumba, East Timor, New Guinea Island, Solomon Islands, New Caledonia, New Zealand, Fiji.

Remarks. Attems (1930: 241) was the first to regard *C. sarasini* Ribaut, 1923 as a member of *Trigonocryptops*. Without producing drawings or discussing morphological details, Würmli (1974) considered *C. sarasini* var. *furcata* Ribaut, 1923 (with W-shaped anterior parts of the paramedian sutures of tergite 1; see fig. 46 in Ribaut 1923) as a synonym of *C. sarasini* Ribaut, 1923 (in which these sutures are straight; see Ribaut's fig. 36). We read (p. 525): "Die var. *furcata* beruht weitgehend auf einem Juvenilmerkmal und ist deswegen einzuziehen. (Nova Synonymia)". We should note, however, that a feature as the W-shaped configuration of the paramedian sutures of tergite 1 is not a juvenile condition, but a species-specific character in two scolopendromorph genera—*Cryptops* and *Newportia* Gervais, 1847. We have re-studied the adult specimen No 7502 in ZMMU (Zoological Museum of Moscow Lomonosov State University) of *Cryptops (Trigonocryptops) sarasini* var. *furcata* from Sao Paulo (Brazil). This specimen has tergite 1 with well-developed W-shaped paramedian sutures (Fig. 19) and corresponds well in all aspects to both the recent diagnosis of *Trigonocryptops* provided by Schileyko & Stoev (2016) and the original description and drawings of *C. sarasini* var. *furcata*. To sum up, we confirm this taxon as subspecies, became as *Cryptops (Trigonocryptops) sarasini furcatus* (Ribaut, 1923), but its peculiar combination of characters may possibly require for *C. (T.) sarasini furcatus* even the status of full species.

***Cryptops (T.) martinicensis* n. sp.**

Figs 20–29

Locus typicus: Rivière Sylvestre, Le Lorrain, Martinique Island, Lesser Antilles.

Material. Holotype: Le Lorrain, Rivière Sylvestre, 11.05.2016, lat. 14.7753, long. -61.0653, 260 m, 1 ad. [No PIC, MNHN]. **Paratype:** Schoelcher, Plateau Clark, 06.04.2016, lat. 14.6820, long. -61.1037, 520 m, 1 juv. [No P8A, CIRAD].

Diagnosis. Antennae composed of 17 articles. Cephalic plate with complete paramedian sutures, covering the anterior margin of tergite 1. Clypeus with large rhomboid setose plate which bears 5 setae + 2 setae around setose plate; labrum with a single tooth. Forcipular coxosternite with incomplete median suture, its anterior margin bilobed with 7+6 enlarged marginal and 4+3 submarginal setae. Tergite 1 with anterior transverse suture, which is crossed by complete paramedian sutures; tergites 2–20 with well-developed paramedian sutures. Sternites 2–19 with median suture/sulcus and characteristic transverse ridge. Sternites 3–15[!] with various trigonal sutures: K-shaped on sternites 3–5, X-shaped on sternites 6–9 and C-shaped on sternites 10–15. Lateral projections of the anterior corners of the endosternites well-developed. Coxopleural pore field slightly longer than sternite 21, consisting of ca 55–60 pores. Ultimate prefemur with 1 (median) dorsodistal spinous process; femur, tibia and tarsus 1 with paired processes; the latter long, thin and strongly curved downwards. Femur without saw tooth; tibia with 8–9, tarsus 1 with 4–5 saw teeth.

Derivatio nominis: we name this species after the Martinique Island in Lesser Antilles where the type material was collected.

Description of the holotype (adult, No PIC, MNHN).

Length of body ca 21 mm. Color in ethanol: uniformly light yellow; body with sparse long setae, the legs are more setose.

Antennae composed of 17 articles, reaching the posterior margin of tergite 4 when reflexed. 3.5 basal articles with some long setae (Figs 20–21); 4 basal articles with a few short setae, remaining articles (especially 7–17) much more setose. Basal articles cylindrical.

Cephalic plate with complete paramedian sutures (Fig. 20), covering the anterior margin of tergite 1. Clypeus with large rhomboid setose plate (Fig. 21) which bears 5 setae and is well delimited by sutures; 2 setae at the sides of setose plate. Labrum with a single median tooth.

Forcipular segment (Fig. 21): coxosternite with well-developed median suture, which is approximately as long as 1/3 of the length of coxosternite; anterior margin of the latter strongly bilobed with 7+6 marginal (long and much enlarged) setae and 4+3 submarginal setae. Chitin-lines absent. Tarsungula normal.

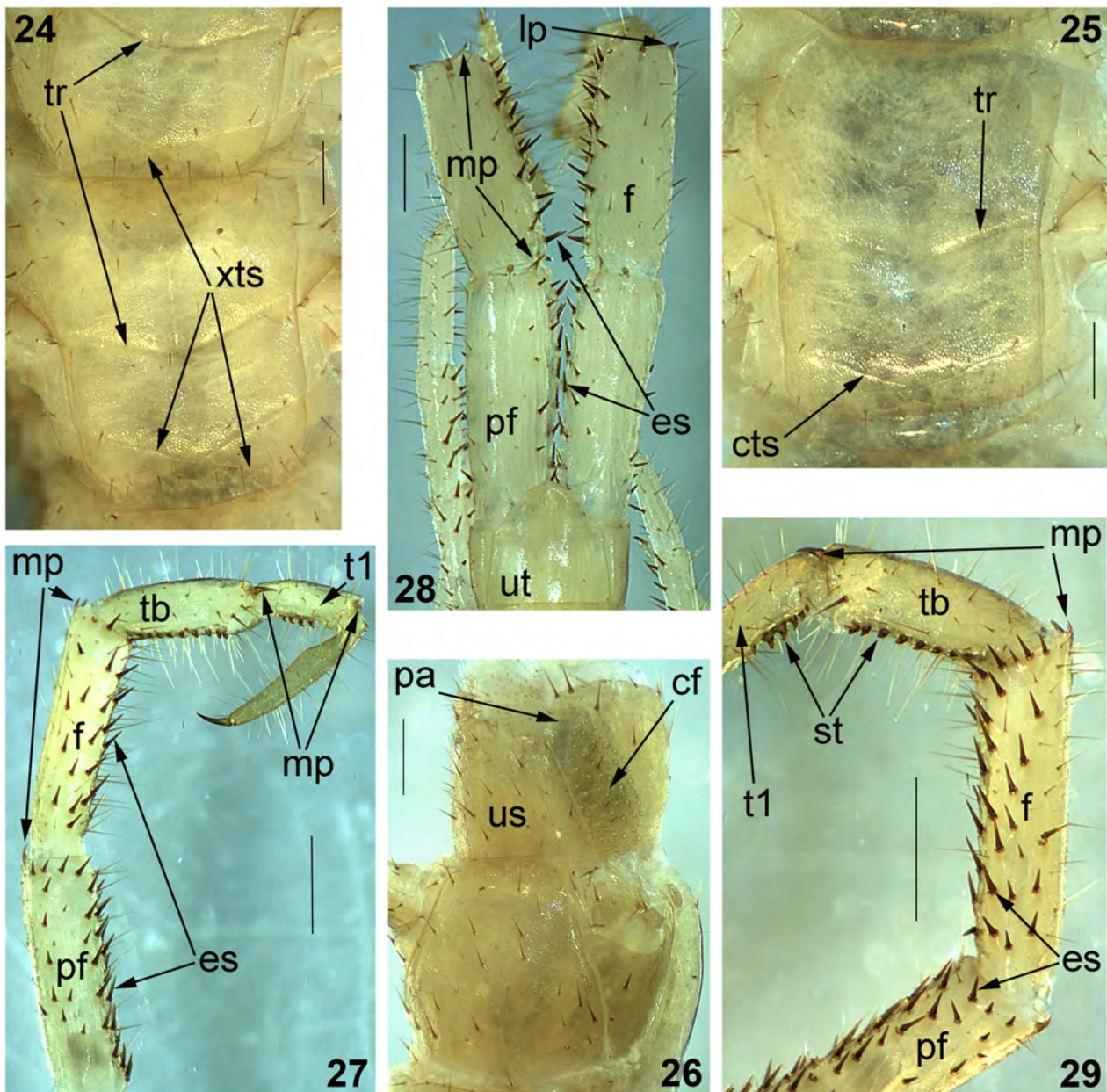


PLATE 6, FIGURES 24–29. *Cryptops (Trigonocryptops) martinicensis* n. sp. **24:** Holotype (No PIC, MNHN): LBS 7–8, ventral view (scale bar: 0.2 mm); **25:** Holotype (No PIC, MNHN): LBS 12, ventral view (scale bar: 0.2 mm); **26:** Holotype (No PIC, MNHN): LBS 20–21, ventro-lateral view (scale bar: 0.3 mm); **27:** Holotype (No PIC, MNHN): right ultimate leg, medial view (scale bar: 0.5 mm); **28:** Paratype (subadult No P8A in CIRAD): LBS 21 + prefemora and femora of ultimate legs, dorsal view (scale bar: 0.3 mm); **29:** Holotype (No PIC, MNHN): prefemur, femur, tibia and tarsus 1 of left ultimate leg, medial view (scale bar: 0.5 mm).

Abbreviations: (cf)—coxopleural pore field, (cts)—C-shaped sternal trigonal suture, (es)—enlarged long setae, (f)—femur, (lp)—lateral dorsodistal spinous process, (mp)—median dorsodistal spinous processes, (pa)—poreless area of coxopleuron, (pf)—prefemur, (st)—saw teeth, (t1)—tarsus 1, (tb)—tibia, (tr)—sternal transverse ridge(s), (us)—ultimate sternite, (ut)—ultimate tergite, (xts)—X-shaped sternal trigonal sutures.

Tergite 1 (Fig. 20): anterior transverse suture crossed by complete paramedian sutures, their anterior portions strongly convergent cephalad. Tergites 2–20 with well-developed paramedian sutures (Fig. 22; tergites 1–19 with poorly-developed longitudinal lateral sutures. Tergite 21 practically as wide as long, its sides curved; well-developed longitudinal median depression in its caudal $\frac{3}{4}$. Posterior margin of tergite 21 forming an acute angle, pointed caudally (Fig. 22). Tergites 9–20 with poorly-developed lateral margination, which is well-developed in tergite 21. Some posterior tergites with well-visible pretergite (Fig. 22).

Sternites 1–21 trapeziform; sternites 2–19 with incomplete median longitudinal suture disposed in well-developed median longitudinal sulcus. Sternites 2–19 with well-developed characteristic transverse ridge between the coxae (Figs 23–25). Sternites 3–15[!] with well recognizable trigonal sutures of various configurations: K-shaped on sternites 3–5 (Fig. 23), X-shaped on sternites 6–9 (Fig. 24) and C-shaped (the posterior parts of both trigonal sutures being lacking or insignificant) on sternites 10–15 (Fig. 25). Lateral projections of the anterior corners of the endosternites well-developed (Fig. 23). Sternite 21 slightly longer than wide, narrowed towards the slightly concave posterior margin (Fig. 26).

Katopleure divided vertically; it is visible in LBS 2–19.

Legs: basal articles with a few long setae, other articles more setose. Legs 1–19 with a poorly visible division between tarsus 1 and tarsus 2 which seems not to be functional; tarsus of leg 20 clearly bipartite. Pretarsi long, thin and pointed, accessory spines rudimentary.

Coxopleural pore field (Fig. 26) oval, slightly longer than sternite 21, consisting of ca 55–60 coxal pores of various sizes and bordered posteriorly by a wide poreless area (Fig. 26). A few small setae on the pore field and a few enlarged ones at the posterior margin of the coxopleuron.

Ultimate legs of proportions usual for *Cryptops* (Fig. 27), ca 5.1 mm long (prefemur—1.4 mm, femur—1.3, tibia—0.9, tarsus 1—0.6, tarsus 2—0.9), width of prefemur 0.45 mm. Median and ventral surfaces of both prefemur and femur covered by numerous long and enlarged dark-brown setae (Figs 27–29). Prefemur with 1 (median) dorsodistal spinous process (Figs 27–29); femur and tibia with well-developed paired dorsodistal spinous processes (Figs 28, 29), these processes long, thin and strongly curved downwards; tarsus 1 with corresponding processes much shorter and not curved (Fig. 27). Femur without saw tooth; tibia with 8–9 and tarsus 1 with 4–5 saw teeth (Fig. 29).

Range. Martinique Island (Lesser Antilles).

Variation. The subadult paratype is virtually the same in all details except for body length (14.5 mm) and insignificant variation in the number of saw teeth of ultimate tarsus 1 (4+4 vs. 4+5 in holotype).

Remarks. The new species differs readily from the known species of *Trigonocryptops* in having an unusually large number (15!) of sternites with trigonal sutures and in the diversity (three types) of the latter (see above).

Until now the subgenus *Trigonocryptops* included 28 species (Schileyko & Stoev 2016: 267) of which 11 are known from New World—7 species occur in South America and 4 in the Caribbean. According to our own data and Bonato *et al.* (2016), the following species have been found in South America: *C. (T.) galathea* Meinert, 1886—Paraguay, Uruguay, Brazil (Amazonas); *C. (T.) debilis* (Bücherl, 1950)—Peru; *C. (T.) iheringi* (Brölemann, 1902), *C. (T.) sarasini furcatus* Ribaut, 1923, *C. (T.) iporangensis* Ázara & Ferreira, 2013—Brazil (São Paulo); *C. (T.) triangulifer* (Verhoeff, 1937), *C. (T.) hephaestus* Ázara & Ferreira, 2013—Brazil (Minas Gerais).

The following four species occur in the Caribbean: *Cryptops (T.) manni* Chamberlin, 1915 from Haiti (it differs from the studied specimens by having no paramedian sutures on tergite 1) and three species from Cuba, very poorly described and illustrated by Matic, Negrea & Fundora Martinez (1977). These are: *C. troglobius* (ultimate tibia with 24 saw teeth), *C. cavernicolus* (ultimate tarsus 1 with 1 saw tooth, ultimate tergite rounded posteriorly) and *C. lapidicolus*—the only Caribbean species which seems to be similar to the specimens from Martinique. However, according to the original description and the accompanying drawings, *C. lapidicolus* differs from our specimens by having all sternal trigonal sutures crossing each other (X-shaped), as in most species of *Trigonocryptops* (in sense of Schileyko & Stoev 2016). Also the adult holotype (22 mm long), which is also the only known specimen of *C. lapidicolus* seems to differ by a lesser number of coxopleural pores (ca. 40) and presence of the only one (external ?) dorsodistal spinous process at the ultimate femur. Thus, the studied specimens do not belong to any species of this subgenus known from the Caribbean.

According to the general key of *Trigonocryptops* provided by Attems (1930: 236) the most similar species would be the New Caledonian *Cryptops sarasini sarasini* Ribaut, 1923. However, both studied specimens evidently differ from the latter species by the absence of short cephalic lateral sutures, the considerably larger number (15 vs. 3–5) of sternites with trigonal sutures and the presence of very characteristic K-shaped trigonal sutures (Fig. 23), which do not form a kind of oblique cross (as in X-shaped trigonal sutures). The geographic distance is also considerable.

Family Scolopocryptopidae Pocock, 1896

Subfamily Scolopocryptopinae Pocock, 1896

Genus *Scolopocryptops* Newport, 1844

Type species. *Scolopocryptops melanostoma* Newport, 1844 (by subsequent designation of Lucas, 1849).

Range (after Schileyko 2014). North, Central and South America; China; Japan; Korea; Vietnam; Philippines; Sunda Archipelago; New Guinea; West Africa.

Scolopocryptops melanostoma Newport, 1845

Locus typicus: St. Vincent Island, Lesser Antilles.

Material. Plateau Clark, Schoelcher, lat. 14.68205, long. -61.1037, 520 m, 30.08.2017, 4 spm.

Range. Mexico; Central America (Guatemala, Honduras, Costa Rica, Panama), Greater Antilles (Puerto Rico, Haiti), Lesser Antilles (Martinique, Saint Vincent and Grenadines, Trinidad); South America (Venezuela, Colombia, Ecuador, Peru, Brazil); Australasia (Fiji Islands), Indochina (Nicobar Island, Vietnam), Taiwan, Philippines, East Indonesia (West Papua Province), Papua New Guinea.

Genus *Newportia* Gervais, 1847

Type species. *Scolopocryptops longitarsis* Newport, 1845 (by monotypy).

Range. Neotropics: from Mexico to Paraguay, including Caribbean islands.

Newportia longitarsis guadeloupensis Demange, 1981

Locus typicus: Matouba, Guadeloupe Island, Lesser Antilles.

Material. Plateau Clark, Schoelcher, 30.08.2017, lat. 14.68205, long. -61.1037, 520 m, 4 spm.

Range (after Schileyko 2014; Chagas-Júnior *et al.* 2014). Antilles: Guadeloupe, Martinique (!); Venezuela (Mérida State, Trujillo State); Colombia (Andean, Caribbean and Amazonian Regions).

Newportia pusilla Pocock, 1893

Locus typicus: St. Vincent Island, Lesser Antilles.

Material. Chemin de l'Aileron, Morne Rouge, 13.08.2017, lat. 14.8125, long. -61.1642, 1240 m, 1 spm.; Piton Boucher, Fond-Saint-Denis, summit, 21.05.2017, lat. 14.7146, long. -61.1050, 1059 m, 1 spm.

Range (after Schileyko & Minelli 1999; Chagas-Júnior *et al.* 2014). Antilles: St. Vincent, Martinique (!), Cuba ?; Venezuela; Brazil (Amazonas); Colombia (Andean Region).

Discussion on the list of the Scolopendromorpha of Martinique Island

Based on the studied material and literature sources, we recognize for Martinique the following 13 species-rank taxa belonging to 6 genera: *Scolopendra alternans*, *S. viridicornis*, *S. morsitans*, *S. subspinipes subspinipes*, *S. dehaani*, *Cormocephalus guildingii*, *Otostigmus* (*Parotostigmus*) *salticus* **n. sp.** (all Scolopendridae), *Cryptops* (*Trigonocryptops*) *martinicensis* **n. sp.** (Cryptopidae), *Newportia longitarsis guadeloupensis*, *N. pusilla*, *Scolopocryptops ferrugineus*, *S. melanostoma* and *S. miersii* (all Scolopocryptopidae).

Of these, both *Scolopendra morsitans* and *S. subspinipes subspinipes* (two species very widely spread through subtropical and tropical regions of the Old World) are doubtlessly introduced to the Neotropics. The only Martinique record of *S. dehaani* belongs to Kraepelin (1904: 324) who mentioned an unknown number of specimens of “*Scolopendra subspinipes* Leach., var. *Dehaani* Brandt.” for “Martinique (1897)”. This form is not distributed as widely as the two species mentioned above, its natural range including India, South-East Asia, China and Japan; so, its presence on Martinique may be explained as a result of human activity only.

Kraepelin (1904: 317) was the first who (without providing any morphological detail and/or discussion) mentioned *S. viridicornis* from Martinique 1897. The other record from the Antilles belongs to Attems (1930: 44) who also noted it for “Bolivien, Brasilien, Guiana, Paraguay, Argentinien, Venezuela”. According to our experience (e.g. Nos 6682, 6985-6995 in the collection of ZMMU), this large centipede is quite common in Brazil (at least in States Rondonia, Para, Goias, Amazonas) and the record from Martinique looks as a result of an introduction. *Cormocephalus guildingii*, *Newportia longitarsis guadeloupensis* and *N. pusilla* have been recorded from the Lesser Antilles, but only the second species was known from the French Antilles; these three species are recorded from Martinique for the first time.

In conclusion, of 13 members of this fauna three are introduced and one (*S. viridicornis*) is also probably introduced. Of the remaining 9 species, three are new for Martinique and two new for science. Thus the representatives of the order Scolopendromorpha (and Chilopoda in general) of Martinique Island are still poorly known—this fauna requires further thorough investigations.

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APPENDIX 1. details on material collected.

Code	City	Locality	Method	Date	WGS84 lat.	WGS84 long.	Altitude (m)
ACA1	Le Marin	Morne Aca	hand-collecting	22.11.2017	14.4634	-60.8991	254
ACA2	Le Marin	Morne Aca	hand-collecting	22.11.2017	14.4614	-60.9002	213
Cap Est (Claudine)	Le François	Cap Est	hand-collecting	19.08.2017	14.57873	-60.85677	35
LJ (Laurent Juhel)	Fond-Saint-Denis	Canyon Gendarme	hand-collecting	23.10.2016	14.72398	-61.105	561
MT1	Sainte-Anne	Morne Manioc, sommet MT1	hand-collecting	27.05.2017	14.4335	-60.8574	146
P1	Le Lorrain	P1C, Rivière Sylvestre	litter and soil in Berlese-Tullgren	11.05.2016	14.7753	-61.0653	260
P2	Le Lorrain	Morne Platine,	hand-collecting	28.04.2016	14.7591	-61.0698	451
P6	Fond-Saint-Denis	Sommet Piton Boucher	hand-collecting	21.05.2017	14.7146	-61.1050	1059
P8	Schoelcher	Plateau Clark	hand-collecting	30.08.2017	14.6820	-61.1037	520
P8	Schoelcher	P8A, Plateau Clark	litter and soil in Berlese-Tullgren	06.04.2016	14.6820	-61.1037	520
Parcelle Aubérie	Basse-Pointe	Parcelle Aubéry	hand-collecting	24.11.2017	14.85735	-61.10902	75
Pelée1	Morne Rouge	Chemin de l'Aileron	hand-collecting	13.08.2017	14.8125	-61.1642	1240
Petite Poterie	Le Marin	Petite Poterie	hand-collecting	22.11.2017	14.4535	-60.8931	7
Quartier Réunion (Manu)	Le François	Quartier Réunion	hand-collecting	10.12.2017	14.60321	-60.92186	42
TP	Morne Vert	Morne Moulinguet	hand-collecting	20.07.2015	14.7039	-61.1477	460
XG	Morne Vert	Caplet, jardin Xavier	hand-collecting	29.04.2018	14.70773	-61.13128	561
Z3B	Bellefontaine	Plateau Fond Laillet	litter and soil in Berlese-Tullgren	23.12.2016	14.6663	-61.1452	300