

# The geophilomorph centipedes of the Seychelles (Chilopoda: Geophilomorpha)

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## Introduction

All data published so far on the geophilomorphs occurring in the Seychelles are found in three taxonomic and faunistic papers dealing with the whole centipede fauna of the Seychelles, based on the examination of limited series of specimens (tab. I): Brölemann (1896) recorded only two species of *Mecistocephalus* Newport, 1843 and Attems (1900) recorded a species of *Mecistocephalus* and a species of *Thalthybius* Attems, 1900 (now *Ityphilus* Cook, 1899); based on more numerous specimens, Demange (1981) recorded 7 species, including four *Mecistocephalus*, one *Tygarrup* Chamberlin, 1914, one *Nesogeophilus* Verhoeff, 1924 (now *Tuoba* Chamberlin, 1920) and one *Thalthybius*. Demange (1981) also revised all published data, and re-examined the specimens previously studied by Brölemann (1896). With these studies, however, the species composition of the Seychelles geophilomorph fauna remained only partially documented and some taxonomic issues remained unsolved.

Recent sampling within the “Indian Ocean Biodiversity Assessment 2000-2005” project, promoted by the Nature Protection Trust of Seychelles, gave us the possibility to examine a larger series of specimens, from a wider range of islands, and allowed us to obtain a more advanced, although still preliminary, assessment of the geophilomorph fauna of Seychelles.

## Methods

We performed a comprehensive analysis of the geophilomorph fauna of the Seychelles through direct examination of newly collected specimens as well as a critical evaluation of the relevant literature. The geographical scope of our analysis comprises all islands under the administration of the Republic of Seychelles.

**Table I.** Comparative data of the published faunistic accounts on the Geophilomorpha of the Seychelles.

	Brölemann, 1896	Attems, 1900	Demange, 1981	this paper
no. specimens	4	4	54	69
no. localities	3 or 4	1 or 2	14	ca. 20
no. islands	3	1	4	13
no. species	2	2	7	8

A total of 69 specimens, collected from all main islands of Seychelles as well as from some minor islands, was examined comparatively through light microscopy. Specimens were clarified through immersion in lactophenol or ethylene glycol and mounted on temporary slides, following standard procedures (Pereira 2000; Foddai *et al.* 2002). Simplified drawings have been prepared after digital photographs, taken through a Leica DMLB light microscope, at 50-400X. Measurements were taken through a graduate scale mounted on an eyepiece. All specimens are in the collection of the authors, but for the holotype of *Mecistocephalus megalodon* Bonato & Minelli, 2009.

## **Geophilomorpha of Seychelles**

### **Mecistocephalidae** Bollman, 1893

Diagnosis: Body slightly depressed, uniformly wide in its anterior three quarters, the posterior part tapering. Colour pale yellow to red-brown, head and the first few trunk segments usually darker. Antennae slender, gradually attenuated. Cephalic capsule conspicuously depressed, evidently longer than wide, lateral margins convergent backwards. Clypeus and buccae with an anterior areolate part and a posterior part which is virtually non-areolate (plagula/ae). Labrum composed of a mid-piece and two side-pieces; each side-piece divided by a transverse thickened ridge into an anterior and a posterior sclerite (alae). Mandible bearing a series of pectinate lamellae. Maxillae I with coxosternum either divided or not by a mid-longitudinal sulcus; coxal projections and telopodites similar in shape and length, uniarticulate, composed of a sclerotised basis and a hyaline distal part, without additional lobes. Maxillae II with coxosternum areolate in the median part; claw of telopodite usually simple, sometimes reduced to a slender spine or a stout tubercle. Forcipular tergum evidently narrower than the head and the subsequent tergum, forcipular pleura widely visible from above. Forcipular coxosternum only slightly wider than long, the anterior margin almost straight and bearing a pair of tiny tubercles, the lateral margins only slightly convergent backwards; no chitin lines. Forcípules relatively large and elongate, clearly visible from above beyond the lateral margins of the head, usually also in front of the same; article I with a distal tubercle, sometimes also a proximal tubercle; each of the intermediate articles often with a tubercle. Sterna of leg-bearing trunk segments with a mid-longitudinal sulcus; pore areas usually absent. Coxal glands of each coxopleuron opening into many scattered pores. Telopodite of last pair of legs composed of 6 articles, slender, not evidently swollen in the male, longer than the telopodite of preceding legs; claw absent. Gonopods biarticulate in both sexes.

Geographical distribution: mainly subtropical and tropical continental lands and islands from Africa, through southern and eastern Asia, northwards reaching Kuril islands, to Australia and many islands in the Pacific Ocean; also disjunct, limited areas in south-western part of North America, tropical Americas, and central Europe.

### **Tygarrup** Chamberlin, 1914

*Tygarrup* Chamberlin, 1914: 210.

*Brahmaputrus* Verhoeff, 1942: 49. (Synonymy by Crabill 1968a: 287).

**Diagnosis:** Clypeus with an entire plagula, extending along the lateral margins of the clypeus, without a mid-longitudinal areolate stripe. Buccae without spiculum and without setae. Posterior margin of labral side-pieces entire, without notches and without a fringe. Coxosternum of maxillae I with a mid-longitudinal sulcus. Coxosternum of maxillae II undivided; groove from the metameric pore reaching the lateral margin of the coxosternum. Telopodites of maxillae II overreaching those of maxillae I; claw present. Forcipular tergum without a distinct mid-longitudinal sulcus. Forcipular article I with a distal tubercle only, without a proximal tubercle. Sterna of leg-bearing trunk segments with non-furcate mid-longitudinal sulcus; pore areas absent in the female, usually present in the male. Number of leg-bearing segments 43 or 45, invariant within a species.

**Geographical distribution:** mainly from the Himalayas, through the Indochinese region, to part of the Indonesian archipelago; also a few islands in western Indian ocean (Mauritius and Seychelles), a few islands south of Korean Peninsula and Ryukyu Islands, and the Hawaii Islands.

***Tygarrup javanicus* Attems, 1929**

*Tygarrup javanicus* Attems, 1929: 152.

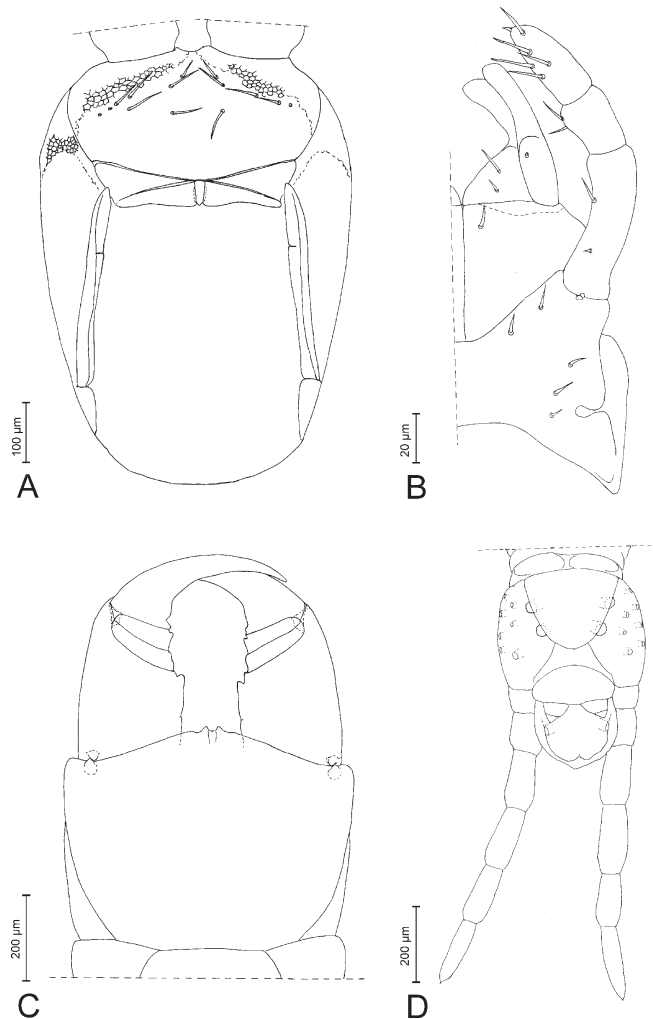
**Published records for Seychelles:** *Tygarrup javanicus*: Demange 1981: 623, 626, 628-9, 640 (description), figs 8-10.

**Material examined:** 10 specimens. La Digue: Belle Vue, 16-I-1999, 1 ♀. Mahé: Le Niol, 3-VIII-1991, 2 ♀♀. Praslin: Valle de Mai, 19-III-2002, 1 ♀. Silhouette: Anse Mondon Valley, 350 m, VIII-2000, 1 ♀; Gratte Fesse, 3-VIII-1998, 1 ♀; Jardin Marron, 18-I-1999, 2 ♀♀; same, 400 m, 5-VII-2000, 1 sex unknown; La Passe, 12-VII-2001, 1 ♀.

**Diagnosis.** Body length up to 1.8 cm. Colour pale yellow, with fine dark pigmentation on the dorsal side of the trunk. Cephalic capsule ca. 1.3-1.4 times as long as wide. Antennae ca. 3 times as long as the head width. Antennal apical sensilla ca. 12-15 µm long, with a mid-length flattened circular projection. Ca. 5 pairs of setae along the anterior margin of the clypeal plagula, and a more posterior pair of setae close to the mid-line; no setae on the antero-external corners of the clypeus inside the areolate part. Mandible with ca. 6 pectinate lamellae, the first lamella bearing ca. 5 teeth, an average intermediate lamella bearing ca. 10 teeth. Forcipular article I with a stout distal tubercle; article III with a smaller tubercle; other articles without tubercles. Invariably 45 leg-bearing segments. Each coxopleuron of the last leg-bearing segment with ca. 15-20 pores, scattered on the ventral and lateral sides, with two larger pores along the lateral margin of the relevant sternum. Gonopods fully developed in females longer than 16 mm. See fig. 1.

**General distribution:** Indochinese peninsula, Java, Hawaii Islands, and the Seychelles; also recorded from Round Island (Mauritius) (III-2002, 1 specimen, orig. obs.).

**Distribution in Seychelles:** 8 localities in 4 islands. LA DIGUE: Belle Vue (new). MAHÉ: La Misère, 438 m (Demange 1981); Le Niol (new). PRASLIN: Vallée de Mai (Demange 1981; also new). SILHOUETTE: Anse Mondon Valley, 350 m (new); Gratte Fesse (new); Jardin Marron, 400 m (new); La Passe (new).



**Fig. 1.** *Tygarrup javanicus* Attems, 1929 (Praslin, Valle de Mai, 19-III-2002, ♀, 18 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

Taxonomic remarks: *T. javanicus* was originally described by Attems (1929) upon specimens from Java. The species was subsequently recorded, redescribed and illustrated again (e.g., Attems 1938; Titova 1983; Lewis & Rundle 1988; Bonato *et al.* 2004).

Our attribution of the Seychelles populations to *T. javanicus* is consistent with the opinion of Demange (1981). However, a putative different species, *T. anepipe*, was described by Verhoeff (1939) upon some specimens, including at least a female, from

the island of Mauritius. No other specimens have been subsequently referred to this latter species, which was ignored by Demange (1981) when identifying specimens from the Seychelles as *T. javanicus*. Even though the validity of *T. anepipe* was never disputed explicitly to date, its actual distinction with respect to *T. javanicus* is dubious, because its original description, even though largely incomplete, is fully compatible with the morphology of *T. javanicus* and no distinctive characters between these two nominal species were proposed or discussed by Verhoeff (1939); worth notice is also the fact that *T. javanicus* is known to have colonised a wide tropical area, sometimes possibly introduced by man (Bonato *et al.* 2004). As *Tygarrup* populations from Mauritius and the Seychelles are, as far as known, geographically disjunct with respect to all other tropical *Tygarrup* populations, the nearest ones occurring in the Indochinese peninsula and Java, they are reasonably expected to belong to a single species.

Notes on ecology: In the Seychelles, *T. javanicus* has been recorded from wooded, internal sites in the largest islands. Worth notice is that, out of the 20 specimens collected in the Seychelles so far (Demange 1981; also orig. obs.), all 17 specimens that have been sexed are females.

***Mecistocephalus*** Newport, 1843

*Mecistocephalus* Newport, 1843: 178.

*Lamnonyx* Cook, 1896: 61. (Synonymy: Pocock 1899: 63)

*Megethmus* Cook, 1896: 61. (Synonymy: Bonato *et al.* 2001: 345)

*Pauroptyx* Chamberlin, 1920a: 188. (Synonymy: Bonato & Minelli 2004: 20)

For other possible synonyms, see Bonato *et al.* (2003).

Diagnosis. Clypeus with two plagulae, separated by a mid-longitudinal areolate stripe and extending along the lateral margins of the clypeus. Buccae with spiculum and with setae at least in the posterior half. Posterior margin of labral side-pieces either entire or finely crenulated close to the mesal angles, without a fringe. Coxosternum of maxillae I with a mid-longitudinal sulcus. Coxosternum of maxillae II undivided; groove from the metameric pore reaching the lateral margin of the coxosternum. Telopodites of maxillae II overreaching those of maxillae I; claw present. Forcipular tergum with a distinct mid-longitudinal sulcus. Forcipular article I with a distal tubercle and often another tubercle at about mid-length. Sterna of leg-bearing trunk segments with mid-longitudinal sulcus either furcate or not; pore areas absent in both sexes. Number of leg-bearing segments at least 45, often invariant within a species.

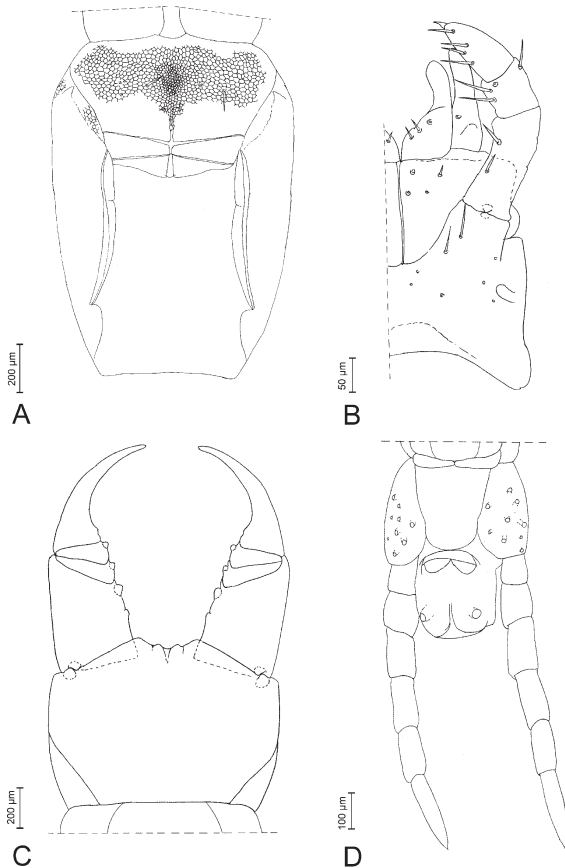
Geographical distribution: widespread from tropical and subtropical Africa, through southern Asian and Indian Ocean, to Eastern Asia from Honshu to Indonesia; also in the tropical and subtropical Atlantic and Pacific regions.

***Mecistocephalus angusticeps*** (Ribaut, 1914)

*Lamnonyx angusticeps* Ribaut, 1914: 23.

Published records for Seychelles: *Mecistocephalus angusticeps*: Demange 1981: 623, 628-30 (description), figs 1-2.

Material examined: 1 specimen. Picard Island (Aldabra Group): unknown locality, 9-IX-2005, 1 ♀.



**Fig. 2.** *Mecistocephalus angusticeps* (Ribaut, 1914) (Picard Island, 9-IX-2005, ♀, 15 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

**Diagnosis.** Body length reaching 5.0 cm. Colour yellow, with fine dark pigmentation on the dorsal side of the trunk; head and most anterior trunk segments reddish brown. Cephalic capsule ca. 1.7-1.8 times as long as wide. Frontal line uniformly concave forward. Antennae ca. 3 times as long as the head width. Antennal apical sensilla ca. 10 µm long, with a mid-length flattened circular projection. Areolate part of the clypeus longer than the plagulae, with a subcircular finely areolate medial area; ca. 3 pairs of setae on the anterior part of the areolate clypeus, arranged in an almost transversal line, and a pair of setae just anterior to the plagulae and close to the mid-line. Buccae with setae on the posterior half only. Posterior margin of labral side-pieces entire, without any evident medial projection; internal margin of the anterior ala longer than the internal

margin of the posterior ala. Mandible with ca. 7 pectinate lamellae, the first lamella bearing ca. 6 teeth, an average intermediate lamella bearing ca. 11 teeth. Coxosternum of maxillae I without projecting antero-lateral corners. Telopodites of maxillae II slender; claw uniformly tapering into a pointed tip. Forcipular article I with a small proximal tubercle and a small distal tubercle, similar to each other; intermediate articles each with a small tubercle; only a shallow emergence at the basis of the tarsungulum. Sterna of leg-bearing trunk segments with non-furcate mid-longitudinal sulcus. Invariably 47 leg-bearing segments. Sternum of the last leg-bearing segment trapezoid, wider than long, with a notch on each lateral margin. See fig. 2.

General distribution: Kenya coast and Seychelles.

Distribution in the Seychelles: 3 localities in 3 islands. CURIEUSE: Baie Laraie (Demange 1981). PICARD ISLAND (Aldabra Group): unknown locality (new). PRASLIN: Fond de l'Anse (Demange 1981).

Taxonomic remarks: *M. angusticeps* was originally described by Ribaut (1914), under the genus *Lamnonyx* (now *Mecistocephalus*), upon a single adult female from a site on the Kenya coast. It was first assigned to the genus *Mecistocephalus* by Chamberlin (1920a). It was subsequently recorded from the Seychelles and partially redescribed by Demange (1981).

Notes on ecology: In the Seychelles, *M. angusticeps* has been recorded only from a few coastal sites.

### ***Mecistocephalus glabridorsalis* Attems, 1900**

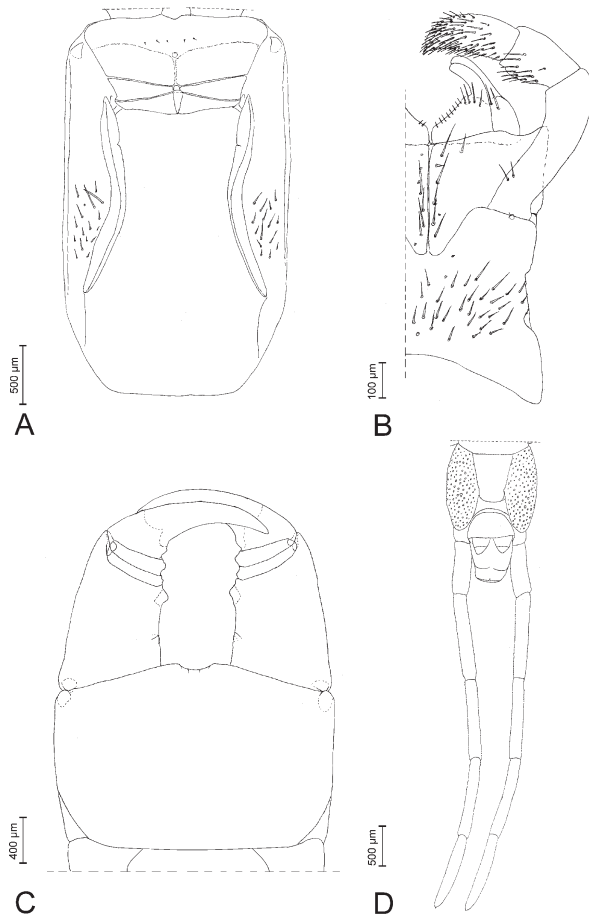
*Mecistocephalus punctifrons* var. *glabridorsalis* Attems, 1900: 138.

*Mecistocephalus vanmoli* Demange, 1981: 634. (New synonymy)

Published records for Seychelles: *Mecistocephalus punctifrons*: Brölemann 1896: 519, 528; *Mecistocephalus punctifrons* var. *glabridorsalis* Attems 1900: 134, 138 (original description); *Mecistocephalus punctifrons*: Demange 1981: 623, 627-9, 632 (redescription), fig. 3; *Mecistocephalus vanmoli* Demange 1981: 623, 626, 629, 634 (original description), figs 4-5.

Material examined: 23 specimens. La Digue: Belle Vue, 16-I-1999, 1 sex unknown. Mahé: unknown locality, 1500 m, 1965, 1 ♂. Silhouette: Anse Mondon Valley, 300 m, 29-III-2000, 1 ♀; Gratte Fesse, 400 m, 14-VII-2000, 1 ♀; same, 3-VIII-1998, 2 ♂♂, 4 sex unknown; Jardin Marron, 25-IX-1999, 1 ♀, 2 sex unknown; Mont Corgat - Mont Cocos Marrons ridge, 450 m, 18-VII-2000, 1 ♂, 1 ♀, 1 sex unknown; Mont Plaisir, 550 m, 11-VIII-2000, 1 ♀; same, 550 m, XII-1993, 1 ♂; locality unknown, 500 m, VII-VIII-1990, 2 ♂♂, 2 sex unknown; locality unknown, 20 m, 26-VII-1998, 1 ♀.

Diagnosis. Body length up to 8.5 cm. Colour yellow, with fine dark pigmentation on the dorsal side of the trunk; head and most anterior trunk segments reddish brown. Cephalic capsule ca. 1.6-1.9 times as long as wide. Frontal line uniformly concave forwards. Antennae ca. 4-5 times as long as the head width. Antennal apical sensilla ca. 13-14 µm long, with a mid-length flattened circular projection; club-like sensilla on external sides of articles from ca. VI-VII to XIV, on internal sides from articles ca. IX to XIV. Areolate part of the clypeus about as long as the plagulae, without any evident finely areolate area, sometimes with a medial non-areolate small insula just anterior of the plagulae;



**Fig. 3.** *Mecistocephalus glabridorsalis* Attems, 1900 (Silhouette, 20 m, 26-VII-1998, ♀, 65 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

ca. 4 pairs of setae on the areolate clypeus, arranged in an almost transversal line, the most medial pair usually posterior to the other ones; usually small spine-like sensilla on the anterior part of the plagulae. Buccae with setae on the posterior half only. Posterior margin of labral side-pieces entire, without any evident medial projection; internal margin of the anterior ala evidently shorter than the internal margin of the posterior ala. Mandible with up to 16-17 pectinate lamellae. Coxosternum of maxillae I with antero-lateral corners projecting forwards; no hyaline scales on the coxal projections. Telopodites of maxillae II moderately swollen; claw abruptly narrowing into a usually rounded tip. Forcipular article I with a small proximal tubercle and a large, distal



tooth relatively wide at basis, obtusely angled in profile and pointed mesally instead of forwards; intermediate articles each with a small tubercle, that of article III larger than that of article II; a small tubercle at the basis of the tarsungulum. Forcipular cerrus composed of two convergent rows of setae and a few setae on each side. Sterna of leg-bearing trunk segments with furcate mid-longitudinal sulcus, the branches diverging with an acute to rectangular angle. Invariantly 49 leg-bearing segments. Sternum of the last leg-bearing segment trapezoid, wider than long, with a notch on each lateral margin. Gonopods fully developed in females longer than ca. 3.5 cm, and in males longer than ca. 2.5 cm. See fig. 3.

General distribution: Seychelles; records by Attems (1914 1915) from Seram, New Guinea, and Bismark archipelago deserve confirmation (see under Taxonomic remarks).

Distribution in Seychelles: at least 14 localities in 4 islands. LA DIGUE: Belle Vue (new); locality unknown (Brölemann 1896, as *M. punctifrons*). MAHÉ: Anse Bouganville (Demange 1981, as *M. punctifrons*); Anse Louis (Demange 1981, as *M. punctifrons*); La Misère, 438 m (Demange 1981, as *M. vanmoli*); Mont Crève Cœur, 300 m (Demange 1981, as *M. punctifrons*); Morne Blanc, 470 m and 667 m (Demange 1981, as *M. vanmoli*); Northolme (Demange 1981, as *M. punctifrons*); locality unknown (Brölemann 1896, as *M. punctifrons*); locality unknown (Attems 1900); locality unknown, 1500 m (new). PRASLIN: Vallée de Mai (Demange 1981, as *M. punctifrons*); locality unknown (Brölemann 1896, as *M. punctifrons*). SILHOUETTE: Anse Mondon Valley, 300 m (new); Gratte Fesse, 400 m (new); Jardin Marron (new); Mare aux Cochons, 500 m (Demange 1981, as *M. punctifrons*); Mont Corgat - Mont Cocos Marrons ridge, 450 m (new); Mont Plaisir, 550 m (new); localities unknown, 20 m and 500 m (new).

Taxonomic remarks: *M. glabridorsalis* was originally described as a variety of *Lamnonyx punctifrons* (currently *Mecistocephalus punctifrons* Newport, 1843) by Attems (1900) upon two specimens, including a male 78 mm long, from Mahé. It was raised to the species rank by Saussure & Zehntner (1902), but subsequent authors either cited it as a variety or subspecies, or listed it as a junior synonym of some putatively widespread species such as *M. punctifrons* and *M. insularis* (Lucas, 1863) (e.g.: Silvestri 1919; Chamberlin 1920b), or even ignored it. Attems (1914, 1915) identified some specimens from South-Eastern Asia as *L. punctifrons* var. *glabridorsalis*, but these records are questionable, as the taxonomy of *M. punctifrons* was very confused at the time (see: Crabill 1970; Bonato & Minelli 2004). Even though the original description of this taxon is very incomplete and not accompanied by illustrations, and it was not subsequently supplemented prior to the present paper, the combination of the described features (mainly, large size, patched colour, head elongation, and peculiar shape of forcipular tubercles) allow us to recognise this species confidently among the material examined.

Most probably this species was already reported from the Seychelles by both Brölemann (1896) and Demange (1981) under the name *M. punctifrons*. This interpretation is supported by the following arguments: Demange (1981) re-examined the specimens previously reported by Brölemann and found them conspecific with the specimens from Seychelles that he also identified as *M. punctifrons*; all morphological details described by Demange (1981) are fully consistent with no other species than

*M. glabridorsalis*; Demange (1981) cited *M. punctifrons* var. *glabridorsalis* only as a nominal taxon in the introductory historical account of his paper, whereas he completely ignored it in the taxonomic list of the Seychelles centipedes in the same paper, therefore treating it implicitly as identical to *M. punctifrons*; out of the geophilomorph specimens from Seychelles studied by us, *M. glabridorsalis* turns out to be the most frequent species (accounting for 33 % of the 69 specimens), therefore it is expected to be comparatively well represented also in the sample studied by Demange (1981), where the material identified as either *M. punctifrons* or *M. vanmoli* (see below) accounts for 39% of the 54 specimens.

*Mecistocephalus vanmoli* was originally described by Demange (1981) upon 13 specimens, including a female 8.5 cm long, from Mahè. The species was not cited subsequently in the literature. Even though the original description is incomplete and accompanied by few illustrations, the combination of the described features (mainly, large size, patched colour, head elongation, and the pattern of forcipular tubercles) suggests that this nominal species is identical to *M. glabridorsalis*. The only putative differences given by Demange (1981) between *M. vanmoli* and the specimens from the Seychelles identified by him as *M. punctifrons* were in the body size (up to 8.5 cm in *M. vanmoli*, up to 4.0 cm in *M. punctifrons*) and in the number of pectinate lamellae of the mandible (16-17 in *M. vanmoli*, 7-10 in *M. punctifrons*). However, after examination of 23 specimens with body length ranging from 12 mm to 72 mm, we did not find any morphological evidence supporting the existence of two distinct species. Therefore, the putative distinctive characters given by Demange (1981) refer quite likely to different developmental stages of a single species. Therefore, lacking at present any evidence of taxonomic distinction, we recognise *M. vanmoli* as a junior synonym of *M. glabridorsalis*.

Worth notice is that *M. glabridorsalis* differs from both the true *M. punctifrons* (Crabill 1970; Bonato & Minelli 2004) and *M. insularis* as currently diagnosed (Lewis 1986) at least in the pattern of clypeal setae, the shape of the claw of the second maxillae and the shape of forcipular tubercles.

Notes on ecology: *M. glabridorsalis* has been collected mainly in woodland soils, in sites between 20 m and 1500 m high.

### ***Mecistocephalus lohmanderi* Verhoeff, 1939**

*Mecistocephalus lohmanderi* Verhoeff, 1939: 77.

Published records for Seychelles: *Mecistocephalus lohmanderi* Verhoeff, 1939: 77 (original description), figs 1-3.

Material examined: 11 specimens. Aride: locality unknown, 0 m, II-1999, 1 ♂. Cousine: locality unknown, 18-III-1998, 1 sex unknown. Curieuse: locality unknown, 20-III-2002, 1 ♀. D'Arros: locality unknown, 26-VI-2003, 3 ♂♂. North: locality unknown, 0 m, 29-VII-2000, 1 sex unknown; locality unknown, 2002, 1 ♂, 1 ♀. Poivre Atoll: locality unknown, II-2005, 1 sex unknown. Silhouette: La Passe, 0 m, 16-VII-2000, 1 ♀.

Diagnosis. Body length up to 5.0 cm. Colour yellow, without dark pigmentation; head and most anterior trunk segments reddish brown. Cephalic capsule ca. 1.7-2.0 times as

long as wide. Frontal line uniformly concave forwards. Antennae ca. 4-5 times as long as the head width. Antennal apical sensilla ca. 12  $\mu\text{m}$  long, with a mid-length flattened circular projection; club-like sensilla on external sides of articles from ca. VII to XIV, on internal sides of articles from ca. IX to XIV. Areolate part of the clypeus ca. 2 times longer than the plagulae, without any evident finely areolate area and without non-areolate insulae; ca. 3 pairs of setae at about mid-length of the areolate clypeus, arranged in a almost transversal line, and a pair of setae close to the mid-line, just anterior to the plagulae. Buccae with setae on the posterior half only. Mid-piece of labrum relatively wide, the side pieces evidently separated from each other; posterior margin of the side-pieces entire, without any evident medial projection; internal margin of the anterior ala evidently shorter than the internal margin of the posterior ala. Mandible with ca. 7 pectinate lamellae. Coxosternum of maxillae I with antero-lateral corners only slightly projecting forwards; no hyaline scales on the coxal projections. Telopodites of maxillae II slender; claw uniformly tapering into a pointed tip. Forcipular article I with internal margin longer than basal width; a small proximal tubercle and a distal tubercle, the distal one either similar or only slightly larger than the proximal one; intermediate articles each with a small tubercle, that of article III either similar or only slightly larger than that of article II; two small tubercles at the basis of the tarsungulum. Forcipular cerrus absent. Sterna of leg-bearing trunk segments with furcate mid-longitudinal sulcus, the branches diverging with an obtuse angle. Invariantly 49 leg-bearing segments. Sternum of the last leg-bearing segment trapezoid, wider than long, with a notch on each lateral margin. Gonopods fully developed in females longer than ca. 3.0 cm, and in males longer than ca. 2.0 cm. See fig. 4.

General distribution: Mauritius island and the Seychelles.

Distribution in Seychelles: 7 localities in 7 islands. ARIDE: locality unknown, 0 m (new). COUSINE: locality unknown (new). CURIEUSE: locality unknown (new). D'ARROS: locality unknown (new). NORTH: locality unknown, 0 m (new). POIVRE ATOLL: locality unknown (new). SILHOUETTE: La Passe, 0 m (new).

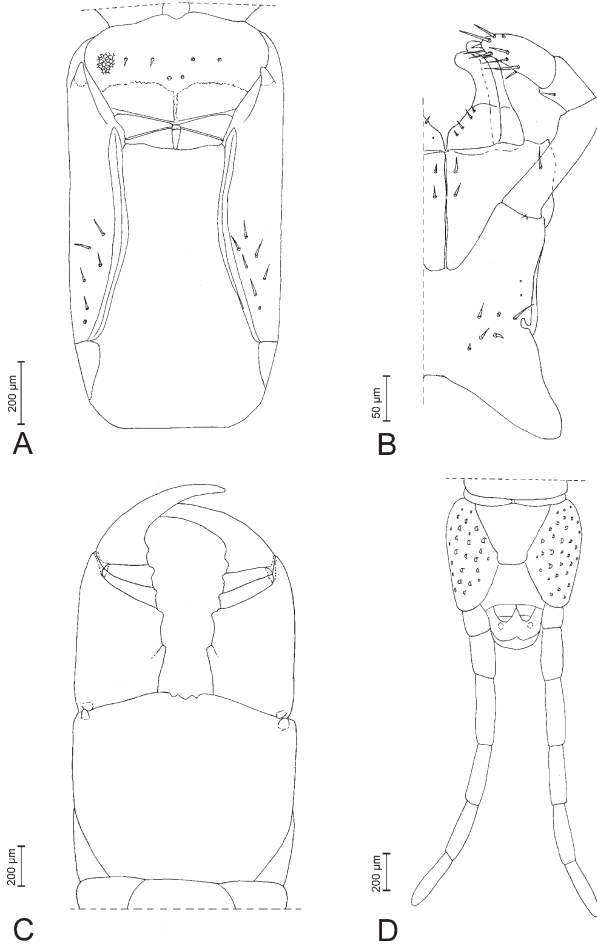
Taxonomic remarks: *M. lohmanderi* was originally described by Verhoeff (1939) upon a single female, 50 mm long, from Mauritius island. The species was not recorded subsequently, but its validity was never disputed. Even though the original description and illustrations are poor, the combination of the described features (mainly, body colour, elongation and areolation pattern of the clypeus, pattern of forcipular tubercles) prompt us to recognise this species among the material examined.

Relying on published information, *M. lohmanderi* is very close to other species also described from Mauritius by Verhoeff (1939), namely *M. mauritanus* Verhoeff, 1939 and *M. parvidentatus* Verhoeff, 1939. These two species, however, differ apparently from *M. lohmanderi* in the shape of labrum (the mid-piece relatively narrower, with the side-pieces almost touching each other, in both *M. mauritanus* and *M. parvidentatus*), in the elongation of forcipular article I (more stout in *M. mauritanus*, not described in *M. parvidentatus*), and in the furcation of the sternal sulci (branches diverging less widely in *M. mauritanus*, apparently inconspicuous in *M. parvidentatus*); other putative differences given by Verhoeff (1939) are in the elongation of antennal articles, the shape of areolate clypeus and plagulae, the size and shape of spiculum, and the

distance between the female gonopods, but all these are quite subjective or even variable between individuals.

Two specimens from Felicite (24-III-2001, 1 ♂, 1 sex unknown) could be assigned only tentatively to *M. lohmanderi*, as they are largely consistent with other specimens assigned to this species, only differing for a less elongate cephalic capsule (only 1.6 times longer than wide in a 25 mm long specimen) and for the presence of a cerrus composed of some setae.

Notes on ecology: In Seychelles, *M. lohmanderi* has been recorded at least from a few sites at sea level.



**Fig. 4.** *Mecistocephalus lohmanderi* Verhoeff, 1939 (Curieuse, 20-III-2002, ♀, 30 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

***Mecistocephalus megalodon*** Bonato & Minelli, 2009

*Mecistocephalus megalodon* Bonato & Minelli, 2009: 95

Published records for Seychelles: *Mecistocephalus megalodon* Bonato & Minelli, 2009: 95 (original description); figs 4, 6.

Material examined: 10 specimens. ARIDE: locality unknown, 0 m, II-1999, 3 ♂♂, 4 ♀♀; locality unknown, XI-2000, 1 ♀; locality unknown, 20-III-2002, 1 ♂. COUSINE: locality unknown, 0 m, 13-III-1998, 1 sex unknown.

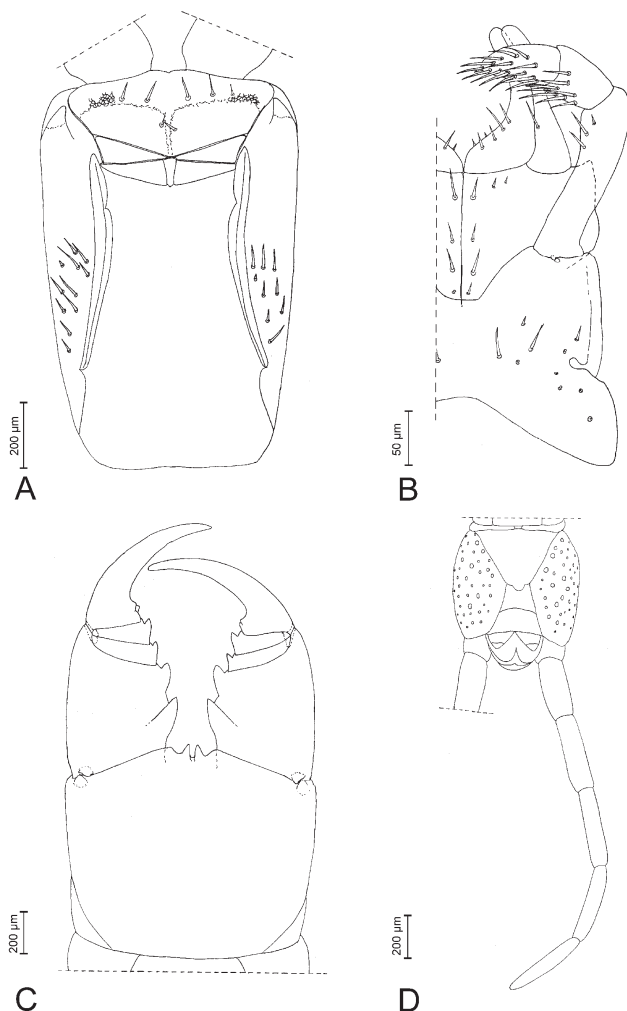
Diagnosis. Body length up to 4.5 cm. Colour pale yellow, without dark patches; head and most anterior trunk segments reddish brown, much contrasting with remaining trunk. Cephalic capsule ca. 1.4-1.6 times as long as wide. Frontal line uniformly concave forwards. Antennae ca. 4-5 times as long as the head width. Antennal apical sensilla ca. 11-12 µm long, with a mid-length flattened circular projection; club-like sensilla on external side of articles from ca. VII-VIII to XIV, on internal side of articles from ca. IX-X to XIV. Areolate part of the clypeus about as long as the plagulae, without any finely areolate area or non-areolate insula; ca. 3 pairs of setae on the areolate clypeus, arranged in an almost transversal line, and a medial pair of setae at mid-length of the plagulae, close to the mid-longitudinal areolate stripe. Buccae with setae on the posterior half only. Posterior margin of labral side-pieces entire, without any evident medial projection; internal margin of the anterior ala reduced to a point. Mandible with up to 12 pectinate lamellae, first lamella with 6 teeth, an average intermediate lamellae with about 30 teeth. Coxosternum of maxillae I with antero-lateral corners projecting forwards; no hyaline scales on the coxal projections. Telopodite of maxillae II slender; claw abruptly narrowing close to the tip and bearing a tiny, slender projection. Exposed part of forcipular coxosternum ca. 1.2 times as wide as long, anterior margin bearing a pair of elongate, pointed teeth. Forcipular article I with both proximal and distal teeth unusually elongate, pointed and projecting forwards, the distal one slightly larger than the proximal one; intermediate articles each with a conspicuous tooth, smaller than those of article I, that of article III larger than that of article II; two tubercles at the basis of the tarsungulum. Forcipular cerrus composed of two convergent rows of setae and a few setae on each side. Sterna of leg-bearing trunk segments with furcate mid-longitudinal sulcus, the branches diverging with an obtuse angle. Invariably 49 leg-bearing segments. Sternum of the last leg-bearing segment sub-triangular, much wider than long, with a posterior swollen emergence. Gonopods fully developed in females longer than ca. 3.0 cm. See fig. 5.

General distribution: Seychelles.

Distribution in Seychelles: at least 2 localities in 2 islands. ARIDE: localities unknown, including 0 m (Bonato & Minelli 2009). COUSINE: locality unknown, 0 m (Bonato & Minelli 2009).

Taxonomic remarks: *M. megalodon* has been described by Bonato & Minelli (2009) upon the material listed above. The unusual size and shape of the forcipular teeth are obviously distinctive with respect to all other known species of *Mecistocephalus*.

Notes on ecology: *M. megalodon* has been recorded from a few sites at sea level, including one with damp soil near a marsh.



**Fig. 5.** *Mecistocephalus megalodon* Bonato & Minelli, 2009 (Ardele, 0 m, II-1999, ♀, 45 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

***Mecistocephalus sechellarum* Demange, 1981**

*Mecistocephalus sechellarum* Demange, 1981: 635.

Published records for Seychelles: *Mecistocephalus sechellarum* Demange 1981: 623, 628-9, 635 (original description), fig. 6.

Material examined: none.

Diagnosis. Body length reaching at least 4.8 cm. Colour pale yellow, without dark

patches; head and most anterior trunk segments reddish brown. Cephalic capsule ca. 1.6 as long as wide. Areolate part of the clypeus with a finely areolate or non-areolate rhomboidal area; ca. 4 pairs of setae on the areolate clypeus, two of them posterior to the others. Posterior margin of labral side-pieces entire, without any evident medial projection. Mandible with ca. 9 pectinate lamellae, the first lamella bearing 5 teeth, an average medial lamella 8-15 teeth. Forcipular article I with a proximal and a distal tubercle, similar in size; intermediate articles each with a small tubercle; a shallow emergence at the basis of the tarsungulum. Sterna of leg-bearing trunk segments with furcate mid-longitudinal sulcus, the branches diverging with an obtuse angle. A total of 51 leg-bearing segments in the single known specimen. Sternum of the last leg-bearing segment trapezoid, about as long as wide, the anterior margin ca. one half of the posterior margin of the preceding sternum.

General distribution: Seychelles.

Distribution in Seychelles: 1 locality. SILHOUETTE: Mont Dauban, 600 m (Demange 1981).

Taxonomic remarks: *M. sechellarum* was originally described by Demange (1981) upon a single specimen, 48 mm long, from Silhouette. This specimen was indicated as a male in the original description, but the associated illustration of its gonopods indicates that it is actually a female. No other specimens have been recorded subsequently.

Examination of further specimens is needed to confirm the distinction of this species with respect to the apparently similar *M. evansi* Brölemann, 1922, so far reported only from Iraq, as already acknowledged by Demange (1981), as well as to confirm that the number of leg-bearing segments is invariantly 51 in this species, a number only known for a few other species of *Mecistocephalus*.

Notes on ecology: *M. sechellarum* has been recorded from a single wooded site, 600 m high.

### ***Mecistocephalus cyclops* (Brölemann, 1896)**

*Mecistocephalus gigas* var. *cyclops* Brölemann, 1896: 528.

Published records for Seychelles: *Mecistocephalus gigas* var. *cyclops* Brölemann, 1896: 528 (original description); *Mecistocephalus cyclops*: Demange 1981: 623, 638 (description) (also cited as *Mecistocephalus gigas cyclops*).

Material examined: none.

Diagnosis. Body length large (size not given). Mandible with ca. 16 pectinate lamellae. Forcipular article I with a proximal and a distal tubercle; intermediate articles each with a tubercle; a tubercle at the basis of the tarsungulum. Sterna of leg-bearing trunk segments with furcate mid-longitudinal sulcus, the branches diverging with an almost flat angle. A total of 57 leg-bearing segments in the single known specimen.

General distribution: Seychelles.

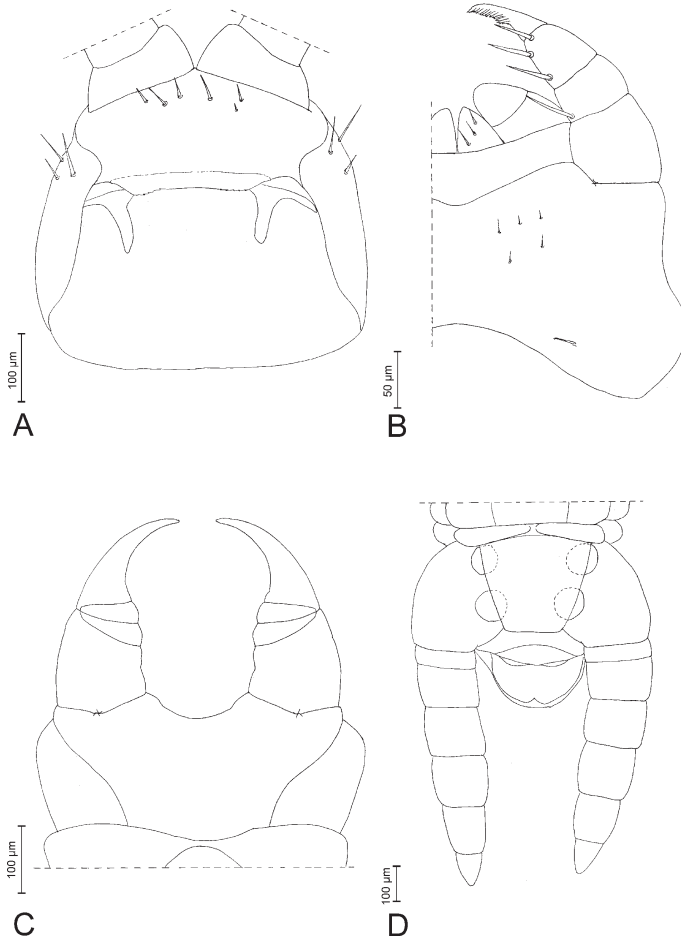
Distribution in the Seychelles: 1 locality. LA DIGUE: locality unknown (Brölemann 1896).

Taxonomic remarks: *M. gigas* var. *cyclops* was originally described by Brölemann (1896) upon a single adult female from La Digue. The original description was very vague but it was partially integrated and emended by Demange (1981), after re-



examination of the holotype. No other specimens have been recorded so far. This taxon was originally supposed to be closely related to *Mecistocephalus gigas* Haase, 1887, a well distinct species occurring in the Moluccas and New Guinea, but this deserves to be evaluated. The taxon was treated at the species rank both by Chamberlin (1920a) and Demange (1981).

The morphology of this species remains very inadequately known. The number of leg pairs in the only known specimen was given as 59 by Brölemann (1896), but it was emended as 57 by Demange (1981). Worth notice is that the segmental structure of the trunk of the holotype is affected by a developmental trouble, as the right side of the



**Fig. 6.** *Ityphilus melanostigma* (Attems, 1900) (Mahé, Mare aux Cochons, 29-VII-2002, ♂, 19 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).



LI leg-bearing segment is described as apparently duplicated (Demange 1981). Further, within the genus *Mecistocephalus*, the number of leg-bearing segments is higher than 55 only in very few species occurring in Eastern Asia, from Japan to Taiwan (Uliana *et al.* 2007), apparently not closely related to *M. cyclops*. Examination of other representative specimens is needed to assess whether the segment number in the holotype of *M. cyclops* is actually typical of the species and whether it is intraspecifically invariant or not.

Notes on ecology: No information available.

### **Ballophilidae Cook, 1896**

Diagnosis: Body usually tapering gradually forwards, abruptly narrowing at the posterior end. Colour either uniformly pale yellow or variously patched, often blue or green. Antennae either slender or evidently clavate and geniculate. Cephalic capsule poorly depressed, about as long as wide, lateral margins convergent forwards. Clypeus and buccae apparently not divided into an anterior areolate part and a posterior non-areolate part. Labral margin poorly chitinised, usually entire, sometimes with very few weak denticles close to the lateral ends. Mandible bearing one dentate and one pectinate lamella. Maxillae I with undivided coxosternum; each coxal projection stout and uniarticulate; each telopodite composed of two articles. Maxillae II with coxosternum non-areolate in the median part; claw of telopodite simple or bi-pectinate. Forcipular tergum about as wide as the head and the subsequent tergum. Forcipular coxosternum evidently wider than long, the anterior margin concave and without tubercles, the lateral margins strongly convergent backwards; chitin lines either present or not. Forcípules relatively short, not reaching the anterior margin of the head, without tubercles. Sterna of leg-bearing trunk segments without evident mid-longitudinal sulcus; sternal pores arranged in a single median area or two paired areas. Coxal glands of each coxopleuron opening into one or two pits, close to the lateral margin of the sternum. Telopodite of last pair of legs composed of 6 articles, evidently swollen in both sexes, not evidently longer than the telopodite of preceding legs; claw absent.

Geographical distribution: most of the tropical and subtropical continental lands and islands, namely most part of the Americas, central and southern part of Africa, Madagascar, southern and eastern Asia, Australia and some islands in the Pacific Ocean.

### ***Ityphilus* Cook, 1899**

*Ityphilus* Cook, 1899: 306.

*Thalthybius* Attems, 1900: 139. (Synonymy by Demange & Pereira 1985: 188).

*Thalthybius* (*Prionothalthybius*) Brölemann, 1909: 334. (Synonymy by Pereira *et al.* 1994: 166).

Diagnosis: Body colour usually purple when alive. Forcipular coxosternum with evident, almost complete chitin lines. Internal margin of forcipular tarsungulum either smooth or serrate. Sternal pores arranged in a single subcircular or transversally elongate area on the anterior part of the trunk, in a single or two paired areas on the posterior part of the trunk. Coxal glands opening into two pits on each coxopleuron.

Geographical distribution: central and southern Americas, northwards to Texas, Florida Keys and Bahamas, southwards to Peruvian Andes and Amazonas; western Pacific islands, from Japan to Taiwan and Mariana Islands; also Seychelles.

***Ityphilus melanostigma*** (Attems, 1900)

*Thalhythibus melanostigma* Attems, 1900: 140.

Published records for Seychelles: *Thalhythibus melanostigma* Attems, 1900: 134, 140 (original description); figs 10-12; *Thalhythibus melanostigma*: Demange 1981: 623, 625, 629; fig. 7.

Material examined: 1 specimen. Mahé: Mare aux Cochons, 29-VII-2002, 1 ♂.

Diagnosis: Body length at least 6 cm. Colour in alcohol mainly transparent, with dark bluish patches corresponding to the sternal glands. Cephalic capsule slightly wider than long. Antennae ca. 2-3 times longer than the head width. Apical sensilla spear-like, abruptly tapering into a slender tip, ca. 10-12 µm long. Coxosternum and telopodites of maxillae I without lappets. Claw of the telopodite of maxillae II bi-pectinate. Internal margin of forcipular tarsungulum smooth. Number of leg-bearing segments 95-101 in the only three known specimens. Sternal pores arranged in a single, transversally elongated, mid-longitudinally constricted area on almost all the leg-bearing segments. Sternum of the last leg-bearing segment trapezoidal, wider than long. See fig. 6.

General distribution: Seychelles.

Distribution in Seychelles: at least 2 localities in 1 island. MAHÉ: Mare aux Cochons (new); Morne Blanc, 667 m (Demange 1981); unknown locality (Attems 1900).

Taxonomic remarks: *I. melanostigma* was originally described by Attems (1900) under the genus *Thalhythibus* (now *Ityphilus*) upon two specimens from Mahé. The species was subsequently recorded by Demange (1981).

Notes on ecology: *I. melanostigma* has been recorded at least from a few wooded, internal sites, including one 670 m high.

**Geophilidae** Leach, 1815

Diagnosis: Body slightly depressed, uniformly wide or gradually narrowing forwards, variously tapering backwards. Colour from pale yellow to red-brown, head and most anterior trunk segments sometimes darker. Antennae slender, gradually attenuated. Cephalic capsule variously depressed, about as long as wide or slightly longer than wide, lateral margins either sub-parallel or convergent forwards. Clypeus and buccae not evidently divided into an anterior areolate part and a posterior non-areolate part. Labral margin usually composed of a mid-part bearing tubercles or slender projections, and two side-parts partially delimited from the clypeus and bearing slender filaments. Mandible bearing a single pectinate lamella. Maxillae I with undivided coxosternum; coxal projection unarticulate, stout; telopodite composed of two articles, the basal one usually bearing a hyaline lobe covered with pointed scales. Maxillae II with coxosternum non-areolate in the median part; claw of telopodite usually simple. Forcipular tergum either about as wide as the head and the subsequent tergum, or slightly narrower. Forcipular coxosternum variously shaped, the anterior margin either concave or straight,

with or without tubercles and chitin lines. Forcípules variously large and elongate, usually not visible from above in front of the head; pattern of tubercles variable. Sterna of leg-bearing trunk segments usually without a mid-longitudinal sulcus; sternal pores variously arranged, sometimes absent. Coxal glands of each coxopleuron opening into either independent pores or common pits. Telopodite of last pair of legs composed of 6 articles, slender, sometimes swollen in the male, similar or longer than the telopodite of preceding legs; claw either present or not. Gonopods biarticulate in the male, coalescent into a uniarticulate lamina in the female.

Geographical distribution: mainly Americas from the Arctic lands to the southernmost areas, temperate Eurasia, most of Africa, Madagascar and Australian region, including New Zealand and some islands in the Pacific Ocean.

***Tuoba* Chamberlin, 1920**

*Tuoba* Chamberlin, 1920b: 35.

*Gophilus* (*Nesogophilus*) Verhoeff, 1924: 413. (Synonymy: Crabill 1968b: 345).

*Algerophilus* Brolemann, 1925: 251. (Synonymy by Jones 1998: 334).

*Honuaphilus* Chamberlin, 1926: 93. (Synonymy by Bonato *et al.* 2004: 24).

Diagnosis: Cephalic capsule about as long as wide or only slightly longer than wide. Clypeus without finely areolate areas. Labral mid-part bearing tubercles and side-parts bearing slender filaments. Coxosternum of maxillae II with a longitudinally extended bridge, without any evidently chitinised ridge and without antero-internal projections. Claw of maxillae II uniformly tapering, pointed. Forcípular tergum about as wide as the subsequent tergum. Forcípular coxosternum wider than long, with usually complete chitin lines, the lateral margins evidently convergent backwards, the anterior margin concave and without tubercles. Forcípular article I about as long as wide, internal margin very short. Forcípules without tubercles, only a small tubercle at the basis of tarsungulum. Sterna of leg-bearing trunk segments with ‘carpophagus’ sockets and a weak mid-longitudinal sulcus; pores arranged into a transversally elongate posterior band, which separates into a pair of areas towards posterior segments. Sternum of last leg-bearing segment trapezoidal, wider than long. Coxal glands of each coxopleuron opening into a single pit, close to the lateral margin of the relevant sternum. Last pair of legs slightly swollen in the male, slender in female, with a claw.

Geographical distribution: coastal regions and islands around the Atlantic, Mediterranean, Indian and Pacific basins.

***Tuoba sydneyensis* (Pocock, 1891)**

*Gophilus sydneyensis* Pocock, 1891: 219.

*Tuoba curticeps* Chamberlin, 1920b: 35. (Synonymy by Jones 1998: 334).

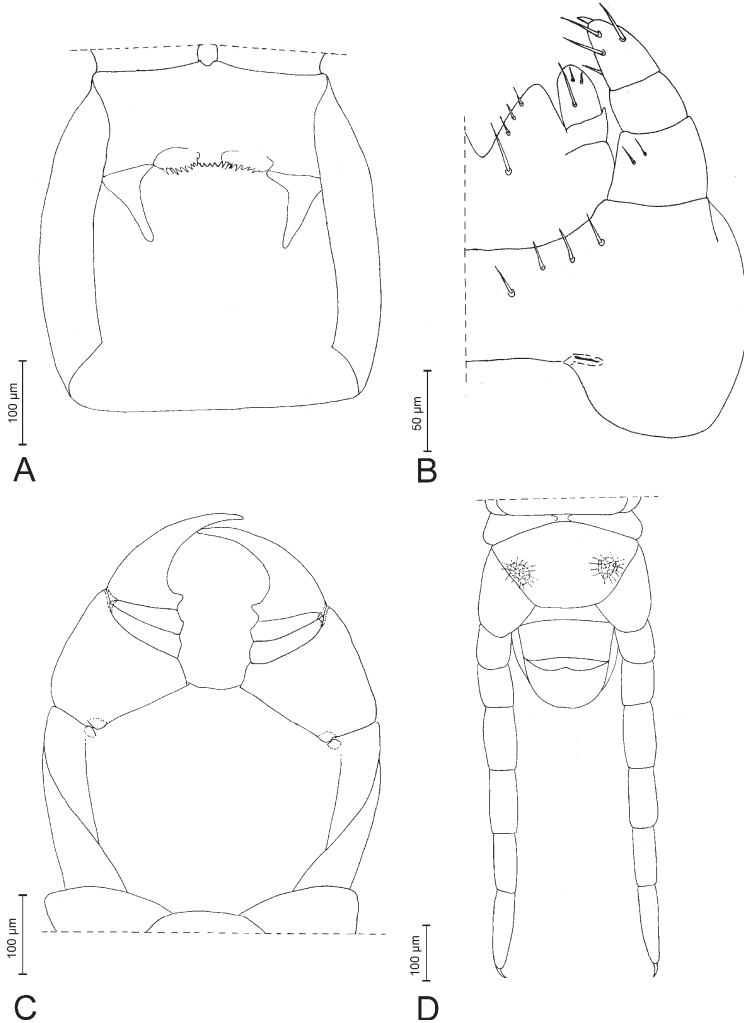
*Honuaphilus alohanus* Chamberlin, 1926: 93. (Synonymy: Bonato *et al.* 2004: 24).

*Algerophilus leptochilus* Brolemann, 1931: 72. (Synonymy: Jones 1998: 334).

Published records for Seychelles: *Nesogophilus leptochilus*: Demange, 1981: 623, 627, 629, 639.

Material examined: 2 specimens. Grande Terre (Aldabra Group): locality unknown, 1 ♂, 1 ♀.

Diagnosis: Body length up to 3 cm. Cephalic capsule ca. 1.0-1.1 times as long as wide; anterior margin obtusely pointed. Frontal line absent. Antennal apical sensilla spear-like, ca. 10 µm long. Clypeus with 1 anterior and ca. 6 posterior pairs of setae. Each bucca with two anterior setae. Labral mid-piece with 7-9 tubercles, each side-piece medially



**Fig. 7.** *Tuoba sydneyensis* (Pocock, 1891) (Grande Terre, date unknown, ♀, 17 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

with 2-3 tubercles. First maxillae with a pair of small lappets on the coxosternum and a pair of small lappets on the basal articles of telopodites. Claw of telopodites of second maxillae quite short. Forcipular tergum approximately as wide as that of first leg-bearing segment. Exposed part of forcipular coxosternum ca. 1.4 times as wide as long; chitin lines almost complete. Forcípules, when closed, extending nearly to anterior margin of head. Number of leg-bearing segments 39-55 (in the Seychelles: 41-43 in males and 43-45 in females). Legs with anterior parunguis longer than posterior parunguis. ‘Carpophagus’ socket about half as wide as sternum. See fig. 7.

General distribution: mainly between Australia and Melanesia, also Hawaii Islands and the Seychelles.

Distribution in Seychelles: 4 localities in 4 islands. CURIEUSE: Baie Laraie (Demange 1981). GRANDE TERRE (Aldabra Group) (new). MAHÉ: Anse Louis (Demange 1981). PRASLIN: Fond de l’Anse (Demange 1981).

Taxonomic remarks: *T. sydneyensis* was originally described by Pocock (1891), under *Geophilus* Leach, 1814, upon three specimens from Australia. The species was first assigned to the genus *Tuoba* Chamberlin, 1920 by Crabill (1968b). It was reported and redescribed repeatedly, also under junior synonyms (Jones 1998; Bonato *et al.* 2004). The species has been already reported from the Seychelles by Demange (1981) under the name *Nesogeophilus leptochilus* (Brolemann, 1931), whose identity with *T. sydneyensis* was discussed by Jones (1998).

Notes on ecology: In Seychelles, as well as throughout its geographical range, *T. sydneyensis* has been recorded almost exclusively in littoral sites.

### ***Ribautia* Brölemann, 1909**

*Ribautia* Brölemann, 1909: 335.

*Schizoribautia* Brölemann, 1912: 70. (Synonymy by Attems 1928: 172).

*Polygonarea* (*Nearia*) Chamberlin, 1955: 16. (Synonymy: Foddai *et al.* 2000: 90).

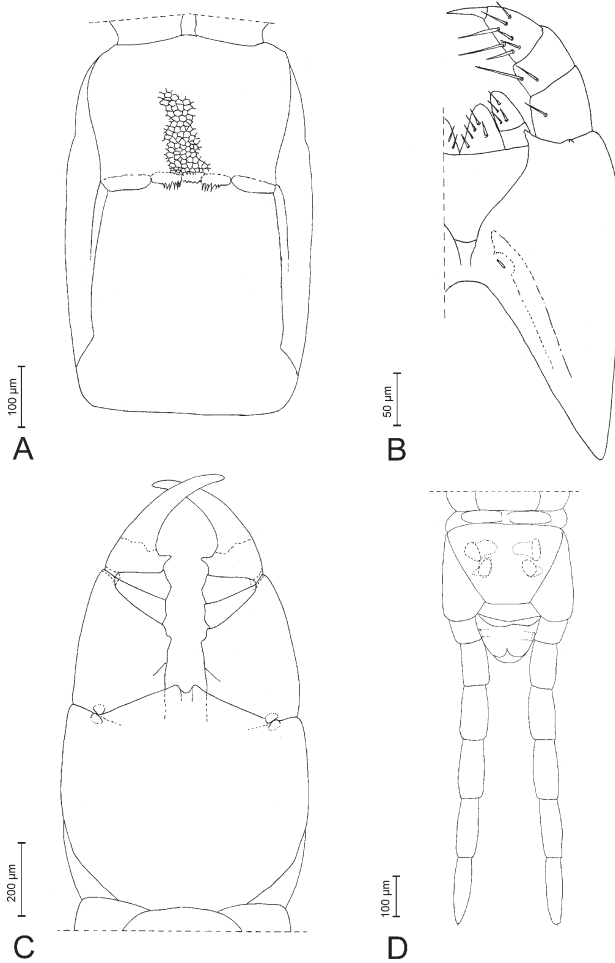
Diagnosis: Cephalic capsule conspicuously depressed, evidently longer than wide. Clypeus with a median finely areolate area, bearing a few setae. Labral mid-part bearing tubercles and side-parts bearing slender filaments. Coxosternum of maxillae II with a longitudinally short bridge, with chitinised ridges convergent forwards and with antero-internal projections. Claw of maxillae II uniformly tapering, pointed. Forcípular tergum narrower than the subsequent tergum. Forcípular coxosternum about as long as wide or slightly wider than long, with chitin lines, the lateral margins convergent backwards, the anterior margin slightly projecting forwards and bearing a pair of tubercles. Forcípular article I longer than wide, internal margin quite long. Forcípules with an elongate, pointed tubercle at the basis of tarsungulum. Sterna of leg-bearing trunk segments without ‘carpophagus’ sockets; pores arranged into a subcircular or ovoid area, which sometimes separates into a pair of areas towards posterior segments. Sternum of the last leg-bearing segment trapezoidal, wider than long. Coxal glands of each coxopleuron opening into either independent ventral and lateral pores, or into a few pits close to the lateral margin of the relevant sternum. Last pair of legs slightly swollen in the male, slender in the female, with a claw or a stout tubercle.

Geographical distribution: most part of South America from the northern Andes through Amazonas to Paraná basin, equatorial Africa, Madagascar, Seychelles, southern part of Arabian peninsula, Australia, New Zealand and New Caledonia.

***Ribautia cf. paucipes*** Attems, 1953

*Ribautia paucipes* Attems, 1953: 124.

Published records for Seychelles: ? ‘Geophilidae’: Demange 1981: 627; ? ‘Géophilomorpe sp.’: Demange 1981: 628.



**Fig. 8.** *Ribautia cf. paucipes* Attems, 1953 (Cousine, 18-III-1998, ♀, 14 mm long): ventral view of selected parts. A, cephalic capsule without maxillae (areolation of clypeus drawn only partially). B, maxillary complex (left half). C, forcipular segment (setae not drawn). D, last leg-bearing segment and posterior tip of the trunk (setae not drawn).

Material examined: 8 specimens. Cousine: locality unknown, 18-III-1998, 5 ♂♂, 1 ♀, 2 sex unknown.

Description: Body length up to 1.5 cm. Colour uniformly pale yellow, the anterior tip slightly darker. Cephalic capsule ca. 1.4-1.7 times as long as wide. Frontal line absent. Finely areolate clypeal area bearing 4 setae. Labral mid-piece with a few tubercles. First maxillae without lappets. Coxosternum of maxillae II with elongate antero-internal projections. Exposed part of forcipular coxosternum approximately as long as wide; chitin lines almost complete. Forcipules, when closed, overreaching the anterior margin of the head. Forcipular article I without proximal tubercle, with a stout distal tubercle; intermediate articles each with a shallow emergence; basal tubercle of tarsungulum quite elongate, subconic, evidently tapering, slightly bended backwards. Number of leg-bearing segments 39-41. All sterna of leg-bearing trunk segments with pores arranged into a subcircular to oval area, which does not separate into a pair of areas towards the posterior segments. Three coxal glands on each coxopleuron, the most anterior two opening into a common pore, the most posterior one opening into an independent pore, all fully covered by the relevant sternum. Last pair of legs with a claw. See fig. 8.

General distribution: internal part of equatorial Africa; possibly also in the Seychelles.

Distribution in Seychelles: probably 3 localities in 3 islands. COUSINE: locality unknown (new). ? MAHÉ: Morne Séchellois, 750-800 m (Demange 1981). ? SILHOUETTE: Mont Dauban, 600 m (Demange 1981).

Taxonomic remarks: *R. paucipes* was originally described by Attems (1953) upon some specimens from localities in central Africa, encompassing the Democratic Republic of the Congo and Rwanda. It was not recorded subsequently. Based on published information, out of all known species of *Ribautia*, *R. paucipes* is the only species matching the morphology of the specimens from the Seychelles, mainly in the combination of some diagnostic traits (above all, the number of leg-bearing segments and the pattern of coxal pores). However, further investigations are needed to assess the actual taxonomic status of the populations occurring in the Seychelles with respect to the continental *R. paucipes*. Worth notice is that, based on the partial and somehow inaccurate description provided by Attems (1953), original specimens of *R. paucipes* apparently differ from the specimens from Seychelles in a few minor characters, whose diagnostic value is unknown, namely the number of setae in the clypeal finely areolate area (2 vs. 4), the distribution of sternal pores (absent in an intermediate part of the trunk, vs. present throughout the whole trunk), and the relative size of the coxal channels (one smaller than the other two, vs. all three similar).

This centipede was most probably already recorded from the Seychelles, even though not identified to the species level, by Demange (1981), who reported some unidentified geophilid specimens with 39-41 leg-bearing segments from Mahé and Silhouette.

Notes on ecology: In the Seychelles, *R. cf. paucipes* has been probably recorded from internal sites.

### **Key to the species of *Geophilomorpha* of the Seychelles**

1. Labral sclerites well distinct from the clypeus, each side-piece with a transversal

- chitinised ridge. Mandible bearing more than three lamellae. Forcipular tergum evidently narrower than the subsequent tergum. Sterna of leg-bearing trunk segments with a mid-longitudinal sulcus, without pore areas. Coxal pores numerous, scattered on the ventral surface of coxopleura. *Mecistocephalidae*, 2
- Labrum only partially separated from the clypeus, the side-parts without a transversal ridge. Mandible bearing only one or two lamellae. Forcipular tergum as wide as or only slightly narrower than the subsequent tergum. Sterna of leg-bearing trunk segments without an evident mid-longitudinal sulcus, and with pore areas. Coxal pores few, grouped close to the lateral margin of the sternum. 8
2. Clypeus with an entire plagula. Buccae without spiculum and without setae. Forcipular article I with a distal tubercle only. Number of leg-bearing segments invariantly 45. *Tygarrup: T. javanicus*
- Clypeus with two plagulae. Buccae with spiculum and with setae at least in the posterior half. Forcipular article I with a proximal and a distal tubercle. Number of leg-bearing segments at least 47. *Mecistocephalus*, 3
3. Areolate part of the clypeus with a subcircular finely areolate medial area. Labrum with internal margin of the anterior ala longer than the internal margin of the posterior ala. Sterna of leg-bearing trunk segments with non-furcate mid-longitudinal sulcus. Number of leg-bearing segments invariantly 47. *M. angusticeps*
- Areolate part of the clypeus without a subcircular finely areolate medial area. Labrum with internal margin of the anterior ala usually shorter than the internal margin of the posterior ala. Sterna of leg-bearing trunk segments with furcate mid-longitudinal sulcus. Number of leg-bearing segments at least 49. 4
4. Number of leg-bearing segments more than 51. *M. cyclops*
- Number of leg-bearing segments either 49 or 51. 5
5. Body colour with dark pigmentation. Claw of maxillae II abruptly narrowing into a usually rounded tip. Forcipular article I with the distal tubercle much larger than the proximal tubercle. Number of leg-bearing segments invariantly 49. *M. glabridorsalis*
- Body colour without dark pigmentation. Claw of maxillae II uniformly tapering into a pointed tip. Forcipular article I with the distal tubercle similar or only slightly larger than the proximal tubercle. Number of leg-bearing segments either 49 or 51. 6
6. Clypeal plagulae with a pair of setae at mid-length, close to the mid-longitudinal areolate stripe. Forcipular article I with both proximal and distal tubercles much elongate and projecting forwards. Number of leg-bearing segments invariantly 49. *M. megalodon*
- Clypeal plagulae without setae. Forcipular article I with tubercles of moderate size. Number of leg-bearing segments either 49 or 51. 7
7. Labral side pieces evidently separated from each other. Number of leg-bearing segments invariantly 49. *M. lohmanderi*
- Labral side pieces almost touching each other. Number of leg-bearing segments 51. *M. sechellarum*



8. Antennae evidently clavate and geniculate. Cephalic capsule about as long as wide. Mandible bearing one dentate and one pectinate lamella. Claw of telopodite of maxillae II bi-pectinate. Forcipules without tubercles. Number of leg-bearing segments more than 90. Legs of the last pair evidently swollen in both sexes.

Ballophilidae: *Ityphilus*: *I. melanostigma*

Antennae slender, uniformly tapering. Cephalic capsule longer than wide. Mandible bearing a single, pectinate lamella. Claw of telopodite of maxillae II simple, not pectinate. Forcipules with tubercles. Number of leg-bearing segments less than 70. Legs of the last pair only slightly swollen in the male, slender in female.

Geophilidae, 9

9. Clypeus without a median, finely areolate area. Coxosternum of maxillae II with a longitudinally extended bridge, without any evident chitinised ridge and without antero-internal projections. Anterior margin of forcipular coxosternum concave and without tubercles. Forcipules without tubercles, only a small tubercle at the basis of tarsungulum. Sterna of anterior part of trunk with 'carpophagus' sockets and pores arranged into transversally elongate posterior band. Coxal glands of each coxopleuron opening into a single pit.

*Tuoba*: *T. sydneyensis*

Clypeus with a median, finely areolate area. Coxosternum of maxillae II with a longitudinally short bridge, with chitinised ridges convergent forwards and with antero-internal projections. Anterior margin of forcipular coxosternum slightly projecting forwards and bearing a pair of tubercles. Forcipular article I with a distal tubercle; an elongate, pointed tubercle at the basis of tarsungulum. Sterna of anterior part of trunk without 'carpophagus' sockets and with pores arranged into a subcircular or ovoid area. Coxal glands of each coxopleuron opening into an anterior common pore and a posterior independent pore.

*Ribautia*: *R. cf. paucipes*

### Faunistic remarks

As far as known, 10 species of Geophilomorpha occur in the Seychelles. Out of these, 7 species are in the family Mecistocephalidae, two in the Geophilidae and one in the Ballophilidae.

Taxonomic diversity of the mecistocephalids in the Seychelles is outstanding with respect to neighbouring islands and continental areas: Mascarene islands, Madagascar, Africa and Arabic peninsula host apparently fewer species of *Mecistocephalus*, mostly closely related to each other, while *Tygarrup* has been otherwise recorded in this area, only from Mauritius.

Out of the species occurring in the Seychelles, *Tygarrup javanicus* and *Tuoba sydneyensis* are apparently widespread through tropical areas in the Indian and Pacific basins, both having their westernmost known population in the Seychelles. Conversely, most other species have been so far recorded only from the Seychelles (*M. glabridorsalis*, *M. megalodon*, *M. sechellarum*, *M. cyclops*, *I. melanostigma*) or in a few other neighbouring islands or coastal localities of the African continent (*M. angusticeps*, *M. lohmanderi*). Worth notice is that no species is shared between the Seychelles and Madagascar, contrary to previous opinion (Saussure & Zehntner 1902).

**Table II.** Occurrence of species of Geophilomorpha on the islands of the Seychelles.

	Aride	Cousine	Curieuse	D'Arros	Felicite	Grand e Terre	La Digue	Mahé	North	Picard	Poivre Atoll	Praslin	Silhouette
<i>T. javanicus</i>						x	x					x	x
<i>M. angusticeps</i>		x								x		x	
<i>M. glabridorsalis</i>						x	x					x	x
<i>M. lohmanderi</i>	x	x	x	x	?				x		x		x
<i>M. megalodon</i>	x	x											
<i>M. sechellarum</i>													
<i>M. cyclops</i>						x							x
<i>I. melanostigma</i>								x					
<i>T. sydneyensis</i>			x			x		x				x	
<i>R. cf. paucipes</i>		x						?					?

In addition to the species already recorded from the Seychelles, the examination of the newly collected specimens revealed the presence of two other species, namely *Mecistocephalus lohmanderi*, originally described from Mauritius island, and *Mecistocephalus megalodon*, previously unknown and described by us elsewhere (Bonato & Minelli 2009). Furthermore, the new material allowed us to contribute to elucidate the identity of species previously misidentified (*Mecistocephalus glabridorsalis*) or still not identified properly (*Ribautia* cf. *paucipes*). However, records are only from a dozen islands (table II), so that our knowledge remains quite incomplete.

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