El Colegio de la Frontera Sur

Poliquetos crisopetálidos y sigaliónidos (Annelida: Phyllodocida) del Gran Caribe

Tesis

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Las personas abajo firmantes, miembros del jurado examinador de: **Christopher Cruz Gómez** hacemos constar que hemos revisado y aprobado la tesis titulada:

Poliquetos crisopetálidos y sigaliónidos (Annelida: Phyllodocida) del Gran Caribe

Para obtener el grado de **Maestro en Ciencias en Recursos Naturales y Desarrollo Rural.**

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Para mi familia, para mí.

Y en especial para Karly.

Hacer solo lo que haces bien,

no da espacio a aprender

- D.M.

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CONTENIDO

La presente tesis no debe ser considerada como una publicación en el sentido del Código Internacional de Nomenclatura Zoológica, y los nombres científicos mencionados en ésta no deben ser citados en ninguna forma, para evitar ser considerados *nomina nuda*.

This thesis is not a publication in the sense of the International Code of Zoological Nomenclature, and scientific names mentioned in it must not be cited in any way to avoid them to become nomina nuda.

RESUMEN

Los poliquetos son anélidos con una amplia diversidad morfológica. Dentro del grupo sobresalen dos familias por presentar estructuras dorsales esclerotizadas: los crisopetálidos, poliquetos con notosetas en forma de pétalo que les cubre el dorso en la mayoría de las especies, y los sigaliónidos, poliquetos con élitros dorsales en la mayoría de las especies. Pudiera creerse que estas familias de poliquetos están ampliamente conocidas en la región del Gran Caribe, debido a su inclusión en revisiones regionales y mundiales. Sin embargo, aún prevalecen problemas en su taxonomía que merecen ser revisadas. Entre las problemáticas principales se encuentran los registros cuestionables, combinaciones dudosas, inconsistencias en la terminología, y descripciones austeras de especies regionales. Con el objetivo de incrementar y mejorar el conocimiento que se tiene de ambas familias de poliquetos, se propuso el estudio faunístico de ambas, mediante la revisión de ejemplares disponibles en colecciones científicas. En sigaliónidos se generaron cuatro capítulos. En el primero se restableció a *Ehlersileanira simplex* (Ehlers, 1887), una especie regional, y se diferenció de *E. incisa* (Grube, 1888) del Golfo de Guinea. En el segundo, se abordó la subfamilia Pelogeniinae que incluyó una propuesta de clasificación para estudiar las neurosetas de los sigaliónidos. Además, se confirmaron cuatro especies en la región, y se describieron siete nuevas especies. En el tercer capítulo, se abordó las subfamilias Pholoinae, Pisioninae y Sthenelanellinae, se confirmó una especie en la región, y se describieron cuatro nuevas. El cuarto capítulo estudió la subfamilia Sigalioninae, cuatro especies regionales fueron confirmadas, se propuso un nuevo género; se describieron 7 nuevas especies, una que requiere revisión. Los crisopetálidos cubrieron el quinto y último capítulo. Se confirmaron cuatro especies en la región, y se describió una nueva. De forma complementaria, se formularon claves de identificación, incluidas en los primeros tres capítulos, para la publicación se agregarán en los dos últimos.

Palabras clave: nuevas especies, nuevo género, poliquetos escamosos, taxonomía

INTRODUCCIÓN

Los anélidos son lofotrocozoos acuáticos o terrestres, en su mayoría segmentados y vermiformes, con una gran diversidad de planes corporales (Rouse & Pleijel 2001). A pesar de las interpretaciones recientes sobre su composición y filogenia (Struck 2019), tradicionalmente se separan en dos clados: Clitellata Michaelsen, 1919 que incluye a los oligoquetos y sanguijuelas; lo cuales son gusanos sin apéndices cefálicos, sin parápodos y con clitelo en alguna etapa de su vida (Weigert & Bleidorn 2016) y Polychaeta Grube, 1850 que son gusanos con apéndices cefálicos, con parápodos y sin clitelo.

Los poliquetos sobresalen dentro del filo Annelida Lamarck, 1809 por poseer el mayor número de especies descritas, aproximadamente 15,000 especies (Rouse & Pleijel 2001; Tovar-Hernández *et al.* 2014). Sin embargo, de acuerdo con Salazar-Vallejo *et al.* (2011) aún faltarían por ser descritas otras 15,000 especies. Dentro del orden Phyllodocida Dales, 1962 se encuentran dos familias caracterizadas por poseer estructuras esclerotizadas que les cubren el dorso: Chrysopetalidae Ehlers, 1864 y Sigalionidae Kinberg, 1856.

Los crisopetálidos adultos son fácilmente reconocidos porque muchas especies tienen paleas dorsales (notosetas aplanadas) o espinas de color dorado brillante (Watson Russell 2000; Watson 2015; Watson & Faulwetter 2017), así como cuerpos cortos y frágiles (0.08–12 cm). Recientemente se realizó una modificación en la composición de está familia, con base en análisis de datos moleculares y morfológicos, por los que ahora incluyen a las otrora familias Nautiliniellidae Miura & Laubier, 1990 y Calamyzidae Hartmann-Schröder, 1971 como clados derivados de los crisopetálidos (Aguado *et al.* 2013; Watson & Faulwetter 2017). Dado lo anterior, la monofila de esta familia está determinada por la presencia de un pliegue bucal y un par de mandíbulas laterales (Watson & Faulwetter 2017). Actualmente, los crisopetálidos cuentan con 28 géneros y 87 especies (Cruz-Gómez & Bastida-Zavala 2018, Watson *et al.* 2019).

La familia Chrysopetalidae Ehlers, 1864 se distribuye alrededor del mundo en aguas cálidas a frías entre los paralelos 65° N y 65° S, desde la zona intermareal hasta profundidades de 6,000 m (Watson Russell 2000; Watson & Faulwetter 2017). Pueden

hallarse en diferentes sustratos bióticos, como esponjas, corales, hidrozoos, briozoos, conchas de moluscos, bivalvos, pulpos, tubos de poliquetos sabeláridos y serpúlidos, tunicados, restos de ballenas, así como en pastos marinos y macroalgas (Johnson 1897; Hartman 1961; Watson Russell 2000; Cruz-Gómez & Bastida-Zavala 2018; Jimi *et al.* 2019). Además, se han reportado ejemplares asociados a sustratos abióticos como rocas y arena, así como en muelles, formando parte de la fauna incrustante (Watson Russell 2000; Aguado *et al.* 2013). En cuanto a las especies simbiontes, se les encuentran dentro del manto de bivalvos, pulpos, o como ectoparásitos de poliquetos anfarétidos (Aguado *et al.* 2013; Watson & Faulwatter 2017; Jimi *et al.* 2019).

Por otro lado, los sigaliónidos que, junto a otras familias de poliquetos, son llamados gusanos escamosos, se caracterizan por la presencia de élitros (estructuras en forma de escama) sobre el dorso (Salazar-Silva & Salazar-Vallejo en prensa). A diferencia de las otras familias de escamosos, los sigaliónidos se reconocen por tener especímenes de mayor talla, porque algunas especies pueden ornamentar sus élitros con arena (*i.e.* Pelogeniinae Chamberlin, 1919), por presentar un prostomio y parápodos muy complejos, y por tener nuerosetas compuestas (Pettibone 1992, Hutchings 2000). Al igual que los crisopetálidos, la sistemática de los sigaliónidos cambió, lo que incrementó su riqueza mediante la adición de la otrora familia Pisionidae Ehlers, 1901. La monofilia de la familia se basa sobre todo en información molecular, mientras que entre los caracteres morfológicos se reduce a la presencia de un par de mandíbulas con canales internos y su asociación con glándulas de veneno (Struck *et al.* 2005; Norlinder *et al.* 2012). Actualmente, los sigaliónidos incluyen 28 géneros y 219 especies (Struck *et al.* 2005; Pamungkas *et al.* 2019).

Ejemplares de esta familia se encuentran en todo el mundo, desde la zona intermareal hasta más de 4,000 m de profundidad, y son principalmente bénticos (Hutchings 2000; Struck *et al.* 2005; Alalykina 2018). También se han registrado especies de aguas salobres y muy pocas se han hallado en manantiales y ríos (Hutchings & Murray 1984; San Martín *et al.* 1998; Hutchings 2000). Algunas especies habitan en sedimentos (sigaliónidos no escamosos, adaptados a la vida intersticial) o en pastos marinos, conchas de moluscos, esponjas, crinoideos, briozoos, serpúlidos, balanos, y arrecifes de

coral (sigaliónidos escamosos) (Hutchings 2000; Struck *et al.* 2005; Aungtonya 2007; Barnich *et al.* 2013).

Los poliquetos de estas dos familias se consideran poco abundantes en fondos marinos, aunque se presentan con regularidad (Watson Russell 2000; Salazar-Silva & Salazar-Vallejo en prensa). Contrario a lo que típicamente se cree (Cruz-Gómez per. obs.), estas familias podrían estar subestimadas en cuanto a su riqueza específica por el desconocimiento prevaleciente de la biodiversidad del océano. Se calcula que el 91% de las especies marinas aún se encuentran a la espera de ser descritas, aunque para los poliquetos hay una estimación más conservadora que considera el 50% de especies sin ser descubiertas y descritas (entre 15,000 y 16,700 especies) (Salazar-Vallejo *et al.* 2011; Pamungkas *et al.* 2019). Además, se deben considerar las especies o géneros novedosos o rescatados de las sinonimias, escondidos entre nombres de supuestas especies cosmopolitas, problemática que aún prevalece entre los poliquetos (Hutchings & Kupriyanova 2018).

En el Gran Caribe, los estudios faunísticos de estas dos familias han sido escasos y dispersos. En la región se conocen 21 especies de crisopetálidos y 43 de sigaliónidos (Salazar-Vallejo 1996; Dean 2012; Salazar-Silva & Salazar-Vallejo en prensa; Cruz-Gómez *et al.* en prensa), dentro de las cuales se incluyen nombres de especies con localidades tipo distantes del Atlántico tropical de América, lo que puede interpretarse como una mala identificación, o bien, la determinación de una especie exótica. Asimismo, hay descripciones originales poco informativas de especies con localidad tipo en el Gran Caribe, lo que dificulta la delimitación de especies en la región.

Conociendo el panorama actual de estas dos familias en la región del Gran Caribe, se planteó el estudio faunístico de las familias de anélidos, Chrysopetalidae y Sigalionidae en la región. El objetivo del estudio fue el ampliar y mejorar el conocimiento que se tiene de ambas familias en la región del Gran Caribe, mediante la revisión de ejemplares disponibles en colecciones científicas.

Capítulo 1

Review of *Ehlersileanira simplex* (Ehlers, 1887) n. comb., reinstated, distinct from *E. incisa* (Grube, 1877) (Annelida, Sigalionidae)

Sometido: Zoological studies

Review of *Ehlersileanira simplex* (Ehlers, 1887) n. comb., reinstated, distinct from *E. incisa* (Grube, 1877) (Annelida, Sigalionidae)

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Cruz-Gómez (2020) *Sthenelais simplex* Ehlers, 1887 was described from the Gulf of Mexico, but it is currently regarded as a junior synonym of *Leanira incisa* (Grube, 1877), described from Congo, this species is included in *Ehlersileanira* Pettibone, 1970. *Ehlersileanira* is a genus of sigalionids with *L. incisa* as its type species. However, the redescription of the type species was based on specimens from several distant localities, including the type material of *S. simplex*. Through the revision of material from the University of Miami Deep-Sea Expeditions along the tropical Atlantic, including the Gulf of Guinea, specimens corresponding to *S. simplex* and *E. incisa* were found and carefully studied. The main results include that the supposed junior synonym is a different species, that *S. simplex* is reinstated, and newly combined as *E. simplex* (Ehlers, 1887) n. comb. reinst. *Ehlersileanira simplex* differs from *E. incisa* by having large auricles, as long as median antennal ceratophore; elytra from segment four are smooth and rectangular; median antenna with ceratophore and ceratostyle of similar length; branchiae from segment 16, ctenidial pads from segment nine, and tubular nephridial lobes from about segment 20. A key to all species of *Ehlersileanira* is also included.

Key words: Caribbean Sea, Gulf of Mexico, *Leanira*, Polychaeta, Morphology

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BACKGROUND

Ehlers (1887) reported the results of the 1877–1878 U. S. Coast Survey Steamer ‘Blake’ in the Gulf of Mexico and the Caribbean Sea, and included new sigalionids described as *Sigalion pourtalesi* Ehlers, 1887 and *Sthenelais simplex* Ehlers, 1887. *Sigalion pourtalesi* remains in its original combination, contrary to *S. simplex*, which was synonymized by Augener (1918) with

Leanira incisa (Grube, 1877) described from Congo. Previously, 12 years earlier, Augener (1906: 106–107, Pl. 1, Figs. 16, 17) recorded the species as *Leanira simplex* off New Jersey, in the NE Atlantic, but he did not specify the reasons for the new combination.

The late Marian Pettibone made a series of publications on sigalionids during almost 30 years (1969–1997). In three publications, she concentrated on the species belonging to *Leanira* Kinberg, 1855; in the first, she redefined *Euthalanessa* Darboux, 1900 (Pettibone 1970a); in the second, she continued and proposed *Ehlersilelanira* (Pettibone 1970b); and in the third, she proposed two genera: *Horstileanira* and *Neoleanira* (Pettibone 1970c). As indicated above, Pettibone (1970b) restricted *Leanira* Kinberg, 1855, and proposed *Ehlersileanira*, with *L. incisa* as the type and only species. For *Ehlersileanira*, Pettibone (1970) revised the type material of *L. vulturis* Horst, 1917 from Indonesia, and *S. simplex* from the Gulf of Mexico, and reviewed the original description of *L. izuenzis* Takahashi, 1938, from Japan. She concluded that all these species were the same and should be regarded as junior synonyms of *E. incisa* by the principle of priority. However, this conclusion must be revised. Currently, *Ehlersileanira* has two valid species, *E. incisa* and *E. adamanensis* Aungtonya and Eibye-Jacobsen, 2016. This genus is recognizable because its species have a median antenna with lateral auricles, and their ceratostyle is biarticulated (Aungtonya and Eibye-Jacobsen 2016)

Herein the status of *Sthenelais simplex* from the Northwestern Atlantic and Gulf of Mexico is clarified, by comparing it with *E. incisa* from the Gulf of Guinea. The results indicate that *S. simplex* must be reinstated and properly combined as *Ehlersileanira simplex* (Ehlers, 1887) n. comb., reinst., and consequently, the complete description and illustrations for both species are provided. Further, a key to identify all the species is also included.

MATERIAL AND METHODS

During 13 years between the 60's and 70's, the Rosenstiel School of Marine and Atmospheric Science (RSMAS) conducted an ambitious oceanographic project in the Tropical Western Atlantic Ocean (Bastida-Zavala 2012). The University of Miami Deep-Sea Expedition, as the program was later known, was carried out with two research vessels: Gerda and John Elliot Pillsbury and undertook over 90 cruises. During these sampling expeditions, 22 sigalionid specimens identified as *Sthenelais simplex* from localities along the Caribbean Sea, and 13 other specimens identified as *E. incisa* from the Gulf of Guinea, were found. These specimens were deposited in the University of Miami Marine Laboratory (UMML) and loaned for this study. Additionally, two specimens of *E. simplex* were studied from the collection of El Colegio de la Frontera Sur (ECOSUR), and from the Florida Museum of Natural History, University of Florida, Gainesville (UF).

The material examined was fixed in a 10% formalin-seawater solution, and later preserved in 70% ethanol. Specimens were observed with an Olympus 241823 stereomicroscope, and a Zeiss 47 10 14 compound microscope. Specimens were temporally stained with a Methyl-green solution to stand out some features and photographed. All the specimens were measured: number of segments, total length from the anterior end to the posterior end, and the total width from the widest middle segment including chaetae. Due to the poor condition of several specimens, a standard length was established from the anterior end to segment 30. This segment corresponds to the median body region, where the widest segments are found. Some features are presented as intervals, this was done through the counting of chaetae or body structures (*i.e.* palps, stylodes), from the left and right parapodia from the same segment and specimen. Described specimens were selected based on the proximity to the type locality and their state of preservation. Additional specimens were selected to complete some features; these are indicated in the text. Morphological terms follow Aungtonya (2003).

Dissected parapodia were mounted as semi-permanent microscope preparations in a 1:1 ethanol-glycerol solution. Light microscope photographs were taken using a Canon EOS REBEL T6, mounted on microscopes. The final photograph for each relevant structure is the result of stacking 20-30 photographs of it in different focal levels, using HeliconFocus 6. Line drawings were made in an editor of images using a Wacom intuos Draw tablet.

RESULTS

SYSTEMATICS

Family Sigalionidae Kinberg, 1856

Subfamily Sigalioninae Kinberg, 1856

Genus *Ehlersileanira* Pettibone, 1970

Ehlersileanira Pettibone, 1970b: 19

Type species: *Leanira incisa* Grube, 1877 by original designation.

Diagnosis: Sigalioninae with median antenna with lateral auricles and/or ctenidia, emerging anterodorsally above prostomium; lateral antennae fused with tentacular parapodia. All antennae with short ceratophore and short ceratostyle. Inner and outer palpal sheaths present, inner tentacular lobes absent. Bulbous facial tubercle present. Third segment without dorsal cirri, tubercles might be present. Elytra smooth, without tubercles or papillae. Ctenidial pads present between notopodium and elytrophore. Notopodia well developed, anterior and posterior lobes bearing

stylodes. Neuropodia bilobed, rounded, bearing stylodes. Notochetae verticillate simple chaetae. Neurochaetae compound spinigers, with canaliculate blades, and additional simple pinnates.

Ehlersileanira incisa (Grube, 1877), restricted

(Figs. 1A–E; 2A–D; 3A–J; Table 1)

Sthenelais incisa Grube, 1877: 519–520.

Sthenolepis incisa. —Hartman 1965: 14 (n. comb.).

Leanira incisa. —Augener 1918: 107 (n. comb.)

Ehlersileanira incisa. —Pettibone 1970b: 19–23, Figs. 10–12 (*partim*, not Fig. 13).

Type locality: Mouth of Congo River.

Material examined: **Gulf of Guinea**, **Ivory Coast**: one specimen (UMML 6405-45), anterior fragment, R/V Pillsbury, St. 45 (05°05'N, 04°05'W), 85 m, May 30, 1964 [101 segments, 12.5 cm long, 3.2 cm to segment 30, 1.3 cm wide]. **Nigeria:** one specimen (UMML 6504-237), anterior fragment, R/V Pillsbury, Sta. 237 (05º19'N, 04º48'E), 101 m, May 12, 1967 [52 segments, 5.6 cm long, 3.5 cm to segment 30, 0.9 cm wide]. **Liberia:** one specimen (UMML 6504-260), anterior fragment, R/V Pillsbury, Sta. 260 (03°44'N, 09°08'W), 46 m, May 16, 1965 [56 segments, 5.9 cm long, 3.9 cm to segment 30, 0.9 cm wide]. **Cameroon:** 10 specimens (UMML 6504-259), anterior fragments, R/V Pillsbury, Sta. 259 (03°52'N 08°54'E) 59 m, May 16, 1965 [36–82 segments, 2.2–10.9 cm long, 1.4–4.2 cm to segment 30, 0.6–1 cm wide].

Description: Best preserved specimen (UMML 6504-237). Description based on UMML 6504-259 (separated in a small different vial inside the original vial).

Body pale orange, long, cylindrical, with 63 segments (Fig. 1A). Specimen with remaining elytra.

Prostomium oval, wider than long, fused with tentacular segment (Fig. 1B). First three anterior parapodia directed anteriorly. Lateral antennae small, dorsally fused with tentacular parapodia, with well-defined ceratophores. Median antenna on antero-dorsal prostomial margin, auricles paired, small, round, as long as about half of median antennal ceratophore; ceratostyle short with two articles, distal article barely perceptible (Fig. 1C). Eyes and nuchal organs unclear. Tentacular segment with 0–5 dorsal stylodes between base of dorsal tentacular cirri and lateral antennae. Facial tubercle between palps, visible in ventral view (Fig. 1E). Palps reaching segment 13, with inner and outer palpal sheaths (Fig. 1D). Segment two with large conical ventral buccal cirri. Segment three without dorsal tubercles.

Branchiae from segment nine, ctenidial pads from segment seven, inserted between notopodia and elytrophores. Ventral cirri short, from segment 7–9, followed by a large tubular nephridial lobe, as long as ventral cirri.

Parapodia from segment four (Figs. 2A–C). Notopodia short, posterior upper lobe barely perceptible, anterior lower lobe well-developed, anterior upper lobe with 4–7 stylodes, and a slightly larger stylode under acicular lobe. Notochaetae with about 20 verticillate simple chaetae. Neuropodia conical with 6–8 large stylodes, posterior upper and lower lobes short, anterior upper lobe larger than lower lobe. Neurochaetae with 20–27 compound spinigers, blades canaliculated; pinnate chaetae not seen. Left elytron from segment four smooth, rounded, covered by debris (Fig. 2D).

Parapodia from segment 22 (median segment). Notopodia large, posterior upper lobe truncate, anterior lower lobe well-developed, anterior upper lobe conical with 5–6 stylodes, a larger stylode above acicular lobe (Figs. 3A–C). Notochaetae with two fascicles of verticillate simple chaetae, supracicular lobe with 13–16 chaetae, infracicular fascicle with 25–28 chaetae (Figs. 3D–E). Neuropodia conical with 6–8 large stylodes, upper posterior lobe well-developed, lower posterior lobe short, anterior upper and lower lobes indistinct (Figs. 3A–C). Neurochaetae with 27–29 compound spinigers with canaliculated blades, and three pinnate chaetae (Figs. 3F–H). Elytron of left middle segment smooth, distally notched, covered by debris (Fig. 3I).

Distribution. Western Africa, Gulf of Guinea.

Remarks. Small and large specimens have cylindrical body shapes, and lack dorsal tubercles on segment three. Body pale orange; however, some specimens can be slightly brown. Larger specimen of *E. incisa* (4.2 cm long, at segment 30) with left middle elytron smooth, distally notched, proximally reduced (UMML 6504-259, same vial) (Fig. 3J). Grube (1877) described *L. incisa* using a small and incomplete specimen (46 segments) without illustration, but emphasized the presence of auricles on the median antennal ceratophore, and a pair of two distinct eyes. However, Augener (1918) revised the type specimen and indicated the absence of eyes, this coincide with the herein described specimen. This called ‘oculis 4 aegre distinguendis’ by Grube (1877) might correspond to an unclear artifact. Pettibone (1970b) revised the type material of *L. incisa*, using it as type species of the genus *Ehlersileanira*, and her description and draws agree in the absence of eyes. Nevertheless, she mixed the description using material from several distant localities (explained above).

Recently, Aungtonya and Eibye-Jacobsen (2016) described *E. andamanensi* from Thailand. Through of comparison, they examined non-type material of *E. incisa* from Angola and Congo, the same specimens that were previously revised by Pettibone (1970). They found some differences from the material described by Pettibone (1970b), findings of the latter authors are now confirmed. Pettibone (1970) indicated that branchiae in *E. incisa* begin from segment 30, but the revised specimens in this study have them from segment nine; however, she noted rudimentary branchiae at unspecified anterior segments

Ehlersileanira simplex (Ehlers, 1887) n. comb., reinst.

(Figs. 1F–J; 2E–H, 3K–S; Table 1)

Sthenelais simplex Ehlers, 1887: 60–63, Pl. 13, Figs. 2–3, Pl. 14, Figs. 1–5 (*partim*, not Pl. 14, Fig. 6, belongs to an Acoetidae worm).

Leanira simplex. —Augener 1906: 106–107, Pl. 1, Fig. 16–17 (*non* Ehlers, 1887, *Leanira* sp.).

Leanira incisa. —Augener 1918: 107 (*non* Grube, 1877; Syn.).

Ehlersileanira incisa. —Pettibone 1970b: 19, lectotype designation (*non* Grube, 1877).

Type locality: off Louisiana, Gulf of Mexico, 28°42' N, 88°40' W, 97 m (Ehlers 1887).

Material examined: **Grand Caribbean : United States, Florida:** one specimen (UMML 22.1090), anterior fragment, R/V Gerda, Cruise 6333, Sta. 174 (27°16'N, 79°56'W), 180 m, January 30, 1963 [38 segments, 2.5 cm long, 1.7 cm to segment 30, 0.4 cm wide]; one specimen (UMML 6518-576), anterior fragment, R/V Gerda, Sta. 576 (24°29'N, 81°40'W), 73 m, April 13, 1965 [66 segment, 3.8 cm long, 1.2 cm to segment 30, 0.4 cm wide]; one specimen (UF 286), poor condition, anterior fragment, (29º6'N, 83º4'W), March 31, 1973, coll. J. Taylor [46 segments, 2.3 cm long, 1.5 cm to segment 30, 0.3 cm wide]. **Mexico:** one specimen (ECOSURXXX), anterior fragment, B/O Justo Sierra, Sta. 5 (19º20'N, 91º19'W), August 16, 1984, E. Escobar, coll. [87 segments, 0.9 cm long, 0.5 cm to segment 30, 0.15 cm wide]. **Costa Rica:** 10 specimens (UMML 7101-1321), anterior fragments, R/V Pillsbury, Sta. 1321 (10°06´N, 83°04´W), 210 m, January 27, 1971 [46–81 segments, 3.3–12 cm long, 1.3–3.5 cm to segment 30, 0.5–0.8 cm wide]. **Colombia:** one specimen (UMML 6607-375), anterior fragment, R/V Pillsbury, Sta. 375(09°59'N, 76°00'W), 133 m, July 14, 1966 [82 segments, 8.2 cm long, 2.8 cm to segment 30, 0.9 cm wide]; two specimens (UMML 6806-797), anterior fragments, R/V Pillsbury, Sta. 797 (10°20'N, 75°45'W), 160 m, August 01, 1968 [53–92 segments, 5.5–7.2 cm long, 2.1–2.2 cm to segment 30, 0.6–0.7 cm wide]. **Guadeloupe:** one specimen (UMML 6806-943), anterior fragment, R/V Pillsbury, Sta. 943 (16°26' N, 61°36'W), 274 m, July 17, 1969 [61 segments, 5.8 cm long, 2.3 cm to segment 30, 0.6 cm wide]. **Venezuela:** three specimens (UMML 6806-724), anterior fragments, R/V Pillsbury, Sta. 724 (10°45'N, 64°36'W), 442 m, July 21, 1968 [38–57 segments, 3.5–5.3 cm long, 2.4–2.7 cm to segment 30, 0.5–0.7 cm wide]; one specimen (UMML 6806-749), anterior fragment, R/V Pillsbury, Sta. 749(10°38'N, 67°58'W), 59 m, July 25, 1968 [37 segments, 3.3 cm long, 1.2 cm to segment 30, 0.3 cm wide]; one specimen (UMML 6806-762), anterior region, R/V Pillsbury, Sta. 762(11°36'N, 70°34'W), 34 m, July 27, 1968 [125 fragmented segments, 3.9 cm long, 2.4 cm to segment 30, 0.9 cm wide]. **Jamaica:** one specimen (UMML 7006-1261), anterior region, R/V

Pillsbury, Sta. 1261(17°35'N, 77°50'W), 710 m, July 15, 1970 [10.7 cm long, 2.8 cm to segment 30, 0.9 cm wide including chaetae].

Description: Best preserved specimen (UMML 7101-1321). Description based on UMML 22.1090.

Body whitish, long, depressed, with 38 segments (Fig. 1F), without elytra.

Prostomium oval, wider than long, fused with tentacular segment (Fig. 1G). First three anterior parapodia directed anteriorly. Lateral antennae small, dorsally fused with tentacular parapodia, with well-defined ceratophores. Median antenna on antero-dorsal prostomial margin, auricles paired, wide, round, as long as median antennal ceratophore; ceratostyle large with two articles of similar length (Fig. 1H). Eyes and nuchal organs unclear. Tentacular segment with 3–5 dorsal stylodes between base of dorsal tentacular cirri and lateral antennae. Facial tubercle visible in ventral view, between palps (Fig. 1J). Palps reaching segment 18, with inner and outer palpal sheaths (Fig. 1I). Segment two with small conical ventral buccal cirri. Segment three without dorsal tubercles.

Branchiae from segment 16, ctenidial pads from segment nine, inserted between notopodia and elytrophores, from segment nine. Ventral cirri short, from segment 21–23, followed by a large tubular nephridial lobe, as long as ventral cirri.

Parapodia from segment four (Figs. 2E–G). Notopodia short, posterior upper lobe barely perceptible, anterior lower lobe well-developed, anterior upper lobe with 4–5 stylodes and a larger stylode under acicular lobe. Notochaetae with 1–3 verticillate simple chaetae, thick. Neuropodia conical with 3–6 large stylodes, posterior upper and lower lobes short, anterior upper and lower lobe barely distinguishable. Neurochaetae mostly lost, only two compound spinigers left, blades canaliculated; pinnate chaetae not seen. Left elytron missing. From additional specimen of similar size (UMML 6518-576): left anterior elytron from segment four smooth and rectangular (Fig. 2H).

Parapodia from segment 21 (median segment). Notopodia large, lanceolate posterior upper lobe, anterior lower lobe well-developed, anterior upper lobe conical with 3–5 stylodes, acicular lobe without longer stylodes (Figs. 3K–M). Notochaetae with two fascicles of verticillate simple chaetae, supracicular lobe with 11–14 chaetae, infracicular fascicle with 20–24 chaetae (Fig. 3N). Neuropodia conical with 5–8 large stylodes, upper posterior lobe well-developed, lower posterior lobe short, anterior upper and lower lobes indistinct (Figs. 3K–M). Neurochaetae with 21–25 compound spinigers with canaliculated blades, 3–4 pinnate simple chaetae (Figs. 3O–Q). Left elytron missing. From additional specimen of similar size (UMML 6518-576), left elytron of middle segment smooth, bilobuled (Fig. 3R).

Distribution. Grand Caribbean region.

Remarks. Small specimens depressed, without dorsal tubercles on segment three; larger specimens cylindrical, with dorsal tubercles on segment three. For instance, these larger specimens (>2 cm long at segment 30) were found in the same vial with smaller worms (<2 cm long at segment

30) without dorsal tubercles in segment three (UMML 7101-1321; UMML 6806-797). Body whitish to slightly brown. Larger specimens of *E. simplex* (2.4 cm long at segment 30) with left middle elytron smooth, distally notched, proximally reduced (UMML 6806-762) (Fig. 3S).

Augener (1906) recorded *Sthenelais simplex* off New Jersey as *Leanira simplex*. He described and illustrated a specimen without lateral auricles on median antennal ceratophore, a character indicated by Ehlers (1887) on the original description. However, the absence of auricles is diagnostic for *Leanira*. Later, Augener (1918) examined the type material of *L. incisa* and compared it with *L. simplex*, highlighting the paired auricles and chaetal types, and concluded both were the same species. This conclusion was followed by Pettibone, but must be rejected because of the differences indicated above and shown in table 1.

Sthenelais simplex matches *Ehlersileanira* Pettibone, 1970 by having auricles on the median antennal ceratophore, ceratostyle biarticulated, and lack of inner tentacular lobe. Consequently, *S. simplex* must be newly combined as *Ehlersileanira simplex* (Ehlers, 1887). The specimens that were available agree with the original description, especially with his illustrations. Ehlers (1887: Pl. 14, Fig. 3) included an elytron from an unspecified anterior segment, but his figure looks like a left elytrum inverted, the surface shows where the elytron was attached to the elytrophore.

DISCUSION

Sthenelais simplex resembles *E. incisa*; however, several differences indicate they are different species (Table 1). Among the most relevant features, *E. simplex* has large auricles, median antenna with a large distal article on the ceratostyle, and elytra from segment four rectangular, whereas *E. incisa* has small auricles, with a barely perceptible distal article on the median antennal ceratostyle, and elytra from the segment four rounded. Another critical difference is the distribution; *E. simplex* is herein confirmed for the Grand Caribbean, from the Gulf of Mexico to the Caribbean Sea, whereas *E. incisa* is distributed along Western Africa. Other specimens identified as *E. incisa* from localities distant and different from those present along Western Africa should be carefully revised, especially in sites considered as the type locality of synonymies of *E. incisa*, because they can be regarded as distinct species (see key below).

An additional difference noted was regarding the tubular nephridial lobes, which were called segmental papillae by Pettibone (1970b). She indicated that they begin at segment 26, whereas in *E. incisa* they start from segment 9, confirming observations by Aungtoya and Eibye-Jacobsen (2016). The mixed redescription of *E. incisa* by Pettibone (1970b) and her synonymies, imply the wide definition of this species becomes unreliable. For instance, Pettibone (1970b: 21) described a large specimen with more than 200 segments, while the material originally described by Grube (1877: 520) had a maximum of 46 segments. Finally, despite the delineation for

Ehlersileanira is clear, a revision of the genus should be done, as well as a redescription of the type species, including its supposed synonymies, some of which can be regarded as different species as indicated in the key below. Thus, *Ehlersileanira* might include five different species.

Key to species of *Ehlersileanira* Pettibone, 1970

1 Prostomium round, or oval (wider than long); median antennal ceratophore with auricles and without ctenidia … 2

- Prostomium round, as long as wide; median antennal ceratophore with auricles and ctenidia … *E. andamanensis* Aungtonya and Eibye-Jacobsen, 2016, Thailand, Andaman Sea.

2(1) Branchiae from segment 9; median antennal ceratostyle with distal article barely detectable … *E. incisa* (Grube, 1877), Congo, Western Africa.

- Branchiae from posterior segments; median antennal ceratostyle with articles of similar length … 3

3(2) Prostomium oval, wider than long; tentacular cirri long, about four times longer than prostomium; branchiae from segment 16 … *E. simplex* (Ehlers, 1887), off Louisiana, Gulf of Mexico.

- Prostomium rounded, as long as wide; tentacular cirri short, about three times longer than prostomium … 4

4(3) Median antenna short, as long as prostomium; prostomium with two pairs of eyes … *E. vulturis* (Horst, 1917), Indonesia, Malayan Archipelago.

- Median antenna long, about twice longer than prostomium; prostomium without eyes … *E. izuenzis* (Takahashi, 1938), Izu Peninsula, Japan.

Remarks. As indicated in the key, all species regarded as junior synonyms of *Ehlersileanira incisa* by Pettibone (1970b), are considered distinct. The selected characters for distinction among *Ehlersileanira* species where extracted from their original description, and subsequent observations. Something to consider is that member of this genus, can be distinguished by the combination of characters, not by a single one.

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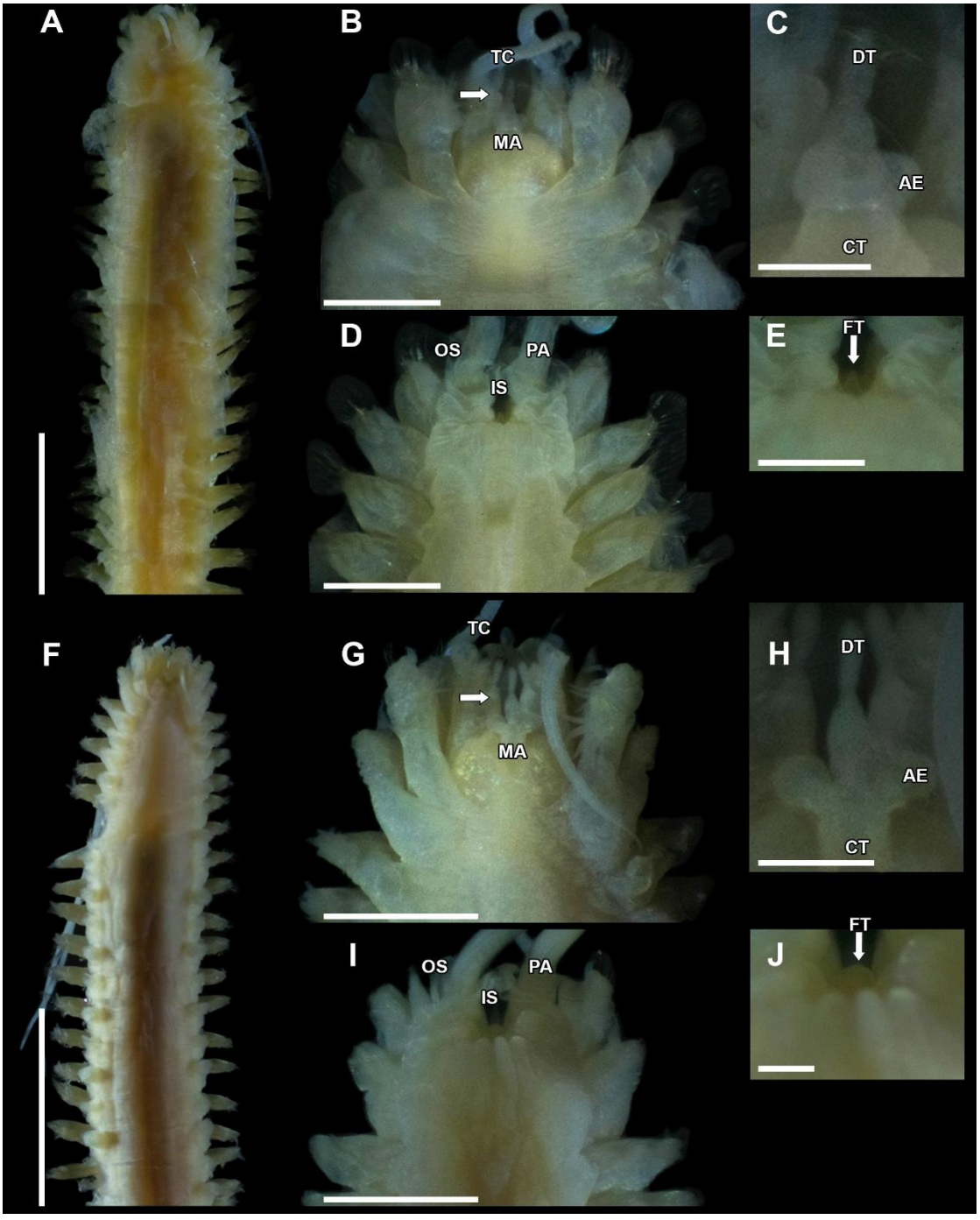

Figure 1. *Ehlersieleanira incisa*, non-type specimen (UMML 6504-259): A, anterior first segments, dorsal view; B, prostomium, dorsal view (arrow shows lateral antenna); C, median antenna, close-up; D, anterior first segments, ventral view; E, facial tubercle, close-up. *Ehlersileanira simplex*, non-type specimen (UMML 22.1090): F, anterior first segments, dorsal view; G, prostomium, dorsal view of prostomium (arrow shows the lateral antenna); H, median antenna, close-up; I, anterior first segment, ventral view; J, facial tubercle, close-up. Scale bars: AF (5 mm), BDGI (2 mm), CEHJ (0.5 mm). Abbreviations: AE: auricles; CT: ceratophore; DT:

distal style; FT: facial tubercle; IS: inner palpal sheath; MA: median antenna; OS: outer palpal sheath; PA: palp; TC: tentacular cirrus.

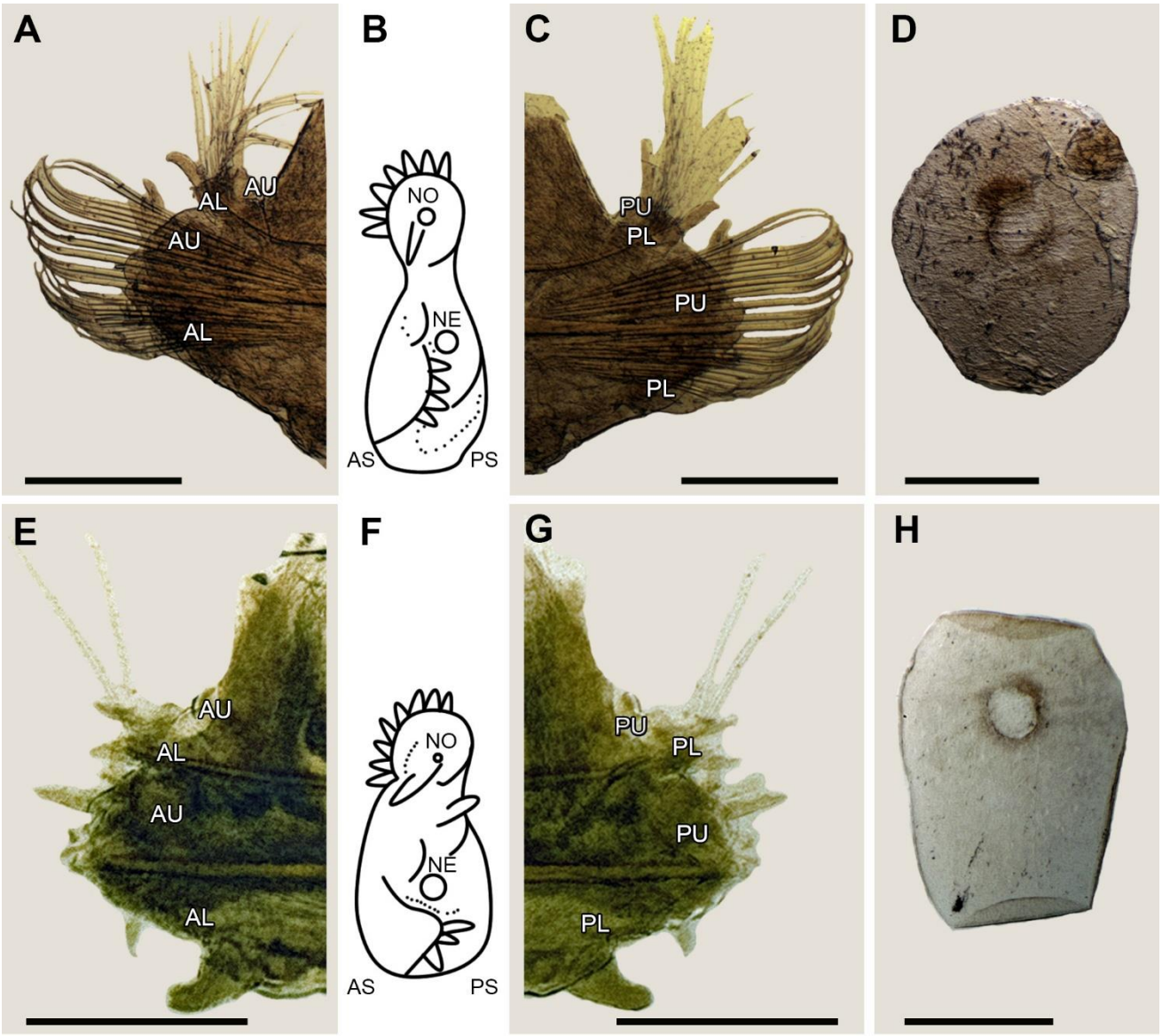

Figure 2. *Ehlersieleanira incisa*, non-type specimen (UMML 6504-259): A, chaetiger four, anterior view; B, diagrammatic end view of same; C, chaetiger four, posterior view, D, elytron from same. *Ehlersileanira simplex*, non-type specimen (UMML 22.1090): E, chaetiger four, anterior view; F, diagrammatic end view of same; G, chaetiger four, posterior view; Non-type specimen (UMML 6518-576) H, elytron from fourth segment, anterior and posterior margins bent. Scale bars: ACDEGH(500 µm). Abbreviations: AL: anterior lower lobe; AS: anterior side; AU: anterior upper lobe; NE: neuracicula; NO: notacicula; PL: posterior lower lobe; PS: posterior side; PU: posterior upper lobe.

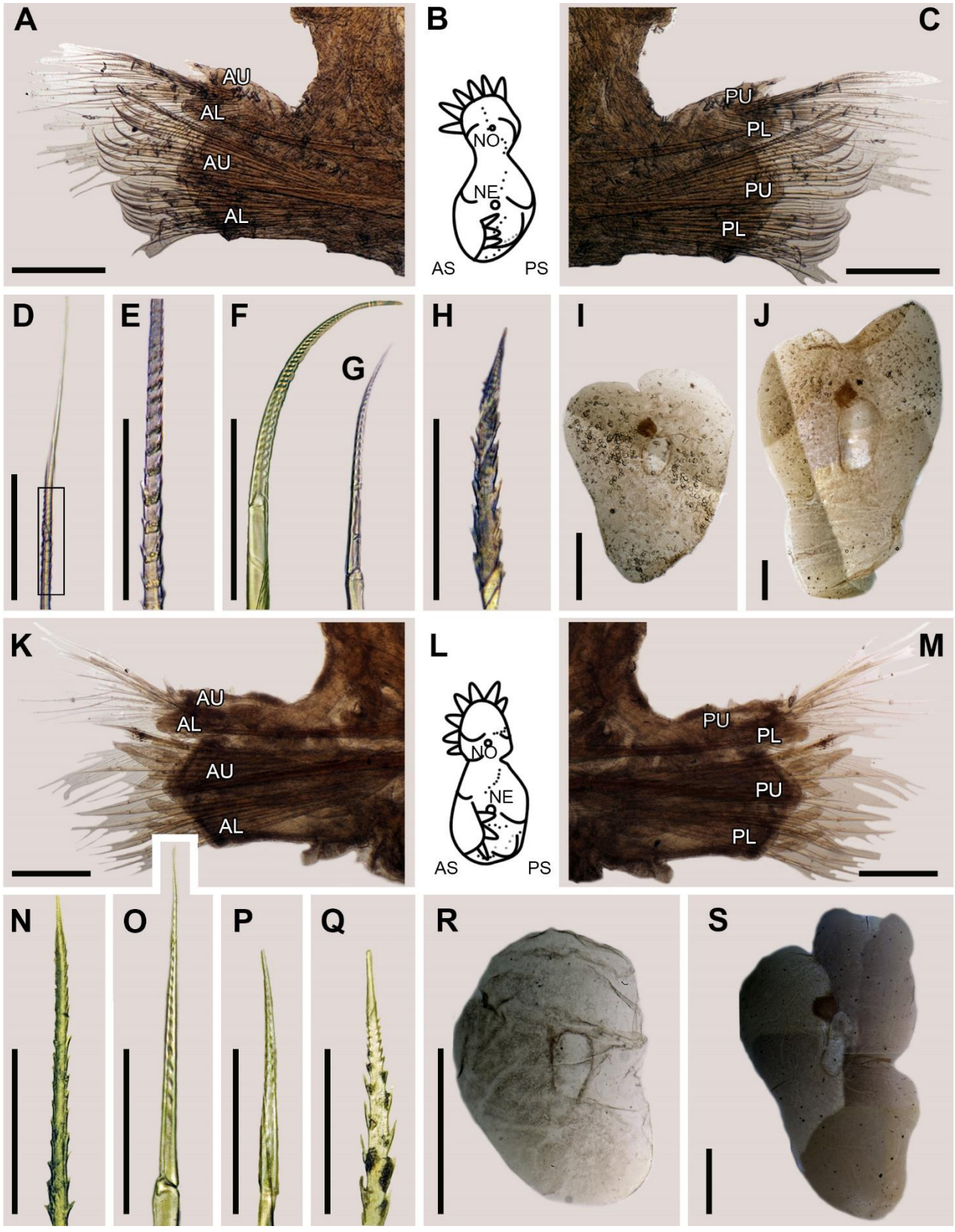
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Figure 3. *Ehlersieleanira incisa*, non-type specimen (UMML 6504-259): A, chaetiger 22, anterior view; B, diagrammatic end view of same; C, chaetiger 22, posterior view; D, notochaetae, same; E, detail of D; F, compound upper neurochaetae, same; G, compound lower neurochaetae, same; H, simple neurochaetae, same; I, elytron from same. Non-type specimen (UMML 6504-259, largest specimen, same vial); J, elytron from median segment. *Ehlersieleanira simplex*, non-type specimen (UMML22.1090): K, chaetiger 21, anterior view; L, diagrammatic end view of same; M, chaetiger 21, posterior view; N, notochaetae, same; O, compound upper neurochaetae, same; P, compound lower neurochaetae, same; Q, simple neurochaetae, same. Non-type specimen (UMML 6518-576, Florida, same length as UMML 22.1090) R, elytron from median segment. Non-type specimen (UMML 6806-762 largest specimen); J, elytron from median segment. Scale bars: IJRS (1 mm), ACIJKM(500 µm), D (200 µm), EFGHNOPQ (100 µm). Abbreviations: AL: anterior lower lobe; AS: anterior side; AU: anterior upper lobe; NE: neuracicula; NO: notacicula; PL: posterior lower lobe; PS: posterior side; PU: posterior upper lobe.

Table 1. Comparative characters of *Ehlersileanira simplex* and *E. incisa*. Abbreviations; MS: median segment; S: segment; TS: tentacular segment. Pinnate neurochaetae indicated in parenthesis.

Species	Auricles size to median ceratophore	Distal article size to proximal article	Stylodes on TS	Elytron S3	Notochaetae MS	Neurochaetae MS	Branchiae start	Ctenidial pads start	Tubular nephridial lobes start
E. incisa (Grube, 1877)	Half as long	Shorter	0–5	Smooth and rounded	13–16 + 25–28	17–19 (3)	Segment 9	Segment 7	Segment 9
E. simplex (Ehlers, 1887)	Similar length	Similar length	3–5	Smooth and rectangular	11–14 + 20–24	21–25 (3–4)	Segment 16	Segment 9	Segment 21–23

Capítulo 2

Pelogeniinae Chamberlin, 1919 (Annelida, Sigalionidae) from the Grand Caribbean Region

Por someterse: ZOOTAXA

Pelogeniinae Chamberlin, 1919 (Annelida, Sigalionidae) from the Grand Caribbean region

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Abstract

The marine annelid family Sigalionidae is particularly little known in the Grand Caribbean region because there are few records and misunderstanding about the taxonomic status of some species. In order to improve the knowledge of the family in the region a faunistic study was performed. In this contribution, material of the subfamily Pelogeniinae was covered, mainly from the University of Miami Deep Sea Expeditions covering many localities along the Grand Caribbean region, and specimens from the Florida Museum of Natural History, University of Florida, Gainesville. Additional specimens belonging to El Colegio de la Frontera Sur collections were also included. Eleven species are recognized, including seven newly described: *Dayipsammolyce paulayi* **n. sp.**, *Hartmanipsammolyce aungtonyae* **n. sp.**, *Neopsammolyce fragilis* **n. sp.**, *N. pettiboneae* **n. sp.**, *Pelogenia brevipalpata* **n. sp.**, *P. multidentata* **n. sp.** and *P. sergioi* **n. sp.** Four other species are confirmed for this region: *N. floccifera* (Augener, 1906), *P. hartmanae* Pettibone, 1997, *P. kinbergi* (Hansen, 1882) and *Psammolyce flava* Kinberg, 1856. A standardized terminology of neurochaetae is proposed, along with notes of the notochaetae morphology and elytral papillae. For all genera covered in this study, keys to identify all species are also included.

Key words: morphology, neurochaetae, papillae, *Pelogenia*, Sigalionidae, taxonomy

Introduction

Among scale-worms, sigalionids are distinguish by having long bodies, dorsal tubercles, elytra on segments 2, 4, 5, and 7, alternating to 25 or 27, and from there present on every segment; prostomium and first anterior three segments complex; parapodia with stylodes or papillae, ctenidial pads; and neurochaetae predominantly compound (Pettibone 1992; Aungtonya 2002; Gonzalez *et al.* 2017). Studies on this family have been scarce such that some taxonomic problems remain. As an attempt to solve some issues of this family, Pettibone made a series of contributions during several years (1969–1997), on pelogenins, pholoins, sigalionins and sthenelanellins; however, some taxonomic problems were not fully resolved. Recently, Aungtonya (2002–2018) published several studies on sigalionids from the Andaman Sea, with her observations about morphology and terminology of the family, enabling the study of these worms.

In the Grand Caribbean region, sigalionids are apparently well-known, because several species were included by Pettibone; however, as indicated before, taxonomical problems are still present. For example, some local names were regarded as junior synonyms of foreign ones; *Sthenelais simplex* (Ehlers, 1887) was described from the Gulf of Mexico but was regarded as a junior synonym of *Ehlersileanira incisa* (Grube, 1877) described from Congo (Pettibone 1970). Other problem is regarding to species with apparently very wide regional distribution, as *Taylorpholoe minuta* (Rullier & Amoureux, 1979) recorded from Southern Brazil to South Carolina (Pettibone 1969). Finally, species regarded as having an amphiamerican distribution, as *Pelogenia fimbriata* (Hartman, 1939) described from Western Mexico, but recorded from the Caribbean coast of Panama (Pettibone 1997). Whichever the case, these records deserve a careful assessment.

In order to solve some problems of the family Sigalionidae in the Grand Caribbean region, a faunistic study is under way per subfamilies (Cruz-Gómez *in prep.*). The contribution here presented concentrates on the subfamily Pelogeniinae Chamberlin, 1919. Members of this subfamily are recognized by having the dorsum and elytra covered by foreign particles attached by adhesive papillae (Pettibone 1997). They are found in tropical and subtropical waters worldwide, associated with several kinds of habitats including mud, coarse and fine sand, rocks and coral reefs; from the intertidal down to 1,700 m water depth (Kinberg 1856; Augener 1906; Hartman 1942a; 1942b; Wolf 1984; Pettibone 1997). Historically, these worms have been recorded as belonging to *Psammolyce* Kinberg, 1856 or *Pelogenia* Schmarda, 1861, two common sigalionind genera

distinguished by having dorsal cirri in the third segment in *Pelogenia*, and neurochaetae with tapered blades in *Psammolyce*. Nevertheless, the late Marian Pettibone (1997) increased the relevant taxonomic features considered in the identification, which include the appendages in first segments, the facial tubercle, and ctenidia on prostomium or ceratophore. The various combinations of these features drove her for proposing several genera: *Claparedepelogenia* Pettibone, 1997, *Dayipsammolyce* Pettibone, 1997, *Hartmanipsammolyce* Pettibone, 1997, *Heteropelogenia* Pettibone, 1997, *Neopsammolyce* Pettibone, 1997, and *Pottsipelogenia* Pettibone, 1997. So far, Pettibone's revision (1997) is the most complete study about this subfamily.

Along the region, the subfamily Pelogeniinae is represented by 12 species: *Dayipsammolyce ctenidophora* (Day, 1973), *Hartmanipsammolyce pendula* (Hartman, 1942), *Neopsammolyce floccifera* (Augener, 1906), *N. occidentalis* (McIntosh, 1885), *Pelogenia hartmanae* Pettibone, 1997, *P. flava* Kinberg, 1856, and *P. kinbergi* (Hansen, 1882) (Augener 1906; Hartman 1942; 1942b; Ibarzábal 2008; McIntosh 1885; Pettibone 1997; San Martín *et al.* 1986; Treadwell 1934; 1939). The other species include questionable records such as *Neopsammolyce spinosa* (Hartman, 1939) and *Pelogenia anoculata* (Hartman, 1939), both described from Pacific Costa Rica, *P. antipoda* (Schmarda, 1861) from New Zealand, *P. arenosa* (delle Chiaje, 1829) from the Gulf of Naples and *P. fimbriata* (Hartman, 1939) from Nayarit, Western Mexico (Báez & Ardilla 2003; Cubit & Williams 1983; Fauchald 1977; Hartman 1944; Ibarzábal 1986; 1989; 1997; 2006; Liñero-Arana 1991; Suárez & Fraga 1978; Treadwell 1901; 1939). These latter records are unlikely present in the region and must be revised.

This paper investigates the subfamily Pelogeniinae in the Gran Caribbean region. The main results include new records, new species, and notes about their morphology, along with a proposal for refining chaetal terminology.

Material and methods

Non-type material was examined, described, and illustrated. Specimens are deposited in the following collections: University of Miami Marine Laboratory (UMML), Florida Museum of Natural History, University of Florida, Gainesville (UF), Reference Collection of Benthos (ECOSUR) of El Colegio de la Frontera Sur, Chetumal, and Reference Collection of Laboratorio

de Biodiversidad y Cambio Climático (BIOMARCCA), Campeche, Mexico. Specimens were fixed in a 10% formalin-seawater solution and then, preserved in 70% ethanol. Illustrated and described specimens were temporally stained with Methyl-green solution, clean surplus and photographed; furthermore, Shirlastain-A was used to stain dorsal papillae, repeating the process previously described. Standardized measurements were obtained from all specimens: number of segments, total length from anterior end to posterior end, total width from the widest middle segment including chaetae; because many specimens were damaged and incomplete, all specimens were measured from the anterior end to segment 30.

Some specific segments and elytra are particularly relevant in Pelogeniinae (Pettibone 1997): right parapodia of first three segments, and one from middle segments, as well as three first right elytra and right posterior elytron were dissected. Dissected parapodia and elytra were cleaned, using a fine brush, after larger particles were removed, then immersed in a1:1 vinegar-alcohol solution during a few seconds; then, the remain particles were separated from the elytron using a fine needle. The cleaned parapodia and elytra were placed in anterior position in semi-permanent preparations in a 1:1 ethanol-glycerol solution. Using a Canon EOS REBEL T6 mounted in light microscope, several photographs (30–50) were taken and staked using Helicon Focus 7. Plates were arranged with Photoshop CC.

Further, some parapodia and elytra were dissected, observed and photographed by SEM. Specimens were dehydrated in a series of different concentrations of alcohol and HDMS (hexamethyldisilazane). Samples were left overnight, and then specimens were mounted in aluminum stubs and coated with gold for observations using a JEOL-JSM-601Plus-LA scanning electron microscopy at Scanning Electron Microscopy Laboratory (LMEB), ECOSUR, Chetumal. Morphological terms follow Pettibone (1997) and Aungtonya (2002); also, a practical terminology of chaetal fascicle is proposed as follows. As well all genera diagnosis is after Pettibone (1997). In the identification keys, the type locality is included.

Terminology for chaetal fascicles

Parapodia of Pelogeniinae are complex structures by having, extensions such as, bracts, lobes, and papillae, these structures lead chaetae distribution. Along the study of this subfamily, descriptions of chaetae have been mainly focused on type (*e.g.* Hartman 1942b; Day 1973; Pettibone 1997); though, the position, size and secondary features have been overlooked.

Recently, Aungtonya (2003, 2005) made an important contribution of the morphological characters of in the family Sigalionidae, including a revised terminology; however, the relevance of the noto- and neurochaetal features was not discussed. As an attempt to classify the noto- and neurochaetae a practical terminology is proposed, along with recommendations to study this subfamily.

Notochaetal fascicles. Unlike *Sigalion* Audouin & Milne Edwards *in* Cuvier, 1830 or *Sthenelanella* Moore, 1910 most genera of scaled sigalionids have only one kind of verticillate simple chaetae; in Pelogeniinae all genera have a single type of notochaetae. Notochaetae have been described as capillaries covered by rows of spines, distally narrowed; although these chaetae are much more complex. Notochaetae of pelogeniins are verticillate, with a regular series of membranes distally incised, surrounding almost completely the chaetal axis (Fig. 2KL). Notochaetae are usually arranged surrounding notacicular lobes, no matter if the parapodium examined is from the middle region, anterior or posterior end; however, the density of notochaetae might be relevant, because a dense number of chaetae is perceived in anterior view as two fascicles of notochaetae in an oblique angle, directed dorsally in posterior portion and directed ventrally in anterior portion (Fig. 1C, F, I).

Neurochaetal fascicles. Neurochaetal distribution is more complex; Pettibone (1997) described their distribution as: "curved J-shaped dorso-anterior bracts enclosing the upper groups of neurochaetae; larger C-shaped postacicular bracts leaving gaps on the anterior sides and enclosing the middle group of neurochaetae; and curved J-shaped ventro-anterior bracts enclosing the lower group of neurochaetae distribution, and lower groups of chaetae as J-shaped". This makes it difficult to understand chaetal distribution, and renders descriptions more verbose or complicate descriptions, photographs and drawings, elements that also depends on the worm size and the available optical equipment. Using this classification would be clearly comparable and emphasize the importance of the chaetae as relevant taxonomic features. The falcigers and spinigers are divided in four groups, and two subunits, this classification was mainly based in the dorsal-ventral position perceived in parapodial slide-mounts, matching neurochaetal features (Fig. 1). To avoid excessive repetitions, for indicating the size of some features, an 'x' will replace the word times.

Unit A (upper group). J-shaped pattern, anterodorsal, above neuracicular level; neurochaetae often with thick handles (as wide as neuracicular width), and long blades (up to 6x longer than wide).

Unit B (median group). C-shaped pattern, posterodorsal, surrounding neuracicula; neurochaetae always with thick handles, and medium-sized blades, shorter than those present in unit A.

Unit C (lower group). C-shaped pattern, posterodorsal, below the neuracicular level; neurochaetae rarely with thick handles, and blades either long or medium-sized.

Unit D (lowest group). J-shaped pattern, anterodorsal, the ventral-most neurochaetae; always with slender handles (half as neuracicular width), and always long blades, rarely short (up to 8x longer than wide).

Subunit 1 and 2. Secondary neurochaetae might be present between regular units, these must be called subunits. Subunit 1 is located between unit C and subunit 2, usually with short blades and thick handle, resembling those present in unit B. Subunit 2 is positioned between subunit 1 and unit D, usually with long blades and slender handle, as those present in unit D.

Anterior segments might lack some group of chaetae, usually only units A, B and D present; units C and D are apparently undifferentiated. This proposed classification was inspired by a previous one, which has been proven as practical. Watson Russell (1986) proposed a similar terminology for chrysopetalids neurochaetal patterns, which has been used in my previous publications; nevertheless, the classification and terminology here proposed are adjusted for sigalionids.

Neurochaetae of sigalionids are diverse regarding, handles and blades. Handles might be thick (darker, as wide as neuracicula), or slender (lighter, half as wide neuracicular width), smooth or with rows of spines or denticles. Blades are short, medium-sized or long (Fig. 1 M–O). The length of the blades match with a specific dorso-ventral position, usually ventral-most chaetae have longer blades, including those present along anterior segments.

On the other hand, there are some inconsistencies among neurochaetal terminology. Pettibone (1969, 1970, 1997) used the blade length and tip, and rarely used the terms falciger or spiniger; when she used these terms, she implicitly referred to neurochaetae as spinigers when the blade was long, tapered, and falciger when the blade was short to medium-sized with bifurcated

tips. However, Pettibone (1970: 384) mixed terminology in some instances, such as "spinigerous with blades long […] with tips falcigerous". Here a standard terminology to falciger and spiniger will be used, based on blade width, length and tip. Spiniger: blade, either short or long, base wide, tapered and tips unidentate, straight. Falciger: blade, either short or long, similar width along the blade and tips, mostly bidentate, falcate even if unidentate. In this study some parapodia have neurochaetal blades with secondary tooth lost; this is noticed as a lump in the site where the secondary tooth would be inserted, in such conditions , neurochaetae were regarded as falcigers.

Terminology for elytral papillae

Elytra of pelogeniins have several taxonomical relevant features, such as processes, lateral expansions, microtubercles and many types of papillae. This last feature is always described based on their appearance (Pettibone 1997), but sometimes this might by confusing, mostly in papillae with similar shapes. Indeed, some papillae seem similar to each other, though the differences rest on their tips, including its adherent or non-adherent condition. Practical forms of papillae used in the study are explained below.

Pedunculate papillae with puffed tips, non-adherent (Fig. 2C, D): arranged as marginal fringes; rarely on elytral surface.

Dendritic short papillae, non-adherent (Fig. 2E, F): arranged as marginal fringes; not seen on elytral surface.

Dendritic long papillae, non-adherent (Fig. 2G, H): arranged as marginal fringes; scattered along elytral surface.

Flat papillae, adherent (Fig. 2I, J): restricted to elytral surface, scattered. Previously referred as flat-topped papillae (Pettibone 1997).

Pedunculate papillae with flat tip, adherent (Fig. Fig. 2K, L): present either on elytral surface or margins. Previously described as papillae with adhesive disc or cylindrical papillae with distal plate (Anton-Erxleben 1977, Pettibone 1997).

Pedunculate papillae with truncated tip, adherent (Fig. 2M, N): present either on elytral surface or margin. Papillae with distal triad dendritic structures, similar structures have been recorded in

Sthenelais boa (Johnston, 1839) as ‘thick cilia’ by Anton-Erxleben (1977: Pl 6, Fig. 2). These papillae are also referred as to clavate papillae(Pettibone 1997).

Pedunculate globular papillae, adherent (Fig. 2O, P): present mainly on elytral surface, rarely on the margin, resemble papillae in worm’s venter. Previously referred to as globular papillae (Pettibone 1997).

Pedunculate capitate papillae, adherent (Fig. 2Q, R): present either in elytral surface or margin, distally expanded. Previously called capitate or clavate papillae (Pettibone 1997).

Regardless of the microtubercles, the structures have been recorded on elytral surface in some genera of the subfamily Sigalioninae (Pettibone 1971, Anton-Erxleben 1977, Aungtonya 2003). However, in Pelogeniinae microtubercles are exclusively referred to the dorsal protuberances of anterior segments. In this study microtubercles were found on elytral surface of some pelogeniins (Fig. 2A, B); they are differentiated from papillae by being sclerotized lumps without adherent structure or surface (*sensu* Anton-Erxleben 1977), however, further histological studies are necessary to clarify these features.

Systematics

Phylum Annelida Lamarck, 1809

Order Phyllodocida Dales, 1962

Family Sigalionidae Kinberg, 1856

Subfamily Pelogeniinae Chamberlin, 1919

Remarks. Chamberlin (1919) proposed Polylepidae based on *Polylepis* Grube, 1878 and *Pelogenia* Schmarda, 1861 under the misconception that these worms has elytra in all segments. *Lepidopleurus* Claparède, 1868 was the genus originally proposed for these worms, but a problem of homonym with *Lepidopleurus* Risso, 1826 (Mollusca, Polyplacophora), result in the use of the name proposed by Grube. However, Grube (1876: 48) examined specimens from Claparède’s collection and recognized the *Lepidopleurus* and noted an alternation of elytra and cirri in the specimen. Chamberlin (1919) noticed the problem among the genus in the group and concluded

that if a valid genus which probably belong to Sigalionidae, the name of this group should be changed to Pelogeniinae.

Key to genera of Pelogeniinae Chamberlin, 1919

(modif. Pettibone 1997; Aungtonya 2002)

1 Segment III with dorsal cirri … 2

- Segment III without dorsal cirri … 5

2 (1) Neuropodia of segment II with long filiform appendages … *Claparedepelogenia* Pettibone, 1997

- Neuropodia of segment II without any appendages … 3

3 (2) Prostomium with bulbous ctenidia; neuropodia of segment III with digitiform prechaetal extensions on acicular lobes; elytral and parapodial papillae articulated … *Heteropelogenia* Pettibone, 1997

- Prostomium without ctenidia; neuropodia of segment III without prechaetal extensions; elytral and parapodial papillae non articulated …4

4 (3) Median antennal ceratophore with lateral ctenidia; upper lip with facial tubercle large, pedunculated, bulbous … *Pottsipelogenia* Pettibone, 1997

- Median antennal ceratophore without lateral ctenidia; upper lip without facial tubercle … *Pelogenia* Schamrda, 1861

5 (1) Neuropodia of segment II with long appendages; falcigers with blades tapered, bifid … *Psammolyce* Kinberg, 1856

- Neuropodia of segment II without long appendages; falcigers with or without bifid blades … 6

6 (5) Segment II parapodia with balloon-like lobes on neuropodial distal margins … *Hartmanipsammolyce* Pettibone, 1997

- Segment II parapodia without balloon-like lobes on neuropodial distal margin … 7

7 (6) Median antennal ceratophore with lateral ctenidia; upper lip with facial tubercle stalked … *Daypsammolyce* Pettibone, 1997

- Median antennal ceratophore without lateral ctenidia; upper lip without facial tubercle … *Neopsammolyce* Pettibone, 1997

***Dayipsammolyce* Pettibone, 1997**

Dayipsammolyce Pettibone, 1997: 27.

Type species. *Psammolyce ctenidophora* Day, 1973 by original designation.

Diagnosis after Pettibone (1997). Pelogeniinae with prostomium oval, longer than wide. Upper lip with facial tubercle stalked, bulbous. Median antennal ceratophore bulbous, base with ctenidia. Segment II without middorsal ridge; neuropodia without appendages; neurochaetal blades bifid. Segment III without dorsal cirri; neuropodia without appendages; neurochaetal blades bifid. First pair of elytra elongated.

Key to species of *Dayipsammolyce* Pettibone, 1997

1 Second elytra subrectangular, with five median processes, without posterior processes; handles of neurochaetae from segment II with transverse rows of spines, blades, straight, bifid … *D. ctenidophora* (Day, 1973), North Carolina, North Western Atlantic.

- Second elytra pear-shaped, with one median and posterior processes; handles of neurochaetae from segment II whorled, blades, short, straight, falcate, bifid … *D. paulayi* **n. sp.**, Saint Martin, Caribbean Sea.

Remarks. Wolf (1984) recorded *Psammolyce ctenidophora* (=*Dayipsammolyce ctenidophora*) from eastern Florida, in the Gulf of Mexico; later, Pettibone (1997) stated that his description did

not agree with this species, without further comment. Wolf (1984) described this pelogeniin with resemblance of *Neopsammolyce* and *Daypsammolyce*; he described and illustrate neurochaetae with hooked blades and second elytra, which resembles *Daypsammolyce paulayi* **n. sp.**; however, he indicated the presence of ctenidia in the base of median antenna ceratophore in some specimens, which resembles *Dayipsammolyce*. This record should be revised.

***Dayipsammolyce paulayi* n. sp.**

(Figs 3, 4)

Type material. Caribbean Sea. French Antilles. Holotype UF 2777, Saint Martin, Chicot, windward side of Tintamarre Island (18°06'7"N 62°58'58"W), 13–19 m, reef in sand, April 23, 2012, coll. Mandy Bemis & Frank Roncuzzi. Paratype UF 2618, Saint Martin, Chicot, windward side of Tintamarre Island (18°06'7"N 62°58'58"W), 15–18 m, reef in sand, April 12, 2012, coll. Frank Roncuzzi [74 segments, 1.7 cm long, 0.8 cm to segment 30, 0.3 cm wide].

Description. Body pale yellow, long, broad (Fig. 3A); 104 segments, 2.8 cm long, 0.3 cm to segment 30, 0.1 cm wide. Mid-dorsal line covered with foreign particles attached to adhesive papillae (Fig. 3B). Venter covered with short globular, long papillae (Fig. 3C).

Prostomium oval, wider than long. Two pairs of eyes, anterior eyes bigger, inserted anteriorly. Lateral antennae small, slender; ceratophores longer than style, dorsally fused with tentacular segment. Median antenna with bulbous ceratophore with a dorsal ridge; basal small ctenidia, slightly larger than prostomium; ceratostyle short, almost twice as long as ceratophore (Fig. 3B). Nuchal lappet absent. Facial tubercle large, bulbous, stalk reduced (Fig. 3D). First segment directed anteriorly, fused with tentacular segment; biramous, notochaetae simple verticillates, neurochaetae slender falcigers. Tentacular cirri larger than neuropodia including chaetae, ventral cirrus as long as tentacular cirri; palps laterally displaced, with inner palp sheaths, reaching segment four (Fig. 3C). Pharynx partially everted, margin papillate (Fig.3E). Paratype with pharynx completely everted (Fig. 3F).

First three right elytra missing. Second left elytron pear-shaped, with one median and posterior processes (Fig. 4A), covered with a few foreign particles and foraminifera, and several kinds of papillae, short, long, flat, truncate (Fig. 2E, F, M, N, 4B), more abundant along central region; above elytrophoral area a patch of thick papillae, each short dendritic; marginal papillae long, bifurcate (Fig. 4C). Third left elytron slightly longer than second, same distribution and kinds of papillae as second elytron. Posterior right elytron round (Fig. 4D), two posterior and one median process, with same kinds of papillae, but less abundant, and with microtubercles (Fig. 2A, B).

Right parapodium from segment II (Fig. 3G). Notopodia leaf-shaped, smooth (non-papillate), slightly shorter than neuropodia, notopodial flange fleshy. Notochaetae up to 100 simple verticillate, tips hooked, shortest slightly longer than notopodia, longest 3x as long (Fig. 3H). Neuropodia conical, smooth (non-papillate), slightly larger than notopodia. Neurochaetae only falcigers, blades falcate, bifid, subdistal tooth broken in most blades: unit A, eight falcigers with handles thick, whorled with fimbriae, blades short, 4–5x longer than wide (Fig. 3I); unit B, two falcigers with handles thick, whorled with fimbriae, blades short, 3x longer than wide (Fig. 3J); unit C and D undifferentiated, six falcigers with handles slender, whorled with fimbriae, blades long, 6–7x longer than wide (Fig. 3K).

Right parapodium from segment III (Fig. 3L). Notopodia oval, smooth (non-papillate), short, half as long as neuropodia, notopodial flange fleshy. Notochaetae with up 100 simple verticillates, tips hooked, shortest half as long as notopodia, longest twice as long (Fig. 3M). Neuropodia conical, smooth (non-papillate), larger than notopodia. Neurochaetae only bifid falcigers: unit A, four falcigers with handles thick, with 5–7 transverse rows of fimbriae, blades medium-sized, 4x longer than wide (Fig. 3N); unit B, three falcigers with handles thick with 7–8 transverse rows of fimbriae, blades medium-sized, 6–7x (Fig. 3O); unit C, eight falcigers with handles thick with 8–10 transverse rows of fimbriae, blades medium-sized, 5–6x longer than wide (Fig. 3P); unit D, two falcigers with handles thick with 11–12 transverse rows of fimbriae, blades medium-sized, 5–6x longer than wide (Fig. 3Q).

Right parapodium from segment 32 (middle segment) (Fig. 3R, 4A). Notopodia conical, smooth (non-papillate), short, half as long as neuropodia, notopodial flange absent, lobe instead. Notochaetae with up 60 simple verticillate, tips hooked, shortest as long as notopodia, longest 4x as long (Fig. 3S). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only

falcigers: unit A, two falcigers with handles thick with 2 transverse rows of spines, blades short, 2x longer than wide (Fig. 3T); unit B, two falcigers with handles thick with 3 transverse rows of spines, blades medium-sized, 4–5x longer than wide (Fig. 3U, 4C); unit C, eight falcigers with handles slender, smooth, with subdistal transverse row of denticles, blades short, 2x longer than wide (Fig. 3V, 4D); subunit 1, three falcigers with handles thick, smooth, with subdistal transverse rows of denticles, blades short, 2x longer than wide (Fig. 3W); subunit 2, two falcigers with handles slender, smooth, blades medium-sized, 5–6x longer than wide (Fig. 3X); unit D, two falcigers with handles slender, smooth, blades long, 8–10x longer than wide (Fig. 3Y, 4E). Pygidium round with two anal cirri.

Distribution. Caribbean Sea. Saint Martin, French Antilles.

Etymology. This species is named after Dr. Gustav Paulay, echinoderm specialist and curator of marine invertebrates in the University of Florida Natural History Museum, Gainesville, in recognition of his support by kindly sharing many specimens used in this study.

Remarks. *Dayipsammolyce* is currently monotypic with *D. ctenidophora* as its only species, described from North Carolina. *Dayipsammolyce paulayi* **n. sp.** differs from *D. ctenidophora* in several features. *Dayipsammolyce paulayi* **n. sp.** has second right elytron pear-shaped, with only one median and one posterior processes, whereas in *D. ctenidophora* it is subrectangular, with five posterior processes (Pettibone 1997: 29, Fig. 20B). Another relevant difference is the neurochaetal composition; *D. paulayi* **n. sp.** has neurochaetae from segment II as falcigers with handles thick whorled and blades short falcate, whereas in *D. ctenidophora* segment II neurochaetae are falcigers with handles slender with transverse rows of spines and blades short straight (Pettibone 1997: 28, Fig. 18D).

Hartmanipsammolyce Pettibone, 1997

Hartmanipsammolyce Pettibone, 1997: 23.

Type species. *Psammolyce pendula* Hartman, 1942b by original designation.

Diagnosis after Pettibone (1997). Pelogeniinae with prostomium oval, wider than long. Upper lip without facial tubercle. Median antennal ceratophore bulbous, base with ctenidia. Segment II with

middorsal subtriangular fold; neuropodia without appendages; neurochaetal blades bifid. Segment III without dorsal cirri; neuropodia with large expanded balloon-like lobes on distal margins; neuropodial blades falcate, bifid or entire. First pair of elytra short or elongated.

Remarks. Pettibone (1997) proposed *Hartmanipsammolyce* with *H. pendula* as type species, and *Psammolyce globula* Hartman, 1965 as its junior synonym. Hartman (1942b: 91) described *P. pendula* from sediments at 352 m off Cuba using an anterior fragment with 85 segments and highlighting the "… large, pendulous organ on the third parapodium…". Later, she (Hartman 1965: 53) described *P. globula* from off Bermuda with an anterior fragment with 54 segments, from sediments at 1700 m water depth, and emphasized that the main difference between these two species, was the presence of the "… globular process.." in the second parapodium, instead of being present in the third, as in *P. pendula*. Pettibone (1997: 23) revised the type material of both species and did not find any morphological differences to keep them as two separated species. However, there are some slight differences between these two species, and the key below includes them as distinct, pending a comparative study to clarify their differences.

Key to species of *Hartmanipsammolyce* Pettibone, 1997

1 Segment III neuropodia with sessile lobes, not pedunculated, ventral cirri surpassing lobe … 2

- Segment III neuropodia with pedunculated lobes, stalk as long as distal expanded portion, ventral cirri not reaching tip of lobe … *H. globula* (Hartman, 1965), off Bermuda, Northwestern Atlantic.

2(1) Median segments with neurochaetae blades of units A–D with short distal and subdistal teeth; posterior elytra, without median processes, longer papillae entire … *H. pendula* (Hartman, 1942), Cuba, Caribbean Sea.

- Median segments with neurochaetae blades of units A–D with long distal and subdistal teeth; posterior elytra with 6–7 median projections, longer papillae articulated … *H. aungtonyae* **n. sp.**, Mexico, Caribbean Sea.

Remarks. The junior synonym of *H. pendula*, *Psammolyce globula* Hartman, 1965 is clearly congeneric but both original descriptions and illustrations point out differences to be considered. For example, *H. pendula* has drop-like neuropodial lobe, inserted in the neuroacicular level without stalk (Hartman 1942: 106, Pl. 9, Fig. 20; Pettibone 1997: 24, Fig. 15E); whereas, *P. globula* has balloon-like neuropodial lobe, inserted supracicular level with a long stalk (Hartman 1965: 265, Pl. 3, Fig. a). Type material of both species should be revised in other to clarify the morphology of both species.

***Hartmanipsammolyce aungtonyae* n. sp.**

(Figs 5, 6)

Type material. Caribbean Sea. Off Quintana Roo. Holotype UMML 22.1087, R/V Pillsbury, St. 580, off Cancun (21°05'N 86°23'W), 351 m, May 22, 1967.

Description. Body orange, long, broad (Fig. 5A); 136 segments, 9 cm long, 1.1 cm to segment 30, 1.1 cm wide. Mid-dorsal line covered with white foreign particles attached to adhesive papillae (Fig. 5D). Venter covered with only short globular papillae (Fig. 5E).

Prostomium oval, wider than long. Two pairs of eyes, anterior eyes bigger. Lateral antennae small, slender; ceratophores as long as styles, dorsally fused with tentacular segment. Median antennal ceratophore bulbous, as long as prostomium, with lateral ridge and basal ctenidia; ceratostyle long, as long as ceratophore. Nuchal lappet subtriangular (Fig. 5B). First segment directed anteriorly, biramous, fused with tentacular segment; notochaetae simple verticillates; neurochaetae slender falcigers. Tentacular cirri, slightly longer than neuropodia including neurochaetae, ventral cirrus slightly shorter than tentacular one; palps with inner sheaths, laterally displaced, reaching segment five. Pharynx partially everted (Fig. 5C).

First right elytron oval, with mid-distal notch, covered with few fragments of shells and several kinds of papillae (Fig. 6E, L); elytral surface with pedunculate papillae with flat tips, truncate, globular, more abundant in the mid-posterior; elytral margins with segmented long papillae and short dendritic papillae (Fig. 2O, P, 6I). Second right elytron oblong, covered with

few fragments of shells and same kinds of papillae (Fig. 6F), but sparser, lateral margin with one mid-distal projection (Fig. 6D). Third right elytron similar to second one. Posterior elytra subrectangular with papillae only along posterolateral elytral surface (Fig. 6G, J, M), with large medial processes, lateral margin with 6–7 mid-distal projections with long segmented papillae (Fig. 6J, K).

Right parapodium from segment II (Fig. 5F). Notopodia truncate, papillate, short, half as long as neuropodia. Notochaetae with up to 50 simple verticillates, shortest as long as notopodia, longest 4x as long (Fig. 5G). Neuropodia heart-shaped, smooth (non-papillate), larger than notopodia. Neurochaetae only bifurcate falcigers: unit A, eight falcigers directed upwards with handles slender, with 30–36 transverse rows of spines, blades long, 16x longer than wide (Fig. 5H); unit B, 15 falcigers with handles thick with 27–34 transverse rows of spines, blades long, 35x longer than wide (Fig. 5I); unit D, seven falcigers with handles slender with 15–18 transverse rows of spines, blades medium-sized blades, 10x longer than wide (Fig. 5J).

Right parapodium from segment III (Fig. 5K). Notopodia heart-shaped, papillate, short, half as long as neuropodia. Notochaetae with of up 80 simple verticillates, shortest as long as notopodia, longest 4x as long (Fig. 5L). Neuropodia truncate, smooth (non-papillate), larger than notopodia, with one large oblong distal lobe (twice as long as neuropodia). Neurochaetae only falcigers: unit A, four falcigers with handles thick with 14–15 transverse rows of spines, blades long, 14–16x longer than wide (Fig. 5O); unit B, 12 falcigers with handles slender, smooth, blades long, 12x longer than wide (Fig. 5M); unit C and D undifferentiated, 13 falcigers with handles slender, smooth, blades medium-sized blades, 8–10x longer than wide (Fig. 5O). Unit A with bifurcate blades, unit B and C with falcate blades.

Right parapodium from segment 81 (middle segment) (Fig. 5P, Fig. 6A). Notopodia, truncate, papillate, short, as long as half of neuropodia. Notochaetae with up 120 simple verticillates, shortest half as long as notopodia, longest 4x as long (Fig. 5Q, 6B). Neuropodia leaf-shaped, papillate, larger than notopodia. Neurochaetae only bifid falcigers: unit A, nine falcigers with handles thick with 5–10 transverse rows of spines, blades medium-sized, 8–10x longer than wide (Fig. 5R, 6C); unit B, two falcigers with handle thick with 5–6 rows of spines, blades lost (in posterior segments, blades medium-sized, 5–6x longer than wide) (Fig. 5S, 6C); unit C, 13 falcigers with handles thick, with 3–4 transverse rows of spines, blades medium-sized, 5–6x longer than

wide (Fig. 5T); subunit 2, four falcigers with handles thick, smooth, blades long, 20x longer than wide (Fig. 5U); unit D, eight falcigers with handles slender, with barely noticeable two rows of denticles, blades long, 15– 20x longer than wide (Fig. 5V, 6D).

Posterior region lost.

Distribution. Caribbean Sea. Quintana Roo, Mexico.

Etymology. This species name is after Dr. Charatsee Aungtonya in recognition of her many contributions on sigalionids, which made it easier for understanding these worms.

Remarks. *Hartmanipsammolyce aungtonyae* **n. sp.** differs from *H. pendula* (Hartman, 1942) because in *H. aungtonyae* **n. sp.** the large lobe in the margin of segment III oblong; middle segments with neurochaetal blades with distal and subdistal teeth long, even touching tips each other; first elytron short, oval; posterior elytra with one large posterior process and 6–7 mid-distal projections with long articulate papillae. On the contrary, in *H. pendula* the segment III has a balloon-like (Hartman 1965: 265, Pl. 3, Fig. a) or drop-like lobe (Pettibone 1997: 24, Fig. 15E); middle segments with neurochaetal blades with teeth short, distal and subdistal (Hartman 1968: 265, Pl. 3, Fig. b; Pettibone 1997: 25, Fig. 16B); first elytra enlarged and oblong, posterior elytra with one large posterior process and no median process with long entire papillae.

***Neopsammolyce* Pettibone, 1997**

Neopsammolyce Pettibone, 1997: 10.

Type species. *Psammolyce petersi* Kinberg, 1856 by original designation.

Diagnosis after Pettibone (1997). Pelogeniinae with prostomium oval, longer than wide. Upper lip with or without facial tubercle. Median antennal ceratophore bulbous, base without ctenidia. Segment II without middorsal ridge; neuropodia without appendages; neurochaetal blades bifid, falcate. Segment III without dorsal cirri; neuropodia without appendages; neurochaetal blades bifid. First pair of elytra enlarged, not deeply notched (except in *N. occidentalis*).

Key to species of *Neopsammolyce* Pettibone, 1997

(modif. Pettibone 1997)

1 Elytra and neuropodia with filiform segmented papillae … *N. catenulata* (Amaral & Nonato, 1984), Brazil, South West Atlantic.

- Elytra and neuropodia with filiform entire papillae … 2

2 (1) Palps slender, very long (exceeding segment eleven); first elytra deeply notched … 3

- Palps thick, long (barely reaching segment six); first elytra not deeply notched … 4

3 (2) First elytra with narrow lobes separated by notch, lateral margin concave; neurochaetae from segment III with blades bifid or entire … *N. occidentalis* (McIntosh, 1885), Antilles, Grand Caribbean.

- First elytra with wide lobes separated by notch, lateral margin convex; neurochaetae from segment III with blades only bifid … *N. fragilis* **n. sp.**, Mexico, Grand Caribbean.

4 (2) Upper lip without facial tubercle; middorsal region of segment II with papillae; branchiae from segment III; neurochaetal handles smooth … *N. petersi* (Kinberg, 1856), Mozambique, Indian Ocean.

- Upper lip with facial tubercle; middorsal region of segment II without papillae; branchia from segment II; neurochaetal handles with transverse rows of spines … 5

5 (4) Facial tubercle bulbous; posterior elytra with only posterior processes; ventral cirri smooth, non-papillate, with basal knobs … *N. spinosa* (Hartman, 1939), Pacific side of Costa Rica.

- Facial tubercle digitate; posterior elytra with or without posterior processes; ventral cirri papillate, without basal knobs … 6

6 (5) Posterior elytra with posterior processes; neurochaetal blades from segment II, falcate, soft; neurochaetae from posterior segment with bifid blades, subdistal tooth narrow … *Neopsammolyce pettibonae* **n. sp.**, Colombia, Caribbean Sea.

- Posterior elytra without posterior processes; neurochaetal blades from segment II with tapered, hardened; neurochaetae from posterior segment with bifid blades, subdistal tooth wide … *N. floccifera* (Augener 1906), Dominica, Caribbean Sea.

Remarks. *Psammolyce sombreriana*, introduced by McIntosh (1885: 149) for *P. occidentalis* (=*N. occidentais*) is *nomen nudum*, since this name came from a confusion. It is possible that McIntosh (1885) originally thought of a different name of his *P. occidentalis*, in this case *P. sombreriana* would reflect the fact his specimens came from Sombrero Island, Antilles; and in the final version he did not change the name in the discussion section of *P. fijiensis* [= *Pottsipelogenia fijiensis* (McIntosh, 1885)]. On the other hand, *Neopsammolyce spinosa* (Hartman, 1939) was described from the Pacific coast of Costa Rica. The record from Galeta, Panama (Fauchald 1977: 62), is, according to Pettibone (1997), really *Pelogenia anoculata* (Hartman, 1939), described from the Pacific coast of Costa Rica. However, the form recorded by Fauchald (1977) is described below under *Pelogenia* (see *Pelogenia multidentata* **n. sp.**).

***Neopsammolyce floccifera* (Augener, 1906)**

(Figs 7, 8)

Psammolyce floccifera Augener, 1906: 109, Pl. 2, Figs. 24–30.

Psammolyce arenosa.—Augener 1933: 193.—Hartman 1944: 14 (*partim*, *non* delle Chiaje, 1830).

Neopsammolyce floccifera.—Pettibone 1997: 15, 9–10 (n. comb., redescr.).

Examined material. Caribbean Sea. Venezuela. UMML 727, R/V Pillsbury, Sta. 727, off Las Isletas (10º20'N 65º02'W), 64 m, July 21, 1968 [54 segments, 2.6 cm long, 1.7 cm to segment 30, 0.6 cm wide]. **Trinidad and Tobago.** UMML 22.1089, R/V Pillsbury, Sta. 842, off Tobago Island (11°11'N 60°31'W), 70 m, July 1, 1969 [22 segments, 0.7 cm long, 0.25 cm wide].

Description. Body pale yellow, short, broad (Fig. 7A). Mid-dorsal line covered with sand grains attached to adhesive papillae (Fig. 7B). Venter covered with short globular and long papillae (Fig. 7C).

Prostomium oval, wider than long. Two pairs of eyes, anterior eyes bigger and covered by the median antennal ceratophore, an accessory pair of eyes right below anterior eyes (Fig. 7E). Lateral antennae small, bulbous; ceratophores as long as style, dorsally fused with tentacular segment and covered by median antennal ceratophore (Fig. 7D). Median antenna with bulbous ceratophore, slightly longer than prostomium, with dorsal ridges; ceratostyle long, 3x as long as prostomium. Nuchal lappet with longitudinal ridge (Fig. 7A). Facial tubercle short, visible between palps (Fig. 7F). First segment directed anteriorly, biramous, fused with tentacular segment (right and left parapodia fused anteriorly); notochaetae simple verticillates, neurochaetae slender falcigers. Tentacular cirri longer than neuropodia including neurochaetae, ventral cirrus slightly shorter than tentacular one, but larger than neuropodia; palps with inner palp sheaths, reaching segment three (Fig. 7C).

First right elytron subrectangular, distally notched, covered with sand and two kinds of papillae (Fig. 8E), adhesive papillae with truncate tips, more abundant in elytral center; long dendritic and short papillae along margins (Fig.8I). Second right and left elytra missing. Posterior elytra round, surface with flat, short and long papillae, with one median process (Fig. 8J, K), elytral margins with dendritic, long papillae (Fig. 8D). Another posterior elytron round, with medial process (Fig. 8G), elytral margins with dendritic, very long papillae (Fig. 2G, H, 8H).

Right parapodium from segment II (Fig. 7G). Notopodia conical, smooth (non-papillate), short, slightly shorter than neuropodia, notopodial flange leaf-shaped. Notochaetae with up to 100 simple verticillates, shortest 3x as long as notopodia, longest thicker, 4x as long (Fig. 7H). Neuropodia leaf-shaped, papillate, larger than notopodia. Neurochaetae only falcate falcigers, units A-D undifferentiated, 16 falcigers with handles slender, completely covered with denticules, blades long blades, 30x longer than wide (Fig. 7I).

Right parapodium from segment III (Fig. 7J). Notopodia conical, smooth (non-papillate), short, 1/3 as long as neuropodia, notopodial flange large, leaf-shaped. Notochaetae with up to 70 simple verticillates, shortest twice as long notopodia, longest 3x as long (Fig. 7K). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only bifid falcigers: unit A, two falcigers

with handles thick with 3 transverse rows of spines, blades medium-sized, 5–6x longer than wide (Fig. 7L); unit B, eight falcigers with handles thick with 3–5 transverse rows of spines, blades medium-sized, 8–9x longer than wide (Fig. 7M); unit C, four falcigers with handles slander, smooth, blades long, 20x longer than wide (Fig. 7N); unit D, two falcigers with handles slender, smooth, blades medium-sized, 6x longer than wide (Fig. 7O).

Right parapodium from segment 43 (middle segment) (Fig. 7P, 8A). Notopodia conical, smooth (non-papillate), short, 1/3 as long as neuropodia. Notochaetae with up to 50 simple verticillates, shortest as long as notopodia, longest twice as long (Fig. 7Q). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only bifid falcigers: unit A, six falcigers with handles thick with 6–8 transverse rows of spines, blades long, 12x longer than wide (Fig. 7R, 8B); unit B, four falcigers with handles thick with 2 transverse rows of spines, blades long, 10– 12x longer than wide (Fig. 7S, 8D); unit C, five falcigers with handles thick, smooth, blades short, 4–5x longer than wide (Fig. 7T); subunit 2, six falcigers with handles thick, smooth, blades long, 8–10x longer than wide (Fig. 7U); unit D, two falcigers with handles slender, smooth, blades medium-sized, 6–8x longer than wide (Fig. 7V).

Posterior region lost.

Distribution. Caribbean Sea. From Florida to Venezuela.

Remarks: The examined material agrees with *N. floccifera* described by Augener (1906) and redescribed by Pettibone (1997). According to Pettibone (1997) part of the material from the Caribbean Panamian region, which was previously examined by Hartman (1944); and the specimen from Barbados examined by Augener (1933), both identified as *P. arenosa,* belong to *N. floccifera*.

***Neopsammolyce fragilis* n. sp.**

(Figs 9, 10)

Examined material. Caribbean Sea. Quintana Roo. Holotype, UMML 22.1088, R/V Pillsbury, Sta. 604, off Tzucox (18°58'N 87°28'W), 979 m, March 17, 1967. Paratype UMML 22.1018, same data as holotype [69 segments, 2.9 cm long, 0.9 cm to segment 30, 0.6 cm wide].

Additional material. Caribbean Sea. Florida. UMML 6402-226, R/V Gerda, Sta. 226 (24°40' N 80°04'W), 803 m, January 23, 1964 [42 segments, 3.2 cm long, 1.4 cm to segment 30, 06 cm wide]. **Yucatán.** One spec. BCC 16418, R/V UAT 1 CIDIPORT, off Río Lagartos (23.50006831, -88.55014514), 57 m, September 04, 2016, coll. Sara B. Balam [12 segments, 0.4 cm long, 0.2 cm wide]; two spec. BCC 00841, R/V Justo Sierra, off Sisal (21º53'18.30"N 90º31'10.26"W), 49 m, September 14, 2010, coll. Anabel León [57–78 segments, 1.4–2.4 cm long, 0.7–1.1 cm to segment 30, 0.2–0.3 cm wide]. **Quintana Roo.** UMML 6802-607, R/V Pillsbury, Sta. 607, off Xahuayxol (18°30' N 87°37'W), 751 m, March 17, 1967 [40 segments, 1.6 cm long, 1.2 to segment 30, 0.5 cm wide].

Description. Body pale yellow, cylindrical, broad (Fig. 9A, B); 47 segments, 2 cm long, 1.2 cm to segment 30, 0.6 cm wide. Mid-dorsal line covered with white foreign particles and foraminifera attached to adhesive papillae (Fig. 9F). Venter covered with short bulbous, long dendritic papillae (Fig. 9G).

Prostomium spherical. Two pair of poorly defined eyes, anterior eyes bigger, covered by the median antenna ceratophore. Lateral antennae short, bulbous; ceratophores as long as styles, dorsally fused with tentacular segment, covered by median antennal ceratophore (Fig. 9E). Median antenna with tapered ceratophore, slightly longer than prostomium, with dorsal ridges; ceratostyle short, as long as prostomium (Fig. 9B–C). Nuchal lappet with a longitudinal ridge. Facial tubercle short, visible between palps (Fig. 9D). First segment directed anteriorly, biramous, fused with tentacular segment; notochaetae simple verticillate, neurochaetae slender falcigers. Tentacular cirri longer than neuropodia including neurochaetae, ventral cirrus shorter than tentacular one; palps with inner palp sheaths reaching segment 11 (Fig. 9D).

First right elytron subtriangular deeply notched, covered with foraminifera and coarse sand (Fig. 10F), two kinds of papillae, flat, short adhesive papillae with flat tips, more abundant in elytral center; elytral margins with dendritic, short papillae (Fig.10J, K). Second right elytron oval notched, with one posterior process (Fig. 10G), same kinds of papillae in elytral surface, elytral margin with short and long dendritic papillae (Fig. 10I). Posterior elytra oval with one medial process (Fig. 10H), same kinds of papillae in elytral surface, elytral margin with short dendritic papillae. All elytra very brittle.

Right parapodium from segment II (Fig. 9H). Notopodia conical, papillate, short, half as long as neuropodia, notopodial flange leaf-shaped. Notochaetae with up to 70 simple verticillate, shortest as long as notopodia, longest 4x as long (Fig. 9I). Neuropodia conical, papillate and larger than notopodia. Neurochaetae only falcigers, most blades falcate, bifid unit D: unit A, two falcigers with handles slender with 8–9 transverse rows of spines, blades long, 28–30x longer than wide (Fig. 9J); unit B, four falcigers with handles thick with 41–48 barely perceptible transverse rows of denticles, blades long 21–23x longer than wide (Fig. 9K); unit C, six falcigers with handles slender with 30–34 barely perceptible transverse rows of denticles, blades soft long, 40x longer than wide (Fig. 9L); unit D, four falcigers with handles slender with 8–10 barely perceptible transverse rows of denticles, blades long, 10–12x longer than wide (Fig. 9M).

Right parapodium from segment III (Fig. 9N). Notopodia conical, short, papillate, 1/3 as long neuropodia, notopodial flange leaf-shaped. Notochaetae with up to 80 simple verticillates, shortest as long as notopodial, longest twice as long as (Fig. 9O). Neuropodia truncate, papillate, larger than notopodia. Neurochaetae only bifid falcigers: unit A, two falcigers with handles slender with 9–10 transverse row of spines, long blades, 19x longer than wide (Fig. 9P); unit B, three falcigers with handles thick with 8–12 barely perceptible transverse row of denticles, blades long, 9x longer than wide (Fig. 9Q); unit C, 10 falcigers with handle slender, smooth, blades long, 28–30x longer than wide (Fig. 9R); subunit 1, two falcigers with handle thick, smooth, blades long, 8–10x longer than wide (Fig. 9S); unit D, six falcigers with handles slender, smooth, blades long, 25x longer than wide (Fig. 9T).

Right parapodium from segment 31 (middle segment) (Fig. 9U, 10A). Notopodia conical, smooth (non-papillate), short, 1/3 as long as notopodia; notopodial flange bulbous. Notochaetae with up to 50 simple verticillates shortest twice as long as notopodia, longest 3x as long (Fig. 9V). Neuropodia truncate, papillate, larger than notopodia. Neurochaetae only bifid falcigers: unit A, falcigers with handles thick, barely noticeable 2 rows of denticles, blades long, 9–10x longer than wide (Fig. 9W, 10D); unit B, two falcigers with handles thick, smooth, blades lost (posterior segment, blades medium-sized, 5–6x longer than wide) (Fig. 9X, 10C); unit C, six falcigers with handles thick, smooth, blades short, 4x longer than wide (Fig. 9Y, 10C); subunit 1, two falcigers with handles slender, smooth, blades medium-sized, 6x longer than wide (Fig. 9Z, 10 E); unit D, four falcigers with handles slender, smooth, blades short, 4x longer than wide (Fig. 9AA).

Posterior region lost.

Etymology. The specific name of the species is after the Latin adjective *fragilis* due to the brittle and fragility of the elytra.

Distribution. Caribbean Sea. From NE Florida to Quintana Roo.

Remarks. *Neopsammolyce fragilis* **n. sp.** resembles *N. occidentalis* (McInstosh, 1885), because they have long slender palps, first elytra notched, notopodia reduced, and neuropodia very papillate. However, these species differ in the notched region on the first and second elytra, the kinds of neurochaetae in the segment III. Thus, *N. fragilis* **n. sp.** has first elytra oval and notched with expanded lobes separated by the notch, and lateral margin convex; second elytra oval with one posterior process, and in segment III neurochaetae blades all bifid; while, *N. occidentalis* has first elytra subrectangular and notched with narrow lobes separated by the notch and lateral margin concave (Pettibone 1997: 14, Fig. 8D); second elytra oval notched, without posterior process (Pettibone 1997: 14, Fig. 8E), and in segment III neurochaetal blades are of two types, bifid, and entire, all falcate (Pettibone 1997: 13, Fig. 7F).

***Neopsammolyce pettiboneae* n. sp.**

(Figs 11, 12)

Type material. Caribbean Sea. Colombia. Holotype UMML 6607-393, R/V Pillsbury, Sta. 393, off Caño La Balsa (09°46'N 76°11'W), 87 m, July 16, 1966.

Description. Body pale yellow, posteriorly translucent, long, broad (Fig. 11A), 56 segments, 2.3 cm long, 1.2 cm to segment 30, 0.4 cm wide. Mid-dorsal line covered with sand grains attached to adhesive papillae (Fig. 11D). Venter covered with only short globular papillae (Fig. 11E).

Prostomium spherical. Two pairs of eyes, anterior eyes bigger, covered by median antennal ceratophore (Fig. 11B). Lateral antennae small, bulbous, ceratophores as long as styles, dorsally fused with tentacular segment (Fig. 11F). Median antenna ceratophore bulbous, slightly longer than prostomium, with dorsal ridges; ceratostyle missing. Nuchal lappet with longitudinal ridge. Facial

tubercle short, visible between palps (Fig. 11G). First segment directed anteriorly, biramous, fused with tentacular segment (right and left parapodia fused anteriorly); notochaetae simple verticillates, neurochaetae slender falcigers. Tentacular cirri laterally displaced, longer than neuropodia including neurochaetae, ventral cirrus slightly shorter than tentacular one, but larger than neuropodia; palps laterally displaced with inner palp sheaths, reaching segment four (Fig. 11C).

First right elytron missing. First left elytron oval, covered with few sand grains (Fig. 12E), with several kinds of papillae; elytral surface with flat and pedunculate flat tips, more abundant in elytral center, elytral margin with long and short dendritic papillae (Fig. 2KL, 12H). Second right elytron missing. Third right elytron slightly larger than first (Fig. 12F), same distribution and types of papillae as second elytra. Posterior elytra round, only one median process (Fig. 12G, I, J), with same kind of papillae, but less abundant than anterior elytra (Fig. 12K).

Right parapodium from segment II (Fig. 12H). Notopodia truncate, smooth (non-papillate), short, slightly shorter than neuropodia, notopodial flange leaf-shaped. Notochaetae with up to 50 simple verticillates, shortest as long as notopodia, longest 3x as long (Fig. 12I). Neuropodia leaf-shaped, papillate, larger than notopodia. Neurochaetae only falcate falcigers: unit A, 18 falcigers with handles slender, covered by denticules, blades long soft, 75x longer than wide (Fig. 12J); unit B, four falcigers with handles slender, covered with denticules, blades long, 22x longer than wide (Fig. 12K); unit C and D undifferentiated, 11 falcigers with handles slender, covered by denticules, blades long soft, 14x longer than wide (Fig. 12L).

Right parapodium from segment III (Fig. 11M). Notopodia truncate, smooth (non-papillate), short, 1/3 as long as neuropodia, notopodial flange leaf-shaped; notacicula missing. Notochaetae with up to 80 simple verticillate, shortest as long as notopodia, longest twice as long (Fig. 11N). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only bifurcate falcigers: unit A, two falcigers with handles long, thick long with 5 transverse rows of spines, blades medium-size, 8x longer than wide (Fig. 11O); unit B, four falcigers with handles long, thick with 0–2 transverse rows of spines, blades medium-sized, 8x longer than wide (Fig. 11P); unit C and D undifferentiated, 10 falcigers with handles with 3 barely perceptible transverse rows of spines, blades long, 15–19x longer than wide (Fig. 11Q).

Right parapodium from segment 61 (middle segment) (Fig. 11R, 12A). Notopodia truncate, smooth (non-papillate) short, 1/3 as long as neuropodia, notopodial flange round. Notochaetae with

up to 80 simple verticillate, shortest as long as notopodia, longest twice as long (Fig. 11S, 12B). Neuropodia leaf-shaped, papillate, larger than notopodia. Neurochaetae only bifurcate falcigers: unit A, four falcigers with handles thick, with 3–6 transverse rows of spines, blades medium-sized, 8–9x longer than wide (Fig. 11T, 12C); unit B, five falcigers with handles thick, with 3 transverse rows of spines or denticles, blades medium-sized, 7x longer than wide (Fig. 11U, 12D); unit C, three falcigers with handles thick, smooth, blades long, 10x longer than wide (Fig. 11V); unit D, three falcigers with handles slender, smooth, blades medium-sized, 6x longer than wide (Fig. 11W).

Posterior region lost.

Distribution. Caribbean Sea. Colombia.

Etymology. The species is named after the late Dr. Marian H. Pettibone in recognition of her sustained efforts in studying polychaetes during many years, especially regarding the members of Sigalionidae. Her studies are the backbone for this and further contributions.

Remarks. *Neopsammolyce pettiboneae* **n. sp.** resembles *N. floccifera* (Augener, 1906) by having digitiform facial tubercle, middorsal hump in segment II, and ventral cirri papillate; however, *N.pettiboneae* **n. sp.** differs by having posterior process in posterior elytra, neurochaetal blades bifurcate with subdistal tooth slender; while, *N. floccifera* has posterior elytra without process, neurochaetal blades bifid with subdistal tooth thick.

Pelogenia **Schmarda, 1861**

Pelogenia Schmarda, 1861: 159; Pettibone 1997:30

Type species. *Pelogenia antipoda* Schmarda, 1861, by monotypy.

Diagnosis after Pettibone (1997). Pelogeniinae with prostomium oval, either wider than long or vice versa. Upper lip with or without facial tubercle. Median antennal ceratophore bulbous, base without ctenidia. Segment II without middorsal ridge; neuropodia without appendages; neurochaetal blades falcate, bifid and entire. Segment III with dorsal cirri; neuropodia without appendages; neurochaetal blades bifid. First pair of elytra not enlarged.

Key to species of *Pelogenia* Schmarda, 1861

(Modif. Pettibone 1997)

1 Segment III dorsal cirri with styles larger than cirrophores … 2

- Segment III dorsal cirri with styles as long as cirrophores … 5

- Segment III dorsal cirri with styles shorter than cirrophores … 12

2 (1) Posterior elytra with balloon-like papillate medial and posterior processes, surface without numerous long papillae … *P. hartmanae* Pettibone, 1997, Puerto Rico, Caribbean Sea.

- Posterior elytra with cylindrical medial and posterior processes, surface with numerous long papillae … 3

3 (2) Mid-dorsum of segment II without papillae; neurochaetal handles with only two transverse rows of spines … *P. philippinensis* (McIntosh, 1885), Philippine Islands, Western Pacific.

- Mid-dorsum of segment II with papillae; neurochaetal handles with numerous transverse rows of spines … 4

4 (3) Neurochaetae from segment II with whorled handles; neurochaetae from middle segments with smooth handles and short blades … *P. multidentata* **n. sp.** Mexico, Caribbean Sea.

- Neurochaetae from segment II with spinous handles; neurochaetae from middle segment with handles with 2–5 transverse rows of spines and medium-sized blades … *P. anoculata* (Hartman, 1939), Costa Rica, Eastern Pacific.

5 (1) Posterior elytra with papillate medial processes, without posterior processes ... 6

- Posterior elytra with papillate medial processes, with 1–5 posterior processes … 9

6 (5) Mid-dorsum of segment II with papillae … *P. popeae* Pettibone, 1997, Australia, South Pacific.

- Mid-dorsum of segment II without papillae … 7

7 (6) Ventral cirrostyle with basal knobs, cirrophores with long papillae … 8

- Ventral cirrostyle without basal knobs, cirrophores with two long papillae … *P. paxtonae* Pettibone, 1997, Australia, Indian Ocean.

8 (7) Dorsal and ventral surfaces densely papillate; lower lip with long papillae, between segment II–VI and long midventral grooves; notochaetae all spinous capillaries … *P. antipoda* Schmarda, 1861, New Zealand, South Pacific.

- Dorsal and ventral surfaces very finely papillate; lower lip without long papillae nor midventral grooves; notochaetae of two kinds: spinous capillaries and fine, hair-like chaetae … *P. inhacaensis* Pettibone, 1997, Mozambique, Indian Ocean.

9 (5) Mid-dorsum lobe in segment II present; palps easily exceed segment four … 10

- Mid-dorsum lobe in segment II absent; palps barely reach segment four … *P. brevipalpata* **n. sp.**, Mexico, Grand Caribbean region.

10 (9) Mid-dorsum lobe of segment II rounded; neurochaetal handles with 0–3 transverse rows of spines, blades entire or bifid … *P. fimbriata* (Hartman, 1939), Mexico, Eastern Pacific.

- Mid-dorsum lobe of segment II subtriangular; neurochaetal handles with more than 3 transverse rows of spines, blades entire, … 11

11 (10) Anterior segments with few adherent dorsal papillae; palps long (11x prostomial length) … *P. arenosa* delle Chiaje, 1830, Gulf of Naples, Mediterranean Sea.

- Anterior segments with several adherent dorsal papillae; palps short (7x prostomial length) ... *P. kinbergi* (Hansen, 1882), Brazil, South West Atlantic.

12 (1) Posterior elytra with medial processes papillate, without posterior processes; middle segments neurochaetae with handles 5–9 transverse rows of spines, blades bifid … *P. semiglabra* (Monro, 1936), New Zealand, South Pacific.

- Posterior elytra with medial process papillate, 1–6 posterior processes; middle segments neurochaetae with handles with 0–4 transverse rows of spines, blades bifid … 13

13 (12) Middle segments neurochaetae only with entire blades … *P. rigida* (Grube, 1868), Red Sea.

- Middle segments neurochaetae with entire and bifid blades … 14

14 (13) Posterior elytra without long papillae on central regions, lateral borders not scalloped and with a medial process … *P. farquhrensis* (Potts, 1910), Madagascar, Indian Ocean.

- Posterior elytra with long papillae on central regions, lateral borders scalloped and with 2–7 medial processes … 15

15 (14) Notopodia with dorsal lobe in all segments; middorsal ridge on median antennal ceratophore; posterior elytra with seven median processes … *P. sergioi* **n. sp.** Saint-Martin, French Antilles.

- Notopodia without dorsal lobe; median antennal ceratophore smooth; posterior elytra with two median processes … *P. zeylanica* (Willey, 1905), Indian Ocean

***Pelogenia brevipalpata* n. sp.**

(Figs 13, 14)

Examined material. Caribbean Sea. Holotype. ECOSUR XXX, C. Norte May 1998. Paratype, Punta Herradura, October 1997, Comb. B90, Col. S. I. Salazar-Vallejo & L. F. Carrera-Parra [52 segments, 0.9 cm long, 0.6 cm to segment 30, 0.6 cm wide].

Description. Body pale orange, long, broad (Fig. 13A); 120 segments, 3.2 cm long, 0.8 cm to segment 30, 3.2 cm wide. Mid-dorsal line covered with white foreign particles attached to adhesive papillae (Fig. 13B), and no elytra remain (including paratype). Venter covered only with large globular papillae (Fig. 13C).

Prostomium oval, wider than long. Two pairs of eyes, anterior eyes bigger, inserted anteriorly. Lateral antennae short, slender; ceratophores short, styles as long as ceratophores, dorsally fused with tentacular segment, partially covered by median antennal ceratophore (Fig. 13E–D). Median antenna with bulbous ceratophore, slightly longer than prostomium, with a longitudinal ridge; ceratostyle slender, short, as long as prostomium (Fig. 13D). Nuchal lappet absent. First segment directed anteriorly, biramous, fused with tentacular segment; notochaetae simple verticillates; neurochaetae slender falcigers. Tentacular cirri longer than neuropodia

including neurochaetae, ventral cirrus as long as tentacular cirrus; palps short with inner palp sheaths, reaching segment three, left palp missing. (Fig. 13C).

Only one posterior elytron was found. Damaged posterior right elytron, oval, with three posterior processes, anteriorly notched (Fig. 14A), surface with flat papillae, marginal papillae long and short, dendritic truncated (Fig. 14H).

Right parapodium from segment II (Fig. 13G). Notopodia conical, smooth (non-papillate), short, as long as neuropodia; notopodial flange smooth (non-papillate), small. Notochaetae with up to 100 simple verticillates, tips hooked, shortest 1/3 as long as notopodia; longest 3x as long (Fig. 13H). Neuropodia truncate, smooth (non-papillate), with a truncate lobe (Fig. 13G). Neurochaetae falcigers and spinigers; all blades entire with hooked tips, but unit C and D tapered: unit A, six falcigers with handles slender, covered by transverse rows of spines, blades long, 10x longer than wide (Fig. 13I); unit B, four neurochaetae with handle thick, covered by transverse rows of spines, blades lost (Fig. 13J); unit C and D, undifferentiated, one spiniger with handle slender, covered by transverse rows of spines, blade long, 13x longer than wide (Fig. 13K)..

Right parapodium from segment III (Fig. 13L). Dorsal cirrophore as long as cirrostyle (Fig. 17F). Notopodia conical, smooth, (non-papillate), short, slightly shorter than neuropodia; notopodial flange rounded. Notochaetae with up to 30 simple verticillates, tips hooked, shortest twice as long as notopodia, longest 3x as long (Fig. 13M). Neuropodia conical, papillate, short (Fig. 13L). Neurochaetae only falcigers; all blades entire, slightly falcate: unit A, one neurochaetae with handle slender with 9 transverse rows of spines, blade lost (Fig. 13N); unit B, four neurochaetae with handles thick with 7–9 transverse rows of spines, blade lost (Fig. 13O); unit C, three falcigers with handles slender with 8–12 transverse rows of spines, blades long, 10x longer than wide (Fig. 13P); unit D, four falcigers with handles slander with 13– 15 transverse row of spines, blades long, 9–10x longer than wide (Fig. 13Q).

Right parapodium from segment 28 (middle segment) (Fig. 13R, 14B). Notopodia conical, short, smooth (non-papillate), twice as long as neuropodia. Notochaetae up to 80 simple verticillates, tips hooked, shortest twice as long as notopodia, longest 3x as long (Fig. 13S, 14C). Neuropodia conical, papillate. Neurochaetae only falcigers; all blades entire, falcate with subdistal tooth broken: unit A, three falcigers handles thick with transverse rows of denticles, blades medium-sized, 5x longer than wide (Fig. 13T, 14D); unit B, three falcigers with handles thick with

barely perceptible transverse rows of denticles, blades medium-sized, 5x longer than wide (Fig. 13U); unit C, two falcigers with handles slender, smooth, blades medium-sized, 6–7x longer than wide (Fig. 13V, 14E); subunit 1, four falcigers with handles thick with barely seen transverse rows of denticles, blades short, 3–4x longer than wide (Fig. 13W, 14E); unit D, four falcigers with handles slender, smooth, blades long, 14–16x longer than wide (Fig. 13X, 14F).

Pygidium rounded with two anal cirrus (Fig. 14G)

Distribution. Caribbean Sea. Quintana Roo, Mexico.

Etymology. The specific name of the species is after the Latin adjective *brevis* and the noun *palpus*, they are combined to indicate the presence of short palps.

Remarks. *Pelogenia brevipalpata* **n. sp.** groups with other species having posterior elytra with papillate medial processes, and some posterior processes. The group also contains *P. arenosa* delle Chiaje, 1830, *P. fimbriata* (Hartman, 1939), and *P. kinbergi* (Hansen, 1882). However, *P. brevipalpata* **n. sp.** differs from the three other species because it does not have a middorsal lobe in segment II, and palps barely reach segment 4, whereas other species have middorsal lobe in the segment II, and palps exceeds segment 4.

***Pelogenia hartmanae* Pettibone, 1997**

(Fig 15, 16)

Pelogenia hartmanae Pettibone, 1997: 65, Figs. 47–48.

Examined material. Caribbean Sea. Honduras. UMML 7101-1369, R/V Pillsbury, Sta. 1369, off Santa Rosa de Augán (16°07'N 85°38'W), 56 m, February 2nd, 1971.

Description. Body pale marron, long, very broad (Fig. 15A); 65 segments, 5.1 cm long, 1.4 cm to segment 30, 0.8 cm wide. Mid-dorsal line covered with coarse sand and foraminifera attached to adhesive papillae (Fig. 15E). Venter covered with short globular and long dendritical papillae (Fig. 15F).

Prostomium spherical. Two pairs of eyes, anterior eyes slightly bigger, inserted anteroventrally. Lateral antennae long, ceratophores longer than styles (Fig. 15B), dorsally fused with tentacular segment, visible below median antennal ceratophore. Median antennal ceratophore bulbous, as long as prostomium, with a transverse ridge; ceratostyle long, 3x as long as ceratophore (Fig. 15D). Nuchal lappet absent. First segment directed anteriorly, biramous, fused with tentacular segment; notochaetae simple verticillates, neurochaetae slender falcigers. Tentacular cirri longer than neuropodia including neurochaetae, ventral cirrus slightly shorter than tentacular cirrus, larger than neuropodia; palps with inner palp sheaths, reaching segment six (Fig. 15C).

First right elytron oval, longer than wide, with one median processes, covered with coarse sand, spicules and foraminifera (Fig. 16E), two kinds of papillae; elytral surface with short wide and flat adhesive papillae, more abundant on elytral center; elytral margin with short dendritic papillae with puffed tips (Fig. 16G). Second and third right and left elytra lost. Posterior elytra subtriangular with three short median processes, and two posterior processes, all enlarged, globose (Fig. 16F HI); four kinds of papillae, elytral surface with flat, pedunculate with flat tips; elytral margin with short dendritic and puffed tips, or long dendritic papillae (Fig. 16JK).

Right parapodium from segment II (Fig. 15H). Notopodia conical, smooth (non-papillate), large, as long as neuropodia; notopodia flange rounded, papillate. Notochaetae with up to 60 simple verticillates, falcate tips, shortest twice as long as notopodia, longest, 3x as long (Fig. 15I). Neuropodia truncate, papillate, larger than notopodia. Neurochaetae only falcigers, all blades entire, falcate: unit A, three falcigers with handles slender with 12–13 transverse rows of spines, blades long, 17–18x longer than wide (Fig. 15J); unit B, three falcigers with handles really long, slender with 17–22 transverse rows of spines, blades long, 25x longer than wide (Fig. 15K); unit C, nine falcigers with handles slender handle with 17–19 transverse rows of spines, blades long, 28–29x longer than wide (Fig. 15L); unit D, two falcigers with handles slender with 7–8 transverse rows of spines, blades long, 20x longer than wide (Fig. 15M).

Right parapodium from segment III (Fig. 15N). Dorsal cirrophore slightly shorter than cirrostyle (Fig. 17E). Notopodia truncate, smooth (non-papillate) short, slightly shorter than neuropodia; notopodia flange round, papillate. Notochaetae with up to 70 simple verticillate, falcate tips, shortest as long as notopodia, longest twice as long (Fig. 15O). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only falcigers; most blades with subdistal tooth broken, unit

D bifurcate: unit A, two falcigers with handles thick with 7–9 transverse rows of spines, blades medium-sized blades, 8x longer than wide (Fig. 15P); unit B, two falcigers with handles thick with 7–8 transverse rows of spines, blades long, 12–13x longer than wide (Fig. 15Q); unit D, three falcigers with handles thick with 8 transverse rows of spines, blades log, 19x longer than wide (Fig. 15R)..

Right parapodium from segment 26 (middle segment) (Fig. 15S, 16A). Notopodia conical, smooth (non-papillate), slightly shorter than neuropodia. Notochaetae with up to 120 simple verticillates, shortest as long as notopodia, longest twice as long (Fig. 15T, 16B). Neuropodia conical, papillate, longer than neuropodia. Neurochaetae only falcigers: unit A, three falcigers with handles thick with subdistal transverse rows of denticles, blades short, 4–5x longer than wide (Fig. 15U, 16C); unit B, two falcigers with handles thick with subdistal transverse rows of denticles, blades short, 3–4x longer than wide (Fig. 15V); unit C, eight falcigers with handles slender with subdistal transverse rows of denticles, blades short, 2–3x longer than wide (Fig. 15W); subunit 1, one falciger with handles thick smooth with subdistal transverse rows of denticles, blade short, 2x longer than wide (Fig. 15X); unit D, four falcigers with handles slender with transverse rows of denticles, blades long, 12x longer than wide (Fig. 15Y, 16D).

Posterior region lost.

Distribution. Caribbean Sea. From Puerto Rico to Honduras.

Remarks: This specimen agrees with the original description by Pettibone (1997).

***Pelogenia kinbergi* (Hansen, 1882)**

(Figs 17, 18)

Pelogenia kinbergi Pettibone 1997: 56, Figs. 41–42 (syn., n. comb.).

Examined material. Caribbean Sea. Guyana. UMML 6806-0694, R/V Pillsbury, Sta. 0694, off Georgetown (08°28’N 58°12’W), 80 m, July 15, 1968.

Description. Body pale yellow, long, broad (Fig. 17A); 67 segments, 4.5 cm long, 1.5 cm to segment 30, 0.5 cm wide. Mid-dorsal line covered with coarse sand attached to adhesive papillae (Fig. 17B). Venter partially covered with short globular, long dendritic papillae (Fig. 17C).

Prostomium spherical. Two pairs of eyes, anterior eyes slightly bigger and inserted anteroventrally (Fig. 17D). Lateral antennae long, slender; ceratophores longer than style, dorsally fused with tentacular segment, completely covered by median antennal ceratophore (Fig. 17E). Median antenna with bulbous ceratophore, twice as long as prostomium, with transverse ridges; ceratostyle long, slightly shorter than ceratophore (Fig. 17E). Nuchal lappet absent. First segment directed anteriorly, biramous, fused with tentacular segment (left and right podia fused anteriorly); notochaetae simple verticillates; neurochaetae slender falcigers. Tentacular cirri longer than neuropodia including neurochaetae, ventral cirrus as long as tentacular one, larger than neuropodia; palps with inner palp sheaths, reaching segment five (Fig. 17B).

First right elytron oval, with one large posterior process, with two kinds of papillae (Fig. 18E), surface with flat wide papillae, marginal papillae with dendritic puffed tips (Fig. 18G). Posterior elytra oval notched, with four short median processes, and two posterior enlarged processes, each distally expanded (Fig. 18F); four kinds of papillae, on the surface flat ones, and long dendritic papillae with flat tips, concentrated along larger process; marginal papillae short dendritic, with puffed tips and long dendritic papillae (Fig. 2CDIJ, 18I).

Right parapodium from segment II (Fig. 17G). Notopodia conical, papillate, as large as neuropodia; notopodial flange round, papillate. Notochaetae with up to 80 simple verticillates chaetae, tips hooked (Fig. 17H), shortest as long as notopodia, longest twice as long. Neuropodia truncate, short, papillate; with a truncate appendage (Fig. 17G). Neurochaetae only falcigers; all blades entire, slightly falcate: unit A, six falcigers with handles slender, with 19–21 transverse rows of spines, blades long, 12–13x longer than wide (Fig. 17I); unit B, five falcigers with handles thick with 29–31 transverse rows of spines, blades long, 13–14x longer than wide (Fig. 17J); unit C and D undifferentiated, two falcigers with handles slender with 11–13 transverse rows of spines, blades long, 14–15x longer than wide (Fig. 17K).

Right parapodium from segment III (Fig. 17L). Dorsal cirrophore as long as cirrostyle (Fig. 17E). Notopodia conical, short, smooth (non-papillate), half as long as neuropodia; notopodial flange conical, non-papillate. Notochaetae with up to 60 simple verticillate, tips hooked, shortest

as long as notopodia, longest twice as long (Fig. 17M). Neuropodia larger, conical, papillate. Neurochaetae only falcigers; units A and B with tips entire, subdistal tooth broken: unit A, two falcigers with handles thick with 12–13 transverse rows of spines, blades medium-sized, 8x longer than wide (Fig. 17N); unit B, four falcigers with handles thick with 8–12 transverse rows of spines, blades long, 9–10x longer than wide (Fig. 17O); unit C, four falcigers with handles slender with 7–8 transverse rows of spines, blades long, 19–20x longer than wide (Fig. 17P); unit D, two falcigers with handles slender with barely perceptible 8 transverse rows of denticles, blades long, 15x longer than wide (Fig. 17Q).

Right parapodium from segment 21 (middle segment) (Fig. 17R, 18A). Notopodia conical, short, smooth (non-papillate), half as long as neuropodia length; notopodial flange large rounded. Notochaetae with up to 120 simple verticillates, shortest twice as long notopodia, longest 3x as long (Fig. 17S, 18B). Neuropodia larger, conical, papillate. Neurochaetae only falcigers: unit A, two falcigers with handles slender with 2 rows of spines, and two subdistal rows of denticles, blades medium-sized, 4–5x loner than wide (Fig. 17T, 18C); unit B, three falcigers with handles thick with barely perceptible transverse rows of denticles, blades short, 2x longer than wide (Fig. 17U, 18C); unit C, six falcigers with handles slender with transverse rows of denticles, blades short, 2–3x longer than wide (Fig. 17V); subunit 1, one falciger with handle thick with one transverse row of spines and subdistal rows of denticles, blade massive medium-sized, 2x longer than wide (Fig. 17W); unit D, six falcigers with handles slender with transverse rows of denticles, blades long, 12–13x longer than wide (Fig. 17X, 18D).

Posterior region lost.

Distribution. Grand Caribbean Region, from Florida to off João Pessoa, Brazil.

Remarks: Pettibone (1997) redescribed the species using Hansen (1882) description and topotype specimens. Moreover, through the examination of the holotype and the original description of *Eupholoe nuda* Treadwell, 1936, described from Bermuda, she concluded that this species should be regarded as a junior synonym of *Pelogenia kinbergi*. The specimens examined agree with the description by Pettibone (1997), except by the proportion of the cirrophore and style. However, both descriptions coincide by indicating that segment II has with middorsal ridge (Pettibone 1997: 30 in the key, 57, Fig. 41A), and neuropodia with a distal appendage (Pettibone 1997: 57, Fig. 41B). Intraspecific differences were noted in the elytra: the specimen examined have a well-

developed medial process in first right elytron while the specimen examined by Pettibone (1997) has a barely expanded region in the same site and elytron (Pettibone 1997: 58, Fig. 42A); the examined specimen has posterior elytra with four medial processes, while Pettibone (1997: 58, Fig. 42C) indicated only three. According to Pettibone (1997: 56) there is not type material existent of the species. However, Augener (1934: 123–125) redescribed the type material, originally deposited in Leiden, The Netherlands, and it might be reidentified and placed elsewhere. Although the specific status is solved, it would be useful to confirm if the type material is not lost.

***Pelogenia multidentata* n. sp.**

(Figs 19, 20)

Pelogenia anoculata.—Pettibone 1997: 62 (*non* Hartman 1939).

Type material. Caribbean Sea. Quintana Roo. Holotype**.** ECOSUR XXX, St. 2, Isla Contoy, March 1st, 2001. Paratype. One spec. ECOSUR XXX, Isla Contoy, October 12, 1993 [47 segments, 0.9 cm long, 0.6 cm to segment 30, 0.2 cm wide].

Additional material. Caribbean Sea. Quintana Roo. One spec. ECOSUR XXX, Mahahual, June 4, 1998, coll. S. I. Salazar-Vallejo & L. F. Carrera-Parra [1.8 cm long, 0.8 cm to segment 30, 0.3 cm wide]. One spec. ECOSUR XXX, Mahahual, January 19, 2001 [80 segments, 1.9 cm long, 0.7 cm to segment 30, 0.3 cm wide]. One spec. ECOSUR XXX, Mahahual, March 18, 2001 [33 segments, 3.5 cm long, 3.2 cm at segment 30, 0.1 cm wide]. One spec. ECOSUR XXX, Xcalac, Augoust 29, 2002 [56 segments, 1.4 cm long, 0.8 cm to segent 30, 0.25 cm wide]. Two spec. ECOSUR XXX, EL 2774, 60 m, no more data [78–86 segments, 1.5–2 cm long, 0.6–0.7 cm to segment 30, 0.4–0.6 cm wide].

Description. Body pale yellow, short, broad (Fig. 19A); 59 segments, 1.7 cm long, 0.8 cm to segment 30, 0.3 cm wide. Mid-dorsal line covered with white foreign particles attached to adhesive papillae (Fig. 19B). Venter covered only with short globular papillae (Fig. 19C).

Prostomium retracted, oval, wider than long. Two pairs of eyes, anterior eyes bigger. Lateral antennae long, ceratophores short, as long as styles, dorsally fused with tentacular segment and partially covered by median antennal ceratophore. Median antennal ceratophore bulbous, slightly

longer than prostomium, with a longitudinal ridge; ceratostyle thick, long, twice as long as ceratophore (Fig. 19D). Nuchal lappet absent. First segment directed anteriorly, biramous, fused with tentacular segment; notochaetae simple verticillates, neurochaetae slender falcigers. Tentacular cirri longer than neuropodia including neurochaetae, ventral cirrus slightly shorter than tentacular cirrus, but larger than neuropodia; palps short with inner palp sheaths, barely reaching segment three (Fig. 19C).

First right elytron subtriangular without perceptible processes, instead, an expanded rounded lobe on anterior margin, covered with coarse sand and four kinds of papillae (Fig. 20I); elytral surface with short or long adhesive papillae with puffed tips; elytral margin with dendritic short or long capitate papillae (Fig. 20QR). Second right elytron pear-shaped with one median process (Fig. 20J); four types of papillae, elytral surface with, short or long adhesive papillae with puffed wide tips, scattered on the elytron; on the margin, dendritic short papillae, long capitate papillae, some bifurcated. Posterior elytron oval with one large medial process (Fig. 20K), papillae short, long with puffed tips (Fig. 20MNO).

Right parapodium from segment II (Fig. 19F). Notopodia rounded, papillate, short, half as long as neuropodia. Notochaetae with up to 30 simple verticillates, tip hooked, shortest as long as notopodia, longest, 4x as long as notopodia (Fig. 19G). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only falcigers; all blades with subdistal tooth lost, falcate: unit A, one falciger with handles thick, whorled with 17–13 transverse rows of spines, blades long, 15–16x longer than wide, basally dentate with several rows of denticles randomly distributed (Fig. 19H, 20FGH); unit C, five falcigers with handles slender, whorled with 12–14 transverse rows of spines, blades medium-sized, 8x longer than wide (Fig. 19I); unit D, two falcigers with handles slender, whorled with 8–9 transverse rows of spines, blades long, 9x longer than wide (Fig. 19J). Unit B, apparently absent.

Right parapodium from segment III (Fig. 19K). Dorsal cirrus with cirrophore short, style long, 3x as long as cirrophore (Fig. 19E). Notopodia truncate, smooth (non-papillate) and short, slightly shorter than neuropodia. Notochaetae with up to 30 simple verticillates, tips hooked, shortest slightly shorter than notopodia, longest 3x as long (Fig. 19L). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only falcigers; all blades entire, subdistal tooth broken: unit A, four falcigers with handles thick, whorled with 15–17 transverse rows of spines,

blades medium-sized, 6x longer than wide (Fig. 19M); unit B, two neurochaetae with handles thick, whorled with 10 transverse rows of spines, blades lost (Fig. 19N); unit C, two falcigers with handles thick, whorled with 6 transverse rows of spines, blades medium-sized, 6–7x longer than wide (Fig. 19O); subunit 1, one falcigers with handles thick with 4 transverse rows of spines, blades medium-sized blades, 5x longer than wide (Fig. 19P); unit D, four falcigers with handles slander, whorled with 8– 9 transverse rows of spines, blades long, 9– 10x longer than wide (Fig. 19Q).

Right parapodia from segment 25 (middle segment) (Fig. 19R, 20A). Notopodia conical, smooth (non-papillate), short, half as long as neuropodia. Notochaetae with up 50 simple verticillate, tips hooked, shortest as long as notopodia, longest 2x as long as notopodia (Fig. 19S, 20BC). Neuropodia conical, papillate, larger than neuropodia. Neurochaetae only falcigers; all blades with subdistal tooth lost: unit A, four falcigers with handles thick with subdistal transverse rows of denticles, blades short, 2x long than wide (Fig. 19T, 20D); unit B, two falcigers with handles thick with barely perceptible subdistal transverse rows of denticles, blades short, less than 2x longer than wide (Fig. 19U, 20D); unit C, four falcigers with handles slender with transverse subdistal rows of denticles, blades short, 2x long than wide; unit D, three falcigers with handles slender with subdistal transverse rows of denticles, blades medium-sized, 5–7x longer than wide.

Pygidium rounded with two anal cirri (Fig. 20P).

Etymology. The specific name of the species is after the Latin adjective *multus* meaning various and *dentata* meaning dentate due the irregular distribution of the teeth rows of the blades of unit A of segment II.

Distribution. Caribbean Sea. Quintana Roo to Panama.

Remarks. *Pelogenia multidentata* **n. sp.** resembles *P. anoculata* Hartman, 1939 from the Pacific coast of Costa Rica, because their neurochaetae include blades short, bifurcate and elytra with only one process. However, *P. multidentata* **n. sp.** has neurochaetae with very short blades, with handles with grooves, and elytra include massive capitate papillae along their surface and margins. On the contrary, *P. anoculata* has neurochaetal blades short, handles with transverse rows of spines (Hartman 1939: 142, Pl. 22, Fig. 271–272), and elytral papillae with puffed tips on their surface and margins (Hartman 1939: 142, Pl. 22, Fig. 269–270). Further, *P. multidentata* **n. sp.** resembles *P. anoculata sensu* Pettibone (1997: 62); she redescribed the species by combining type material

from the Pacific Ocean with other from the Caribbean Sea (Turks and Caicos, Venezuela, Panama) and from Florida, her illustrations were based on specimens from the Caribbean coast of Panama [with material previously identified by Fauchald (1977) as *P. spinosa* Hartman, 1939]. It is possible that specimens from the Caribbean Sea, described and illustrated by Pettibone (1997), belong to this new species.

***Pelogenia sergioi* n. sp.**

(Figs 21, 22)

Type material. Caribbean Sea. French Antilles. Holotype UF 2757, Saint Martin, Chicot, windward side of Tintamarre Island (18°06'7"N 62°58'58"W), 13–19 m, reef in sand, April 23, 2012, coll. Arthur Anker. Paratype UF2764, Saint Martin, Le Galion (18°04'40"N 63°00'53"W), 1–2 m, sand and seagrass, April 21, 2012, coll. John Slapcinsky [106 segments, 4.3 cm long, 1.1 cm to segment 30, 0.4 cm wide].

Additional material. Caribbean Sea. Florida. UMML-XXX, Florida, Bear Cut (approximately 25°43'56"N, 80°09'37"W), low tide, on *Thalassia* sp., August 23, 1965, coll. J.A. Jones [68 segments, 4.8 cm long, 1.5 to segment 30, 1.8 cm wide].

Description. Body pale whitish, short, broad (Fig. 21A), 84 segments, 3.9 cm long, 1.2 cm to segment 30, 0.3 cm wide. Mid-dorsal line covered with foreign white particles attached to adhesive papillae (Fig. 21B). Venter covered only with short globular papillae (Fig. 21C).

Prostomium oval, longer than wider. Two pairs of eyes, anterior eyes bigger, inserted anteriorly. Lateral antennae long, ceratophores as long as styles, dorsally fused with tentacular segment and partially covered by median antennal ceratophore (Fig. 21D). Median antenna ceratophore bulbous, slightly longer than prostomium, with a longitudinal ridge; ceratostyle as long as ceratophore (Fig. 21D). Nuchal lappet absent. First segment directed anteriorly, biramous, fused with tentacular segment (right and left parapodia fused anteriorly); notochaetae simple verticillates, neurochaetae slender falcigers. Tentacular cirri longer than neuropodia including neurochaetae, ventral cirrus slightly shorter than tentacular cirrus, but larger than neuropodia; palps with inner palp sheaths, reaching segment five (Fig. 21C).

First three right elytra missing. First left elytron subrectangular with one median process (Fig. 22F), covered with coarse sand; two kinds of papillae, elytral surface with short adhesive papillae with flat tips; elytral margin with dendritic papillae. Second left elytron subrectangular, with three posterior and two median processes, separated by a median notch (Fig. 22G), two kinds of papillae, elytral surface with short adhesive papillae with flat tips, elytral margin with dendritic papillae, longer papillae over elytral processes (Fig. 22I). Posterior right elytron oval with five posterior process and two large medial process, separated by a median notch (Fig. 22H), elytral surface with flat and long flat tip papillae, elytral margin with dendritic and long papillae (Fig. 22JKL).

Right parapodium from segment II (Fig. 21F). Notopodia truncate, papillate, slightly shorter than neuropodia, with an antero-dorsal distal lobe. Notochaetae with up to 80 simple verticillates, shortest as long as notopodia, longest 3x as long as neuropodium (Fig. 21G). Neuropodia conical, papillate, larger than notopodia. Neurochaetae only falcigers, most blades with subdistal tooth lost: unit A, two falcigers with handles completely covered transverse rows of spines, blades medium-sized, 8x longer than wide (Fig. 21H); unit B, two falcigers with handles thick with 4 transverse rows of spines, blades medium-sized, 6– 7x longer than wide (Fig. 21I); unit C and D undifferentiated, six falcigers with handles thick completely covered by transverse rows of spines, blades long blades, 14–16x longer than wide (Fig. 21J).

Right parapodium from segment III (Fig. 21F). Notopodia truncate, papillate, slightly shorter than neuropodia, with an antero-dorsal dendritic distal lobe. Dorsal cirrus with cirrophore longer than cirrostyle, half as long as cirrophore (Fig. 21E). Notochaetae with up to 50 simple verticillate, shortest as long as notopodia, longest, 3x as long as notopodia (Fig. 21L). Neuropodia leaf-shaped, papillate, larger than notopodia. Neurochaetae only falcigers; all blades with subdistal tooth lost: unit A, four falcigers handles thick with 3 transverse rows of spines, blades short, 2–3x longer than wide (Fig. 21M), unit B, five falcigers with handles thick with one transverse rows of spines, blades short, 2x longer than wide (Fig. 21N), unit C and D undifferentiated, two falcigers with handles slender, smooth, blades long, 10–11x longer than wide (Fig. 21O).

Right parapodium from segment 27 (middle segment) (Fig. 21P, 22A). Notopodia conical, smooth (non-papillate), short, half as long as neuropodia. Notochaetae with up to 50 simple verticillate, tips hooked, shortest half as long as notopodia, longest 4x as long as notopodia (Fig. 21Q, 22B). Neuropodia conical, papillate (Fig. 21C), larger than notopodia. Neurochaetae only

falcigers; most blades with subdistal tooth lost: unit A, two falcigers with handles thick, smooth, blades short, 2x longer than wide (Fig. 21R, 22D); unit B, one falciger with handle thick with 5 transverse rows of spines, blades long, 11x longer than wide (Fig. 21S, 22D); unit C, four falcigers with handles thick with 8–10 transverse rows of spines, blades short, 2–3x longer than wide (Fig. 21T); subunit 1, one falciger handle thick, smooth, blade short, 2–3x longer than wide (Fig. 21U); subunit 2, two falcigers with handles slender, smooth, blades long, 11–12x longer than wide (Fig. 21V, 22E); unit D, three falcigers with handles slender handle with transverse rows of denticles, blades medium-sized blades, 6–7x longer than wide (Fig. 21W).

Pygidium round with two anal cirri (Fig. 22M)

Etymology. This species is named after my father, Sergio Cruz Campos as recognition of his unconditional love and support, which allowed me to reach my goals.

Distribution. Grand Caribbean region. From Florida to Saint Martin, French Antilles.

Remarks. *Pelogenia sergioi* **n. sp.** belong to pelogeniins with short cirrostyle in segment III, and resembles *P. zeylanica* (Willey, 1905) from Sri-Lanka (Ceylon). However, there are evident differences, the most important is the presence of a distal lobe in the dorsal notopodial margin on all posterior segments, after first anterior segment and by having a middorsal ridge on the medial antennal ceratophore. In *P. sergioi* **n. sp.** the neurochaetae from segment II are falcigers with smooth handles, and the posterior elytra have five median processes and two large posterior process; while *P. zeylandica* has segment II neurochaetae with transverse rows of spines (Pettibone 1997: 36, Fig. 25D), and the posterior elytra only have two median process, and two posterior process (Pettibone 1997: 37, Fig. 26F). There something to point out in the material examined, despite most of the specimen examined show the short style in the dorsal cirri in segment III; the specimen from Florida show right style short but left style of similar length as cirrophore. Additionally, in this latter materal a syllid was found among posterior elytra (Fig. 22N).

Psammolyce Kinberg, 1856

Psammolyce Kinberg, 1856: 388; Pettibone 1997: 4.

Type species. *Psammolyce flava* Kinberg, 1856, by subsequent designation (Hartman 1959: 117).

Diagnosis after Pettibone (1997). Pelogeniinae with prostomium oval, wider than long. Upper lip without facial tubercle. Median antennal ceratophore bulbous, base without ctenidia. Segment II with or without middorsal triangular lobe; neuropodia with long appendages; neurochaetal blades tapered bifid. Segment III without dorsal cirri; neuropodia without appendages; neurochaetal blades tapered bifid. First pair of elytra enlarged.

Key to species of *Psammolyce* Kinberg, 1856

1 Segment II with mid-dorsal triangular lobe; neuropodial lobe distally cylindrical; neurochaetae from middle region with bifid blades … *P. flava* Kinberg, 1856, Brazil, Grand Caribbean region.

- Segment II without mid-dorsal lobe, neuropodial lobe distally clavate; neurochaetae from middle region with bifid and entire blades … *P. horsti* Pettibone, 1997, Indonesia, Indo-Pacific Ocean.

***Psammolyce flava* Kinberg, 1856**

(Fig 23–24)

Psammolyce flava Pettibone 1997: 4, Figs. 1–3 (syn., redescr.).

Examined material. Caribbean Sea. Bahamas. UMML 6720-927, R/V Gerda, Sta. 927, off Grand Bahama (26°15'N 78°48'W), 476 m, September 29, 1967 [43 segments, 1.7 cm long, 1.1 cm to segment 30, 0.6 cm wide]. **Campeche.** BCC05944, R/V Justo Sierra, off Alacrán Reef (23º4' 0.21"N 89º56'0.79"W), 215 m, November 27, 2012, coll. Sara B. Balam. **Venezuela.** UMML 6806-739, R/V Pillsbury, Sta. 739, off Los Rayitos Beach (10°55'N 66°18'W), 257 m, July 23, 1968 [45 segments, 2.4 cm long, 1.5 cm to segment 30, 0.6 cm wide].

Description. Non-type specimen (BCC05944). Body pale orange, long, broad (Fig. 23A); 89 segments, 9 cm long, 1.8 cm to segment 30, 0.9 cm wide. Mid-dorsal line visible, not covered with foreign particles (Fig. 23E–F). Venter partially covered only with globular papillae (Fig. 23G).

Prostomium spherical. Two pairs of eyes, anterior eyes bigger, inserted antero-ventraly. Lateral antennae short, slender, with short bulbous ceratophores, styles shorter, dorsally fused with tentacular segment, partially covered by median antennal ceratophore (Fig. 23D). Median antenna ceratophore bulbous, twice as long as prostomium, with transverse ridges; ceratostyle slender, long, 6x longer than ceratophore. Nuchal lappet absent. First segment directed anteriorly, biramous, fused with tentacular segment; notochaetae simple verticillates, neurochaetae slender falciger. Tentacular cirri missing, ventral cirrus 2x neuropodia; palps with inner palp sheath, right palp lost, left palp long, reaching segment seven (Fig. 23C).

First anterior elytra missing, posterior elytra oval with one median process (Fig. 24D), elytral surface with flat and globular papillae, elytral margin with short or long dendritic papillae (Fig. 24H–K).

Right parapodium from segment II (Fig. 23H). Notopodia conical, papillated, short, half as long as neuropodia, notopodial flange leaf-shaped. Notochaetae with up to 150 simple verticillate, shortest 1/3 as long as notopodia, longest 4x as long (Fig. 23I). Neuropodia conical, papillate, larger than notopodia; with a distal slender appendage, shorter than neuropodia. Neurochaetae only falcigers; all blades bifid, unit A with falcate tips: unit A, four falcigers with handles thick whit 6 transverse rows of spines, blades long, 24x longer than wide (Fig. 23J), unit B, two falcigers with handles slender with 6 transverse rows of spines, blades long, 28x longer than wide (Fig. 23K); unit C, four falcigers with handles slender with 9 transverse rows of spines, blades long, 28–30x longer than wide; unit D, eight falcigers with handles slender with 7–8 transverse rows of spines, blades long, 27–30x longer than wide.

Right parapodium from segment III (Fig. 23N). Notopodia conical, papillate, short, 1/3 as long as neuropodia; notopodial flange, leaf-shaped, papillate. Notochaetae with up to 100 simple verticillates, tips hooked, shortest half as long as notopodia, longest 4x as long as notopodia (Fig. 23O). Neuropodia truncate, papillate, larger than notopodia. Neurochaetae only falcigers; all blades bifid: unit A, five falcigers with handles thick with transverse rows of denticles, blades long, 11–12x longer than wide (Fig. 23P); unit B, two neurochaetae with handle thick with 1–2 transverse

rows of spines and subdistal transverse rows of denticles, blades lost (Fig. 23Q); unit C, five falcigers with handles slander with subdistal transverse rows of denticles, blades long, 25–26x longer than wide (Fig. 23R); unit D, 35 falcigers with handles slender, smooth handle, blade long, 38–40x longer than wide (Fig. 23S).

Right parapodium from segment 23 (middle segment) (Fig. 23T, 24AB). Notopodia truncate, papillate, short, 1/3 as long as neuropodia. Notochaetae with up to 80 simple verticillates, shortest 3x as long as notopodia, longest 5x as long as (Fig. 23U, 24C). Neuropodia truncate, papillate, larger than notopodia. Neurochaetae only falcigers; all blades bifid: Unit A, three falcigers with handles thick with subdistal transverse rows of denticles, blades medium-sized, 8–10x longer than wide (Fig. 23V); unit B, four falcigers with handles thick with subdistal transverse grooves, blades long, 11–12x longer than wide (Fig. 23W, 24W); unit C, seven falcigers with handles slender with subdistal transverse rows of denticles, blades medium-sized, 9–10x longer than wide (Fig. 23X); subunit 1, three falcigers with handles thick with subdistal transverse rows of denticles, blades long, 12–13x longer than wide (Fig. 23Y); unit D, five falcigers with handles slender with subdistal transverse rows of denticles, blades long, 15–16x longer than long (Fig. 23Z, 24EF).

Posterior region lost.

Distribution. Grand Caribbean region. From Bahamas to Rio de Janeiro, Brazil.

Remarks: The original description was based upon on specimen from Rio de Janeiro, and included four lines (Kinberg 1856), later the description was completed with illustrations, including jaws (Kinberg 1858). Hartman (1942a) redescribed the species with specimens from Puerto Rico, and, in the same paper, she suggested *Eupholoe acuminata* Treadwell, 1934 should be regarded as a junior synonym, but she did not study the type material of *P. flava*. Subsequently, Pettibone (1997) redescribed *P. flava* using type and non-type material and kept *E. acuminata* as synonym. Hartman (1942a: 109) indicated that there is another material labeled as *'Eupholoe acuminata'* and another as *'Psammolyce ridiga'* both possible new species. The holotype of *P. flava* is from Rio de Janeiro, and the holotype of *E. acuminata* from off N British Virgin Islands, with apparently wide distribution in the Altantic Ocean. Pettibone (1997) pointed out that the holotype is very damaged. The record by Lana (1991: 125) corresponds to *P. hortsi* Pettibone, 1997.

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The late Nancy Voss, and later María Criales (UMML), Amanda Bemis and Gustav Paulay (UF) kindly made available the material herein examined. Charatsee Aungtonya (PMBC, Thailand) provided useful comments and answered my doubts on sigalionids morphology. Guillermo San Martín (UAM, Madrid) and João Gil (UA, Portugal) kindly shared literature used in the study. J. Rolando Bastida-Zavala (UMAR), Víctor H. Delgado-Blas (UQROO), Sergio I. Salazar-Vallejo and Luis F. Carrera-Parra (ECOSUR) carefully read and provided valuable comments and suggestions. Victor Conde-Vela (ECOSUR) made valuable suggestions on the neurochaetae terminology. This research is part of the MSc Thesis of the author at ECOSUR, supported by a scholarship from CONACYT (CV916456).

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Figures

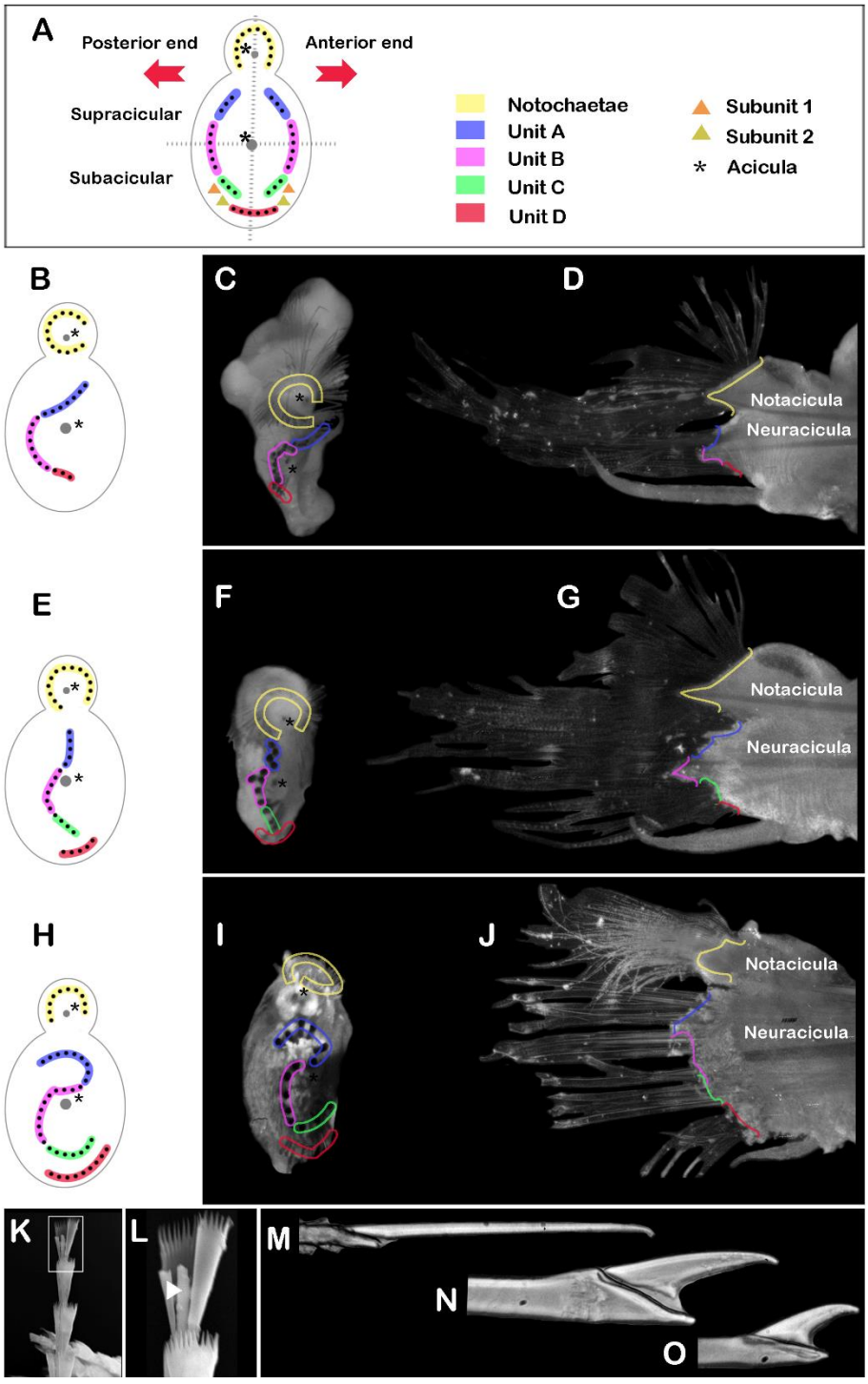

FIGURE 1. Terminology of chaetal fascicles. A, schematic parapodia of hypothetic sigalionid showing the arrangement of chaetae. Right parapodia of *Pelogenia sergioi* **n. sp.**: Segment II: B, lateral position, scheme. C, lateral position. D, anterior-posterior position. Segment III: E, lateral position, scheme. F, lateral position. G, anterior-posterior position. Segment form middle region: H, lateral position, scheme. I, lateral position. J, anterior-posterior position. K, long blade. L, medium-sized blade. M, short blade.

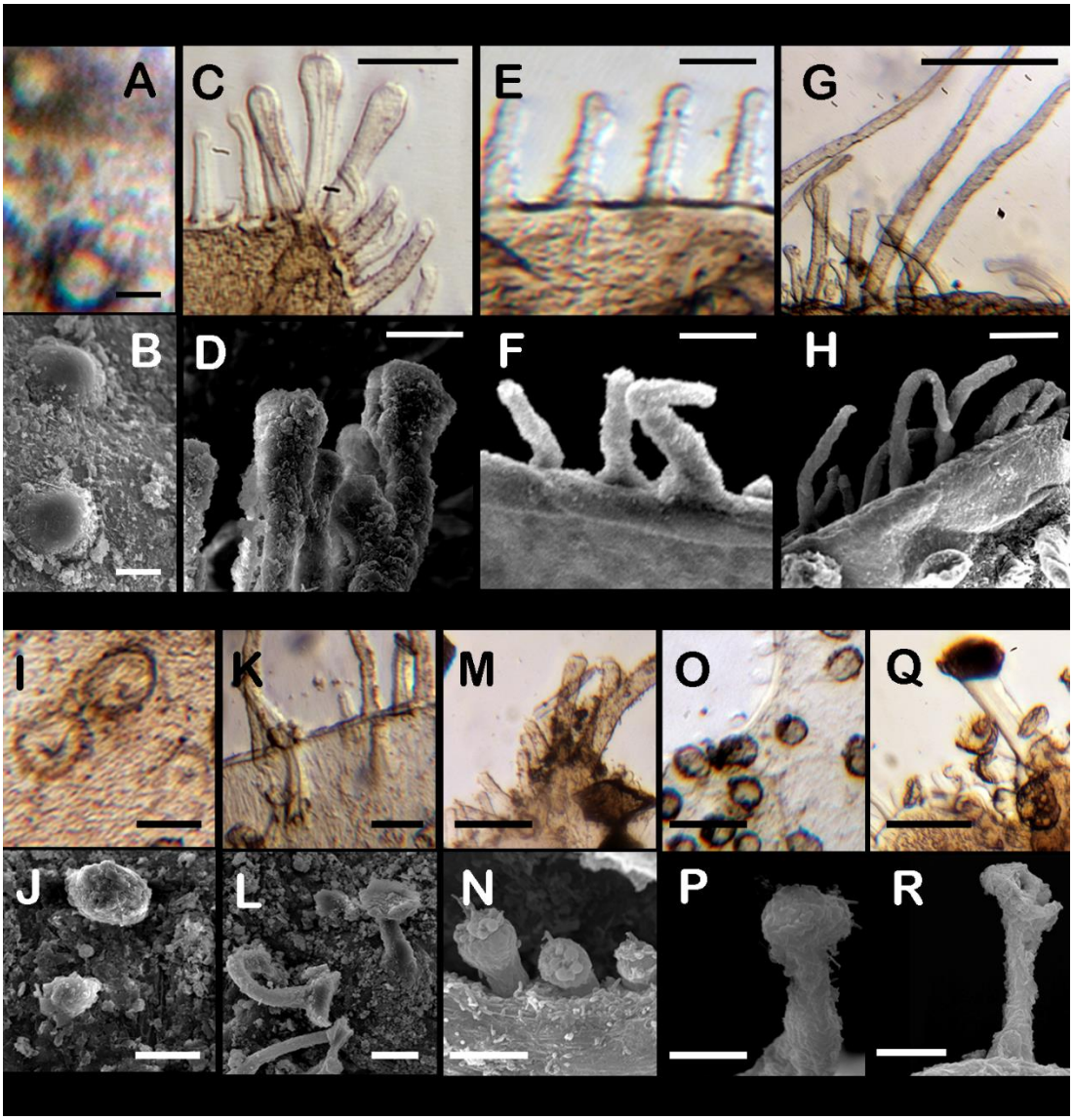

FIGURE 2. Elytral structures. Non-adherent: A, B, microtubercles. C, D, pedunculate papillae with puffed tips. E, F, dendritic short papillae. G, H, dendritic long papillae. Adherent: I, J, flat papillae. K, L, pedunculate papillae with flat tip. M, N, pedunculate papillae with truncated tip. O, P, pedunculate globular papillae. Q, R, pedunculate capitate papillae. A, B, E, F, M, N, *Dayipsammolyce paulayi* **n. sp.** C, D, I, J, *Pelogenia kinbergi* (Hansen, 1882). G, H, *Neopsammolyce floccifera* (Augener, 1906). K, L, *Neopsammolyce* **n. sp.** O, P, *Hartmanipsammolyce aungtonyae* **n. sp.** Q, R, *Pelogenia multidentata* **n. sp.** Scale bars: G, H:100 µm, C–F, I–M, O: 20 µm, A, B, N, Q, R: 10 µm, P: 5 µm.

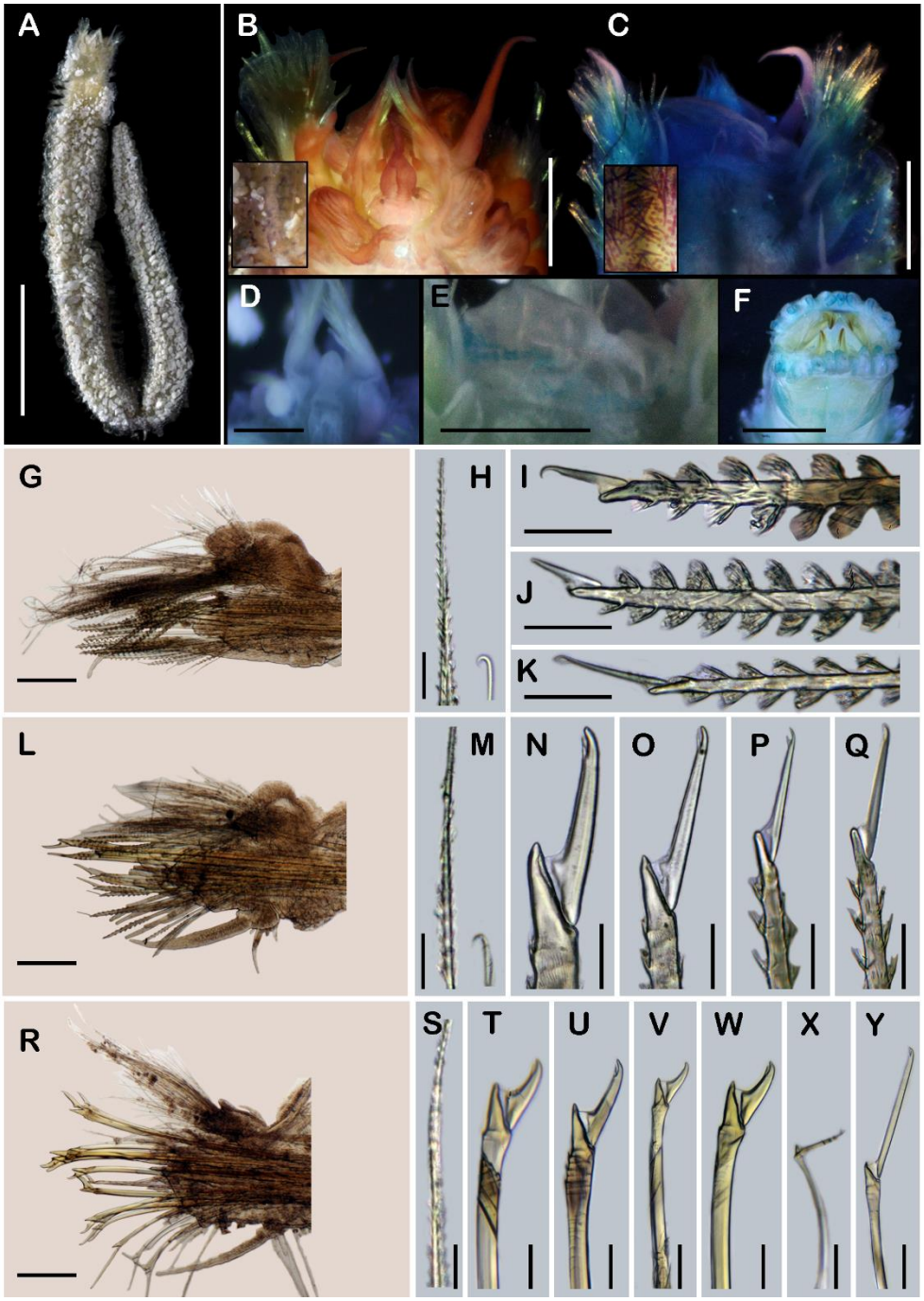

FIGURE 3. *Dayipsammolyce paulayi* **n. sp.** Holotype (UF 2777). A, complete worm, dorsal view. B, anterior end, dorsal view (dorsal papillae in the box). C, anterior end, ventral view (ventral papillae in the box). D, facial tubercle, ventral view. Paratype (UF 2618). E, marginal pharynx papillae. F, detail of pharynx. Holotype (UF 2777). G, right parapodia from segment II. H, notochaetae from same. I, unit A. J, unit B. K, unit C and D. L, right parapodia from segment III. M, notochaetae from same, N, unit A. O, unit B. P, unit C. Q, unit D. R, right parapodia from segment 32. S, notochaetae from same. T, unit A. U, unit B. V, unit C. W, subunit 1. X) subunit 2. Y, unit D. Scale bars: A: 5 mm, B, C: 1mm, D–F: 500 µm, G, L, R: 200 µm, H–K, M–Q, S–Y: 40 µm.

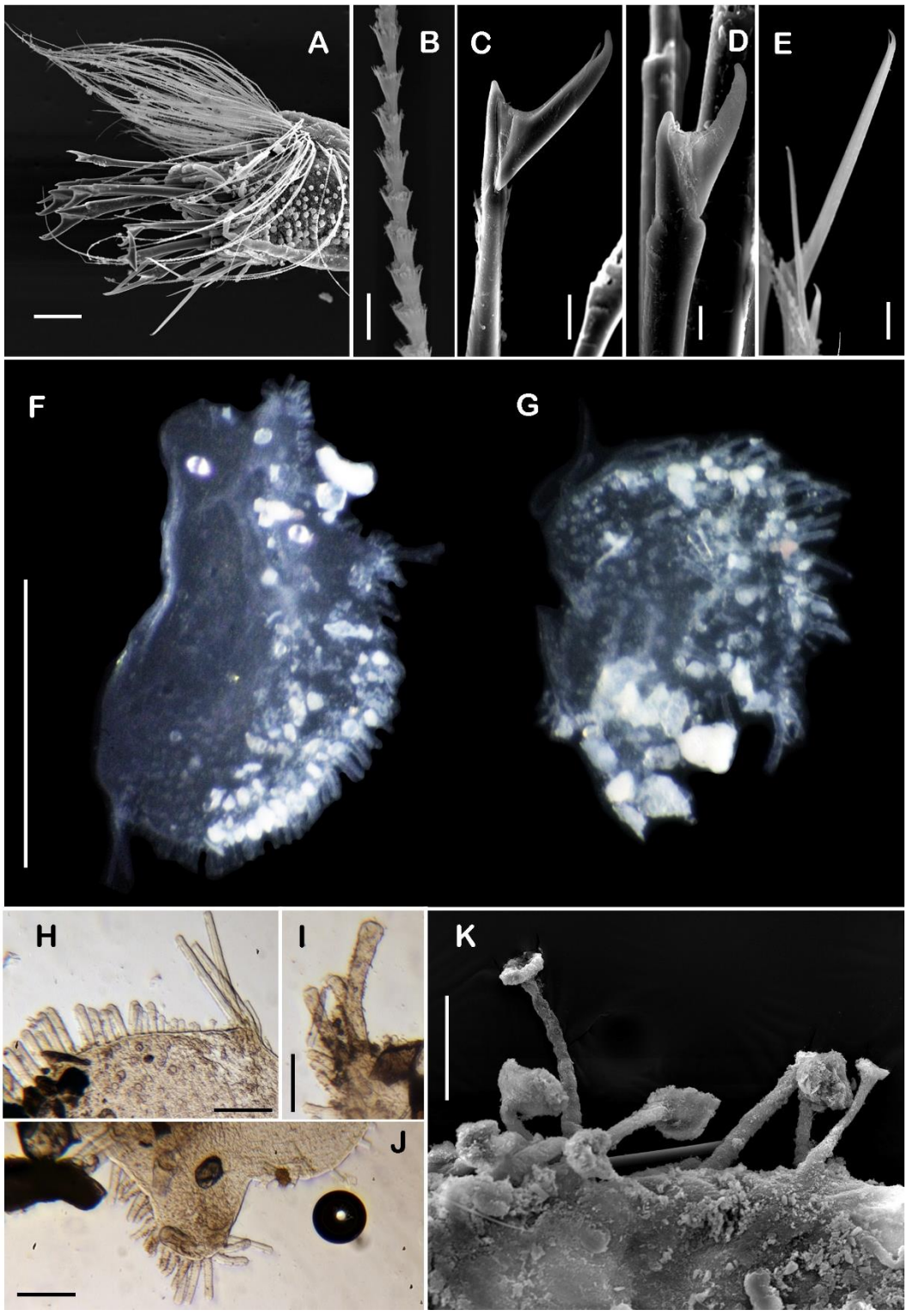

FIGURE 4. *Dayipsammolyce paulayi* **n. sp.** SEM micrographs from holotype (UF 2777). A, right parapodia from segment 26. B, notochaetae from same. C, unit B. D, unit C. E, unit D. F, second left elytron. G, right posterior elytron. H, detail of distal margin of F. I, posterior process from G. I, posterior process from F. K, SEM micrographs of marginal papillae. Scale bars: F, G: 500 µm, A, I, J, H: 100 µm, K: 50 µm, E, C: 20 µm, D: 10 µm, B: 5 µm.

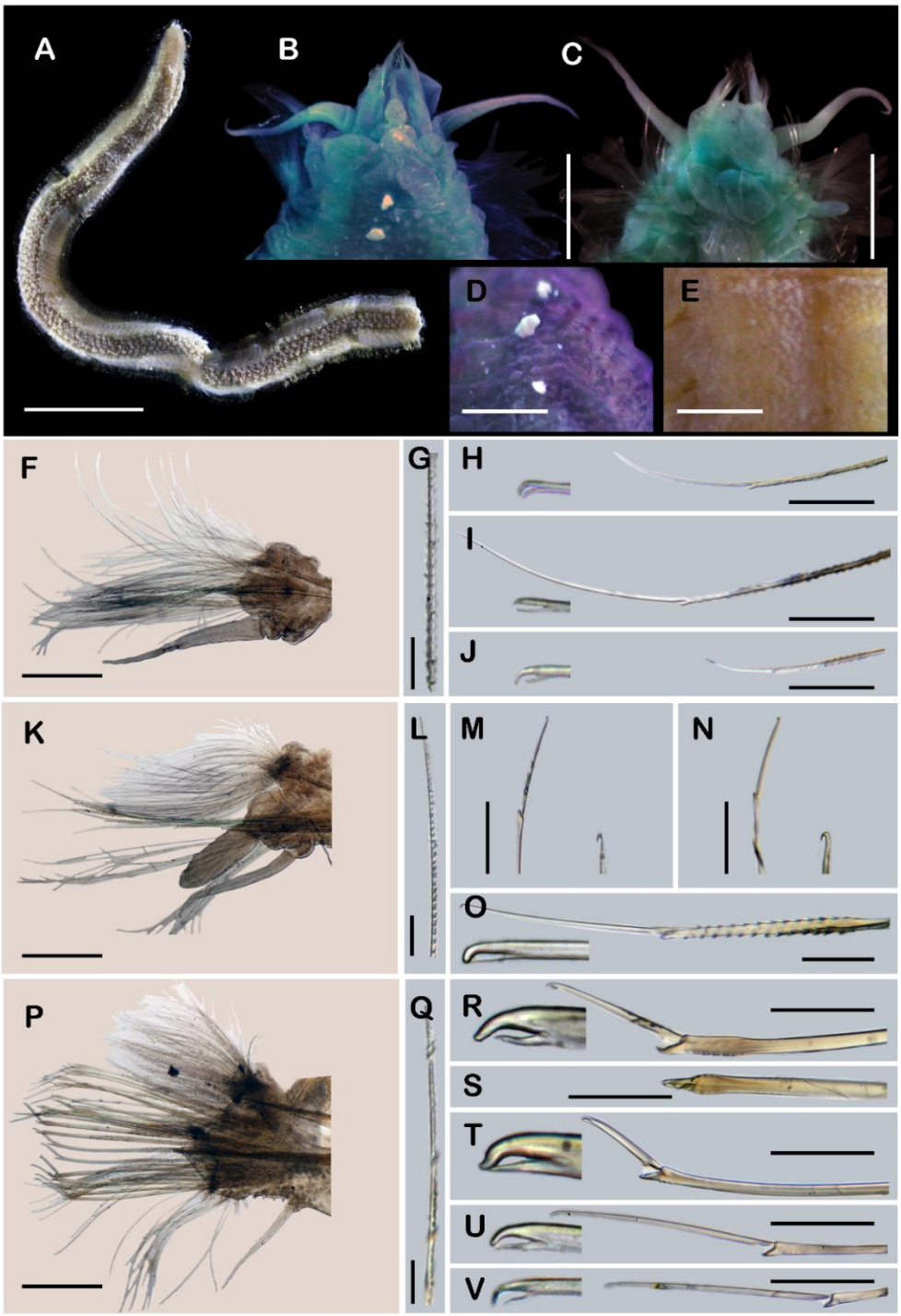

FIGURE 5. *Hartmanipsamolyce aungtonyae* **n. sp.** Holotype (UMML 22.1087). A, incomplete worm, dorsal view. B, anterior end, dorsal view. C, anterior end, ventral view. D, dorsal papillae. E, ventral papillae. F, right parapodia from segment II. G, notochaetae from same. H, unit A. I, unit B. J, unit C and D. K, right parapodia from segment III. L, notochaetae from same. M, unit B. N, unit C and D. O, unit A. P, right parapodia from segment 81. Q, notochaetae from same. R, unit A. S, unit B. T, unit C. U, subunit 2. V, unit D. Scale bars: A: 1 cm, B, C: 1 mm, D–F, K, P: 500 µm, H–J, M–O, R–V: 100 µm, G, L, Q: 40 µm.

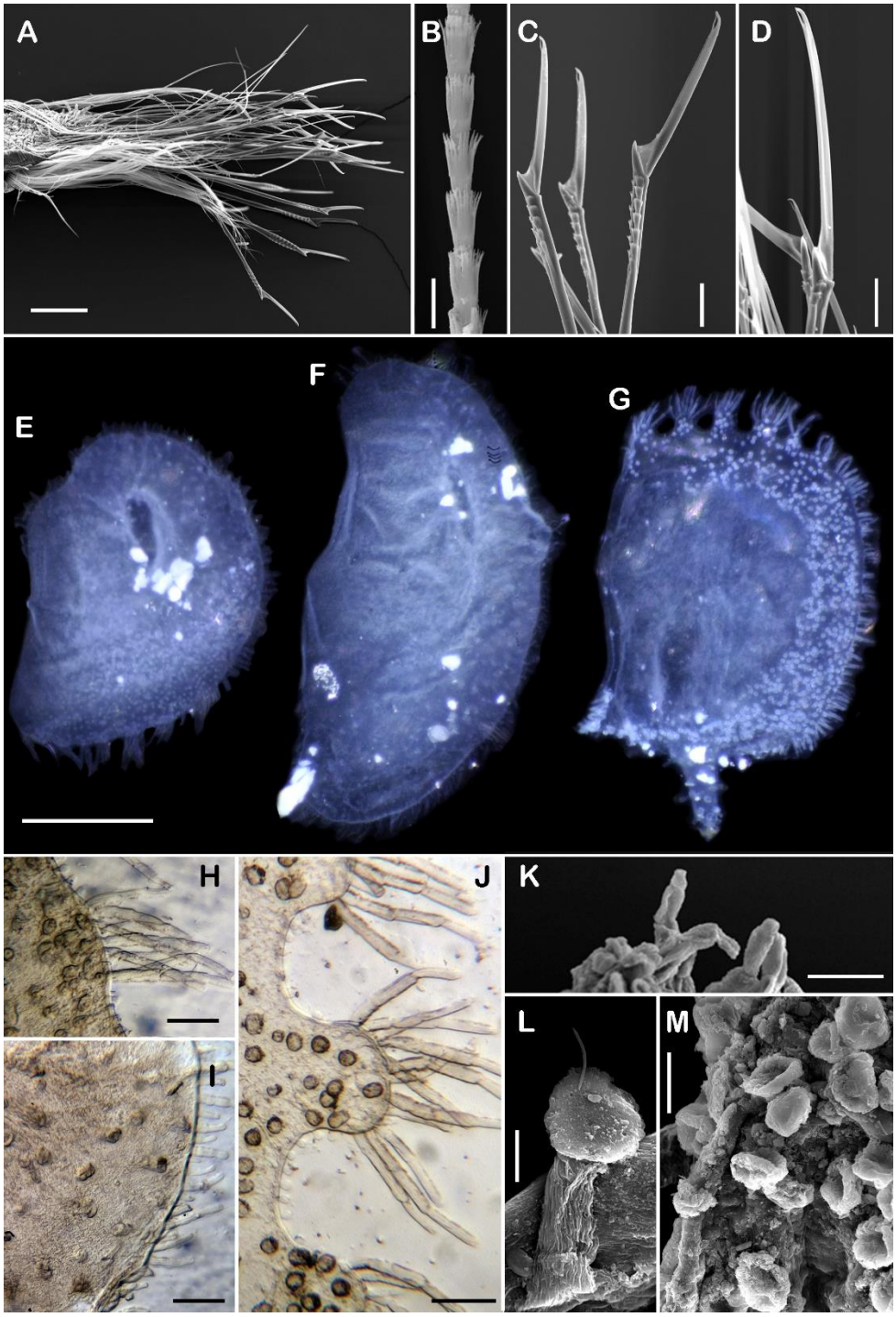

FIGURE 6. *Hartmanipsammolyce aungtonyae* **n. sp.** SEM micrographs from holotype (UMML 22.10887). A, right parapodia from segment 30. B, notochaetae from same. C, unit A and B. D, unit D. E, first right elytron. F, second right elytron. G, posterior right elytron. H, proximal margin of E. I, posterior margin from E. J, posterior processes from G. K, segmented long papillae. L, pedunculate papilla with flat tip. M, surface of E. Scale bars: E–G: 1 mm, A: 200 µm, C, D, H–K: 50 µm, M: 20 µm, L: 10 µm, B: 5 µm.

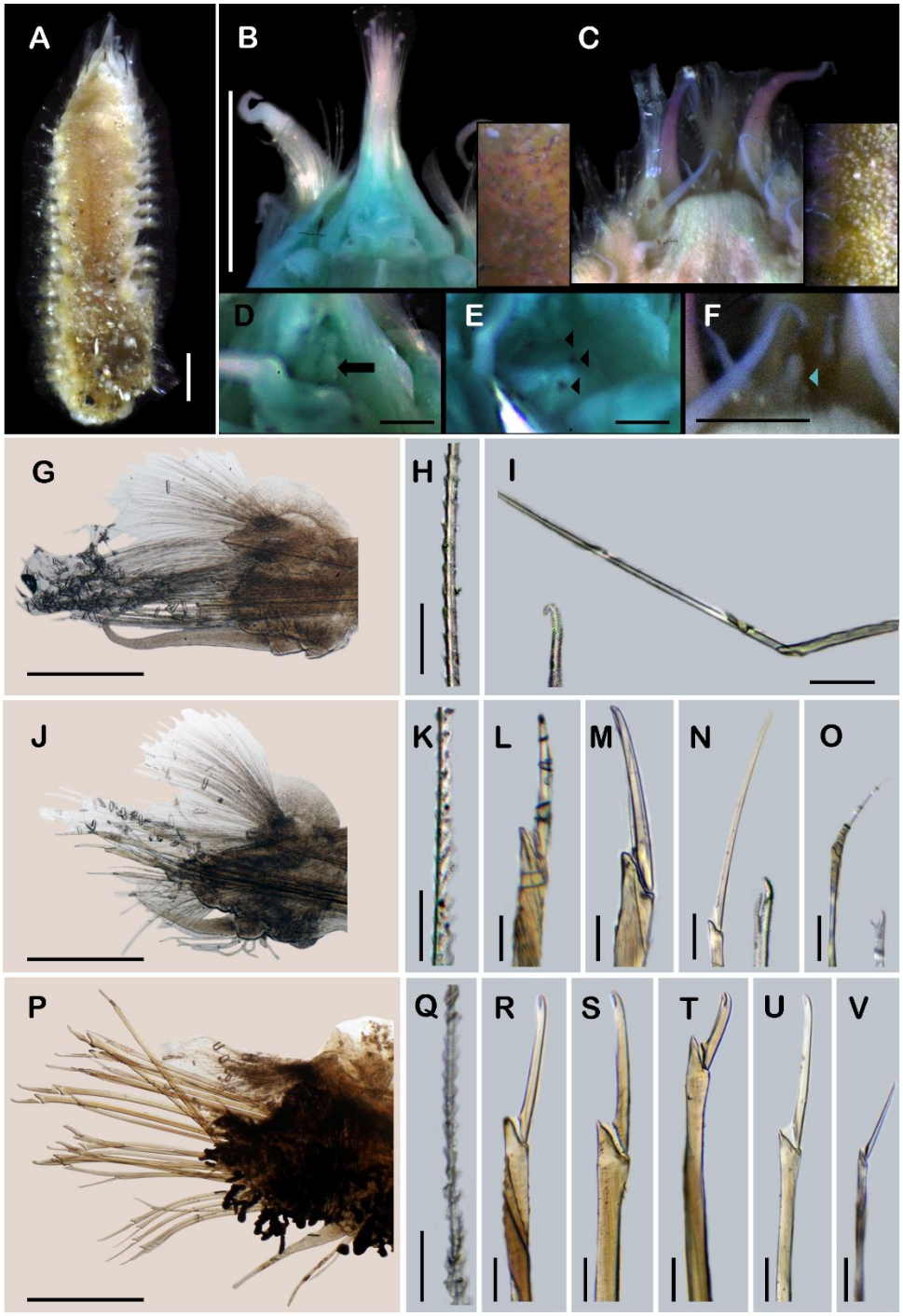

FIGURE 7. *Neopsammolyce floccifera* (Augener, 1906). Non-type material (UMML XXX-727). A, incomplete worm, dorsal view. B, anterior end, dorsal view (dorsal papillae in the box). C, anterior end, ventral view (ventral papillae in the box). D, lateral antennae. E, prostomium, arrow indicate the three pairs of eyes. F, facial tubercle. G, right parapodia from segment II. H, notochaetae from same. I, units A–D. J, right parapodia from segment III. K, notochaetae from same. L, unit A. M, unit B. N, unit C. O, unit D. P, right parapodia from segment 43. Q, notochaetae from same. R, unit A. S, unit B. T, unit C. U, subunit 2. V, unit D. Scale bars: ABC: 1 mm, D: 200 µm, G, J, P: 500 µm, H, K, Q: 40 µm, I, L–O, R–V: 50 µm.

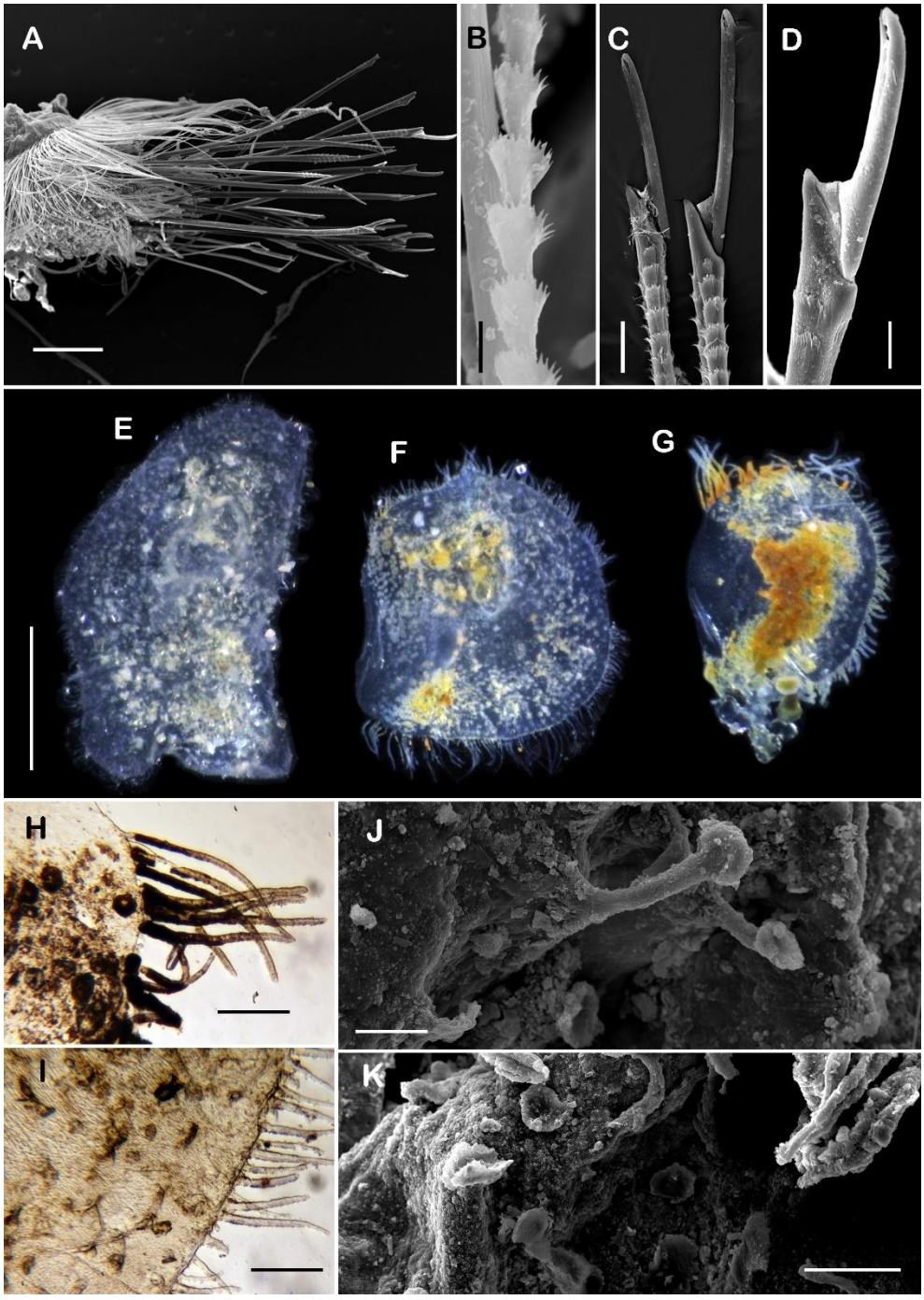

FIGURE 8. *Neopsammolyce floccifera* (Augener, 1906). SEM micrographs from non-type material (UMML XXX-727). A, right parapodia from segment 26. B, notochaetae from same. C, unit A. D, unit B. E, first right elytron. F, G, posterior elytra. H, dendritic long papillae. I, dendritic short papillae. J, pedunculate papillae with flat tip. K, flat papillae. Scale bars: EFG: 1 mm, A: 200 µm, K: 50 µm, CDHIJ: 20 µm, B: 2 µm.

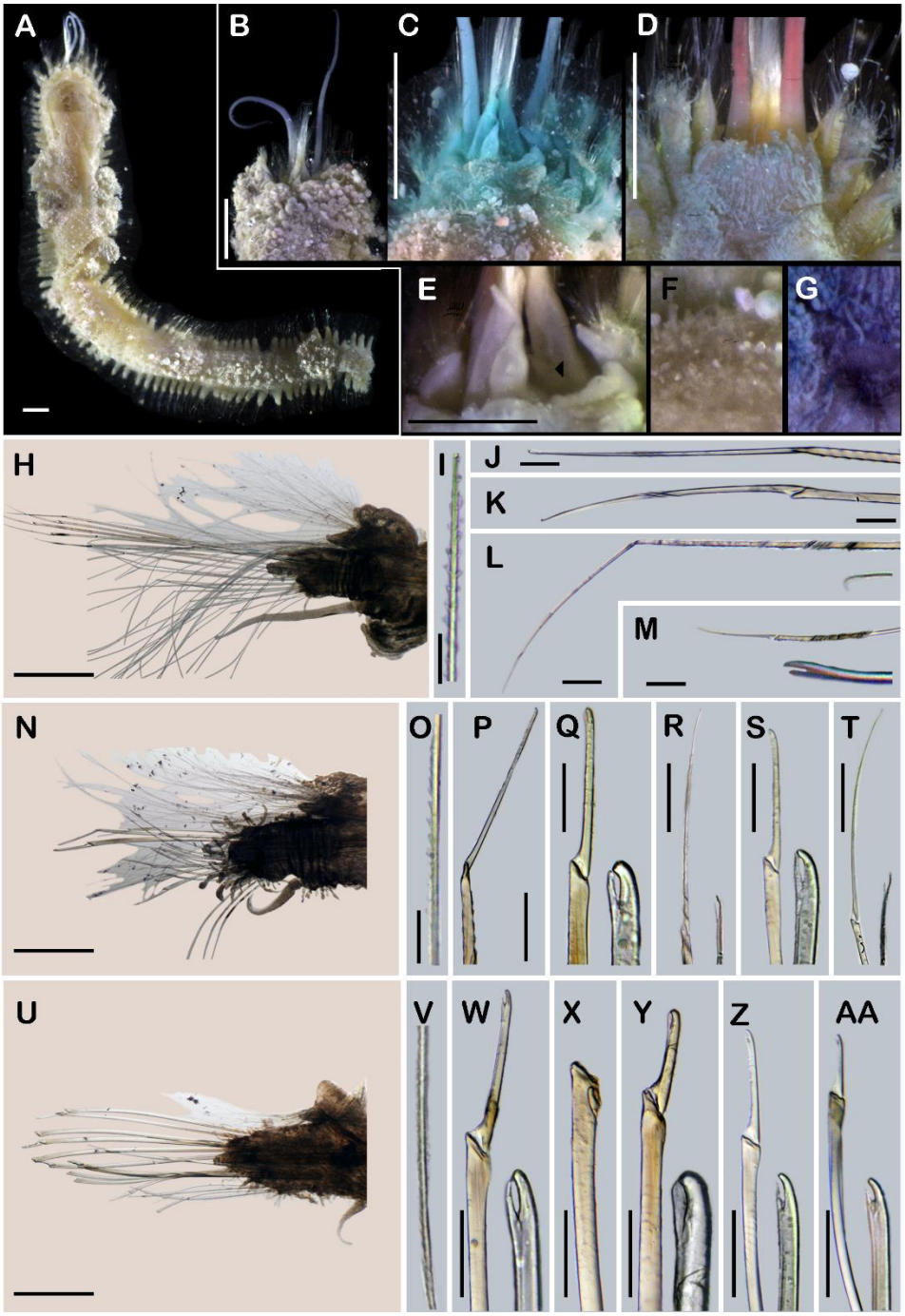

FIGURE 9. *Neopsammolyce fragilis* **n. sp.** Holotype (UMML 22.1088). A, incomplete worm, dorsal view. B, anterior end, covered by elytra. C, anterior end, dorsal view. D, anterior end, ventral view. E, detail of prostomium (arrow show lateral antennae). F, dorsal papillae. G. ventral papillae. H, right parapodia from segment. Scale bars: ABCD: 1 mm, EHNU: 500 µm, JKLMPQRSTWXYZAA: 100 µm.

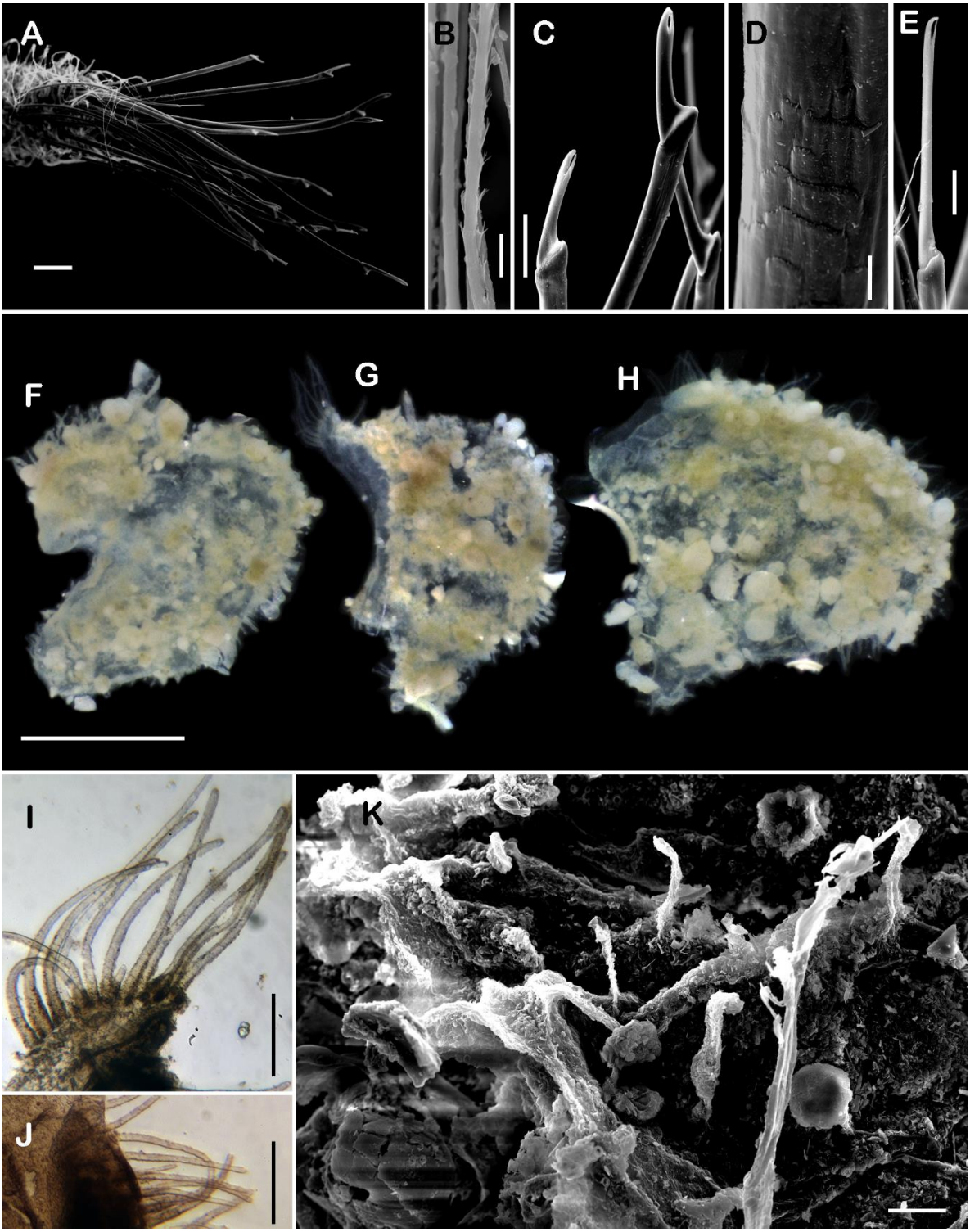

FIGURE 10. *Neopsammolyce fragilis* **n. sp.** SEM micrographs from holotype (UMML 22.1088). A, right parapodia from segment 24. B, notochaetae from same. C, unit B and C. D, denticles of unit A. E, subunit 1. F, first right elytron. G, second right elytron. H, right posterior elytra. I, detail of margin from G. J, detail of margin from H. K, surface of H, flat papillae, pedunculate papillae with flat tips. Scale bars: FGH: 1 mm, AIJ: 100 µm, C: 50 µm, EFK: 20 µm, BD: 5 µm.

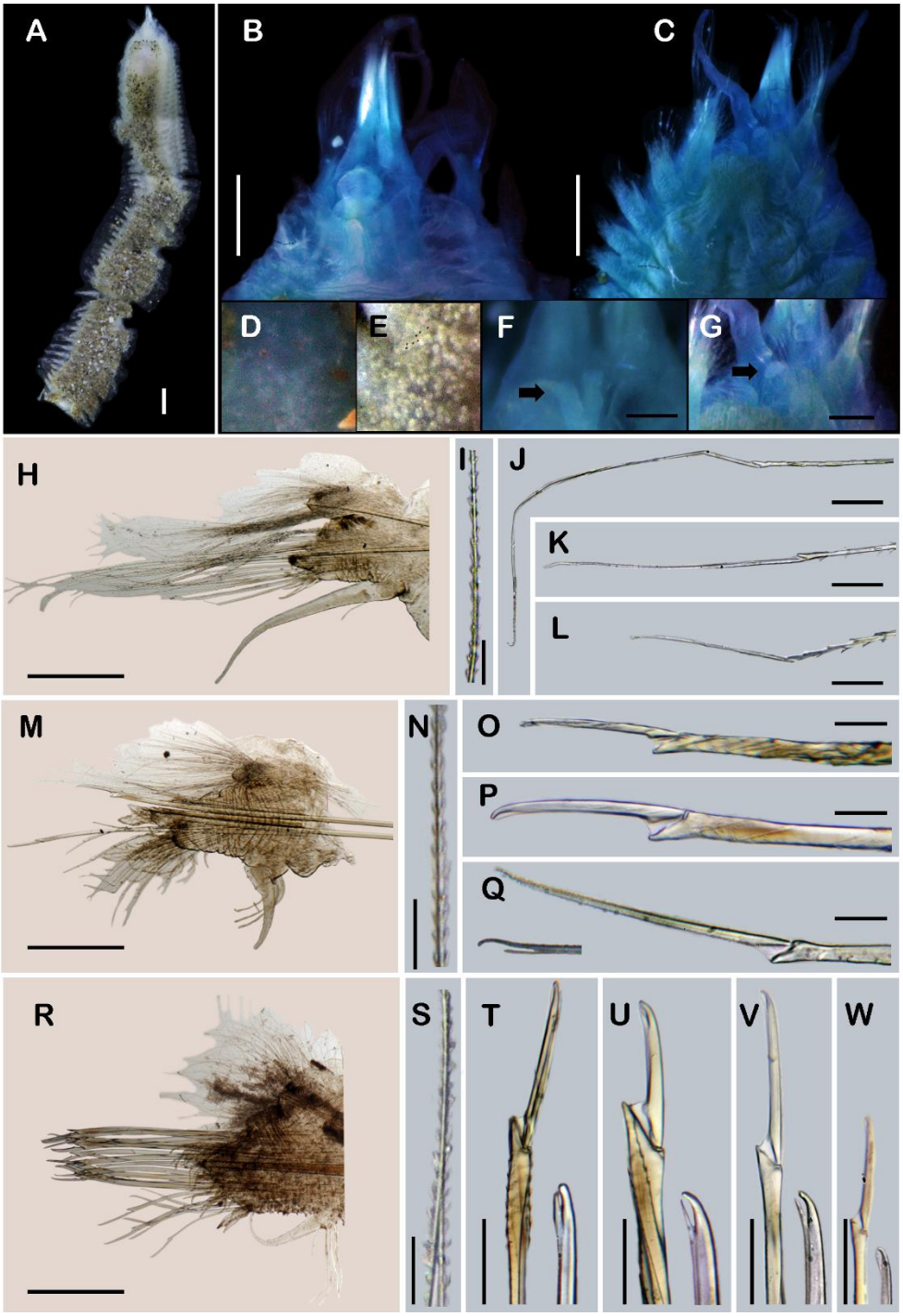

FIGURE 11. *Neopsammolyce pettiboneae* **n. sp.** Holotype (UMML 6607-393). A, incomplete worm, dorsal view. B, anterior end, dorsal view. C, anterior end, ventral view. D, dorsal papillae. E, ventral papillae. F, lateral antennae. G, facial tubercle. H, right parapodia from segment II. I, notochaetae from same. J, unit A. K, unit B. L, unit C and D. M, right parapodia from segment III. N, notochaetae from same. O, unit A. P, unit B. Q, unit C and D. R, right parapodia from segment 61. S, notochaetae from same. T, unit A. U, unit B. V, unit C. W, unit D. Scale bars: A: 2 mm, B, C: 1 mm, H, M, R: 500 µm, F, G: 200 µm, J–L, O–Q, T–W: 50 µm, I, N, S: 40 µm.

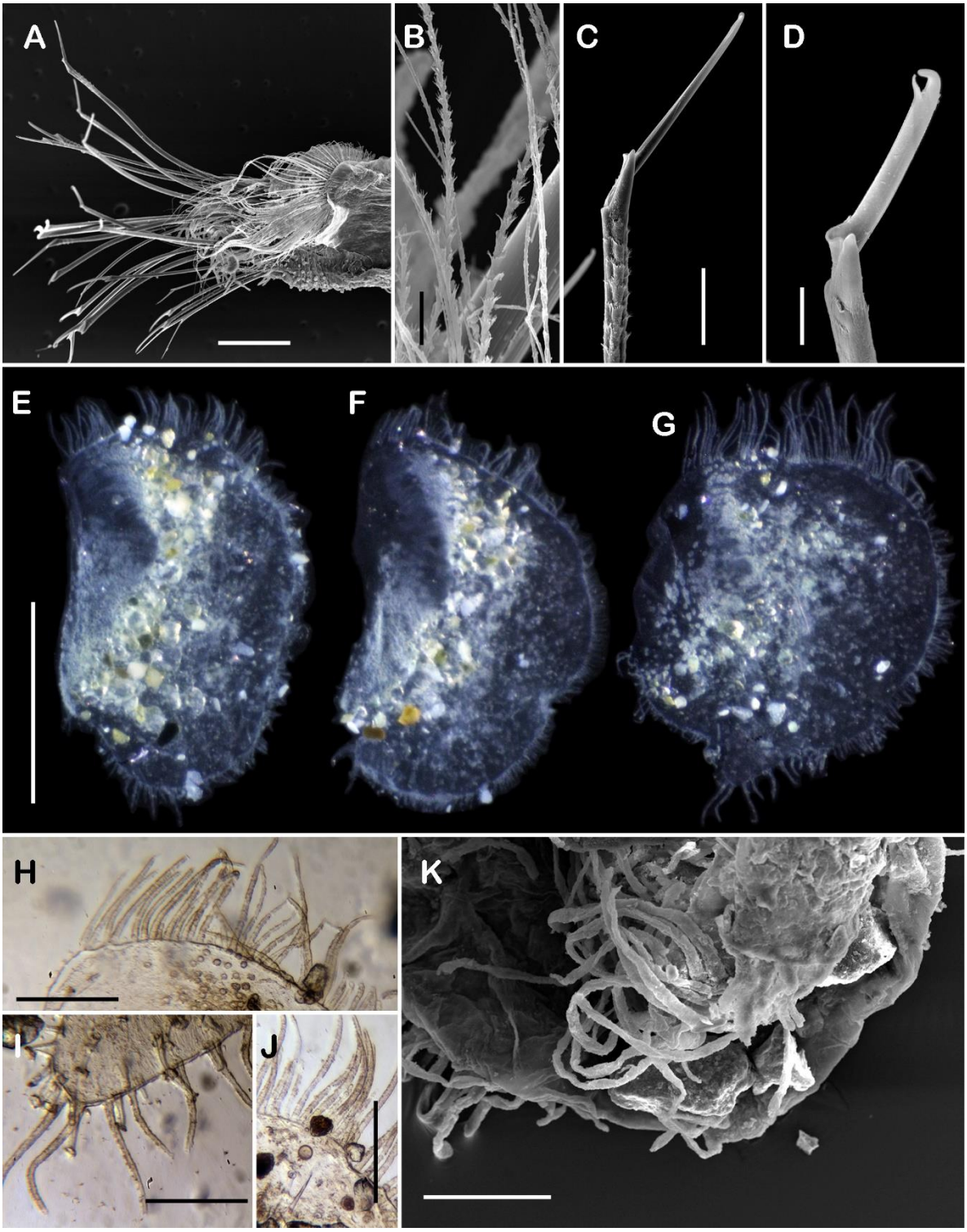

FIGURE 12. *Neopsammolyce pettiboneae* **n. sp.** SEM micrographs from holotype (UMML 6607-393). A, right parapodia from segment 27. B, notochaetae from same. C, unit A. D, unit B. E, first left elytron. F, second right elytron. G, right posterior elytron. H, detail of margin from E. I, medial process from G. J, margin from G. K, surface of posterior elytron. Scale bars: E–G: 1 mm, A: 200 µm, K: 100 µm, C, H–J: 50 µm, D: 20 µm, B: 10 µm.

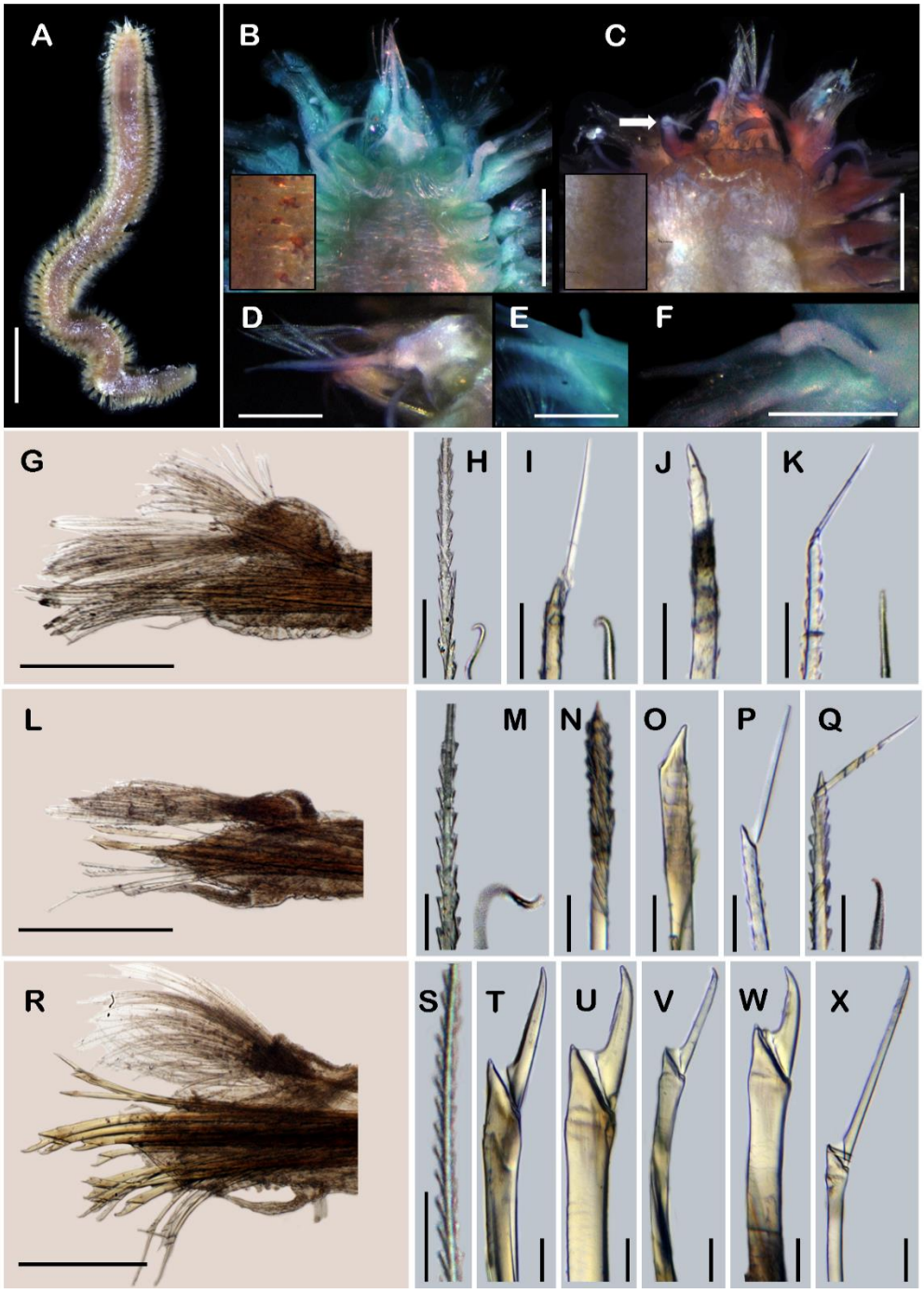

FIGURE 13. *Pelogenia brevipalpata* **n. sp.** Holotype (ECOSUR XXX). A, complete worm, dorsal view. B, anterior end, dorsal view (dorsal papillae in box). C, anterior end, ventral view (ventral papillae in box). D, median antenna. E, lateral antenna. F, right dorsal cirrus from segment III. G, right parapodia from segment II. H, notochaetae from same. I, unit A. J, unit B. K, unit C and D. L, right parapodia from segment III. M, notochaetae from same. N, unit A. O, unit B. P, unit C. Q, unit D. R, right parapodia from segment 28. S, notochaetae from same. T, unit A. U, unit B. V, unit C. W, subunit 1. X, unit D. Scale bars: A: 5 mm, BC: 1 mm, D–G, L, R: 500 µm, I–K, N–Q, T–X: 50 µm, H, M, S: 40 µm.

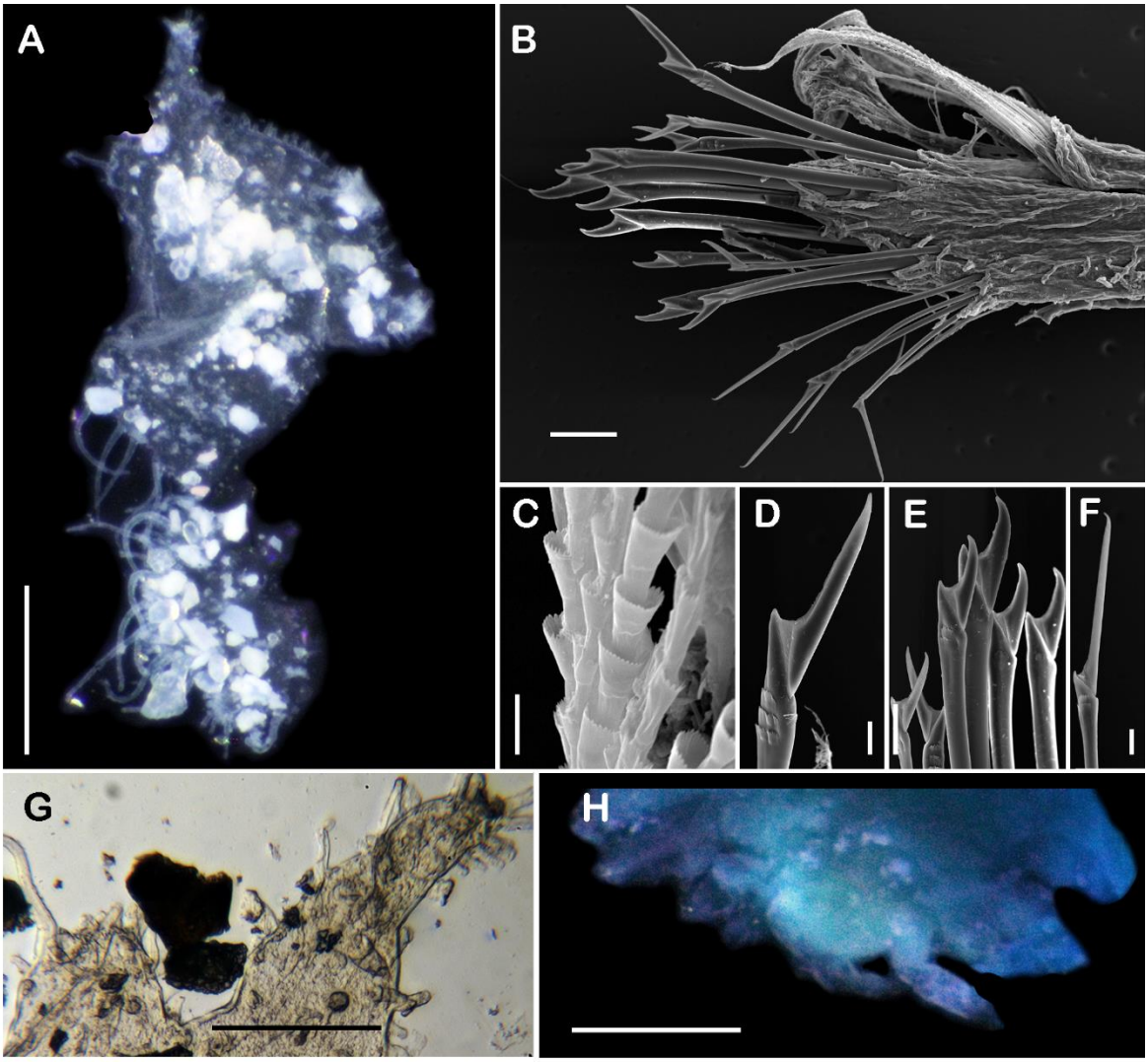

FIGURE 14. *Pelogenia brevipalpata* **n. sp.** A, posterior damaged elytron. SEM micrographs from holotype (ECOSUR XXX). B, right parapodia from segment 28. C, notochaetae from same. D, unit A. E, unit C and subunit 1. F, unit D. G, notched elytron. H, pygidium. Scale bars: A, H: 500 µm, B, G:100 µm, E: 50 µm, F, D: 20 µm, C: 10 µm.

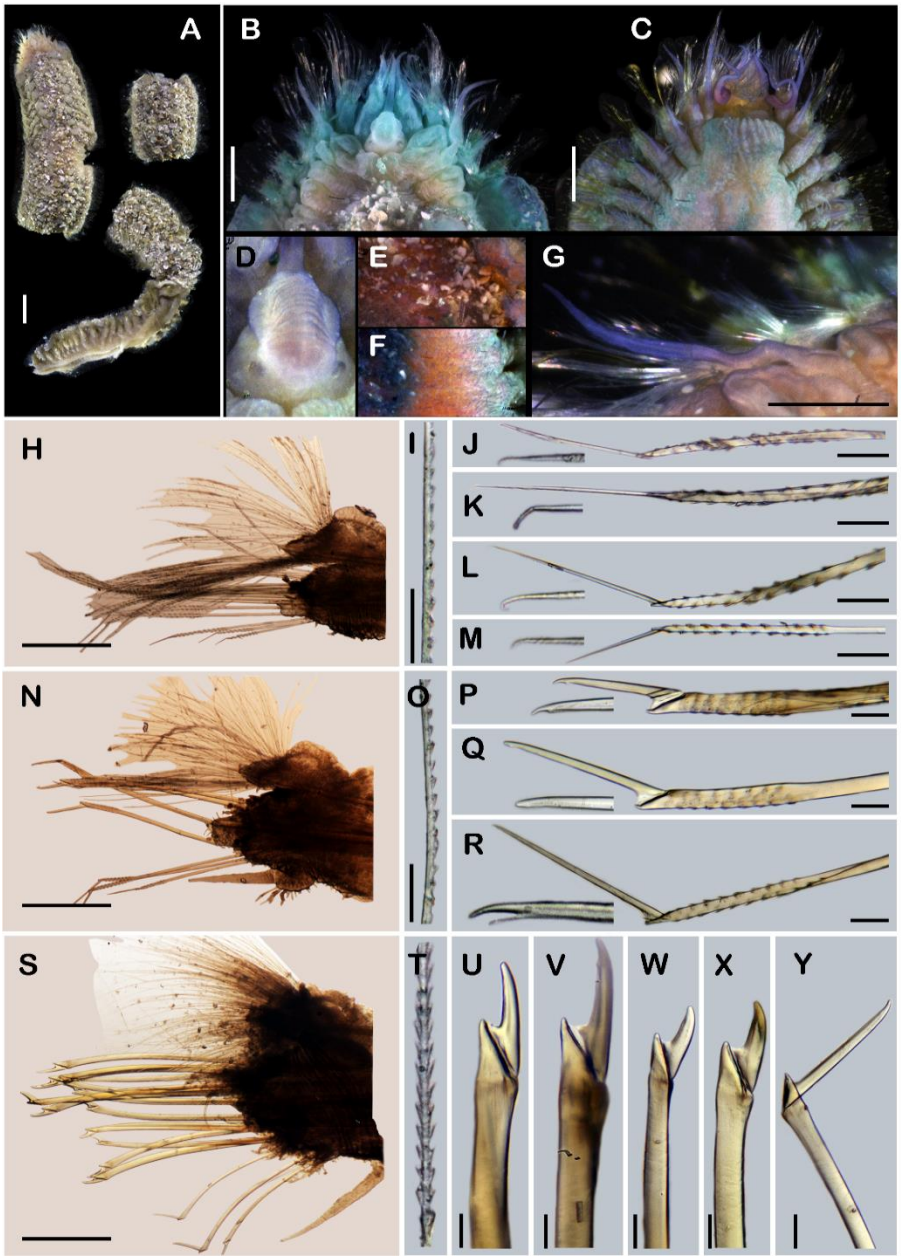

FIGURE 15. *Pelogenia hartmanae* Pettibone, 1997. Non-type specimen (UMML 7101-1369). A, incomplete fragmented worm, dorsal view. B, anterior end, dorsal view. C, anterior end, ventral view. D, detail of median antenna ceratophore. E, dorsal papillae. F, ventral papillae. G, right cirrus from segment III. H, right parapodia from segment II. I, notochaetae from same. J, unit A. K, unit B. L, unit C. M, unit D. N, right parapodia from segment III. O, notochaetae from same. P, unit A. Q, unit N. R, units C and D. S, right parapodia from segment 26. T, notochaetae from same. U, unit A. V, unit B. W, unit C. X, subunit 1. Y, unit D. Scale bars: A: 2 mm, B, C: 1 mm, G, H, N, S: 500 µm, J–M, P–R, U–Y: 50 µm, I, O, T: 40 µm.

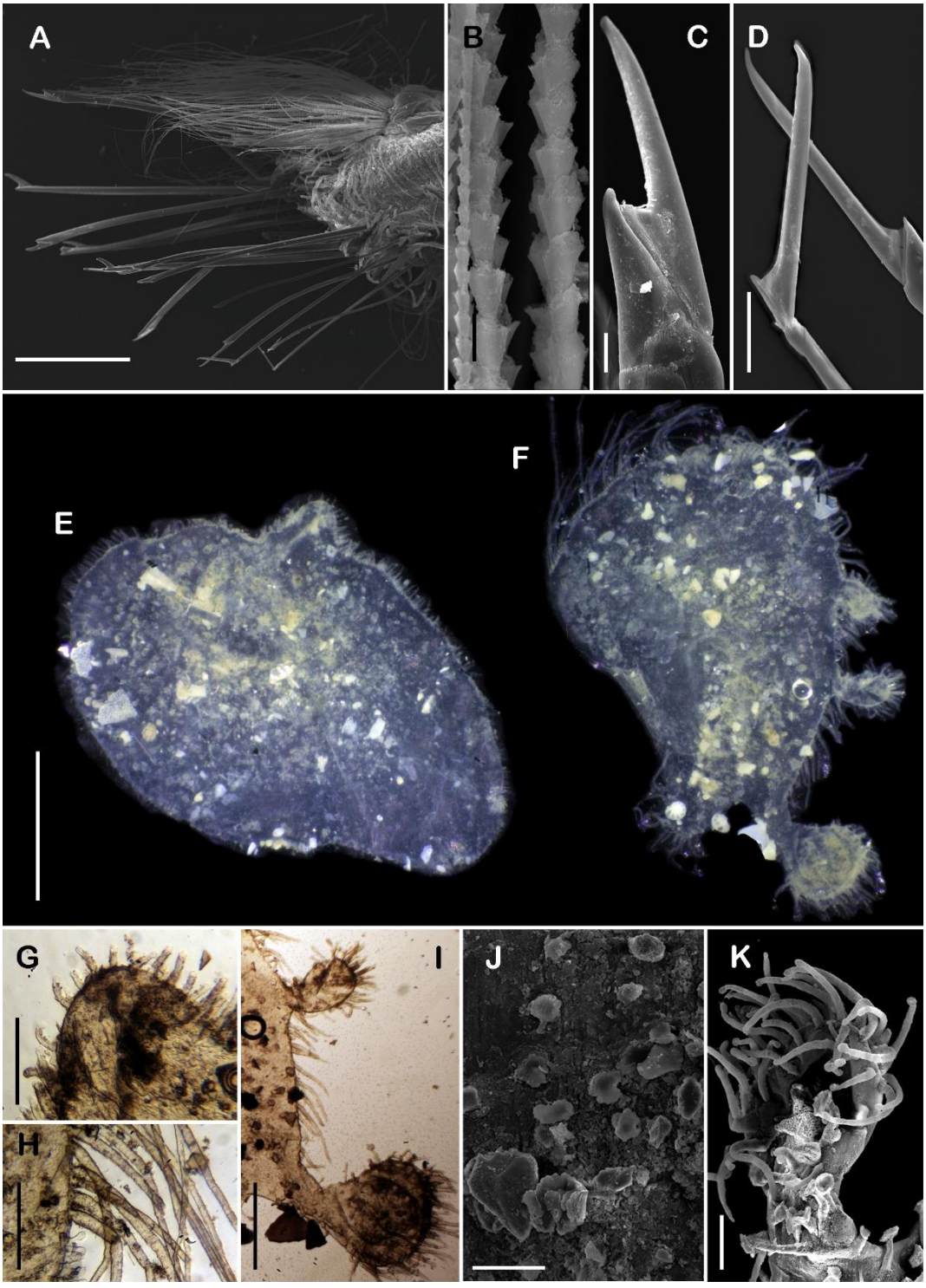

FIGURE 16. *Pelogenia hartmanae* Pettibone, 1997. SEM micrographs from non-type material (UMML 7101-1369). A, right parapodia from segment 25. B, notochaetae from same. C, unit A. D, unit D. E, first right elytron. F, posterior elytron. G, distal expansion from E. H, margin from F. I, posterior process from F. J, surface of posterior elytron with papillae flat and pedunculate flat tip. K, posterior process, long dendritic papillae and pedunculate papillae with flat tip. Scale bars: E, F: 1 mm, A: 500 µm, G–I, K: 100 µm, J, D: 50 µm, C: 20 µm, B: 10 µm.

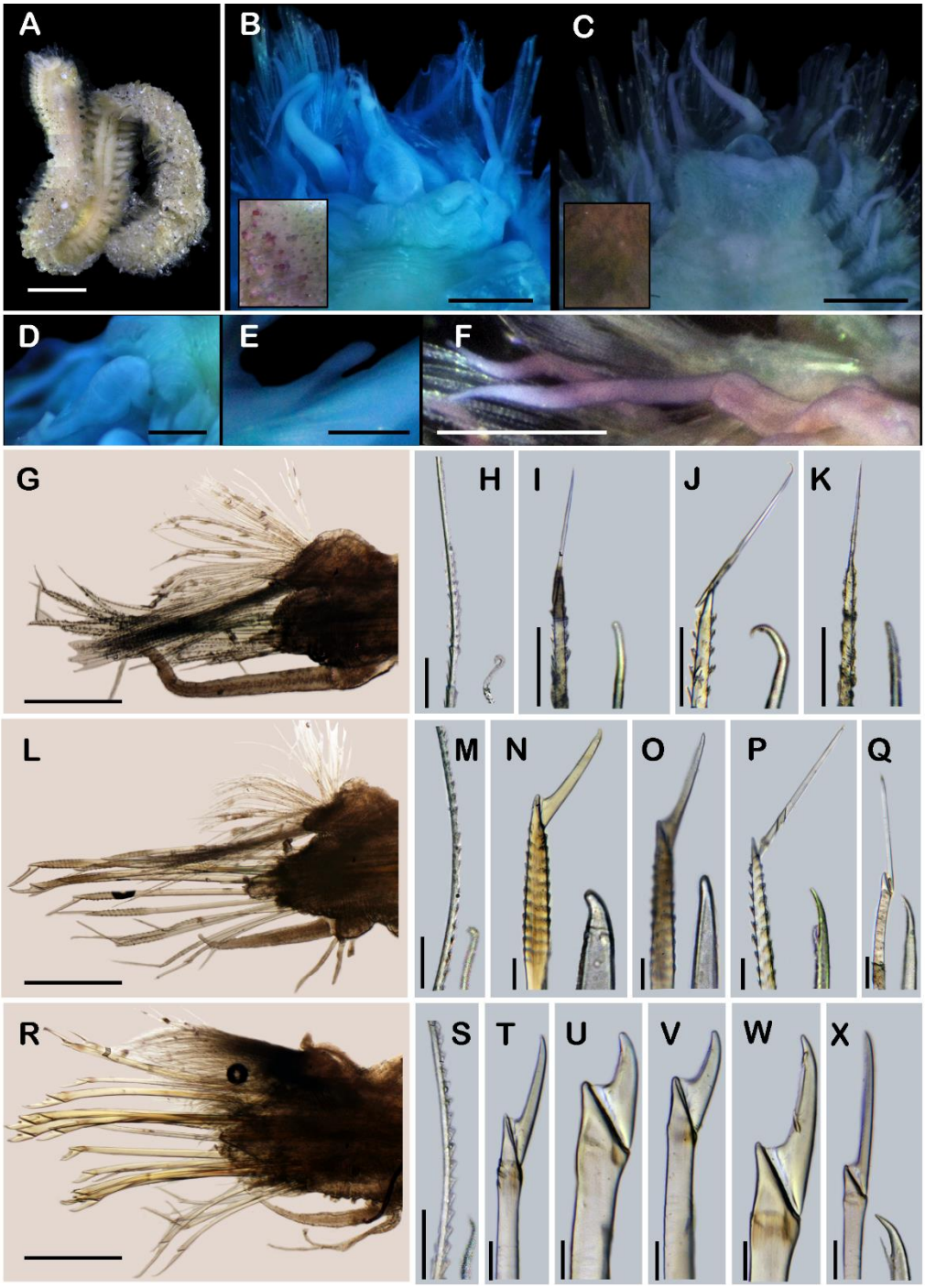

FIGURE 17. *Pelogenia kinbergi* (Hansen, 1882). Non-type specimen (UMML 6806-0694). A, incomplete worm, dorsal view. B, anterior end, dorsal view (dorsal papillae in box). C, ventral view, pharynx partially everted (ventral papillae in box). D, detail of median antenna ceratophore. E, lateral antenna. F, right dorsal cirrus form segment III. G, right parapodia from segment II. H, notochaetae from same. I, unit A. J, unit B. K, unit C and D. L, right parapodia from segment III. M, notochaetae from same. N, unit A. O, unit B. P, unit C. Q, unit D. R, right parapodia from segment 21. S, notochaetae from same. T, unit A. U, unit B. V, unit C. W, subunit 1. X, unit D. Scale bars: A: 5 mm, B, C, F: 1 mm, D, G, L, R: 500 µm, E: 200 µm, I–K, N–Q, T–X: 50 µm, H, M, S: 40 µm.

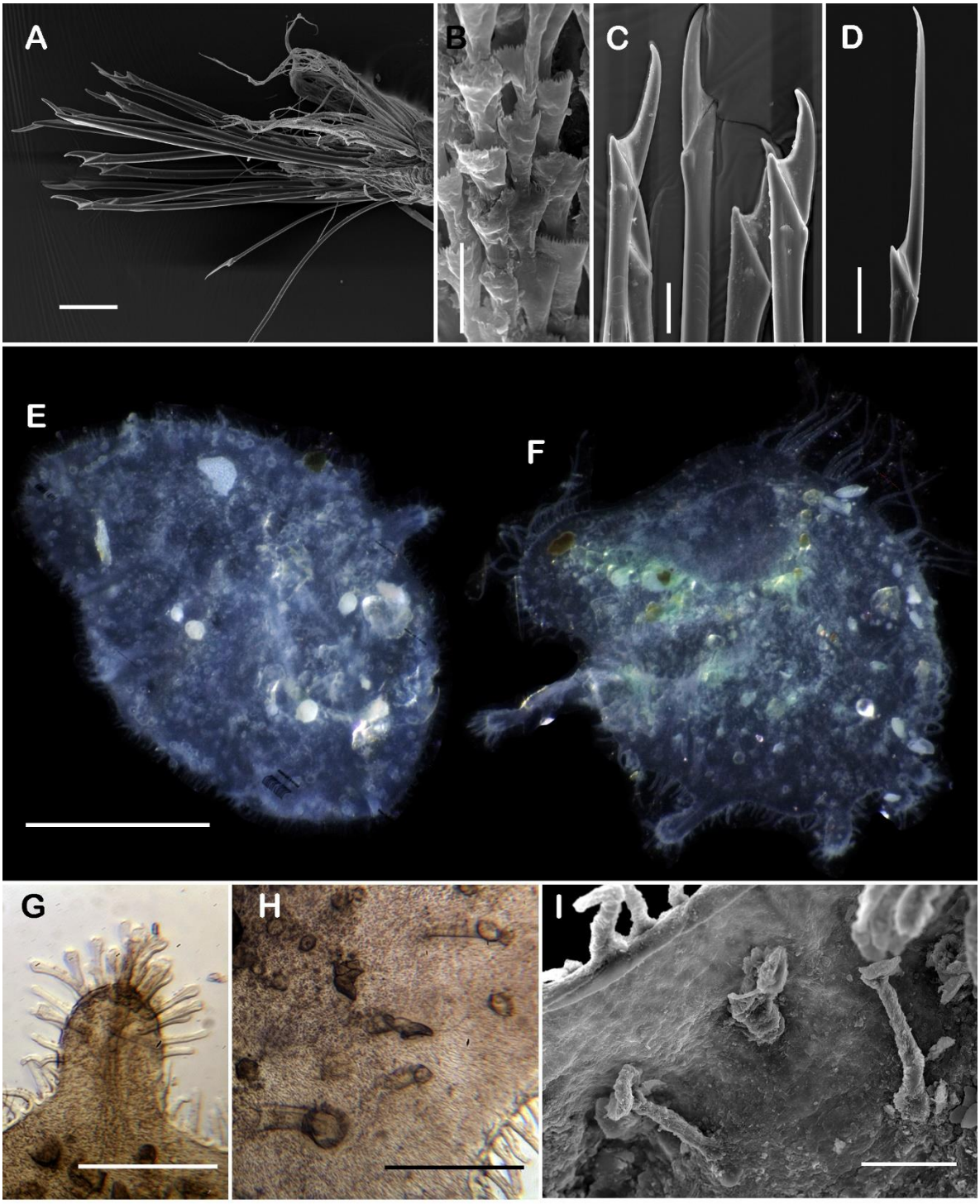

FIGURE 18. *Pelogenia kinbergi* (Hansen, 1882). SEM micrographs from non-type specimen (UMML 6806-0694). A right parapodia from segment 25. B, notochaetae from same. C, unit A and B. D, unit D. E, first right elytron. F, right posterior elytron. G, posterior process from E. H, margin from E. I, surface of posterior elytron, marginal dendritic papillae and pedunculate papillae with flat tips. Scale bars: E, F: 1 mm, A: 200 µm, G, H: 100 µm, C, D, I: 50 µm, B: 10 µm.

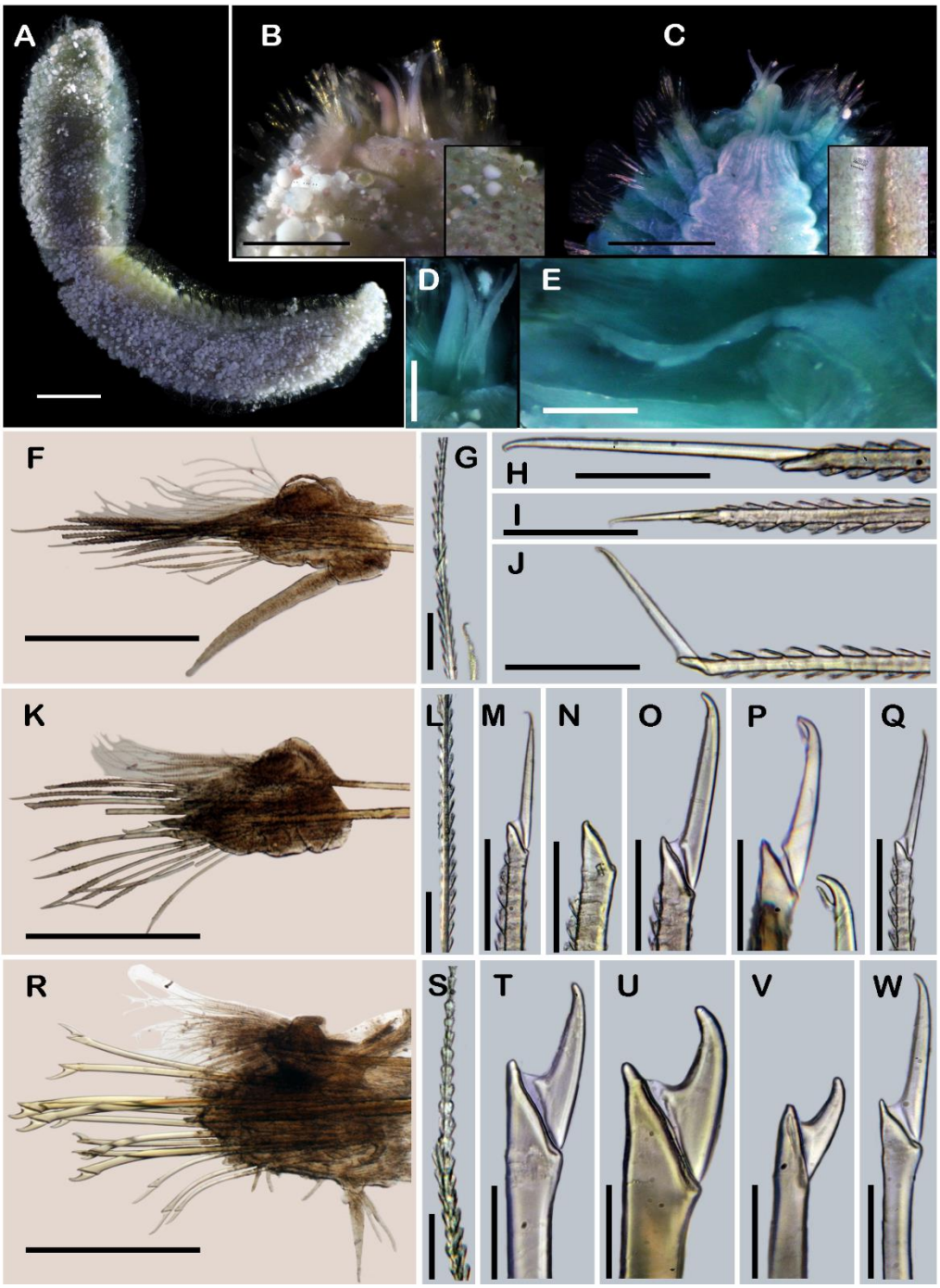

FIGURE 19. *Pelogenia multidentata* **n. sp.** Holotype (ECOSUR XXX). A, complete worm, dorsal view. B, anterior end, dorsal view (dorsal papillae in box). C, anterior end, ventral view (ventral papillae in box). D, detail of ceratostyle of median antenna, prostomium retracted. E, right dorsal cirrus from segment III. F, right parapodia from segment II. G, notochaetae from same. H, unit A. I, unit B. J, units C and D. K, right parapodia from segment III. L, notochaetae from same. M, unit A. N, unit B. O, unit C. P, subunit 1. Q, unit D. R, right parapodia from segment 25. S, notochaetae from same. T, unit A. U, unit B. V, unit C. W, unit D. Scale bars: A: 2 mm, B, C, F, K, R: 500 µm, D, E: 200 µm, H–J, M–Q, T–W: 50 µm, G, L, S: 40 µm.

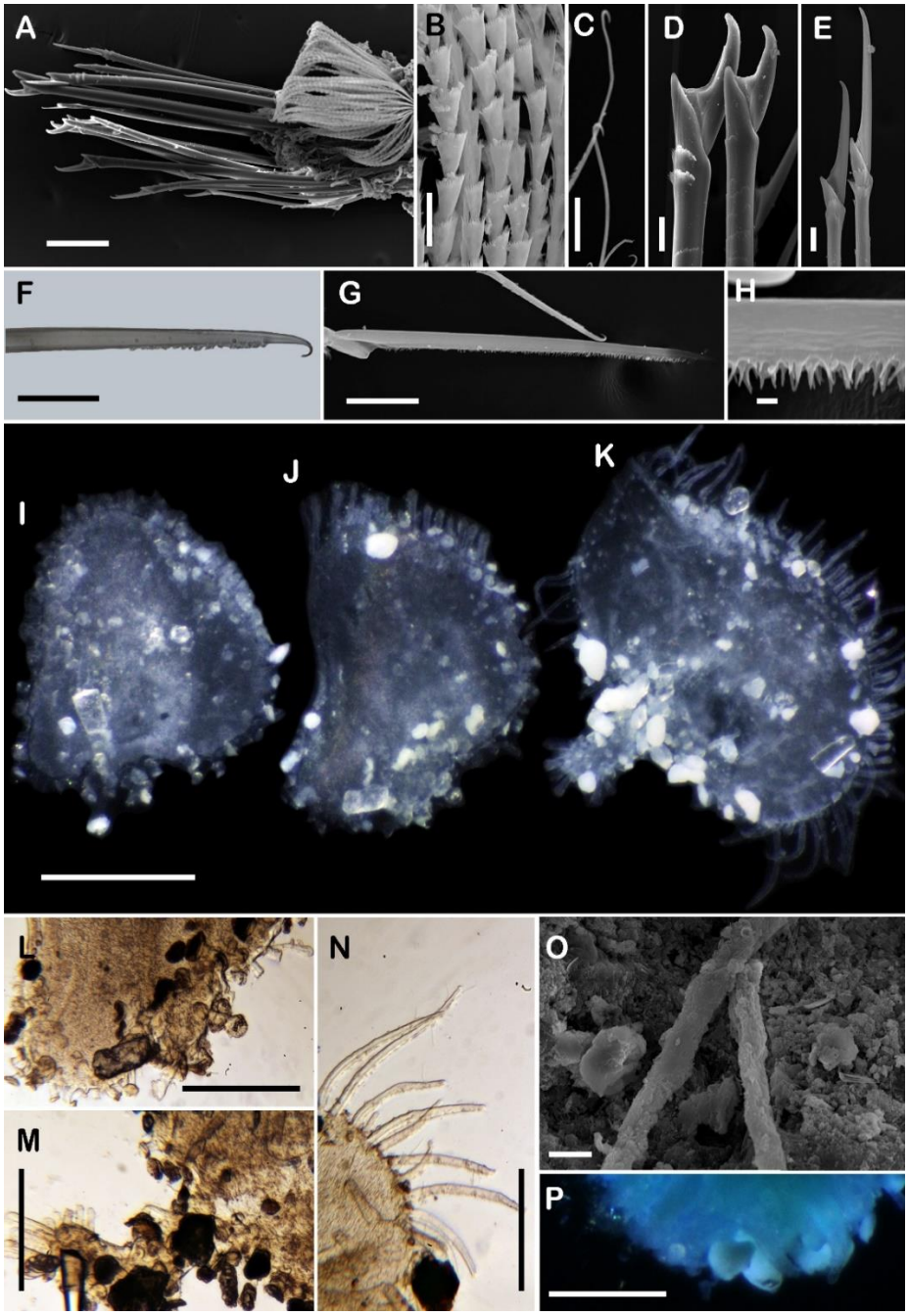

FIGURE 20. *Pelogenia multidentata* **n. sp.** SEM micrographs from additional material (ECOSUR XXX, Mahahual). A, parapodia from segment 26. B, notochaetae from same. C, distal section from same. D, unit A and B. E, unit D. F, unit A from segment II (ECOSUR XXX). G, SEM micrograph of unit A from segment II (ECOSUR XXX, Mahahual). H, detail of basal side of the blade. Holotype (ECOSUR XXX): I, first right elytron. J, second right elytron. K, posterior right elytron. L, median process from J. M, median process from K. N, posterior margin from K. O, surface of posterior elytron, flat, pedunculate flat tip and long dendritic papillae. P, pygidium, ventral view. Scale bars: I–K, P: 500 µm, L–N: 300 µm, A: 100 µm, D, G, F: 20 µm, B, C, E, O: 10 µm, H: 1 µm.

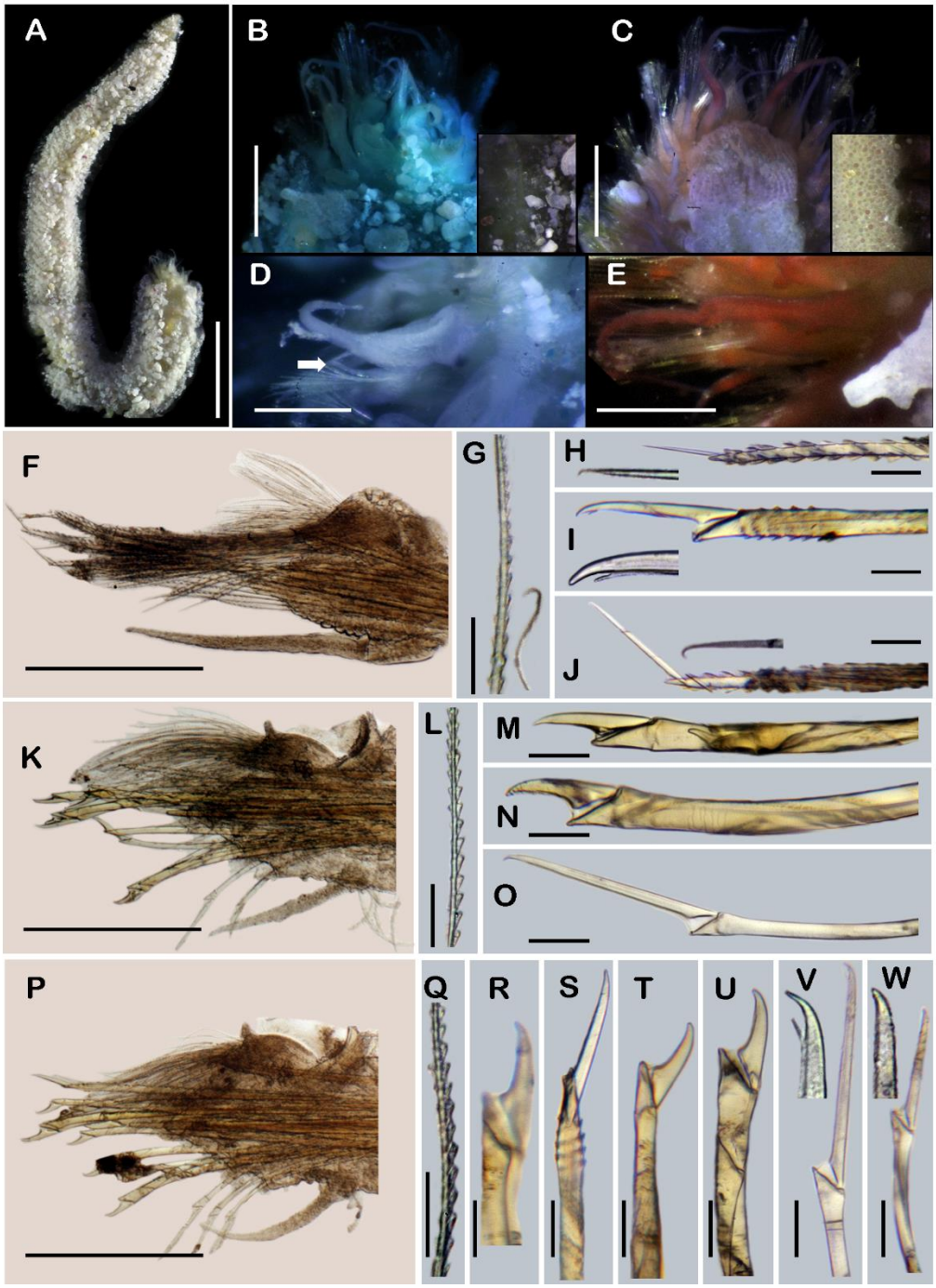

FIGURE 21. *Pelogenia sergioi* **n. sp.** Holotype (UF 2757). A, complete worm, dorsal view. B, anterior end, dorsal view (dorsal papillae in box). C, anterior end, ventral view (ventral papillae in box). D, detail of median antenna ceratophore (arrow, lateral antenna). E, left cirrus from segment III. F, right parapodia from segment II. G, notochaeta from same. H, unit A. I, unit B. J, unit C and D. K, right parapodia from segment III. L, notochaetae from same. M, unit A. N, unit B. O, unit C and D. P, right parapodia from segment 27. Q, notochaetae from same. R, unit A. S, unit B. T, unit C. U, subunit 1. V, subunit 2. W, unit D. Scales bars: A: 5 mm, B, C: 1 mm, D–F, K, P: 500 µm, H–J, M–O, R–W: 50 µm, G, L, Q: 40 µm.

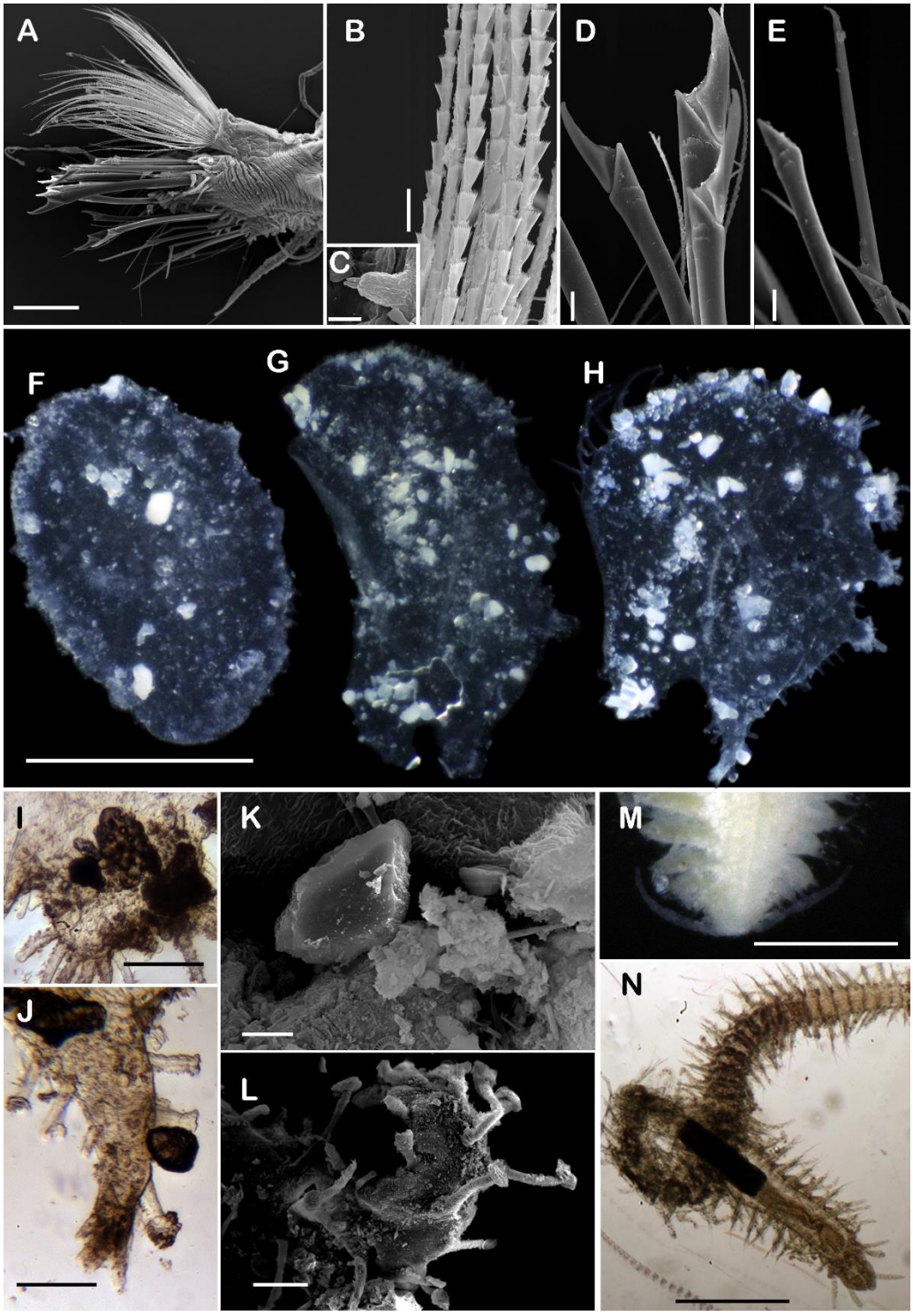

FIGURE 22. *Pelogenia sergioi* **n. sp.** SEM micrographs from holotype (UF 2757). A, parapodia from segment 23. B, notochaetae from same. C, neuropodial papilla with 'thick cilia'. D, unit A and B. E, subunit 2. F, first left elytron. G, second left elytron. H, posterior right elytron. I, medial process of G. J, medial process of H. K, flat papillae from posterior elytron. L, medial process from posterior elytron. M, pygidium. N, Syllid associated between posterior elytra. Scales bars: F–H: 1 mm, M: 500 µm, A: 200 µm, D, E: 20 µm, I–L, N:50 µm, D, E: 20 µm, B: 10 µm, C: 5 µm.

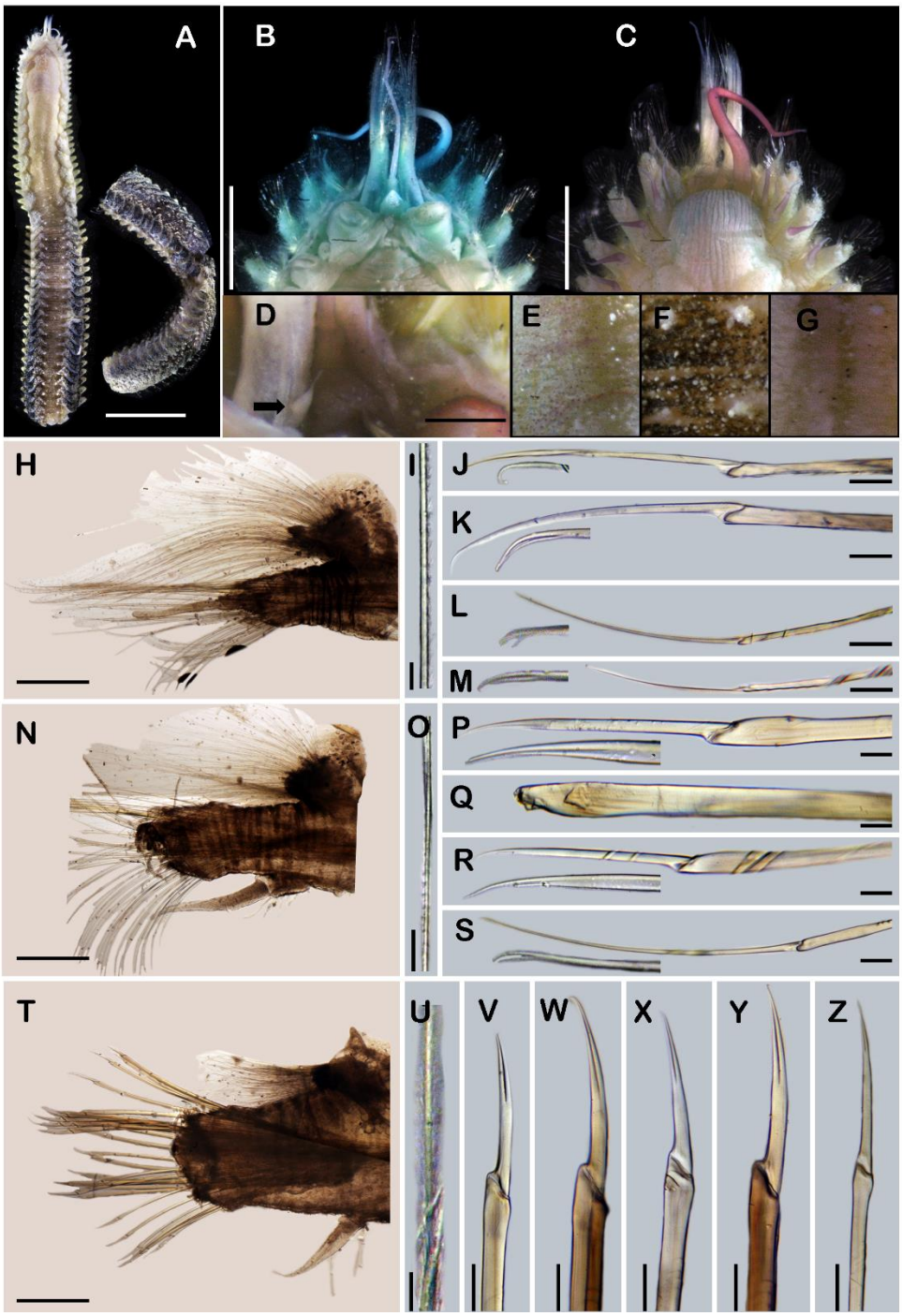

FIGURE 23. *Psammolyce flava* Kinberg, 1856. Non-type specimen (UMML 6720-927). A, incomplete fragmented worm dorsal view. B, anterior end, dorsal view. C, anterior end, ventral view. D, detail of anterior end, arrow lateral antennae. E, dorsal papillae on anterior end. F, dorsal papillae on middle region. G, ventral papillae. H, right parapodia from segment II. I, notochaetae from same. J, unit A. K, unit B. L, unit C. M, unit D. N, right parapodia from segment III. O, notochaetae from same. P, unit A. Q, unit B, blade missing. R, unit C. S, unit D. T, right parapodia from segment 23. U, notochaetae from same. V, unit A. W, unit B. X, unit C. Y, subunit 1. Z, unit C. Scale bars: A: 1 cm, B, C: 2 mm, D, H, N, T: 500 µm, J–M, P–S, V–Z: 50 µm, I, O, U: 40 µm.

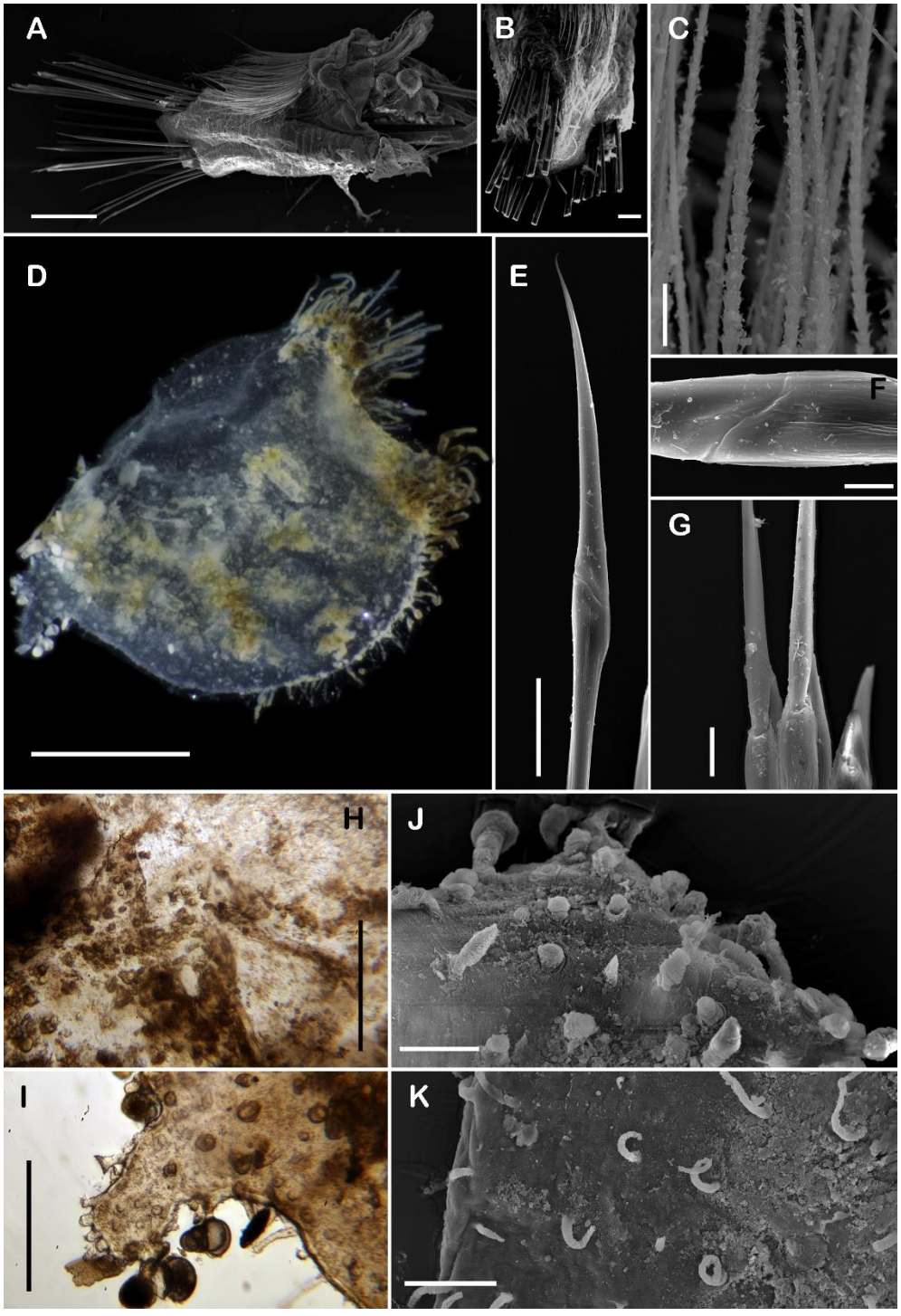

FIGURE 24. *Psammolyce flava* Kinbergi, 1856. SEM micrographs from additional material (UMML 6720-927). A, right parapodia from segment 30. B, parapodia from segment 31, neurochaetae removed, dorsal view. C, notochaetae from A. D, posterior elytron. E, unit D. F, insertion of blade on the handle. G, ventral view of unit A. H, surface of posterior elytron. I, medial process of posterior elytron. J, surface of posterior elytron, globular papillae. K, surface of posterior elytron, dendritic papillae. Scale bars: D: 1 mm, A: 500 µm, H, I: 300 µm, B: 100 µm, E, J, K: 50 µm, C, G: 20 µm, F: 10 µm.

Capítulo 3

Tiny specimens of Pholoinae, Pisioninae and Sthenelanellinae (Annelida, Sigalionidae) from the Yucatan Peninsula shelf

Por someterse: ZOOTAXA

Tiny specimens of Pholoinae, Pisioninae and Sthenelanellinae (Annelida, Sigalionidae) from the Yucatan Peninsula shelf

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Abstract

The subfamilies Pholoinae Kinberg, 1858, Pisioninae Ehlers, 1901 and Sthenelanellinae Augntonya *in* Gonzalez *et al.*, 2017 have been scarcely studied in the Grand Caribbean Region, and there are a few species recorded, including questionable records. After the revision of specimens of these three sigalionid subfamilies deposited in two ECOSUR collections (Mexico), four species were determined, including three newly described ones from the Yucatan Peninsula: *Taylorpholoe anabelae* **n. sp.** *Sthenelanella pechi* **n. sp.** and *S. sarae* **n. sp.** A key to all species of *Taylorpholoe* and *Sthenelanella* is also included.

Key words: Grand Caribbean Region, new species, scale-worms, *Sthenelanella*

Introduction

Sigalionids are recognized by being relatively large scale-worms; most belong to the subfamilies Sigalioninae Kinberg, 1856 or Pelogeniinae Chamberlin, 1919; whereas, small specimens are present among these, and more often in other subfamilies. As part of a larger-scale study of sigalionids from the Grand Caribbean Region, this study addresses the subfamilies Pholoinae Kinberg, 1858, Pisioninae Ehlers, 1901 and Sthenelanellinae Aungtonya *in* Gonzalez *et al.*, 2017 in the region.

The study of these subfamilies has been scarce with only few species recorded in the region. Only three species of pholonins have been recorded: *Taylorpholoe hirsuta* (Rullier & Amoureux, 1979) described from southern Brazil, and recorded widely in the Grand Caribbean region (Pettibone 1992, San Martín *et al.* 1986), *Pholoe minuta* (Fabricius, 1780) described from Greenland and recorded from Belize (Young & Young 1982) and *Pholoides bermudensis* (Hartman & Fauchald, 1971) an abyssal Northwestern Atlantic species later synonymized by Pettibone (1992) with *Pholoides dorsipapillatus* (Marenzeller, 1893) described from the Mediterranean.

Pisionins, or scale-less sigalionids, have only five species recorded for this region, three were described from the region, and two are questionable records. *Pisione hartmannschroederae* Westheide, 1995 was described from Florida, *P. wolfi* San Martín, López &Núñez, 1999 was described from Cuba, and *Pisionidens ixazaluohae* Petersen, Gonzalez, Martínez & Worsaae, 2016 was described from Quintana Roo. Questionable records correspond to *Pisionidens indica* (Aiyar & Alikuhni, 1940) described from India and repeatedly recorded in the region (Dexter 1974, Fauchald 1973, Baéz & Ardilla 2003), and *Pisione remota* (Southern, 1914) described from Ireland, and recorded from Cuba (Ibarzabal 1997, 2004). Unfortunately, these questionable records do not include enough morphological evidence to confirm the identity of the species.

Regarding to sthenelanellins only one species has been recorded, *Sthenelanella* sp. A by Wolf 1984 from the Gulf of Mexico, and here it is newly described.

This study investigates three subfamilies of sigalionids in the Yucatan Peninsula Shelf: Pisioninae, Pholoninae and Sthenelanellinae. New records and three new species are described herein.

Material & methods

Benthic marine annelids were collected from several localities along the Yucatan Peninsula shelf. Specimens were fixed using 10% formalin-seawater solution, and eventually preserved in 70% ethanol, and deposited in two ECOSUR collections: Reference Collection of Laboratorio de Biodiversidad y Cambio Climático (BIOMARCCA) and Reference Collection of Benthos (ECOSUR) of El Colegio de la Frontera Sur. Because of their tiny size, examined specimens were temporally stained with Shirlastain-A before being observed and photographed. For scaled

sigalionids, elytra were dissected and cleaned immersed in a 1:1 white vinegar ethanol solution. Elytra and parapodia were dissected from the right body side, mounted to be observed in anterior position in semi-permanent microscope preparations in 1:1 ethanol-glycerol solution. Several photographs were taken using a Canon EOS REBEL T6 mounted in a light microscope in different focal plains, and then compressed using Helicon Focus 7. Final photographs were edited using Photoshop CC.

Some complete specimens were observed and photographed by SEM. Specimens were dehydrated in a series of different concentrations of alcohol and hexamethyldisilazane (HMDS). After air-dried, the specimens were mounted in aluminum stubs and coated with gold for observations using a JEOL-JSM-601Plus-LA scanning electron microscopy at Scanning Electron Microscopy Laboratory (LMEB), ECOSUR-Chetumal. Morphological terms follow Pettibone (1992), Aungtonya (2013) and Cruz-Gómez (*in prep.*). The results are presented alphabetically per subfamily.

Results

Subfamily Pholoinae Kinberg, 1858

Taylorpholoe Pettibone, 1992

Taylorpholoe Pettibone, 1992: 13

Type species: *Pholoe minuta hirsuta* Rullier & Amoureux, 1979 by original designation

Diagnosis (after Pettibone 1992). Pholonin with body with scatter tubercles dorsally. Prostomium bilobed, rounded, as long as wide. Facial tubercle present. Median antennal ceratophore reduced, ceratostyle short. Segment I achaetous, uniramous; segment II and following chaetigers, biramous. Ctenidial pads and branchia absent. A stylode present on notopodia, neuropodia scattered with papillae. Notochaetae short geniculate simple chaetae. Neurochaetae always falcigers with tapered curved blades. All elytra with fringe.

Key to species of *Taylorpholoe* Pettibone, 1992

1 Elytral fringe with dendritic papillae; first elytra rounded with few long marginal papillae; basis of notopodial stylode small, as wide as neuropodia … *T. hirsuta* (Rullier & Amoureux, 1979), Brazil, Southwestern Atlantic.

- Elytral fringe with flask-shaped papillae; first elytra subtriangular with numerous short marginal papillae; basis of notopodial stylode massive, 2–3 times wider than neuropodia … *T. anabelae* **n. sp.**, Yucatan Peninsula, Gulf of Mexico.

***Taylorpholoe anabelae* n. sp.**

Figs 1–2

Pholoe sp. —Taylor, 1971: 111, Fig. 3E-1 (*non T. hirsuta* Rullier & Amoureux, 1979).

Sigalionidae gen. sp.—San Martín *et al.* 1986: 9, Fig. 5 (*non T. hirsuta*).

Taylorpholoe hirsuta.—Pettibone 1992 (*partim*, *non* Rullier & Amoureux, 1979)

Material examined. Gulf of Mexico. Quintana Roo. Holotype. BCC06731, R/V Justo Sierra, off Holbox (22º9’59.28”N, 87º12’59.10”W), 37 m, November 30, 2012, coll. Sara B. Balam. **Paratype.** BCC06905, R/V Justo Sierra, off Holbox (22º4’0.22"N, 86º55’0.11”W), 42 m, November 29, 2012, coll. Anabel León, [coated with gold, complete, 15 segments, 1.1 mm long, 0.6 mm wide].

Additional material. Caribbean Sea. Quintana Roo. ECOSUR-XXX, Nichupté Lagoon (21°6'36.25"N, 86°46'59.07"W), July 06, 1988, seagrass, coll. Soledad Jiménez & José Oliva, [14 segments, 1 mm long, 0.9 wide].

Description. Holotype (BCC06731) complete, 13 segments, 0.8 cm long, 0.6 cm wide. Female, oocytes in middle segments seen by transparency; early juveniles under posterior elytra. Body translucent, depressed, short, broad (Fig. 1A, 2A). Scattered tubercles along mid-dorsal line; venter with short globular papillae (Fig. 1C, 2C).

Prostomium fused with first segment, bilobed, oval, wider than long. Two pairs of eyes, all of similar size, visible dorsally. Lateral antennae short, ceratophore large, subconical, style short ½

as long as ceratophore. Median antenna inserted dorsally, ceratophore short, semicircular, ¼ as long as prostomial length, ceratostyle short, as long as ceratophore (Fig. 1B, 2B). Tentaculophore directed anteriorly, achaetous, dorsal and ventral tentacular cirri short. Palps short thick, laterally displaced, reaching segment two (Fig. 1A).

All elytra smooth, fringe with dendritic papillae; first right elytron small, subrectangular, fimbria with 27 papillae flask-shaped (Fig. 1E, 2D). Second right elytron slightly larger than first one, rounded, anterior margin smooth. Posterior right elytra larger, rounded, fimbria with 34 marginal papillae, anterior margin smooth (Fig. 1F). Elytra above juveniles larger (Fig. 1G).

Right parapodium from segment 8 (middle segment) (Fig. 1H–J). Notopodia leaf-shaped, large, smooth, twice longer than neuropodia, with a short distal stylode. Notochaetae with up to 10 simple geniculate of similar size, as long as notopodia (Fig. 1K, 2E). Neuropodia conical, short, surface scattered with tubercles. Neurochaetae only falcigers with curved short blades (Fig. 2F): unit A, one falciger with thick handle, blade short, twice longer than wide (Fig. 1L); unit B, 3 falcigers with thick handles, blades medium-sized, 2–3 times longer than wide (Fig. 1M); unit C, 3 falcigers with thick handles, blades short, as long as wide (Fig. 1N); unit D, slender handles, blades short, as long as wide (Fig. 1O). First anterior chaetigers only with neuropodial spinigers (Fig. 1P).

Pygidium bilobular with two long subulate cirri.

Variation. Paratype and additional material with pharynx everted, eyes barely seen; prostomium gets apparently retracted, and eyes could be partially concealed by first segments. Males with large mases of sperm in middle segments.

Type locality. Off Holbox (22º9'59.28”N, 87º12'59.10”W), Quintana Roo.

Distribution. Gulf of Mexico and Caribbean Sea. From Florida to Quintana Roo, Mexico.

Etymology. The name of this species is a humble recognition of the great labor done by Anabel León as technician assistant in the Laboratorio de Biodiversidad y Cambio Climático, ECOSUR-Campeche during many years.

Remarks. There are similarities between *T. anabelae* **n. sp.** and *T. hirsuta* (Rullier & Amoureux, 1979) described from Brazil. However, *T. anabelae* **n. sp.** differs by having notopodial stylode

with large wide basis, elytra with marginal, consistently abundant and flask-shaped papillae, whereas, *T. hirsuta* has short slender notopodial stylodes, elytra with marginal sparse long papillae.

Pettibone (1992) recombined *Pholoe minuta hirsuta* and elevated its status, using it as the type species of *Taylorpholoe*. She used material from the Grand Caribbean region and beyond, including type material from central Brazil. However, the redescription was based on material from Florida, previously examined by Taylor (1971), which apparently fits the original description, and the first elytra from holotype. However, elytra from holotype did not match Taylor's illustrations (1971: 115, Fig. E–I), nor drawings by San Martín *et al.* (1986: 13, Fig. 5A), but does fit with *T. anabelae* **n. sp.** Further, type or topotype material of *T. hirsuta* should be used to complete properly the description of the species.

Subfamily Pisioninae Ehlers, 1901

***Pisione* Grube, 1857**

Pisione Grube, 1857: 174

Type species. *Pisione oerstedii* Grube, 1857, by monotype.

Diagnosis (after Yamanishi 1998). Pisionin with prostomium reduced, surrounded by buccal segment (tentacular), without antennae. Tentacular cirri long, ventral short flask-shaped. Buccal acicula might be present. All chaetigers with dorsal and ventral cirri flask-shaped, except for ventral cirri of first chaetiger and dorsal one of second chaetiger. Prechaetal lobes well-developed, single or bilobed. Notacicula, usually smaller than neuracicula, might project through the skin. Neurochaetae of several kinds, simple chaetae, compound chaetae falcigers and spinigers. Copulatory apparatus temporary.

***Pisione wolfi* San Martín, López & Núñez, 1999**

Figs 3–4

Pisione wolfi San Martín, López & Núñez, 1999: 7, Figs. 3–4.

Pisione sp. A. —Wolf 1984: 27-7, Fig. 27-4.

Type locality. Isla de la Juventud, Cuba.

Material examined. Caribbean Sea. Quintana Roo. BCC17479, R/V UAT 1 CIDIPORT, off Isla Mujeres (22º4'0.22"N, 86º55'0.11"W), 29 m, August 28, 2016, sediment, coll. Anabel León [coated in gold, anterior fragment, 13 segments, 0.2 cm long, 0.08 cm wide]. BCC17469, R/V UAT 1 CIDIPORT, off Isla Mujeres (21º18'0.79"N, 86º34'0.37"W), 29 m, August 28, 2016, sediment, coll. Anabel León [fragment without posterior region, 51 segments, 0.8 cm long, 0.5 cm to segment 30, 0.02 cm wide].

Description. Non-mature specimen (BCC17469), incomplete (Fig. 3A, 4A). Body slender, long, whitish. Integument shiny, dorsal segmental furrow well-marked, ventrally barely developed (after staining, segmental furrow visible along body) (Fig. 3B).

Prostomium reduced, rhomboid, surrounded by buccal segment (Fig. 3C). Buccal segment quadrangular, as long as wide; dorsal cirri slender, 8 times longer than wide; ventral cirri flask-shaped, short, ¼ as long as dorsal cirri (Fig. 3E); palps thick, smooth, 10–11 times longer than wide. Eyes small, one pair, inserted at chaetiger 2. Cerebral ganglia extended from buccal segment to posterior margin of chaetiger 4. Buccal acicula thick, oblique, extended along buccal segment, protruding, expanded distally, distal plate smooth (Fig. 3D, 4B).

Pharynx with two pairs of jaws, visible between chaetigers 4 and 5 (Fig. 3F). Dorsal cirri small throughout body, cirrophores globular to oval, cirrostyles globular short, half as long as cirrophore, tips ciliate. Ventral cirri similar to dorsal ones, slightly smaller.

Chaetiger 1 shorter than following ones, ¾ as long as succeeding one (Fig. 3C). Parapodial lobes truncated, prechaetal lobe entire rounded. Chaetigers 1–6 slightly longer than following ones.

Posterior chaetiger (17) parapodium, sesquiramous, notopodia reduced. Notacicula thick, short, ½ as long as neuracicula, neuracicula thicker (Fig. 3G). Neurochaetae include four kinds, in dorso-ventral sequence: 1 superior simple chaeta, distally obliquely swollen, serrated, with a subdistal globular tooth (Fig. 3H, 4D). Subsequent chaetae, only compound heterogomphs. A spiniger with handle slender, smooth, with distal scale, blade curved, long, 10–11 times longer than wide (Fig. 3I, 4D). Lower, 3 falcigers with handle thick with 1 subdistal tooth; blade straight, short, 3 times longer than wide (Fig. 3J, 4C). Lowest, 2 falcigers with handle slender, with 1 subdistal

tooth; blade straight, short, 3–4 times longer than wide (Fig. 3K–L, 4C). Falcigers unidentate, basally serrated with long teeth, lowest with tips claw-shaped.

Copulatory parapodia and organs not seen. Posterior region lost.

Distribution. Caribbean Sea, from Campeche, Mexico to Isla de la Juventud, Cuba.

Remarks. These specimens match the original description by San Martín *et al.* (1999); some differences were detected. My specimens only have one pair of eyes and thick jaws, whereas San Martín *et al.* (1999) described the species with two pairs of eyes and thin jaws. Regarding the eyes, maybe they referred to fused pair of eyes, and about the jaws they might be dimorphic. *Pisione wolfi* was described using mature male specimens, whereas here the examined specimens are incomplete, possible immature due copulatory organs were not seen; including oocytes.

Subfamily Sthenelanellinae Aungtonya *in* González *et al.* 2017

***Sthenelanella* Moore, 1910**

Sthenelanella Moore, 1910: 391

Euleanira Horst, 1916: 12 (syn.)

Type species: *Sthenelanella uniformis* Moore, 1910, by monotypy.

Diagnosis after (Pettibone 1969 and Aungtonya & Eibye-Jacobsen 2013). Sthenelanellin with prostomium rounded, as long as wide. Facial tubercle absent. Median antennal ceratophore with auricles, ceratostyle short. Palpal sheaths might be absent. Segment I uniramous, segment II and following ones biramous. Ctenidial pads present; stylodes absent, tiny papillae instead. Interramal spinning glands might be present. Notochaetae of two kinds, long verticillate or short geniculate. Neurochaetae always falcigers with short blades, except first four segments with articulate blades. All elytra coloured with brown to gold dots.

Key to species of *Sthenelanella* Moore, 1910

1 Tentacular segment without dorsal tentacular crest; posterior elytra with lateral margin entire … **2**

- Tentacular segment with dorsal tentacular crest; posterior elytra with lateral margin notched … *S. ehlersi* (Horst, 1916), Madura Strait, Java Sea

2(1) Neurochaetae from anterior segments with blades articulate … **4**

- Neurochaetae from anterior segment with blades entire … **3**

3(2) Elytral surface without pigmentation; elytra on all segments from segment 27 … *S. uniformis* Moore, 1910, California, Eastern Pacific

- Elytral surface with pigmentation; elytra on all segments from segment 25 … *S. eylathae* (Fauvel, 1958), Gulf of Aqaba

4(2) Branchiae from segment 2 … **5**

- Branchiae from segment 5 … *S. petersini* Lana, 1991, Brazil, Southwestern Atlantic

5(4) Between segment 2 and 3 with dorsal ctendial pads … **6**

- Between segment 2 and 3 without dorsal ctenidial pads … *S. corallicola* Thomassin, 1972, Madagascar, Indian Ocean

6(5) Posterior elytra with or without marginal papillae; anterior segments with neurochaetal blades with bifurcate tips … **7**

- Posterior elytra with margins smooth; anterior segments with neurochaetal blades with tips entire … *Sthenelanella* sp. 1 Aungtonya & Eibye-Jacobsen, 2013, Thailand, Andaman Sea

7(6) Elytral pigmentation pattern goldish transversally banded; posterior elytra without marginal fringes, … **8**

- Elytral pigmentation pattern brown mottled; posterior elytra with marginal short papillae … *S. japonica* Imajima, 2003, Sagami Bay, Northwest Pacific

8(7) First elytra round; elytral pigmentation transversally banded; posterior elytra reniform … *S. pechi* **n. sp.** Yucatan Peninsula, Gulf of Mexico

- First elytra subtriangular; elytral pigmentation mottled; posterior elytra rounded … *S. sarae* **n. sp.** Yucatan Peninsula, Gulf of Mexico

***Sthenelanella pechi* n. sp.**

Figs 5–6

Material examined. Caribbean Sea. Gulf of Mexico. Veracruz. Holotype. BCC19604, R/V Justo Sierra, off Tecolutla (20º46’42.30"N, 96º58’26.58"W), 49 m, March 17, 2018, coll. Anabel León. **Paratype.** BCC19604 same data as holotype [coated in gold, fragment without posterior region, 15 segments, 0.35 cm long, 0.1 cm wide].

Description. Holotype (BCC19604) complete with 32 segments, 0.5 cm long, 0.42 cm to segment 30, 0.1 cm wide. Body pale orange, translucent posteriorly, short, broad (Fig. 5A). Mid-dorsal line smooth, some elytra lost, venter smooth.

Prostomium oval, wider than long. Two pairs of eyes, anterior eyes larger, visible dorsally. Lateral antennae short, barely seen, dorsally fused with tentacular segment. Median antenna with ceratophore short, bulbous, 1/3 as long as prostomial length, two short auricles on median antennal ceratophore; ceratostyle slender, short, as long as prostomium (Fig. 5C). Dorsal tentacular crest absent. First segment fused with tentacular segment; uniramous, notochaetae simple verticillates; neurochaetae short articulate falcigers. Tentacular cirri long, 3 times longer than neuropodia, ventral cirrus shorter than tentacular cirrus. Palps long, reaching segment 9, without palp sheaths. (Fig. 5B). Pharynx everted with distal lanceolate papillae (Fig. 5B, D), and subdistal lateral papillae (Fig. 5B, arrow). Ctenidia pads from segment 3, branchiae from segment 2.

First right elytron small, round, fragile (Fig. 5E). Second right elytron larger, oblong, notched (Fig. 5F), a dendritic single marginal papilla (Fig. 5H). Posterior elytra larger, oblong, notched (Fig. 5G). Surface of all elytra with golden spots, and tiny globular papillae (Fig. 5I).

Right parapodium from segment II (Fig. 5J). Notopodia truncated, smooth, short, 1/3 as long as neuropodia; acicular lobe as long as notopodia. Notochaetae with up to 15 simple verticillates, shortest ¼ as long as notopodia; longest 6 times as long (Fig. 5K). Neuropodia conical, smooth, margins with short dendritic stylodes; acicular lobe truncate (Fig. 5J). Neurochaetae only falcigers:

unit A, one falciger with handle thick with 7 transverse rows of spines, blades medium-sized, 8 times longer than wide, (Fig. 5L); unit B, five falcigers with handles thick smooth, blades medium-sized, 7–8 times longer than wide (Fig. 5M); unit C, 10 falcigers with handles slender with 4–5 transverse rows of spines, blades long, articulate, 15–17 times longer than wide, (Fig. 5N); unit D, four falcigers with slender handle with 4 transverse rows of spines, blades long, articulate, 11–13 times longer than wide (Fig. 5O). Unit C fascicle emerge at the same site as unit B.

Right parapodium from segment III (Fig. 6A). Notopodia truncated, smooth, short, 1/3 as long as neuropodia; acicular lobe short, ½ as long as notopodia. Notochaetae with up to 10 simple verticillates, shortest as long as acicular lobe, longest, 4 times as long (Fig. 6B). Neuropodia conical, smooth, margins with short dendritic stylodes; acicular lobe dendritic (Fig. 6A). Neurochaetae only falcigers: unit A, one falciger with handle (broken) thick with 6 transverse rows of spines, blade medium-sized, 8 times longer than wide (Fig. 6C); unit B, four falcigers with handles thick, smooth, blades medium-sized, 4–5 times longer than wide (Fig. 6D); unit C, four falcigers with handles slender with 3–4 transverse row of spines, blades long, articulate, 13–15 times longer than wide (Fig. 6E); unit D only two slender handles remain.

Right parapodium from segment 14 (middle segment) (Fig. 6F, M). Notopodia conical, really reduced, smooth, ¼ as long as neuropodia. Notochaetae with up to 10 simple verticillate, shortest as long as notopodia, longest five times as long (Fig. 6G). Neuropodia conical, margins with reduced papillae. Neurochaetae only falcigers: unit A, two falcigers with handles thick with 3 rows of spines, blades medium-sized, 4 times longer than wide (Fig. 6H, N); unit B, four falcigers with handles thick smooth, blades short, 2 times longer than wide, (Fig. 6I, O); unit C, one falciger with handle thick, smooth, blade medium-sized (Fig. 6J); subunit 2, two falcigers with handles thick smooth, blades medium-sized, 3–4 times longer than wide (Fig. 6K); unit D, one falciger with handle slender smooth, blade medium-sized (Fig. 6L, P).

Pygidium round with two long anal cirrus, as long as last 6 segments (Fig. 6A).

Type locality. Off Tecolutla (20º46’42.30"N, 96º58’26.58"W), Veracruz.

Distribution. Only known from the type locality.

Etymology. The species is named after Daniel Pech (ECOSUR) in recognition of his efforts for studying marine benthos in the Gulf of Mexico. Also, he kindly made available most of the material examined in this study.

Remarks. *Sthenelanella* has been recorded for the Southwestern Atlantic and one species described from there: *S. peterseni* Lana, 1991. *Sthenelanella pechi* **n. sp.** differs from *S. peterseni* in having large auricles, as large as median antenna ceratophore, neurochaetae with entire blades, branchiae from segment 2; whereas *S. peterseni* has small auricles, ¼ as large as its median antenna ceratophore, neurochaetae with bifid blades, and branchiae from segment 5. *Sthenelanella pechi* **n. sp.** also resembles a newly described species, *S. sarae* **n. sp.**, but their differences are mostly regarded to elytral features. *Sthenelanella pechi* **n. sp.** differs in having first elytra round; elytral pigmentation transversally banded and posterior elytra reniform; whereas *S. sarae* **n. sp.** has first elytra subtriangular; elytral pigmentation mottled and posterior elytra rounded.

***Sthenelanella sarae* n. sp.**

Figs 7–8

Sthenelanella sp. A Wolf 1984: 25-23, Fig. 25-20.

Material examined. Gulf of Mexico. Holotype. BCC01353, R/V Justo Sierra, N Yucatán (23º18’0”N, 87º37’0.00”W), 148 m, September 19, 2010, coll. Anabel León. **Paratype.** BCC19120, R/V Justo Sierra, off Tecolutla, Veracruz, (20º43’8.10”N, 96º51’11.09”W), 76 m, March 17, 2018, coll. Anabel León [coated in gold, complete, 50 segments, 0.8 cm long, 0.5 cm to segment 30, 0.1 cm wide].

Description. Holotype (BCC01353) incomplete with 21 segments, 1.2 cm long, 0.2 cm wide. Body translucent, damaged posteriorly, broad (Fig. 7A). Mid-dorsal line smooth, some elytra lost, venter smooth.

Prostomium oval, wider than long. Two pairs of eyes, anterior eyes larger, all eyes visible dorsally. Lateral antennae short, barely seen, dorsally fused with tentacular segment. Median antenna with ceratophore cylindrical long, as long as prostomium, two short auricles on median

antennal ceratophore; ceratostyle slender, short, as long as prostomium (Fig. 7C). Dorsal tentacular crest absent. First segment fused with tentacular segment; uniramous, notochaetae simple verticillates; neurochaetae short falcigers. Tentacular cirri short, as long as neuropodial length, ventral cirrus shorter than tentacular cirrus; palps long, reaching segment eight, without palp sheaths (Fig. 7B). Pharynx partially everted, paratype with pharynx fully everted, with distal lanceolate papillae. Ctenidia pads from segment 3, branchiae from segment 2.

First right elytron small, subtriangular, fragile, with short dendritic marginal papillae (Fig. 7D). Posterior elytra larger, rounded, smooth marginally (Fig. 7E). Surface of all elytra partially coloured with brown spots, with few small globular papillae (Fig. 7F).

Right parapodium from segment II (Fig. 7G). Notopodia truncated, smooth, short, 1/3 as long as neuropodia; acicular lobe long, ½ as long as notopodia. Notochaetae with up to 30 simple verticillates, shortest twice as long as notopodia; longest 8 times as long (Fig. 7H). Neuropodia conical, with a large non-acicular lobe ventrally, margins with short dendritic stylodes; acicular lobe truncate. Neurochaetae only falcigers: unit A, three falcigers with handle thick with 9 transverse rows of spines, blades medium-sized, 8 times longer than wide, (Fig. 7I); unit B, five falcigers with handles thick smooth, blades medium-sized, 5–6 times longer than wide, (Fig. 7J); unit C, 6 falcigers with handles thick smooth, blades long, articulate, 13–15 times longer than wide (Fig. 7K); unit D, five falcigers with slender handle with 5 transverse rows of spines, blades long, articulate, 11–13 times longer than wide (Fig. 7L). Unit C fascicle emerge at the same site as unit B.

Right parapodium from segment III (Fig. 7M). Notopodia round, smooth, short, 1/3 as long as neuropodia; acicular lobe short, as long as notopodia. Notochaetae with up to 30 simple verticillates, shortest twice as long as notopodia, longest 7 times as long (Fig. 7N). Neuropodia conical, smooth, with a non-acicular lobe ventrally, margins with short dendritic stylodes; acicular lobe dendritic (Fig. 7A). Neurochaetae only falcigers: unit A, three falcigers with handle thick with 6 transverse rows of spines, blades medium-sized, 9 times longer than wide (Fig. 7O); unit B, seven falcigers with handles thick, smooth, blades medium-sized, 7–9 times longer than wide (Fig. 7P); unit C, four falcigers with handles slender smooth, blades long, articulate, 13–14 times longer than wide (Fig. 7Q); unit D, five falcigers with handles slender with 4 rows of spines, blades long articulate, 14–15 times longer than wide, (Fig. 7R).

Right parapodium from segment 18 (middle segment) (Fig. 8A, I). Notopodia round, short, smooth, ½ as long as neuropodia, notacicular lobe short. Notochaetae two kinds, 7 simple thick geniculate, short, ¼ as long as notopodia (Fig. 8B), and up to 20 simple verticillates, shortest ½ as long as notopodia, longest twice as long as notopodia (Fig. 8C, J). Neuropodia truncated, margins with reduced papillae. Neurochaetae only falcigers: unit A, five falcigers with handles thick with 3 rows of spines, blades medium-sized, 3 times longer than wide (Fig. 8D, K); unit B, four falcigers with handles thick smooth, blades short, 2 times longer than wide (Fig. 8E, K); unit C, four falcigers with handles thick smooth, blades medium-sized, 3 times longer than wide (Fig. 8F, L); subunit 1, two falcigers with handle thick and smooth, blades short, twice as long as wide, (Fig. 8G) unit D, two falcigers with handle slender smooth, blades medium-sized, 3 times longer than wide (Fig. 8H).

Posterior region lost.

Type locality. N Yucatán (23º18’0"N, 87º37’0.00"W).

Distribution. Only known from the type locality.

Etymology. The species is named after Sara Balam, in recognition of her effort done during many years as technician assistant in the Laboratorio de Biodiversidad y Cambio Climático, ECOSUR-Campeche.

Remarks. The species resembles *S. uniformis* Moore, 1910 in having neurochaetae with short thick blades. However, the elytral shape and colour pattern are different. *Sthenelanella sarae* **n. sp.** differs in having posterior elytra rounded with a transversal brown strip, whereas *S. uniformis* has posterior elytra reniform, with a large brown patch on anterior elytral margins.

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Figures

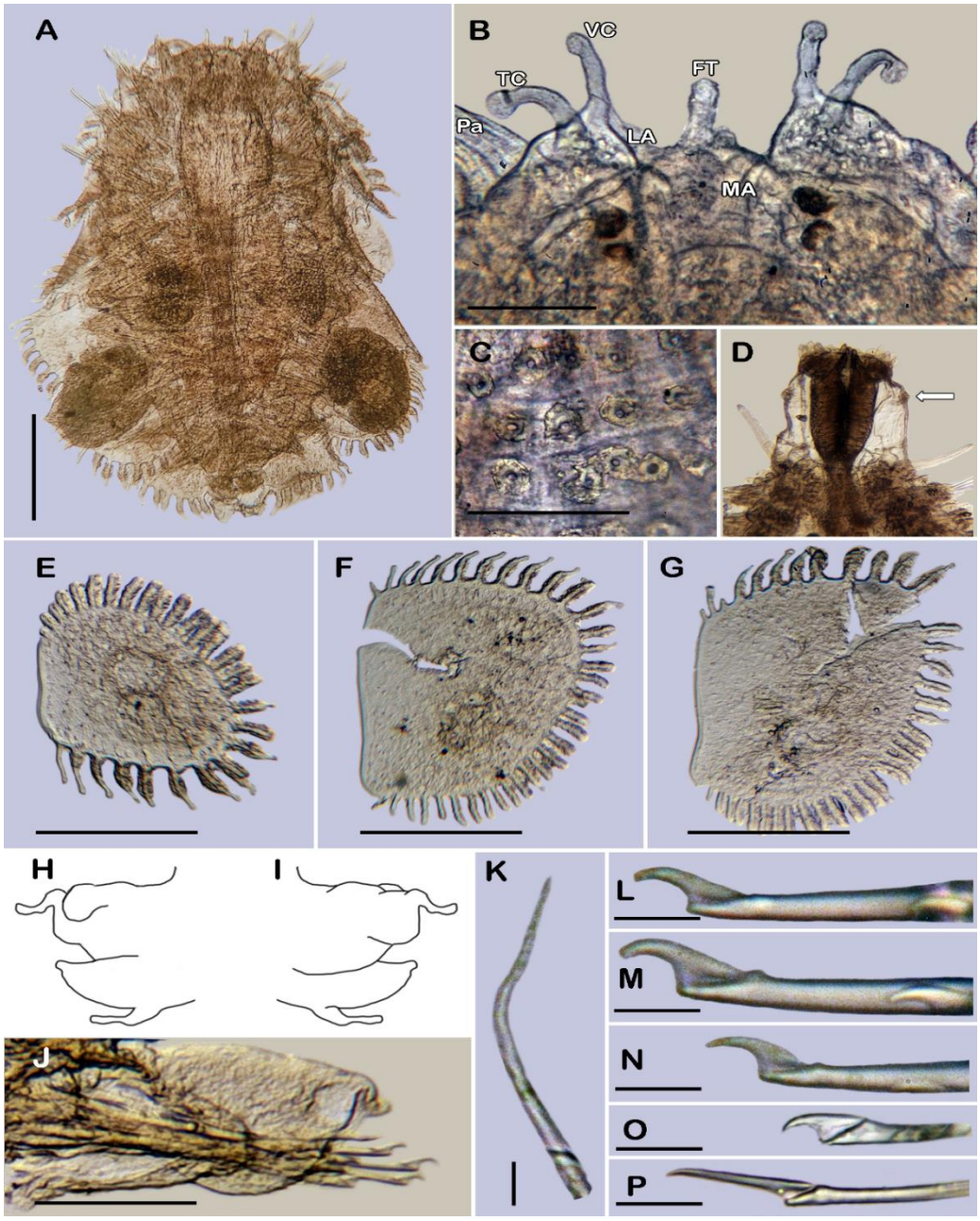

FIGURE 1. *Taylorpholoe anabelae* **n. sp.**, holotype (BCC06731). A, complete specimen, dorsal view (embryos darker in posterior elytra). B, prostomium. D, dorsal papillae. D, paratype specimen (BCC06905), pharynx everted; arrow indicates subdistal lateral papillae. Holotype (BCC06731). E, first right elytron. F, posterior right elytron. G, posterior right elytron, from parapodium with embryos. H, segment 8, right parapodium, anterior view. I, same, posterior view. J, same ventral view. K, same, notochaetae. L, unit A. M, unit B. N, unit C. O, unit D. P, spiniger from anterior segments. Abbreviations: FT, facial tubercle; LA, lateral antenna; MA, median antenna; Pa, palp; TC, tentacular cirrus; VC, ventral cirrus. Sale bars: A: 200 µm, E–G: 100 µm, B, C, J: 50 µm, K–P: 10 µm.

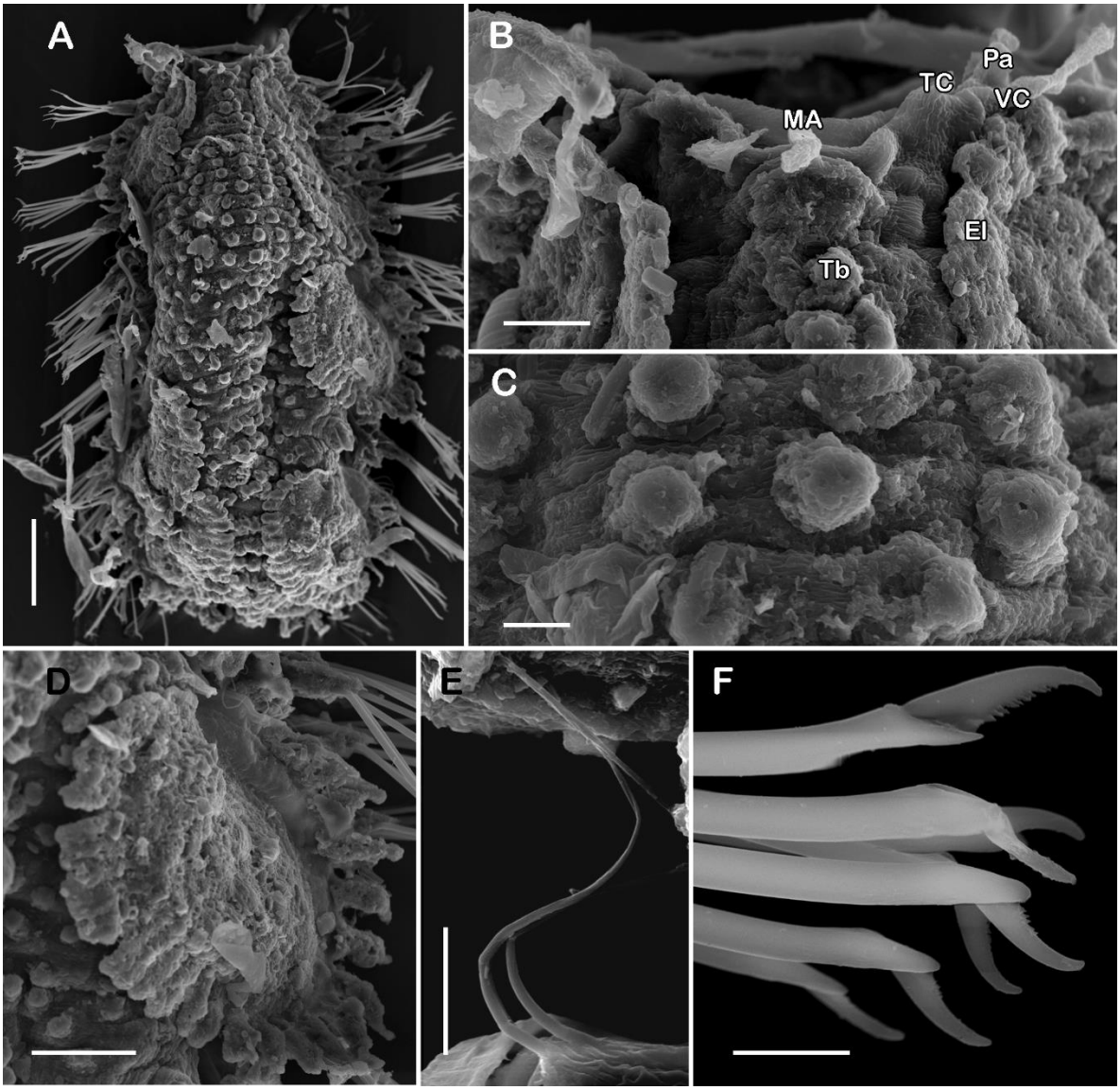

FIGURE 2. *Taylorpholoe anabelae* **n. sp.** SEM micrographs, paratype (BCC06905). A, complete specimen. B, first anterior region, prostomium partially folded. C, dorsal tubercles. D, first right elytron. E, middle segment, notochaeta. F, same, neurochaetae. Abbreviations: El, elytron; MA, median antenna; Pa, palp; Tb, dorsal tubercle; TC, tentacular cirrus; VC, ventral cirrus. Scale bars: A, 100 µm, B: 20 µm, C–F: 10 µm.

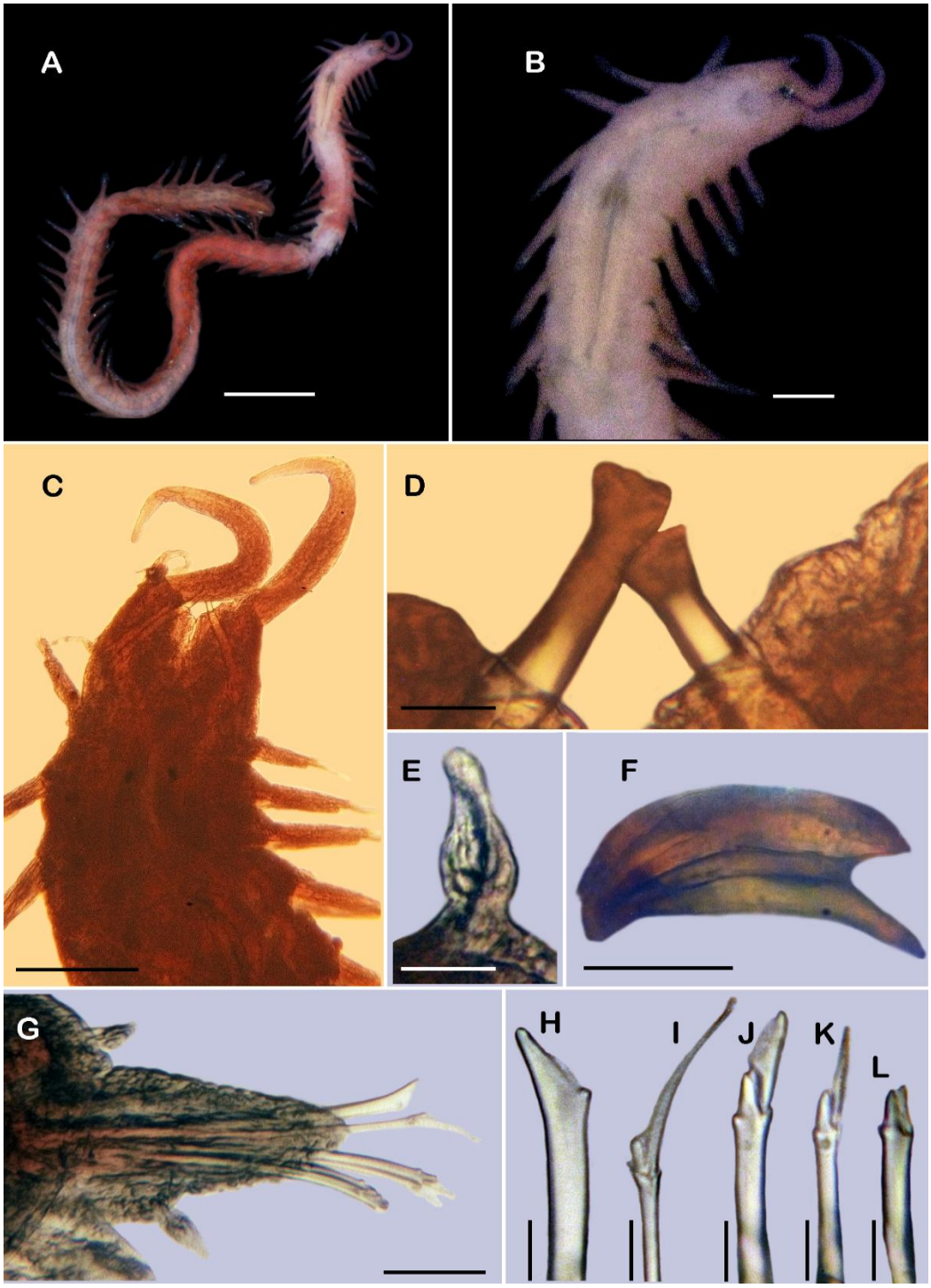

FIGURE 3. *Pisione wolfi* San Martín, López & Núñez, 1999. Non-type material (BCC17479). A, complete specimen, dorsal view. B, anterior region, dorsal view. C, prostomium, dorsal view. D, buccal aciculae, E, buccal segment, left ventral cirrus. F, jaws. G, segment 17, parapodium. H, same, simple neurochaetae. I, same, spiniger. J, same, superior falciger. K, same, low falciger. L, same, lowest falciger, without blade. Scale bars: A: 500 µm, B, C: 100 µm, F, G: 50 µm, D, E, H–L: 10 µm.

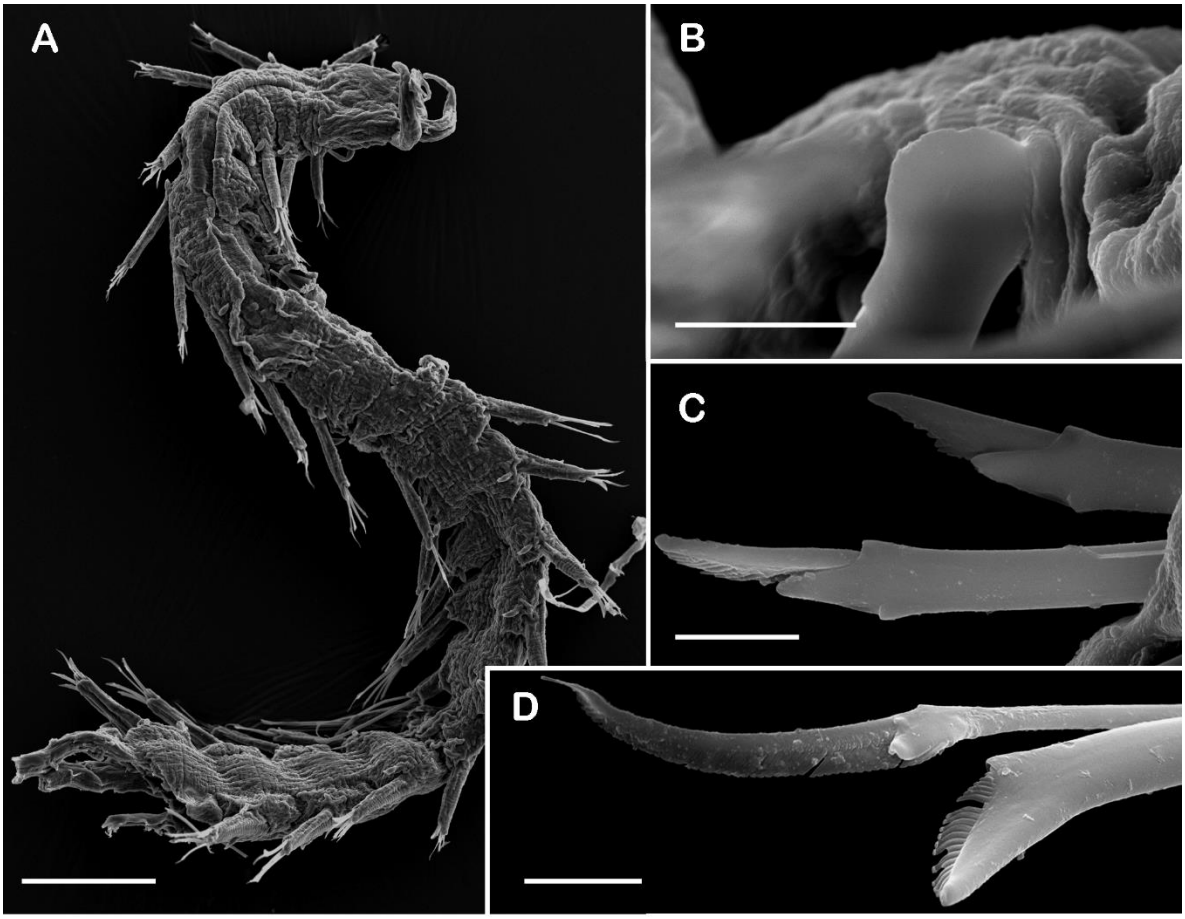

FIGURE 4. *Pisione wolfi* San Martín, López & Núñez, 1999. SEM micrographs, non-type material (BCC17479). A, anterior region, dorsal view. B, tip of buccal acicula. C, middle segment, low and lowest falcigers. D, same, spiniger and simple chaetae. Scale bars: A: 200 µm, B–D: 10 µm.

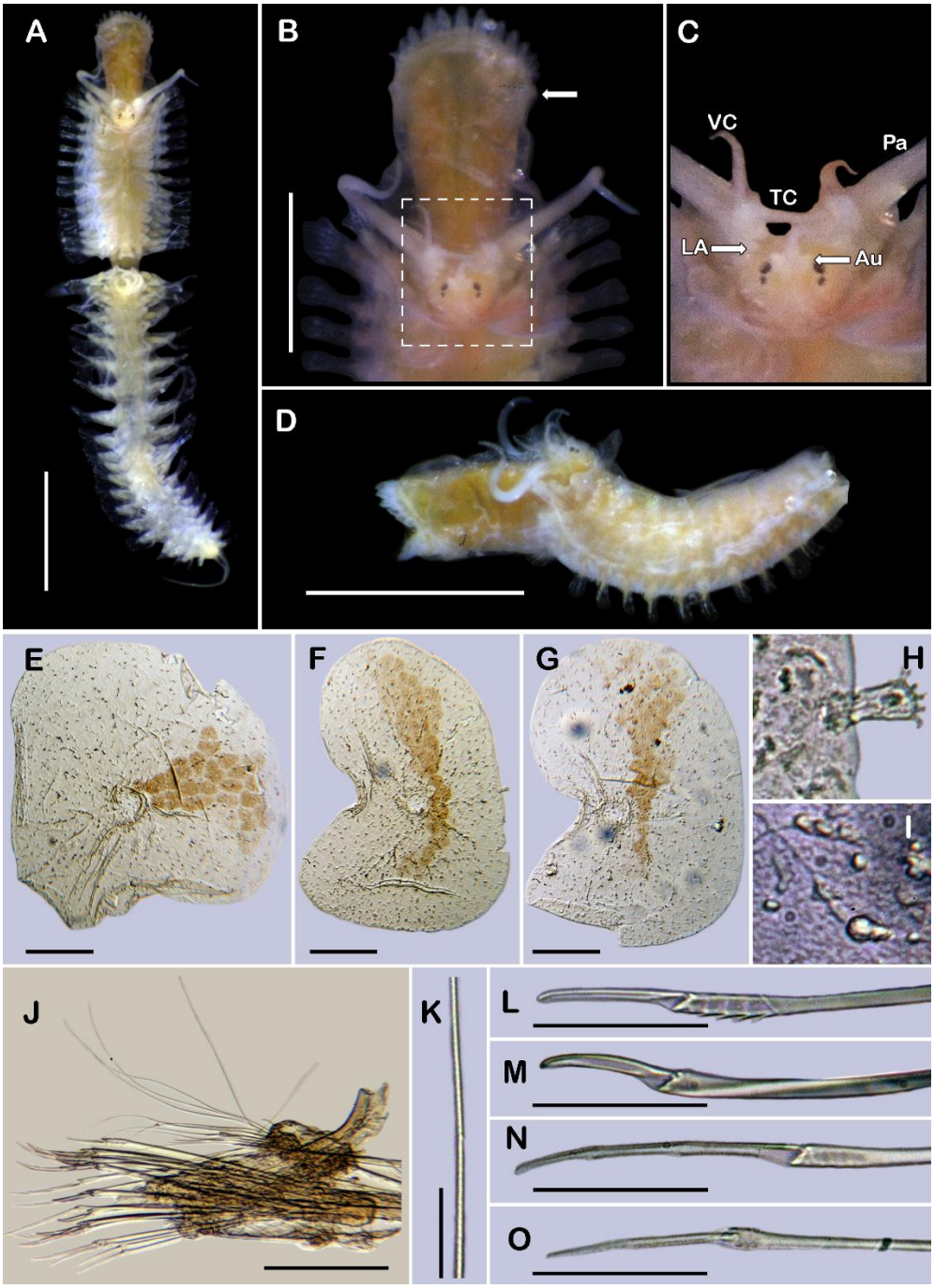

FIGURE 5. *Sthenelanella pechi* **n. sp.**, holotype (BCC19604). A, complete specimen, dorsal view. B, anterior region, dorsal view; arrow, indicates subdistal lateral papillae. C, prostomium. D, anterior region, left lateral view. E, first right elytron. F, second right elytron. G, posterior right elytron. H, marginal papilla from F. I, superficial papillae from G. J, segment 2, right parapodium. K, same, notochaetae. L, same, unit A. M, same, unit B. N, same, unit C. O, same, unit D. Abbreviations: Au, auricle; LA, lateral antenna; Pa, palp; TC, tentacular cirrus; VC, ventral cirrus. Scale bars: A: 1 mm, B, D: 500 µm, E–G, J: 100 µm, L–O: 50 µm, K: 10 µm.

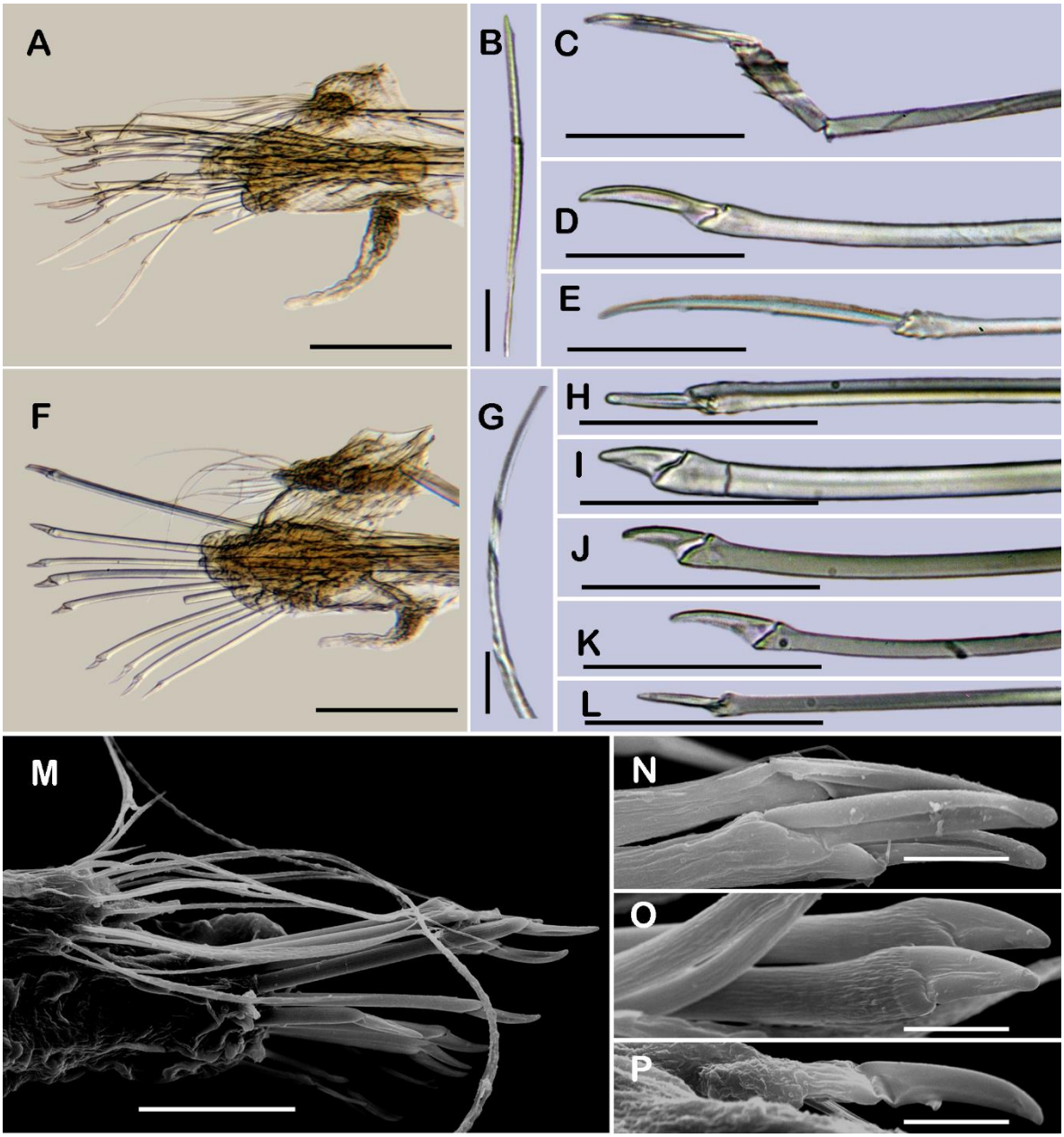

FIGURE 6. *Sthenelanella pechi* **n. sp.**, holotype (BCC19604). A, segment 2, right parapodium. B, same, notochaetae. C, same, unit A. D, same, unit B. E, same, unit C. F, segment 14, right parapodium. G, same, notochaetae. H, same, unit A. I, same, unit B. J, same, subunit 1. K, same, unit C. L, same, unit D. SEM micrograph, paratype (BCC19604). M, segment 17, right parapodium. N, unit A. O, unit B. P, unit D. Scale bars: A, F: 100 µm, C–E, H–M: 50 µm, B, G, N–P: 10 µm.

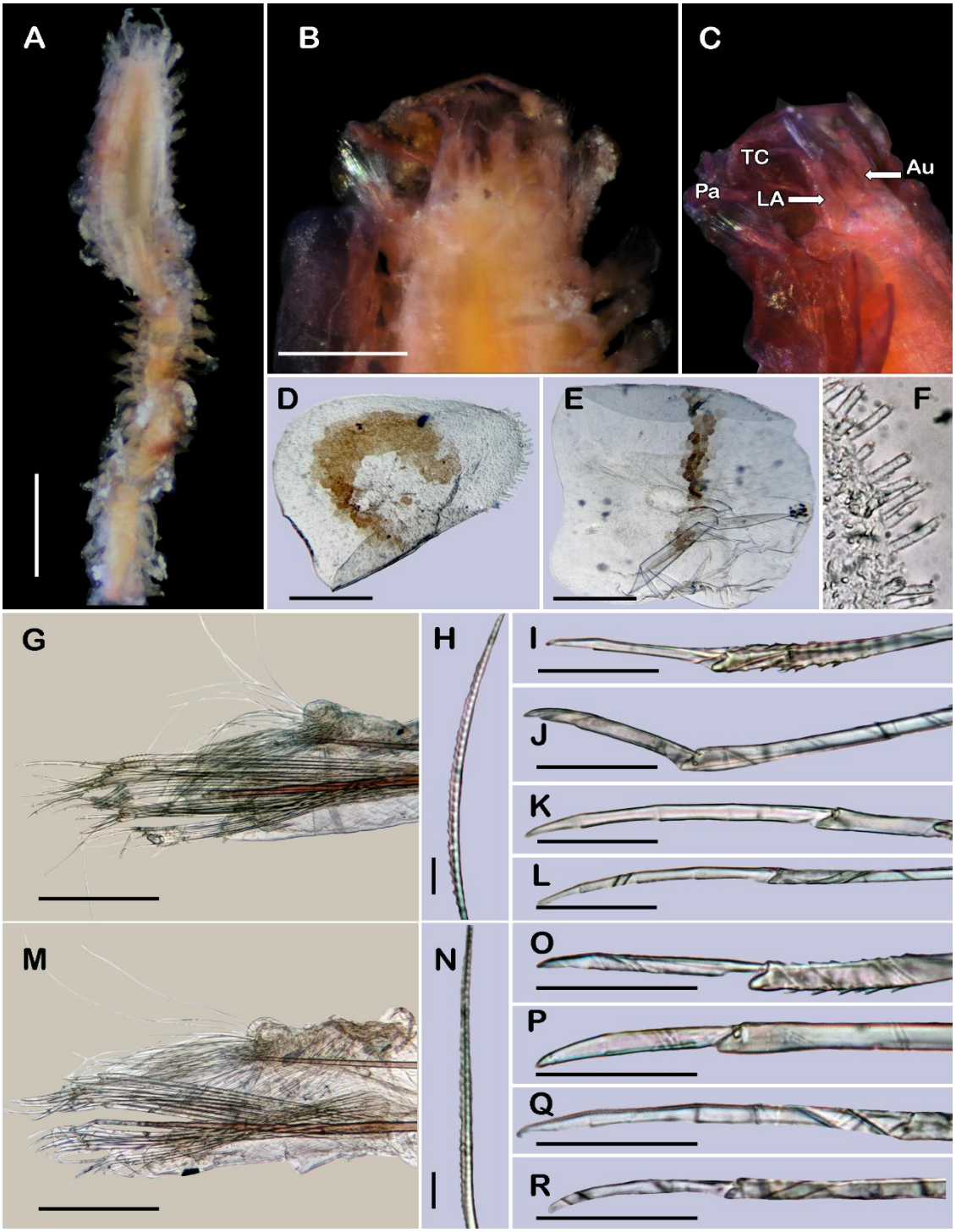

FIGURE 7. *Sthenelanella sarae* **n. sp.**, holotype (BCC01353). A, incomplete specimen, dorsal view. B, anterior region, dorsal view. C, prostomium. D, first right elytron. E, posterior right elytron. H, marginal papilla from D. G, segment 2, right parapodium. H, same, notochaetae. I, same, unit A. J, same, unit B. K, same, unit C. L, same, unit D. M, segment 3, right parapodium. N, same, notochaeta. O, same, unit A. P, same, unit B. Q, same, unit C. R, same, unit D. Abbreviations: Au, auricle; LA, lateral antenna; Pa, palp; TC, tentacular cirrus; VC, ventral cirrus. Scale bars: A: 2 mm, B: 500 µm, D, E, G, M: 200 µm, I–L, O–R: 50 µm, H, N: 10 µm.

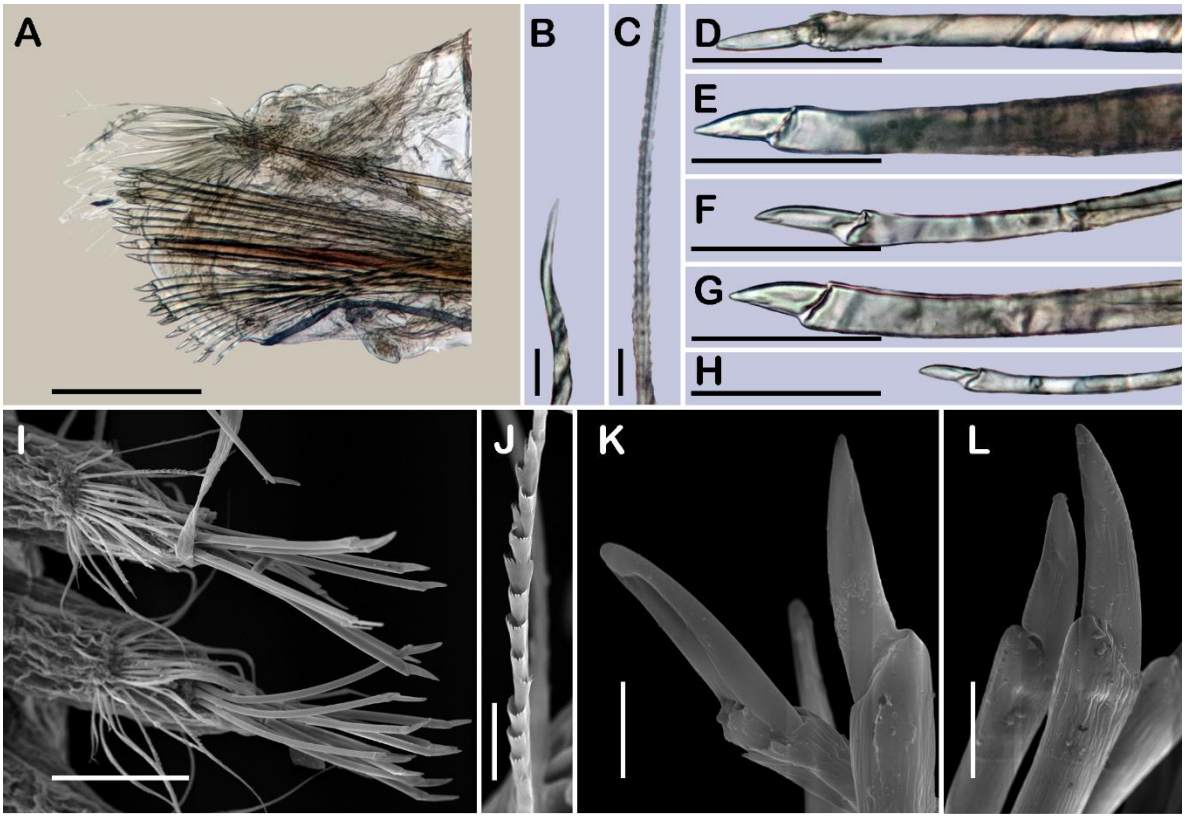

FIGURE 8. *Sthenelanella sarae* **n. sp.**, holotype (BCC01353). A, segment 18, right parapodium. B, same, short geniculate notochaeta. C, same, long verticillate notochaeta. D, same, unit A. E, same, unit B. F, same, unit C. G, same, subunit 1. H, same, unit D. SEM micrographs, paratype (BCC19120). I, segments 13 and 14, right parapodium, dorsal view. J, same, notochaeta. K, same, units A and B. L, same, unit C. Scale bars: A: 200 µm, I: 100 µm, D–H: 50 µm, B, C, J–L: 10 µm.

Capítulo 4

Sigalioninae Kinberg ,1856 (Annelida, Sigalionidae) from the Grand Caribbean region

Por editarse y someterse: ZOOTAXA

Sigalioninae Kinberg, 1856 (Annelida, Sigalionidae) from the Grand Caribbean region

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Abstract

Members of the annelid subfamily Sigalioninae Kinberg, 1856 have been frequently recorded along the Grand Caribbean region; however, questionable records and taxonomic problems prevail. In order to solve these problems, a faunistic study on sigalionins was performed. Biological material comes from five scientific collections: University of Miami Marine Laboratory, Florida Museum of Natural History, University of Florida, Gainesville, Polychaetological Collection of the Universidad Autónoma de Nuevo León, and two ECOSUR collections. A new morphological pattern is proposed as a new genus, *Neoleaniroides* **n. gen.** with *Neoleaniroides* **n. sp.** as its type species. Eleven additional species were identified, including seven newly described: *Labioleanira* **n. sp.**, *Leanira* **n. sp.**, *Sigalion wolfi* **n. sp.**, *Sigalion* **n. sp. 1**, *Sigalion* **n. sp. 2**, *Sthenelais globosa* **n. sp.** and *Sthenolepis* **n. sp.** Three species were confirmed in the region, *Leanira cirrata* (Treadwell, 1934), *Sigalion pourtalesii* Ehlers, 1887 and *Sthenolepis grubei* (Treadwell, 1901). Additionally, *Sthenolepis* aff. *oculata* is also recorded but its specific status depends on its comparison with the nominal species (*Sthenolepis oculata* (Hartman, 1942)).

Keywords: morphology, *Neoleaniroides*, scale-worms, *Sigalion*, Taxonomy

Introduction

Among the scaled sigalionids, the subfamily Sigalioninae Kinberg, 1856 is the largest one for the family because it has most genera and species; it is represented by 14 genera and about 130 species

(Aungtonya & Eibye-Jacobsen 2014; Read & Fauchald 2020). In the Grand Caribbean region this subfamily has been frequently recorded, and six genera and 21 species are listed for the region; however, almost half of these records are questionable. Indeed, most have been considered widely distributed species after Pettibone´s contributions (1970a, 1970b, 1971, 1992).

Questionable records include (type locality in brackets): *Leanira alba* Moore, 1910 [California], from Colombia (Baéz & Ardilla 2003); *Sigalion lewisii* Berkeley & Berkeley, 1939 [Gulf of California], from Northern Brazil (Nonato & Luna 1970); *Sthenelais boa* (Johnston, 1833) [Herne Bay, UK], from Cuba, Curaçao and Colombia (Horst 1922; Augener 1927, 1933); *S. helenae* Kinberg, 1856 [Chile], from Colombia (Dexter 1874; Laverde-Castillo & Rodriguez Gómez1987; Baéz & Ardilla 2003); *S. verruculosa* Johnson, 1897 [California], from Panama (Cubit & Williams 1983; Vásquez Montoya & Thomassin 1983). Further, one species of *Ehlersieanira* Pettibone, 1970a, originally described as *Sthenelais simplex* Ehlers, 1887 [off Loussiana], but synonymized by Pettibone (1970a) with *E. incisa* (Grube, 1877) [Congo]. However, the regional species was recently reinstated and properly combined as *E. simplex* (Cruz-Gómez *in rev.*).

Regarding to regional species, *Sigalion arenicola* Verrill, 1880 was described from Massachusetts, and frequently recorded in the region (Young & Young 1982; Ibarzábal 1986; 1989); *S. pourtalesi* Ehlers, 1887 and *Sthenelais setosa* Bush *in* Verrill, 1900 described from Florida and Bermuda, respectively. *Fimbriosthenelais hobbsi* Pettibone, 1971 and *Sthenolepis oculata* (Hartman, 1942b) both described from Cuba; *Leanira cirrata* (Treadwell, 1934), *Sthenolepis gracilior* (Augener, 1906); *?Sigalion pergamentaceum* Grube, 1856 were described from the Antilles, the latter has uncertain generic affinities (Grube 1856, Mackie & Chambers 1990). Finally, *Sthenelais articulata* Kinberg, 1856 was described from Rio de Janeiro, Brazil; *Sthenolepis kuekenthali* Augener, 1922 from Jamaica, but its description included few lines and lacks illustrations, and *Sigalion antillarus* Grube, 1875 described from the Grand Caribbean region, but the precise locality is unknown (Mackie & Chambers 1990).

The aim of this study is to improve the faunistic knowledge of the subfamily Sigalioninae in the Grand Caribbean Region. This study includes the proposal of a new genus, the description of seven new species and the description of three previously recorded in the region.

Material & methods

Biological material was examined, described, and illustrated. Specimens are deposited in the following collections: University of Miami Marine Laboratory (UMML), Florida Museum of Natural History, University of Florida, Gainesville (UF), Polychaetological Collection of the Universidad Autónoma de Nuevo León (UANL), Reference Collection of Benthos (ECOSUR) of El Colegio de la Frontera Sur, Chetumal, and Reference Collection of Laboratorio de Biodiversidad y Cambio Climático (BIOMARCCA), ECOSUR, Campeche, Mexico.

All specimens were fixed in a 10% formalin-seawater solution and then, preserved in 70% ethanol. Illustrated and described specimens were temporally stained with Methyl-green solution and/or Shirlastain-A, surplus stain removed and then photographed. Standardized measurements were obtained from all specimens: number of segments, total length from anterior end to posterior end, total width from the widest middle segment including chaetae; because many specimens were incomplete all specimens were measured from the anterior end to segment 30.

First three right elytra, and two right posterior elytra were dissected and characterized. Furthermore, parapodia from segment III and from midbody region were also dissected. Dissected parapodia and elytra were cleaned, using a fine brush, then immersed in a 1:1 vinegar-alcohol solution during a few seconds. The cleaned parapodia and elytra were placed in anterior position in semi-permanent preparations in a 1:1 ethanol-glycerol solution. Using a Canon EOS REBEL T8i mounted in light microscope, several photographs (30–50) were taken and staked using Helicon Focus 7. Plates were arranged with Photoshop CC.

Morphological terms follow Pettibone (1970a, b, 1971, 1992), Aungtonya (2002) and Cruz-Gómez (*in rev.*). To avoid excessive repetitions, for indicating the size proportions of some features, an ‘x’ will replace the word times.

Systematics

Phylum Annelida Lamarck, 1809

Suborder Aphroditimorfia Levisen, 1883

Family Sigalionidae Kinberg, 1856

Subfamily Sigalioninae Kinberg, 1856

Genus *Labioleanira* Pettibone 1992

Labioleanira Pettibone, 1992: 619.

Type species. *Leanira yhleni* Malmgren, 1867 by original designation.

Diagnosis (after Pettibone 1992; Aungtonya 2002). Sigalioninae with prostomium oval, wider than long. Median antennal ceratophore with auricles. Tentaculophore with lateral antennae fused dorsally to it, tentacular lobes absent. Lips with labial lobes. Facial tubercle absent. Segment III without dorsal cirri nor tubercles; neuropodia without appendages. Ventral cirri in all segments, without papillae nor basal knob. Stylodes non-papillate. Neurochaetae simple pinnates might be present, composed canaliculate spinigers. Elytra smooth, without distal tubercles or papillae.

***Labioleanira* n. sp.**

Fig. 1

Material examined. Caribbean Sea. Tabasco. Holotype. BCC 21687, anterior fragment, R/V Justo Sierra, off Tonalá river (18º31’23.99”N, 94º7’15.59”W), 67 m, December 01, 2018, coll. Anabel León. **Paratype.** One spec., (BCC 19222) complete, R/V Justo Sierra, off Tecolutla (20º41’42.47”N, 96º56’50.27”W), Veracruz, 43 m, March 18, 2018, coll. Sara Balam [87 segments, 5.1 cm long, 2 cm to segment 30, 0.2 cm wide].

Additional material. Veracruz. One spec. (BCC 19187), anterior fragment, R/V Justo Sierra, off Tecolutla (20º40’25.56”N, 96º56’42.83”W) 45 m, March 18, 2018, coll. Sara Balam [31 segments, 0.3 cm long, 0.3 cm to segment 30, 0.08 cm wide]. **Yucatán.** one spec. (BCC 00723), anterior fragment, R/V Justo Sierra, off Celestún reserve (21º42’22.27”N, 90º55’48.38”W) 73 m, September 13, 2010, coll. Sara Balam [30 segments, 1.2 cm long, 0.4 cm wide]. **Gulf of Mexico.** one spec. (BCC 06282) anterior fragment, R/V Justo Sierra, midpoint of GM (23º50’0.15”N, 88º31’0.50”W) 262 m, December 17, 2012, coll. Sara Balam [64 segments, 3.3 cm long, 1.6 to segment 30, 0.4 cm wide].

Description. Holotype (18º31’23.99”N, 94º7’15.59”W) with body whitish, posterior region translucent, 65 segments, 4 cm long, 1.6 cm to segment 30, 0.3 cm wide (Fig. 1A). Mid-dorsal line smooth, visible; elytra covering partially the dorsum; venter smooth.

First three anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 1B). Eyes two pairs, anterior eyes larger, directed anteriorly. Lateral antennae long, as long as prostomium, fused with tentacular segment. Median antenna inserted on antero-dorsal prostomial margin, ceratophore cylindrical long, as long as prostomium, with two large, lanceolate auricles on lateral bases of median antennal ceratophore; ceratostyle long, 8x as long as ceratophore. Tentacular segment biramous, notochaetae simple verticillates, neurochaetae only long, canaliculate spinigers. Tentacular cirri long, ceratostyle 8x longer than ceratophore; ventral cirri short, as long as neuropodia; inner tentacular lobes absent. Palps long, reaching segment 15, with inner and outer sheaths (Fig. 1B). Mouth with fleshy lateral labial lobes.

Branchiae and ctenidial pads from segment 6, inserted above notopodia.

First right and left elytra lost. Second right elytron subrectangular (Fig. 1F). Posterior elytra subquadrangular (Fig. 1G). Elytral surface and margins smooth, with tiny grooves.

Right parapodia from segment III (Fig. 1D). Notopodia oblong, short; lobes indistinct, with 4 large distal stylodes. Notochaetae up to 40 simple verticillates, shortest twice as long as notopodia, longest 3x as long. Neuropodia truncate, one postchaetal lobe, and two prechaetal lobes; with 8 dorsal stylodes and, 6 ventral stylodes. Neurochaetae only spinigers: unit A, three spinigers with handles slender smooth, blades canaliculate medium-sized, 16x longer than wide; unit B, seven spinigers with handles thick smooth, blades canaliculate long, 28x longer than wide; unit C, five spinigers with handles slender smooth, blades canaliculate medium-sized, 12x longer than wide; unit D, 8 spinigers with handles slender, smooth, blades canaliculate short, 18x longer than wide.

Right parapodia from segment 15 (Fig. 1E). Notopodia truncate, large, slightly longer than neuropodia, acicular lobe directed anteriorly; three stylodes short distally, a larger one inserted in acicular lobe. Notochaetae up to 20 simple verticillates, shortest as long as notopodia, longest 2x as long. Neuropodia truncated, two short postchaetal lobes, a prechaetal lobe conical, 4 distal and

2 ventral stylodes. Neurochaetae, only spinigers: unit A, four spinigers with handles slender, smooth, blades canaliculate medium-sized, 8x longer than wide; unit B, five spinigers with handles thick, smooth, blades canaliculate long, 16x longer than wide; subunit 1, two spinigers with handles slender, smooth, blades canaliculate short, 8x longer than wide; unit C, five spinigers with handles thick, smooth, blades canaliculate medium-sized, 14x longer than wide; unit D, eight spinigers with handles slender, smooth, blades canaliculate long, 20x longer than wide.

Posterior region lost.

Distribution. Gulf of Mexico. From Veracruz to N Yucatán.

Remarks. *Labioleanira* **n. sp.** resembles *L. okhotica* Alalykina, 2018 from Okhotsk Sea, by having very long median antenna and palps. However, these species differ because, *Labioleanira* **n. sp.** has large auricles, as long as median antennal ceratophore, two pairs of eyes, and neurochaetal units with subequal blades, whereas *L. okhotica* has small auricles, half as long as median antennal ceratophore, lacking eyes, and neurochaetal units with blades of different length. This is the first record of the genus in the region.

Genus *Leanira* Kinberg, 1856

Leanira Kinberg, 1856: 388.

Type species. *Leanira quatrefagesi* Kinberg, 1856 by monotypy.

Diagnosis (after Pettibone 1970; Aungtonya 2002). Sigalioninae with prostomium oval, wider than long. Median antennal ceratophore without auricles. Tentaculophore with lateral antennae fused internally to it, tentacular lobes absent. Without ctenidial pads on buccal lateral lips. Facial tubercle present. Segment III without dorsal cirri nor tubercles; neuropodia without appendages. Ventral cirri in all segments without papillae nor basal knob. Stylodes non-papillate. Neurochaetae simple pinnates might be present, composed canaliculate spinigers. Elytra smooth, without distal tubercles or papillae.

***Leanira cirrata* (Treadwell, 1934)**

Fig. 2

Eupholoe cirrata Treadwell, 1934: 5, Pl. 1, Figs. 9–12; Pl. 2, Figs. 13–16; 1939: 198, Fig. 28.

Leanira cirrata.—Hartman 1965: 51.—Pettibone 1970a: 15, Fig. 8.

Type locality. North off Puerto Rico (18º31’ N, 66º4’10”W).

Material examined. Grand Caribbean. Florida. One spec. (UMML 6617-812), anterior fragment, R/V Gerda, St. 812 (25°33’N 80°04’W), intertidal, November 22, 1966 [199 segments, 16.5 cm long, 2.8 cm to segment 30, 1.8 cm wide]. One spec. (UMML 6709-826), anterior fragment, R/V Gerda, St. 826 (25°36’N 80°01’W), 270 m, July 07, 1967 [70 segments, 45 cm long, 1.6 cm to segment 30, 0.6 cm wide]. One spec. (UMML 6609-825), anterior fragment, R/V Gerda,St. 825 (25°38’N 80°02’W), 30 m, July 07, 1967 [92 segments, 5.8 cm long, 2.8 cm to segment 30, 0.7 cm wide]. One spec. (UMML 83), anterior fragment, R/V C.I., St. 83. **Gulf of Mexico. Tamaulipas.** One spec. (BCC 18366) anterior fragment, R/V Justo Sierra, off El Mezquital (25º15’50.69”N, 95º39’16.67”W) 1660 m, September 25, 2017, coll. Anabel León [27 segments, 0.6 cm long, 0.2 cm wide]. **Veracruz.** Two specimens (ECOSUR XXX), anterior fragment, off Coatzacoalcos (18°31’N 94°36’ W), August 10, 1984 [25–45 segments, 0.2–0.4 cm long, 0.3 cm to segment 30, 0.1 cm wide]. **Quintana Roo.** One spec. (ECOSUR XXX), anterior fragment, off Puerto Aventuras, February 18, 2001, coll. Sergio I. Salazar-Vallejo. [25 segments, 0.5 cm long, 0.2 cm wide]. One damage spec. (ECOSUR XXX), R/V Edwin Link, St. 2774 no. 9 August 20, 1990, 60 m [57 segments, 2.3 cm long, 0.9 cm to segment 30, 0.2 cm wide].

Description. Body pale yellow (UMML 6617-812), cylindrical, long; posterior region fragile (Fig. 2A). Mid-dorsal line smooth, dorsum partially covered by elytra, venter smooth.

First two anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 2B). Eyes faded off. Lateral antennae short, 1/2 as long as prostomium, fused with tentacular segment right inserted proximal to prostomium, left distally. Median antennae inserted on antero-dorsal prostomial margin, ceratophore stout short, 1/3 as long as prostomium, ceratostyle short tapered, 2x long as ceratophore. Tentacular segment biramous, notochaetae simple verticillates. Tentacular cirri lost. Palps long, reaching segment 13, with large inner and outer sheaths (Fig. 2C).

Branchiae from segment 12, larger from segment 27, ctenidial pads from segment 10.

First right and left elytra lost. Second right elytron subtriangular (Fig. 2F). Posterior elytron subquadrangular to subrectangular, left posterior margin expanded, right margin notched (Fig. 2G). Elytral surface smooth through body.

Right parapodia from segment III (Fig. 2D). Notopodia globular, short; ½ as long as neuropodia, lobes indistinct, 6 distal stylodes. Notochaetae up to 10 simple verticillates, shortest 1/2 as long as notopodia, longest 6x as long as notopodia. Neuropodia slightly conical, lobes indistinct, with 4 dorsal and ventral stylodes. Neurochaetae only spinigers: unit A, two spinigers with handles slender smooth, blades canaliculate, medium-sized, 18x longer than wide; unit B, five spinigers with handles thick, smooth, blades canaliculate, short, 10x longer than wide; unit C, six spinigers with handles slender, smooth, blades canaliculate, medium-sized, 18x longer than wide; unit D, eight spinigers with handles slender, smooth, blades canaliculate, long, 33x longer than wide.

Right parapodia from segment 42 (Fig. 2E). Notopodia lanceolate, large, as long as neuropodia, acicular lobe directed anteriorly; 8 distal stylodes, a larger one inserted in the acicular lobe. Notochaetae up to 50 simple verticillates, shortest as long as notopodia, longest twice as long. Neuropodia conical, prechaetal lobe conical, postchaetal lobes subequal, 5 dorsal and distal stylodes, a larger one inserted above acicula, 11 stylodes ventrally. Neurochaetae only spinigers: unit A, three spinigers with handles slender, smooth, blades canaliculate long, 15x longer than wide; unit B, six spinigers with handles thick, smooth, blades canaliculate, short, 9x longer than wide; unit C, four spinigers with handles slender, smooth, blades canaliculate, long, 18x longer than wide; subunit 1, four spinigers with handles thick, smooth, blades canaliculate, long, 23x longer than wide; unit D, eight spinigers with handles slender, smooth, blades canaliculate, long, 22x longer than wide.

Posterior region lost.

Distribution. Grand Caribbean region, from Florida to Puerto Rico.

Remarks. After the revision of the type material of *Eupholoe cirrata* Treadwell, 1934, Hartman (1942a; 1959) suggested that the species resembles *Leanira hystricis* Ehlers, 1874 described from Ireland. Later, Hartman (1965) clarified that these species are different. Pettibone (1970a) revised

Leanira and kept them as different, she also examined the type material of *L. cirrata* and redescribed it. Nowadays, the status of the species is *nomen dubium* (Read & Fauchald 2020).

***Leanira* n. sp.**

Fig. 3

Material examined. Caribbean Sea. Colombia. Holotype. In separated vial (UMML 6608-455), anterior fragment, R/V Pillsbury, St. 455 (13°01'N 71°55'W), 2,500 m, July 27, 1966 [41 segments, 3.2 cm long, 2.3 cm to segment 30, 0.5 cm wide]. **Paratype.** Five spec. (UMML 6608-455), anterior fragments, R/V Pillsbury, St. St. 455 (13°01'N 71°55'W), 2,500 m, July 27, 1966 [42–72 segments, 3.4–7.7 cm long, 1.9–3.7 cm to segment 30, 0.6–0.7 cm wide].

Description. Holotype (UMML 6608-455) with body pale orange, cylindrical, long; posterior region lost (Fig. 3A). Mid-dorsal line smooth, elytra lost, venter smooth.

First three anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 3B). Eyes not seen. Lateral antennae short, 1/2 as long as prostomium, fused with tentacular segment, inserted distal to prostomium. Median antennae inserted on antero-dorsal prostomial margin, ceratophore stout, short, 1/3 as long as prostomium, ceratostyle articulate, basal article long, as long as ceratophore, distal article short tapered, ½ as long as posterior one. Facial tubercle stout, short. Tentacular segment biramous, notochaetae simple verticillates, neurochaetae absent. Tentacular cirri lost. Palps long, reaching segment 14, with large inner and outer sheaths (Fig. 3C).

Branchiae from segment 18, larger from segment 22, ctenidial pads from segment 8.

Elytra dissected from one paratype. First right elytron rounded (Fig. 3F). Second right elytron lost. Posterior elytra subtriangular, proximal margin slightly expanded (Fig. 3G). Elytral surface smooth.

Right parapodia from segment III (Fig. 3D). Notopodia lanceolate, long; as long as neuropodia, lobes indistinct, 4 distal stylodes. Notochaetae up to 80 simple verticillates, two kinds,

thick or slender, shortest as long as notopodia, longest slightly longer than notopodia. Neuropodia conical, lobes indistinct, with 5 distal stylodes. Neurochaetae only spinigers: unit A, three spinigers with handles slender, smooth, blades canaliculate, medium-sized, 19x longer than wide; unit B, eight spinigers with handles thick, smooth, blades canaliculate, medium-sized, 12x longer than wide; unit C, four spinigers with handles slender, smooth, blades canaliculate, medium-sized, 16x longer than wide; subunit 1, four spinigers with handles thick, smooth, blades canaliculate, medium-sized, 14x longer than wide. Unit D, eight spinigers with handles slender, smooth, blades canaliculate, long, 19x longer than wide.

Right parapodia from segment 27 (Fig. 3E). Notopodia lanceolate, large, slightly shorter than neuropodia, acicular lobe directed anteriorly; four short distal stylodes, 1/8 as long as neuropodia. Notochaetae up to 30 simple verticillates, two kinds, thick or slender, shortest as long as notopodia, longest slightly longer than notopodia. Neuropodia conical, prechaetal lobe conical, postchaetal lobes subequal, 4 dorsal and 5 distal stylodes. Neurochaetae only spinigers: unit A, four spinigers with handles slender, smooth, blades canaliculate, medium-sized, 9x longer than wide; unit B, eight spinigers with handles thick, smooth, blades canaliculate, medium-sized, 14x longer than wide; unit C, six spinigers with handles slender, smooth, blades canaliculate, long, 15x longer than wide; subunit 1, seven spinigers with handles thick, smooth, blades canaliculate, long, 21x longer than wide; unit D, five spinigers with handles slender, smooth, blades canaliculate, long, 18x longer than wide.

Posterior region lost.

Distribution. Caribbean Sea, Colombia.

Remarks. *Leanira* **n. sp.** resembles *L. cirrata* (Treadwell, 1934) in having elytra with a white dot on the surface. However, *Leanira* **n. sp.** differs in having small lateral antennae proximal to prostomium, sheath palps large, twice as long as tentacular segment, and having posterior elytra quadrangular; whereas *L. cirrata* has large lateral antennae distal to prostomium, sheath palps short, as long as tentacular segment, and has posterior elytra subtriangular.

Genus *Neoleaniroides* n. gen.

Type species. *Neoleaniroides* **n. sp.**

Diagnosis. Sigalioninae with prostomium oval, wider than long. Median antennal ceratophore with auricles. Tentaculophore with lateral antennae fused dorsally to it, tentacular lobes present. Without ctenidial pads on buccal lateral lips. Segment III without tubercles, with dorsal cirri; neuropodia with one long appendage. Ventral cirri without papillae or basal knob. Stylodes non-papillate. Neurochaetae only composed articulate spinigers. Elytra unknown.

Etymology. The genus name is derived from *Neoleanira* Pettibone, 1970b, adding the Greek suffix -*oides* (=similarity) to indicate the resemblance of *Neoleanira*.

Gender. Masculine, as the stem genus-group name.

Remarks. *Neoleaniroides* **n. gen.** resembles *Neoleanira* Pettibone, 1970b in having auricles on median antennal ceratophore, inner tentacular lobes and dorsal cirri in segment III. The main difference relay in the neuropodia. *Neoleaniroides* **n. gen.** has segment III with a long cirriform neuropodial appendage among the stylodes, all segments with neurochaetae articulate spinigers, branchia and ctenidial pads appear in anterior segments (segment III). On the contrary, *Neoleanira* has segment III without appendages, only stylodes, all segments with neurochaetae canaliculate spinigers, and branchia and ctenidial pads appear from at least segment six (Pettibone 1970).

***Neoleaniroides* n. sp.**

Fig. 4

Material examined. Grand Caribbean. Florida. Holotype. UMML 6713-854, R/V Gerda, St. 854 (25°27'N 80°02'W), 221 m, August 25, 1967, anterior fragment [36 segments, 1.4 cm long, 1.1 cm to segment 30, 0.23 cm wide]. **Paratype.** One spec. (UMML 6713-854), R/V Gerda, St. 854 (25°27'N 80°02'W), 221 m, August 25, 1967 anterior fragment [41 segments, 1.7 cm long, 1 cm to segment 30, 0.27 cm wide].

Description. Holotype (UMML 6713-854) with body pale yellow, cylindrical, long; damaged (Fig. 4A). Mid-dorsal line smooth, all elytra lost, venter smooth.

First three anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 4B). Eyes not evident. Lateral antennae long, twice as long as prostomium, fused with tentacular segment, inserted proximally to prostomium. Median antennae inserted on antero-dorsal prostomial margin, ceratophore stout, short, 1/3 as long as prostomium, median antennal ceratophore with tiny auricles, half as long as ceratophore. Ceratostyle lost in holotype; in partype, long, twice as long as prostomium. Tentacular segment biramous, notochaetae simple verticillates, neurochaetae slender spinigers. Inner tentacular lobe, barely seen. Tentacular cirri long, twice as long as parapodia; ventral cirri short, half as long. Palps lost, only inner and outer sheaths (Fig. 4C).

Branchiae and ctenidial pads from segment III. Elytra from holo- and paratype lost.

Right parapodia from segment III (Fig. 4E,F). Dorsal cirrus long, 3x as long as parapodia (Fig. 4D). Notopodia subrectangular, long; as long as neuropodia, lobes indistinct, 3 distal stylodes. Notochaetae up to 20 simple verticillates, shortest 3x as long as notopodia, longest 4x as long (Fig. XX). Neuropodia truncated, lobes indistinct, with 2 distal and 2 ventral stylodes, a large slender appendage inserted among stylodes. Neurochaetae only spinigers: unit A, four spinigers with handles slender with 4 rows of spines, blades articulate, long, 24x longer than wide; unit B, 14 spinigers with handles thick, smooth, blades articulate, long, 29x longer than wide; unit C and D indistinct, 12 spinigers with handles slender, smooth, blades articulate, long, 25x longer than wide.

Right parapodia from segment 23 (Fig. 4G). Notopodia lanceolate, large, as long as neuropodia, acicular lobe anteriorly large; four distal stylodes, a larger one twice as long as regular ones. Notochaetae up to 40 simple verticillates, shortest as long as notopodia, longest, twice as long Neuropodia conical, prechaetal lobe conical, notched, postchaetal lobes subequal, 4 distal and 2 ventral stylodes. Neurochaetae only spinigers: unit A, three spinigers with handles slender with 4 row of spines, blades articulate, medium-sized, 13x longer than wide; unit B, eight spinigers with handles slender with one row of spines, blades articulate, long, 39x longer than wide; unit C and D indistinct, 13 spinigers with handles slender with one row of spines, blades articulate, long, 20x longer than wide.

Posterior region lost.

Distribution. Caribbean Sea, Florida.

Genus *Sigalion* Audouin & Milne-Edwards *in* Cuvier, 1830

Sigalion Audouin & Milne-Edward *in* Cuvier, 1830: 207.

Type species. *Sigalion mathildae* Audouin & Milne-Edwards *in* Cuvier, 1830 by monotypy.

Diagnosis (after Mackie & Chambers 1990). Sigalioninae with prostomium subrectangular to subpentagonal. Median antenna without ceratophore nor auricles. Lateral antennae inserted on prostomial surface. Tentaculophore without tentacular lobes. Facial tubercle present. Segment III with short dorsal cirri, tubercles absent; neuropodia without appendages. Ventral cirri in all segments, without papillae nor basal knob. Stylodes non-papillate. Neurochaetae simple pinnates might be present, composed articulate falcigers. Elytra smooth, with distal papillae and fringes of pinnate or palmate papillae.

Sigalion pourtalesii Ehlers, 1887

Fig. 5

Sigalion pourtalesii Ehlers, 1887: 57, Pl. 15, Figs. 1–4, Pl. 16, Figs. 1–10.—Mackie & Chambers 1990: 52.

Type locality. Carysfort, Reef, Florida.

Material examined. Caribbean Sea. USA. Florida. One spec. (UMML 6709-842), anterior fragment, R/V Gerda, St. 842, off Duck Key (24°38'N 80°42'W), 179 m, July 11, 1967 [45 segments, 3.5 cm long, 2.5 cm to segment 30, 1.5 cm wide]. **Saint Vincent and the Grenadines.** One spec. (UMML 6907-876), anterior fragment, R/V Pillsbury, St. 876, off river Colonarie (13°14'N 61°05'W), 245 m, July 06, 1969 [66 segments, 5.8 cm long, 2.7 cm to segment 30, 0.8 cm wide].

Description. Specimen (UMML 6709-842) with body whitish, oblong, long; posterior region lost (Fig. 5A). Mid-dorsal line smooth, partially covered by elytra, venter smooth.

First anterior segments directed anteriorly. Prostomium subpentagonal, as long as wide, fused with tentacular segment and segment II (Fig. 5B). Eyes two pairs, eyes similar size, directed dorsally (Fig. 5C). Lateral antennae tiny, 1/8 as long as prostomium, inserted on anterior prostomial margin. Tentacular segment biramous, reduced, notochaetae simple verticillates, neurochaetae long articulate falcigers. Tentacular cirri long, 3x as long as notopodia; ventral cirri longer, 5x as long. Palps long, reaching segment 6, with inner and outer sheaths (Fig. 5D). Branchiae and ctenidial pads from segment III, inserted above notopodia and lateral sides of parapodia, respectively.

First right and left elytra lost. Second right elytron oblong, notched anteriorly, with 14 pinnate papillae, secondary marginal dendritic papillae (Fig. 5G). Posterior elytron subquadrangular, with 17 pinnate papillae, secondary marginal truncated papillae (Fig. 5H). Elytral surface smooth.

Right parapodia from segment III (Fig. 5E). Notopodia bulbous, large, as long as neuropodia, lobes indistinct. Notochaetae up to 150 simple verticillates, bifid distally, shortest, geniculate, 1/8 as long as notopodia, longest 4x as long. Neuropodia truncate, non-acicular lobes indistinct, acicular lobe truncate, ½ as long as neuropodia. Neurochaetae only falcigers: unit A, five falcigers with handles slender with 6 rows of spines, blades articulate, medium-sized, 26x longer than wide; unit B, four falcigers with handles slender with 2 rows of spines, blades articulate, long, 35x longer than wide; unit C, 12 falcigers with handles slender, smooth, blades articulate, short, 20x longer than wide; unit D, 15 spinigers with handle slender with 2 rows of spines, blades articulate, long, 19x longer than wide.

Right parapodia from segment 16 (Fig. 5F). Notopodia lanceolate, large, twice as long as neuropodia, acicular lobe directed anteriorly; a small distal stylode. Notochaetae up to 230 simple verticillates, shortest as long as notopodia, longest 3x as long. Neuropodia conical, acicular lobe directed anteriorly. Neurochaetae, simple pinnates and falcigers: above unit A, four simple pinnates chaetae; unit A, five falcigers with handles slender, with 16–18 rows of fimbria, blades articulate, medium-sized, 22x longer than wide; unit B, four falcigers with handles thick with distally many rows of denticles, blades articulate, long, 35x longer than wide; subunit 1, ten falcigers with handles slender with 2 rows of spines, blades articulate, long, 32x longer than wide; unit C, five falciger with handles thick with subdistal grooves, blades articulate, short, 8x longer than wide; subunit 2,

15 falcigers with handles slender with 3 rows of spines, blades articulate, medium-sized, 20x longer than wide; unit D, 20 falcigers with handles slender with 4 rows of spines, blades articulate, long, 45x longer than wide.

Posterior region lost.

Distribution. Grand Caribbean region, from Florida to Saint Vincent and the Grenadines.

Remarks. Ehlers (1887) did not indicate the presence of notopodial stylode and this feature has been used to separate similar *Sigalion* species (Salazar-Silva & Salazar-Vallejo *in press*), here the stylode is recorded and described. According to Mackie & Chambers (1990) *S. pourtalesii* might be difficult to separate from *S. edwardsi* Kinberg, 1856 due the similarities in chaetal features; however, these species are different. *Sigalion pourtalesii* lacks median antenna and have pinnate fringe with tapered papillae, whereas *S. edwardsi* has median antenna and pinnate fringe with truncate papillae.

***Sigalion wolfi* n. sp.**

Fig. 6

Thalenessa sp. A Wolf, 1984: 25-15, Fig. 25-12

Material examined. Caribbean Sea. Dominican Republic. Holotype. In separated vial, (UMML 7001-1162), anterior fragment, R/V Pillsbury, St. 1162, off Escocesa Bay (20°00'N 68°59'W), 25 m, January 17, 1970 [122 segments, 3 cm long, 0.7 cm to segment 30, 0.3 cm wide]. **Paratype.** One spec. (UMML 7001-1162), complete, R/V Pillsbury, St. 1162, off Esocesa Bay (20°00'N 68°59'W), 25 m, January 17, 1970 [92 segments, 3.4 cm long, 0.9 cm to segment 30, 0.3 cm wide]. **Additional material. Quintana Roo.** One spec. (BCC13847) anterior fragment, R/V Riviera Maya, off Holbox (21º48'0.83"N, 87º4'0.76"W) 14 m, November 04, 2015, coll. Sara Balam [69 segments, 1.7 cm long, 0.8 cm to segment 30, 0.25 wide].

Description. Holotype (UMML 7001-1162) with body whitish, translucent posteriorly, long; posterior region lost (Fig. 6A). Mid-dorsal line smooth, partially covered by elytra, venter smooth.

First three anterior segments directed anteriorly. Prostomium subquadrangular, as long as wide, divided in three lobes anteriorly, fused with tentacular segment and segment II (Fig. 6B). Eyes, two pairs, tiny, of similar size, visible dorsally. Lateral antennae, tiny, 1/6 as long as prostomium, inserted on prostomial margin. Median antenna, as long as lateral ones, inserted in dorsal prostomial side. On segment II, behind prostomium, one pair of non-ciliated pads. Facial tubercle subtriangular, barely seen below tentacular segment. Tentacular segment biramous, reduced, notochaetae simple verticillates, neurochaetae long articulate falcigers. Tentacular cirri long, 3x as long as notopodia; ventral cirri longer, 4x as long as neuropodia. Palps long, reaching segment 14, without visible inner nor outer sheaths (Fig. 6C). Branchiae from segment II, ctenidial pads from segment III, inserted above notopodia.

First right elytron small, subrectangular, with four palmate papillae (Fig. 6F). Second right elytron oblong, expanded anteriorly, with four palmate papillae, secondary marginal dendritic papillae. Posterior elytron subrectangular, with eight palmate papillae, secondary marginal dendritic papillae (Fig. 6G). Elytral surface smooth.

Right parapodia from segment III (Fig. 6D). Dorsal cirri short. Notopodia truncated, large, as long as neuropodia, with a bulbous lobe extended antero-posterior, resting on acicula. Notochaetae up to 30 simple verticillates, bifid distally, shortest twice as long as notopodia, longest 6x as long. Neuropodia truncate, upper anterior lobe large, lower anterior lobe slightly reduced, upper posterior lobe short, globular. Acicular lobe absent. Neurochaetae only falcigers: unit A, six falcigers with handles thick with 3 rows of spines, blades articulate, long, 25x longer than wide; unit B, a falciger with handle thick, smooth, blade articulate, short, 12x longer than wide; unit C, 15 falcigers with handles slender with one row of spines, blades articulate, medium-sized, 20x longer than wide; unit D, 10 falcigers with handle slender, smooth, blades articulate, long, 36x longer than wide.

Right parapodia from segment 36 (Fig. 6E). Notopodia truncated, large, 2/3 as long as neuropodia, a bulbous lobe extended antero-posterior, resting on acicula; a large distal stylode. Notochaetae up to 20 simple verticillates, shortest ½ as long as notopodia, longest 3x as long. Neuropodia conical, acicular lobe anteriorly, two stylodes, posterior one large oblong, anterior one globular. Neurochaetae, pinnates simple chaetae and falcigers: above unit A, four simple pinnates chaetae; unit A, five falcigers with handles thick, with 3–4 rows of spines, blades articulate,

medium-sized, 12x longer than wide; unit B, five falcigers with handles thick with 2 rows of denticles, blades non-articulate, short, 5x longer than wide; unit C, nine falciger with handles slender with one row of spines, blades articulate, long, 16x longer than wide; unit D, 13 falcigers with handles slender with 2 rows of spines, blades articulate, long, 27x longer than wide.

Posterior region lost.

Distribution. Grand Caribbean region, from Florida to Dominican Republic.

Etymology. This is species is named after Paul S. Wolf as a humble recognition of his continuous studies in polychaetes in the Gulf of Mexico, and especially because he noticed the peculiarity of this species.

Remarks. This species resembles *Sigalion antillarus* Grube, 1875, in having a third median antenna, however, they differ because, *Sigalion wolfi* **n. sp.** lacks simple pinnates chaetae and its median antenna is inserted in the prostomial anterior margin; whereas *S. antillarus* has simple pinnates chaetae, and the median antenna is inserted in the center of the prostomial surface.

***Sigalion* n. sp. 1**

Fig. 7

Material examined. Off Amazonas river mouth. Brazil. Holotype. One spec., (UMML 84-4226), complete, R/V Oregon, St. 4226, off Turiaçu Bay (00°18'N 44°17'W), 274 m, March 09, 1963 [98 segments, 10.2 cm long, 2.5 cm to segment 30, 0.8 cm wide].

Description. Holotype (UMML 84-4226) with body pale yellow, whitish posteriorly, long; posterior region with oocytes (Fig. 7A). Mid-dorsal line smooth, partially covered by elytra, venter smooth.

First six anterior segments directed anteriorly. Prostomium subpentagonal, as long as wide, divided in three lobes anteriorly, fused with tentacular segment and segment II (Fig. 7B). Eyes, two pairs, tiny, of similar size, visible dorsally (Fig. 7C). Lateral antennae inserted on anterior prostomial margin, tiny, lanceolate, 1/8 as long as prostomium. Median antennae absent. Nuchal non-ciliated

pads absent. Facial tubercle subtriangular, seen below tentacular segment. Tentacular segment biramous, reduced, notochaetae simple verticillates, neurochaetae long articulate falcigers. Tentacular cirri long, twice as long as notopodia; ventral cirri longer, 4x longer than neuropodia. Palps long, reaching segment 12, without visible inner nor outer sheaths (Fig. 7D). Branchiae and ctenidial pads from segment six, inserted above notopodia.

First right elytron small, oblong, with 12 pinnate papillae, margins with secondary dendritic papillae. Second right elytron oblong, notched, expanded proximally, with 12 pinnate papillae, marins with secondary dendritic papillae (Fig. 7G). Posterior elytron subquadrangular, with 12–18 pinnate papillae, margins with secondary dendritic papillae (Fig. 7H). Elytral surface smooth.

Right parapodia from segment III (Fig. 7E). Dorsal cirri short. Notopodia truncated, large, slightly longer than neuropodia, a bulbous lobe displaced anteriorly. Notochaetae up to 100 simple verticillates, bifid distally, shortest 1/6 as long as notopodia, longest 4x longer than notopodia. Neuropodia lanceolate, upper anterior lobe large, lower lobe barely seen, upper posterior lobe not seen, lower one reduced. Acicular lobe conic large. Neurochaetae only falcigers: unit A, 16 falcigers with handles thick with 5–7 rows of spines, blades articulate, long, 35x longer than wide; unit B, three falcigers with handle thick with 4 rows of spines, blade articulate, long, 40x longer than wide; unit C, 12 falcigers with handles slender with one row of spines, blades articulate, medium-sized, 25x longer than wide; unit D, 25 falcigers with handle slender with 2 rows of spines, blades articulate, long, 35–48x longer than wide.

Right parapodia from segment 30 (Fig. 7F). Notopodia truncated, large, slightly larger than neuropodia, a bulbous lobe extended displaced anteriorly; a large stylode distally. Notochaetae up to 80 simple verticillates, shortest, as long as notopodia, longest twice as long . Neuropodia conical, acicular lobe anteriorly. Neurochaetae, pinnates simple chaetae and falcigers: above unit A, four simple pinnates chaetae; unit A, five falcigers with handles thick, with 14–15 rows of fimbria, blades articulate, medium-sized, 22x longer than wide; unit B, 5 falcigers with handles thick with 15 rows of denticles, blades articulate, medium-sized, 27x longer than wide; unit C, 8–10 falcigers with handles thick with 5 row of denticles, blades non-articulate, short, 8x longer than wide; unit D, 20 falcigers with handles slender with 5 rows of spines, blades, articulate long, 45x longer than wide.

Pygidium damaged, conical with two short anal cirri, as long as last two segments.

Distribution. Northern Brazil, Turiaçu Bay.

Remarks. *Sigalion* **n. sp. 1** resembles *S. pourtalesii* Ehlers, 1887 from Florida, but they differ in the elytral and palpal features. First pair of elytra in *Sigalion* **n. sp. 1** are oblong, and there are no inner and outer palp sheath, whereas *S. pourtalesii* has first pair of elytra deeply notched, and inner and outer palp sheath are present.

***Sigalion* n. sp. 2**

Fig. 8

Material examined. Grand Caribbean. Gulf of Mexico. Yucatán. Holotype. BCC 16629, anterior fragment, R/V UAT 1 CIDIPORT, off Río Lagartos (22º14'0.66"N, 87º55'0.29") 36 m, August 31, 2016, coll. Anabel León [64 segments, 2.8 cm long, 1.4 cm to segment 30, 0.6 cm wide]. **Yucatán. Paratype.** One spec. (BCC 13421), anterior fragment, R/V Rivera Maya, off Telchac Puerto (22º0'0.54"N, 89º19'0.62"W) 41 m, November 11, 2015 [147 segments, 8.5 cm long, 1.7 cm to segment 30, 0.23 cm].

Additional material. Grand Caribbean. Gulf of Mexico. Campeche. One spec. (ECOSUR XXX) anterior fragment, off Seybaplaya (19°45'N, 91°7.9'W), August 16, 1984, coll. F.E.Donath-Hernández [16 segments, 0.3 cm long, 0.2 cm wide].

Description. Holotype (BCC 16629) with body pale yellow, long, wide; paratype with posterior region with eggs (Fig. 8A). Mid-dorsal line smooth, partially covered by elytra, venter smooth.

First two anterior segments directed anteriorly. Prostomium subpentagonal, as long as wide, fused with tentacular segment and segment II (Fig. 8B). Eyes, two pairs, tiny, all of similar size, directed dorsally (Fig. 8C). Lateral antennae, inserted on anterior margin of prostomium, tiny, taperated, 1/8 as long as prostomium. Median antennae slightly smaller than lateral ones. Nuchal non-ciliated pads large. Facial tubercle subtriangular, seen below tentacular segment. Tentacular segment biramous, reduced, notochaetae simple verticillates, neurochaetae long articulate falcigers. Tentacular cirri short, as long as notopodia; ventral cirri longer, twice as long as

neuropodia. Palps short, reaching segment 4, without visible inner nor outer sheaths (Fig. 8D). Branchiae from segment 5, ctenidial pads from segment III, inserted above notopodia.

First right elytron small, subtriangular, with 10 palmate papillae, margins with secondary dendritic papillae. Second right elytron pear-shaped, with 10 palmate papillae, margins with secondary dendritic papillae (Fig. 8G). Posterior elytron subquadrangular, left anterior margin expanded, with 12–13 palmate papillae, margins with secondary dendritic papillae (Fig. 8H). Elytral surface smooth; inner space with dense granulate material.

Right parapodia from segment III (Fig. 8E). Dorsal cirri short. Notopodia truncated, short, 1/2 as long as neuropodia, a bulbous large lobe, antero-posterior, resting on notacicula; a short slylode distally. Notochaetae up to 40 simple verticillates, bifid distally, shortest as long as notopodia, longest 5x longer than notopodia. Neuropodia truncated, upper anterior lobe large, lower as large as upper one, upper posterior lobe not seen, a globular lobe inserted on mid-posterior neuropodial area. Acicular lobe truncated. Neurochaetae only falcigers: unit A, 2 falcigers with handles thick with 7 rows of spines, blades articulate, long, 35x longer than wide; unit B, 6 falcigers with handle thick with 2 rows of spines, blade articulate, long, 43x longer than wide; unit C, 6 falcigers with handles thick with one row of spines, blades articulate, short, 15x longer than wide; unit D, 25 falcigers with handle slender with 2 rows of spines, blades articulate, long, 34–50x longer than wide.

Right parapodia from segment 22 (Fig. 8F). Notopodia truncated, large, slightly larger than neuropodia, a bulbous lobe extended displaced anteriorly; small lobe on posterior parapodial area, a large stylode distally. Notochaetae up to 60 simple verticillates thick or slender, shortest, as long as notopodia, longest twice as long. Neuropodia conical, acicular lobe short anteriorly. Neurochaetae, simple pinnates and falcigers: above unit A, five simple pinnates chaetae; unit A, five falcigers with handles thick, with 3 rows of spines, blades articulate, medium-sized, 24x longer than wide; unit B, two falcigers with handles thick smooth, blades non-articulate, short, 5x longer than wide; units C and D, indistinct, 28 falcigers with handles thick with 2 row of spines, blades articulate, long, 40x longer than wide; Subunit 1, one falciger with handle thick, smooth, blade non-articulate, short, 6x longer than wide.

Distribution. Gulf of Mexico, from Campeche to Yucatán.

Remarks. This species differs from others regional and foreign species in having all antennae tapered, segment III with a long dorsal cirrus, and parapodia with a long notopodial stylode.

Genus *Sthenelais* Kinberg, 1856

Sthenelais Kinberg, 1856: 387.

Type species. *Sthenelais helenae* Kinberg, 1856, by subsequent designation (Hartman 1949: 34).

Diagnosis (after Pettibone 1971; Aungtonya 2002). Sigalioninae with prostomium oval, wider than long. Median antennal ceratophore with auricles. Tentaculophore with lateral antennae fused internally to it, tentacular lobes present. Ctenidial pads on buccal lateral lips. Segment III with dorsal tubercles, without dorsal cirri; neuropodia without appendages. Ventral cirri in all segments without long papillae, but with basal knob. Stylodes non-papillate. Neurochaetae simple pinnate, composed falcigers, either entire or articulate, bifid, rarely with spinigers. Elytra partially or completely covered by microtubercles.

***Sthenelais globosa* n. sp.**

Fig. 9

Material examined. Grand Caribbean. Grand Caribbean. Quintana Roo. Holotype. ECOSUR-XXX, Cayo Centro, Chinchorro Bank, May 1998 [74 segments, 3.5 cm long, 1.3 cm to segment 30, 1.3 cm wide]. **Paratypes.** Four spec. (ECOSUR-XXX) same data as holotype [53–122 segments, 2.7–7.2 long, 1.2–1.5 to segment 30, 0.3–0.5 wide].

Description. Holotype (ECOSUR-XXX) with body pale orange, cylindrical, long (Fig. 9A). Mid-dorsal line smooth, completely covered by elytra, venter smooth.

First three anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 9B). Two pairs of eyes, anterior eyes larger. Lateral antennae short, 1/3 as long as prostomium, fused with tentacular segment, inserted proximal to prostomium. Median antennae inserted on antero-dorsal prostomial margin, ceratophore bulbous, long, as long

as prostomium, antennal median ceratophore with large auricles, as long as ceratophore. Ceratostyle tapered, twice as long as prostomium. Tentacular segment biramous, notochaetae simple verticillates, neurochaetae slender falcigers. Inner tentacular lobe, barely seen. Tentacular cirri long, twice as long as parapodia; ventral cirri long, as long. Palps short, reaching segment 7 (Fig. 9C).

Branchiae from segment 4, ctenidial pads from segment 3.

First right and left elytra lost. Second right elytron reniform, elytral surface covered by globular papillae, with 11 swollen postero-marginal papillae, lateral margins dendritic papillae (Fig. 9F). Posterior right elytron subreniform, elytral surface covered by globular papillae with 23 swollen postero-marginal papillae, dendritic papillae on lateral margins with 12–13 palmate papillae, lateral margins with secondary dendritic papillae (Fig. 9G).

Right parapodia from segment III (Fig. 9D). Notopodia truncated; posterior lobes indistinct; anterior upper lobe short, lower one slightly larger, with 4 globular stylodes. Notochaetae up to 30 thick simple verticillates, shortest as long as notopodia, longest 4x as long. Neuropodia conical, prechaetal lobe truncate, postchaetal lobes with 5 globular stylodes. Neurochaetae simple pinnates and falcigers bifurcate: above unit A, two simple pinnates chaetae; unit A, two falcigers with handles thick with 10 rows of denticles, blades basally denticulate, articulate, long, 22x longer than wide; unit B, three falcigers with handle thick with one subdistal row of denticles, blades entire, medium-sized, 5–8x longer than wide; unit C, three falcigers with handles slender with 5 rows of spines, blades articulate, long, 19x longer than wide; unit D, five falcigers with handles slender with 4 rows of spines, blades articulate, long, 20x longer than wide.

Right parapodia from segment 24 (Fig. 9E). Notopodia conical, large, as long as neuropodia; anterior and posterior lobes indistinct, with 4 globular stylodes. Notochaetae up to 80 simple verticillates, tips bifurcate, thick or slender, shortest half as long as notopodia, longest 5x as long. Neuropodia conical, prechaetal lobe conical, two postchaetal lobes, with 7 globular stylodes. Neurochaetae, simple pinnates and falcigers: above unit A, four simple pinnates chaetae; unit A, four falcigers with handles thick, smooth, blades short, 2x longer than wide; unit B, two falcigers with handles thick, smooth, blades short, 2x longer than wide; unit C, three falcigers with handles slender, smooth, blades, articulate, 10x longer than wide; subunit 1, three spinigers with handles

thick, smooth, blades articulate, medium-sized, 6x longer than wide; unit D, five falcigers with handles slender, smooth, blades articulate, long, 10x longer than wide.

Posterior region lost.

Distribution. Caribbean Sea, Quintana Roo.

Etymology. The specific name is derived from the Latin adjective *globosus* referred to the globose shape of stylodes and marginal papillae on elytra.

Remarks. This species is different from any other species of the genus, by having notopodial stylodes as well as marginal papillae on elytra with globular shape, and falcigers with articulate blades with distal article basally denticulate.

Genus *Sthenolepis* Willey, 1905

Sthenolepis Willey, 1905: 259.

Type species. *Leanira japonica* McIntosh, 1885 by original designation.

Diagnosis (after Willey 1905; Auntonya 2002). Sigalioninae with prostomium oval, wider than long. Median antennal ceratophore with auricles. Tentaculophore with lateral antennae fused internally to it, tentacular lobes present. Without ctenidial pads on buccal lateral lips. Segment III with dorsal tubercles, without dorsal cirri; neuropodia without appendages. Ventral cirri in all segments without long papillae nor basal knob. Stylodes non-papillate. Neurochaetae simple pinnate, composed spinigers, rarely missing, either pseudoarticulate or canaliculate. Elytra smooth, with distal tubercles or papillae.

Sthenolepis grubei (Treadwell, 1901)

Fig. 10

Sthenelais grubei Treadwell, 1901: 187, Figs. 10–13.

Sthenolepis grubei Hartman 1965: 55 (n. comb.).

Type locality. San Juan, Puerto Rico.

Material examined. Caribbean Sea. Jamaica. One spec. (UMML 7006-1213), anterior fragment, off Great Goat Island (17°52'N 77°04'W), 11 m, July 05, 1970 [30 segments, 1.7 cm long, 0.6 cm wide].

Description. Body pale yellow, cylindrical, long; posterior region lost (Fig. 10A). Mid-dorsal line smooth, elytra completely cover first segments, posterior region partially covered by elytra, venter smooth.

First three anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 10B). Eyes two pairs, posterior eyes dorsal, anterior eyes below median antennal ceratophore. Lateral antennae long, fused with tentacular segment. Median antennae inserted on antero-dorsal prostomial margin, ceratophore bulbous short, 1/3 as long as prostomium, two auricles short, ear-shaped on bases of median antennal ceratophore; ceratostyle long, 7x as long as ceratophore. Facial tubercle absent. Tentacular segment biramous, with a large lobe dorsally, notochaetae simple verticillates, neurochaetae spinigers long; all covered by hydrozoans. Tentacular cirri long, 7x as long as notopodia, ventral cirri long, 6x as long as neuropodia; inner tentacular lobes lamellar, as long as neuropodia. Palps long, reaching segment 7, with inner and outer sheaths (Fig. 10C).

Branchiae from segment 8, ctenidial pads from segment 2, inserted above notopodia.

First right elytron rounded (Fig. 10F). Second right elytron bean-shaped. Posterior elytron subquadrangular, with 15 marginal tapered papillae (Fig. 10G). Elytral surface covered by slender and globular papillae, denser and pigmented on anterior elytra.

Right parapodia from segment III (Fig. 10D). Notopodia oblong, short; ½ as long as neuropodia, lobes indistinct, 8 distal stylodes. Notochaetae up to 50 simple verticillates, shortest as long as notopodia, longest 3x as long. Neuropodia conical papillate, two postchaetal lobes, with 3 dorsal and 3 distally stylodes, mostly bifurcate. Neurochaetae simple pinnates and spinigers: above unit A, three simple pinnates chaeta; unit A, three spinigers with handles, slender smooth,

blades pseudo-articulate, long, 9x longer than wide; unit B, four spinigers with handles thick, smooth, blades pseudo-articulate, short, 18x longer than wide; unit C, four spinigers with handles slender, smooth, blades pseudo-articulate, short, 12x longer than wide; subunit 1, five spinigers with thick handles slender, smooth, blades pseudo-articulate, long, 40x longer than wide; unit D, eight spinigers with handles slender, smooth, blades pseudo-articulate, medium-sized, 20x longer than wide.

Right parapodia from segment 29 (Fig. 10E). Notopodia oblong, large, as long as neuropodia; upper and lower posterior lobe indistinct; upper anterior lobe large, 2x as long as lower one, with 4 stylodes. Notochaetae up to 30 simple verticillate, shortest as long as notopodia, longest 2x as long. Neuropodia conical, prechaetal lobe conical, two postchaetal lobes, with 4 short stylodes. Neurochaetae, simple pinnates and spinigers: above unit A, 7 simple pinnates chaeta; unit A, three spinigers with handles thick with 3 rows of spines, blades pseudo-articulate, long, 30x longer than wide; unit B, five spinigers with handles thick with 5 rows of spines, blades pseudo-articulate, medium-sized, 15x longer than wide; unit C, 6 spinigers with handles slender with 5 rows of spines, blades pseudo-articulate, short, 7x longer than wide; subunit 1, five spinigers with handles thick, smooth, blades pseudo-articulate, short, 11x longer than wide; unit D, eight spinigers with handles slender, smooth, blades pseudo-articulate, short, 12x longer than wide.

Posterior region lost.

Distribution. Caribbean Sea, from Jamaica to Puerto Rico.

Ecological note. Chaetae from anterior segments covered with clytid hydrozoans.

Sthenolepis* aff. *oculata

Fig. 11

Material examined. Gulf of Mexico. Tamaulipas. One spec. (BCC 18039), fragments, R/V Justo Sierra, off El Mezquital (25º16’44.39”N, 96º42’ 2.45”W) 98 m, June 10, 2017, coll. Anabel León [45 segments, 1.3 cm long, 1 cm to segment 30, 0.3 cm wide]. **Caribbean Sea. Mexico. Campeche.** One spec. (ECOSUR XXX), anterior fragment, off Ciudad del Carmen (18°58.2’N

92°02.0’W), 20 m, August 14, 1984 [25 segments, 0.7 cm long, 0.2 cm wide]. Two spec. (BCC 02797), anterior fragment, Laguna de Términos (18º32’58.42”N, 91º52’57.33”W) 1.8 m, May 26, 2011, coll. Sara Balam [83 segment, 2.6 cm long, 0.9 to segment 30, 0.23 wide]. One spec. (BCC 15254), anterior fragments, R/V UAT 1CIDIPORT, off Celestún reserve (20º48’0.12”N, 91º34’0.37”W) 38 m, August 25, 2016, coll. Anabel Leon, [96 segments, 2.8 cm long, 0.8 cm to segment 30, 0.2 cm wide]. **Dominican Republic.** One spec. (UMML 7006-1297), anterior fragment, off Dominica (18°16’N 70°52’W), 27 m, July 20, 1970 [50 segments, 2 cm long, 1.1 cm to segment 30, 0.35 cm wide].

Description. Body orange (ECOSUR XXX, Campeche), cylindrical, long; posterior region lost (Fig. 11A). Mid-dorsal line smooth, no elytra remain, venter smooth.

First two anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 11B). Eyes two pairs, anterior eyes larger, anterior one almost fused each other, directed anteriorly. Lateral antennae short, 1/3 as long as prostomium, fused with tentacular segment. Median antennae inserted on antero-dorsal prostomial margin, ceratophore cylindrical long, as long as prostomium, with two short auricles, leaf-shaped on lateral bases of median antennal ceratophore; ceratostyle long, 6x as long as ceratophore. Tentacular segment biramous, notochaetae simple verticillates, neurochaetae spinigers canaliculate, long. Tentacular cirri long, ceratostyle 7x longer than ceratophore; ventral cirri as long as tentacular one; inner tentacular lobes leaf-shaped, as long as neuropodium. Palps long, reaching segment 11, with inner and outer sheaths (Fig. 11C).

Branchiae and ctenidial pads from segment 3, inserted above notopodia.

Only one posterior elytron, subquadrangular, smooth (Fig. 11F)

Right parapodia from segment III (Fig. 11D). Notopodia lanceolate, short; lobes indistinct, with a large dorsal stylode between ctenidial pad and notochaetal fascicle, 4 distal stylodes as long as dorsal one. Notochaetae up to 20 simple verticillates, shortest as long as notopodia, longest 7x as long. Neuropodia conical, two postchaetal lobes, with 5 dorsal and 5 distal stylodes. Neurochaetae only spinigers: unit A, two spinigers with handles slender, smooth, blades articulate, short, 13x longer than wide; unit B, three spinigers with handles thick, smooth, blades articulate,

short, 11x longer than wide; unit C, ten spinigers with handles slender, smooth, blades articulate, medium-sized, 16x longer than wide; unit D, 13 spinigers with handles slender, smooth, blades articulate, long, 19x longer than wide.

Right parapodia from segment 16 (Fig. 11E). Notopodia lanceolate, large, as long as neuropodia, acicular lobe directed anteriorly; two distal stylodes, a larger one inserted in the acicular lobe slightly longer than regular ones. Notochaetae up to 50 simple verticillates, shortest as long as notopodia, longest 3x as long. Neuropodia conical, prechaetal lobe conical, two postchaetal lobes, 5 distal and one ventral stylodes. Neurochaetae, simple pinnates and spinigers: above unit A, a simple pinnates chaeta; unit A, two spinigers with handles slender, with 2 rows of spines, blades articulate, medium-sized, 13x longer than wide; unit B, six spinigers with handles thick, smooth, blades articulate, long, 17x longer than wide; subunit 1, two spinigers with handles slender, smooth, blades articulate, short, 11x longer than wide; unit C, seven spinigers with handles thick, smooth, blades articulate, medium-sized, 14x longer than wide; unit D, eight spinigers with handles slender, smooth, blades articulate, long, 17x longer than wide.

Posterior region lost.

Distribution. Gulf of Mexico, Campeche.

Remarks. *Sthenolepis* aff. *oculata* resembles *S. oculata* (Hartman, 1942b) in having large anterior pair of eyes. However, *Sthenolepis* aff. *oculata* differs by having cylindrical ceratophore, neuropodia conical and pseudocanaliculate blades, whereas *S. oculata* has bulbous ceratophore, neuropodia clavate and canaliculate blades.

***Sthenolepis* n. sp.**

Fig. 12

Material examined. Caribbean Sea. Guadeloupe Holotype. UMML 6907-944, anterior fragment, R/V Pillsbury, St. 944 (16°33' N 61°37'W), 402 m, July 17, 1969 [68 segments, 4.6 cm long, 1.5 cm to segment 30, 1.5 cm wide].

Description. Holotype (UMML 6907-944) with body pale, whitish, cylindrical, long; posterior region lost (Fig. 12A). Mid-dorsal line smooth, all elytra lost, venter smooth.

First three anterior segments directed anteriorly. Prostomium oval, wider than long, fused with tentacular segment (Fig. 12B). Eyes unclear. Lateral antennae short, fused with tentacular segment. Median antennae inserted on antero-dorsal prostomial margin, ceratophore subtriangular short, ½ as long as prostomium, two auricles short, leaf-shaped, on bases of median antennal ceratophore; ceratostyle lost. Tentacular segment, biramous, notochaetae simple verticillates, neurochaetae spinigers canaliculate, long. Tentacular cirri lost, ventral cirri as long as neuropodia; inner tentacular lobes leaf-shaped, as long. Palps long, reaching segment 13, with inner and outer sheaths (Fig. 12C).

Branchiae from segment 4, ctenidial pads from segment 3, inserted above notopodia.

Right parapodia from segment III (Fig. 12D). Notopodia conical, reduced; upper posterior lobe short, as long as lower one; anterior upper lobe short, lower one slightly larger, with 5 stylodes, and two longer ones, 2x as long as regular ones. Notochaetae up to 80 simple verticillates, shortest ¼ as long as notopodia, longest 4x as long. Neuropodia conical, prechaetal lobe conical, two postchaetal lobes with 7 stylodes, a longer stylode, 2x as long as regular ones. Neurochaetae spinigers and falcigers: unit A, six spinigers with handles thick, smooth, blades canaliculate, medium-sized, 12x longer than wide; unit B, two spinigers with handles thick, smooth, blades canaliculate, medium-sized, 14x longer than wide; unit C, five spinigers with handles thick, smooth, blades canaliculate, long, 20x longer than wide; unit D, eight falcigers with handles slender smooth, blades articulate, long, 23x longer than wide, tip bifid.

Right parapodia from segment 23 (Fig. 12E). Notopodia truncated, large, as long as neuropodia; upper posterior lobe short, indistinct from lower one; upper anterior lobe short, lower anterior lobe larger, 2x as long as upper one, with 4 stylodes, a larger one, 2x long as regular ones. Notochaetae up to 50 simple verticillates, shortest as long as notopodia, longest 3x as long. Neuropodia conical, prechaetal lobe conical, two postchaetal lobes, with 6 stylodes, a longer stylode, slightly longer than regular ones. Neurochaetae, simple pinnate, spinigers and falcigers: above unit A, a simple pinnates chaeta; unit A, four spinigers with handles thick, smooth, blades

canaliculate, medium-sized, 8x longer than wide; unit B, two spinigers with handles thick, smooth, blades canaliculate, medium-sized, 13x longer than wide; subunit 1, six spinigers with handles slender, smooth, blades canaliculate, short, 7x longer than wide; unit C, five spinigers with handles thick, smooth, blades canaliculate, medium-sized, 10x longer than wide; subunit 2, two falcigers with handle slender, smooth, blade canaliculate, short 6x longer than wide; unit D, five spinigers with handles slender, smooth, blades canaliculate, long 18x longer than wide.

Posterior region lost.

Distribution. Caribbean Sea, Guadeloupe.

Remarks. *Sthenolepis* **n. sp.** differs from all species of the genus in having short falcigers as subunit 2, between unit C and unit D. In the genus, only spinigers have been recorded.

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The late Nancy Voss, and María Criales (UMML), Amanda Bemis and Gustav Paulay (UF) and Daniel Pech (ECOSUR) kindly made available the material herein examined. Charatsee Aungtonya (PMBC, Thailand) by answering my doubts on sigalionids, specially *Labioleanira*. J. Rolando Bastida-Zavala (UMAR), Sergio I. Salazar-Vallejo and Luis F. Carrera-Parra (ECOSUR) carefully read and provided valuable comments and suggestions. This research is part of the MSc Thesis of the author at ECOSUR, supported by a scholarship from CONACYT (CV916456).

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Figures

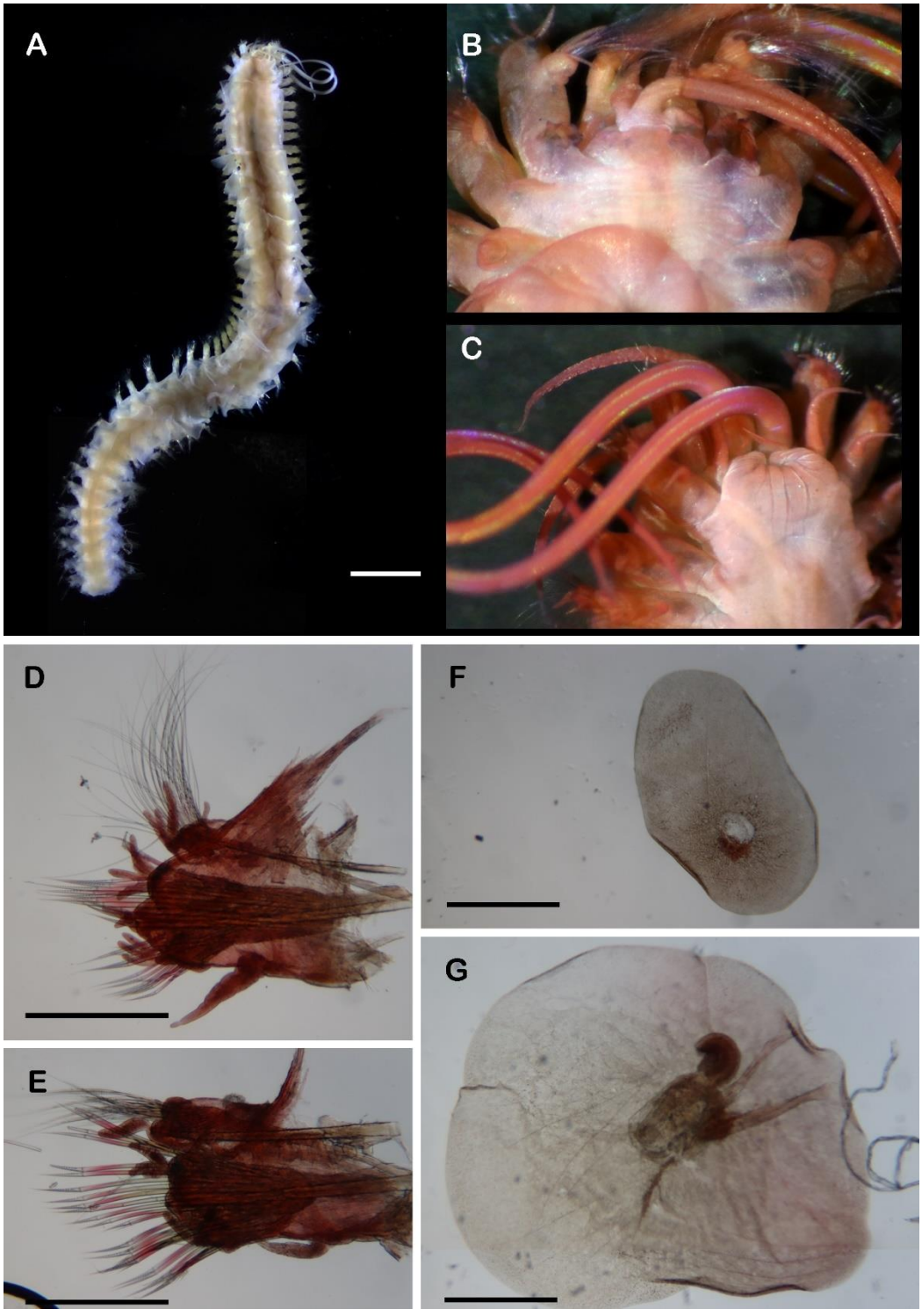

FIGURE 1. ***Labioleanira*** **n. sp.**, holotype (BCC21687). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 15, right parapodium. F, second right elytron. G, posterior right elytron. Scale bars: A: 2 mm, D–G: 500 µm.

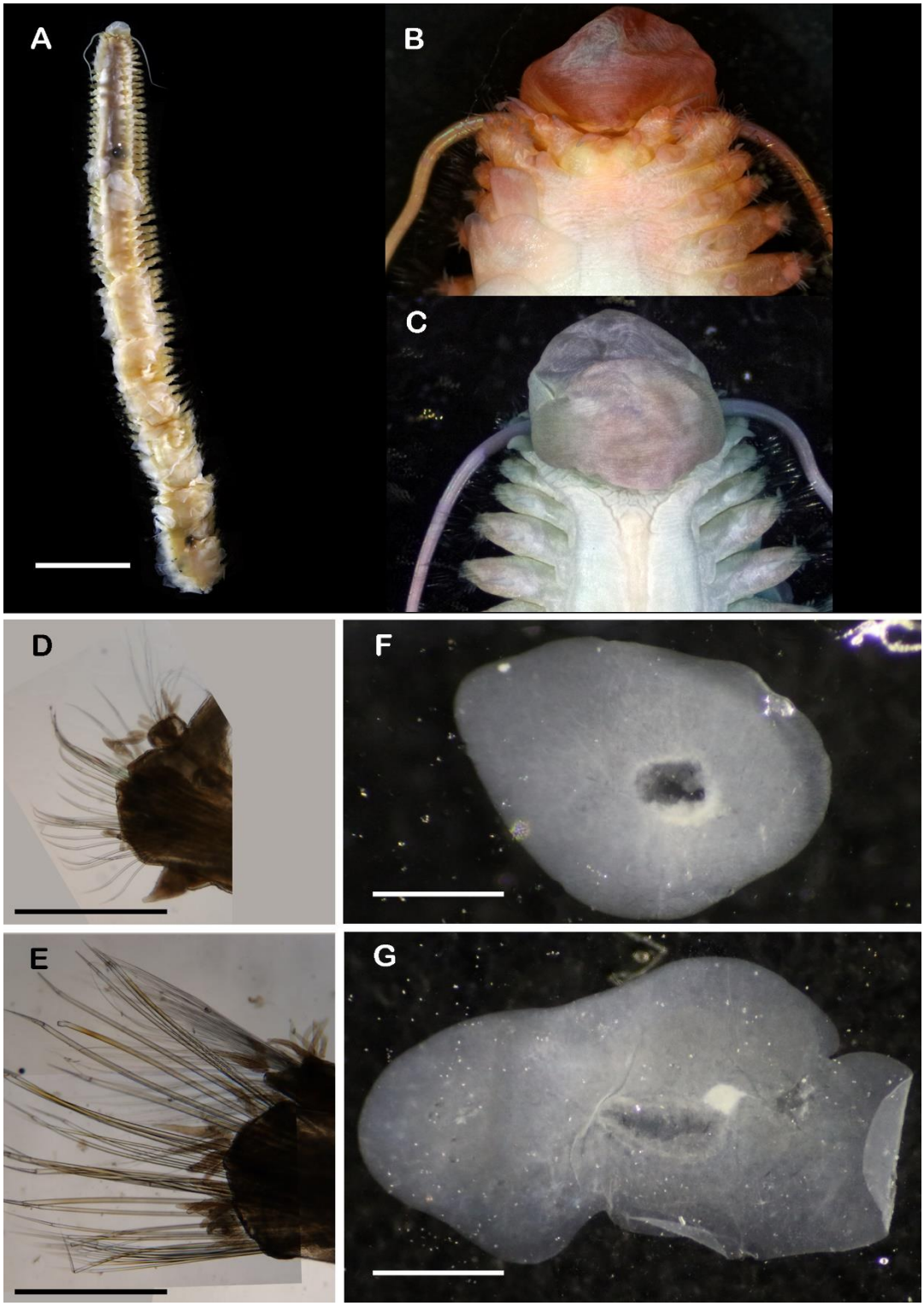

FIGURE 2. ***Leanira cirrrata*** **(Treadwell, 1934).** Non-type specimen (UMML 6617-812). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 42, right parapodium. F, second right elytron. G, posterior right elytron. Scale bars: A: 1 cm, D–G: 1 mm.

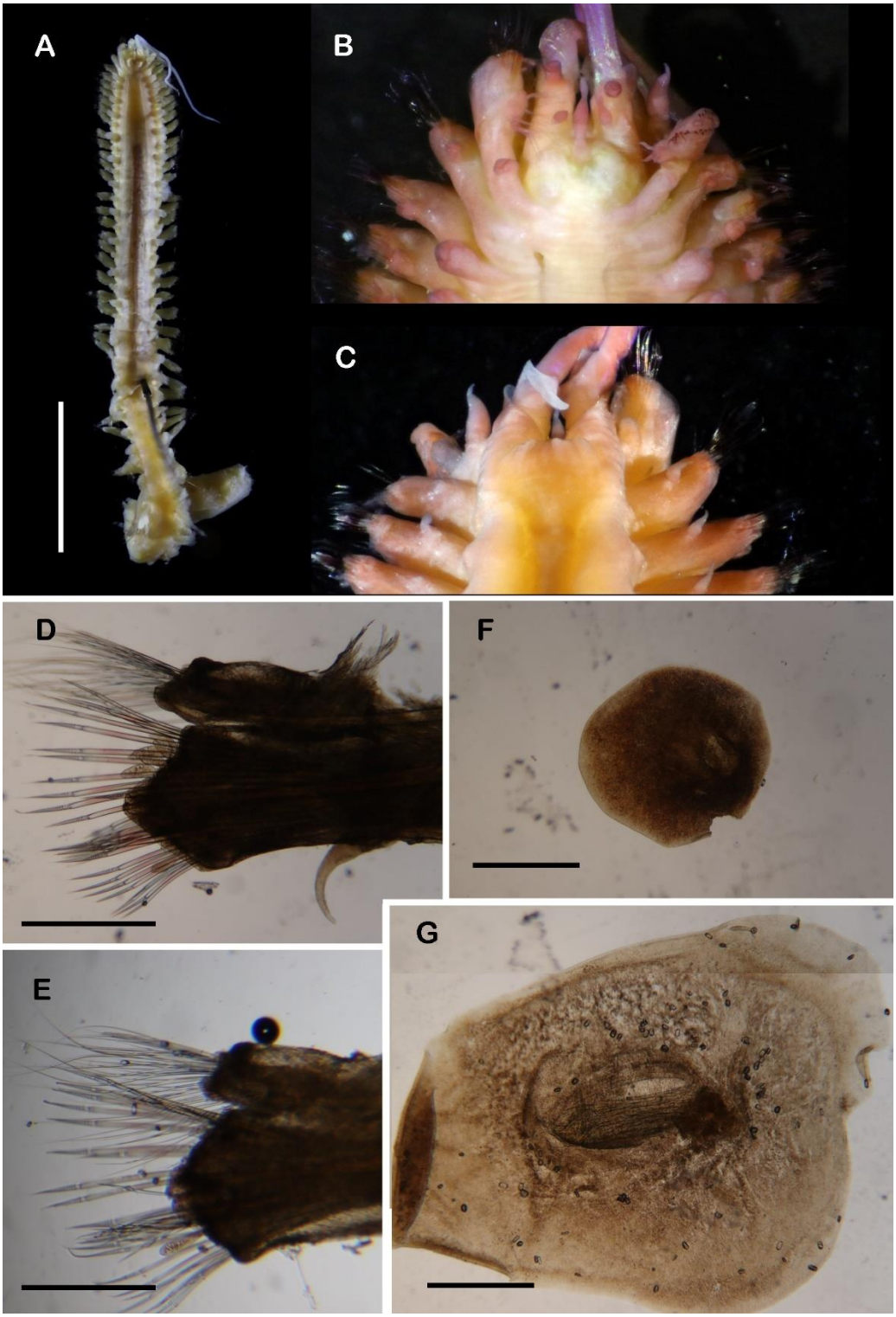

FIGURE 3. ***Leanira*** **n. sp.** Holotype (UMML 6608-455). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 42, right parapodium. F, first right elytron. G, posterior right elytron. Scale bars: A: 1 cm, D–G: 500 µm.

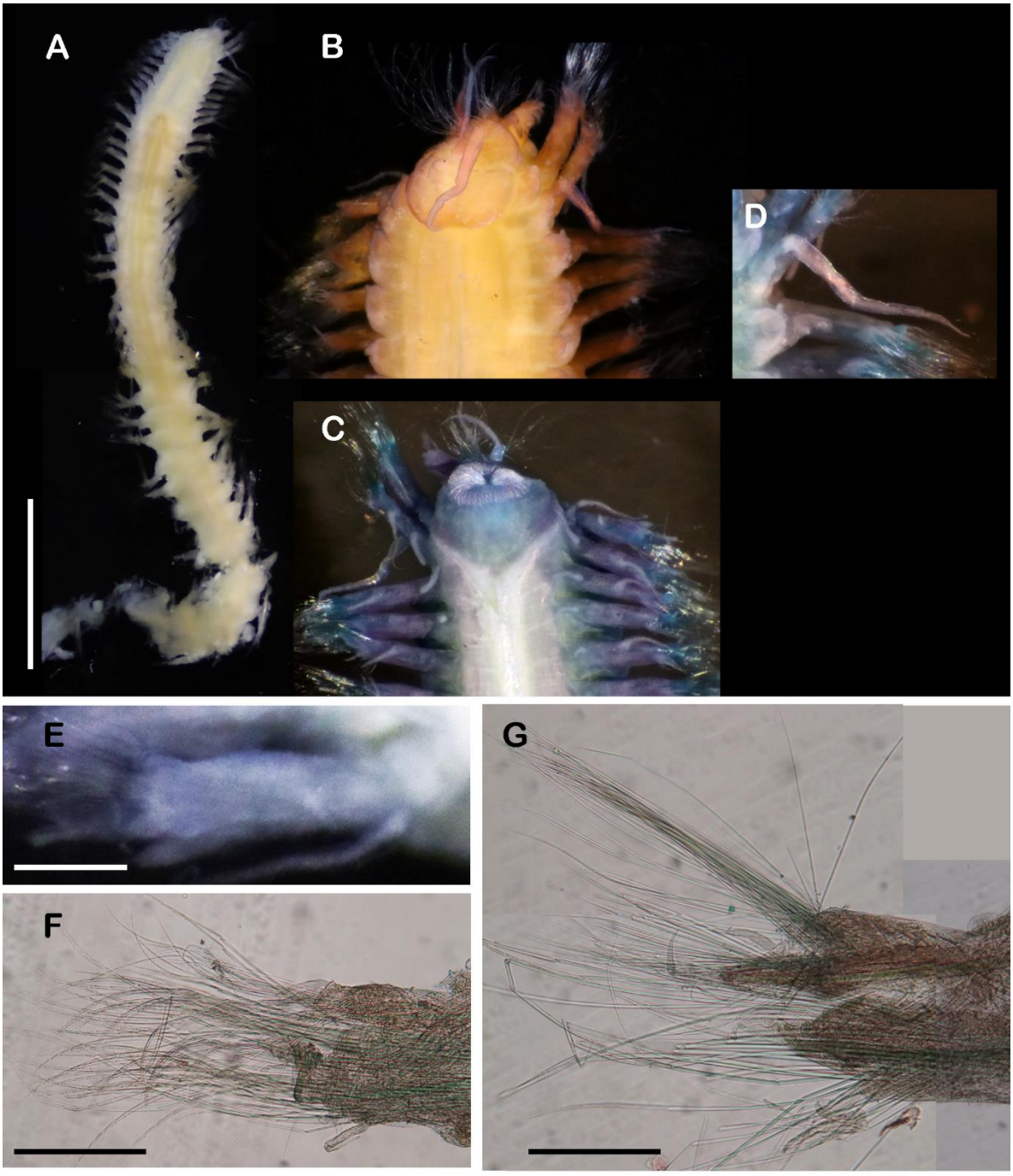

FIGURE 4. ***Neoleaniroides*** **n. sp.** Holotype (UMML 6713-854). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, dorsal cirrus from segment 3 E, segment 3, anterior view. F, same. G, segment 23, right parapodium . Scale bars: A: 5 mm, E–G: 200 µm.

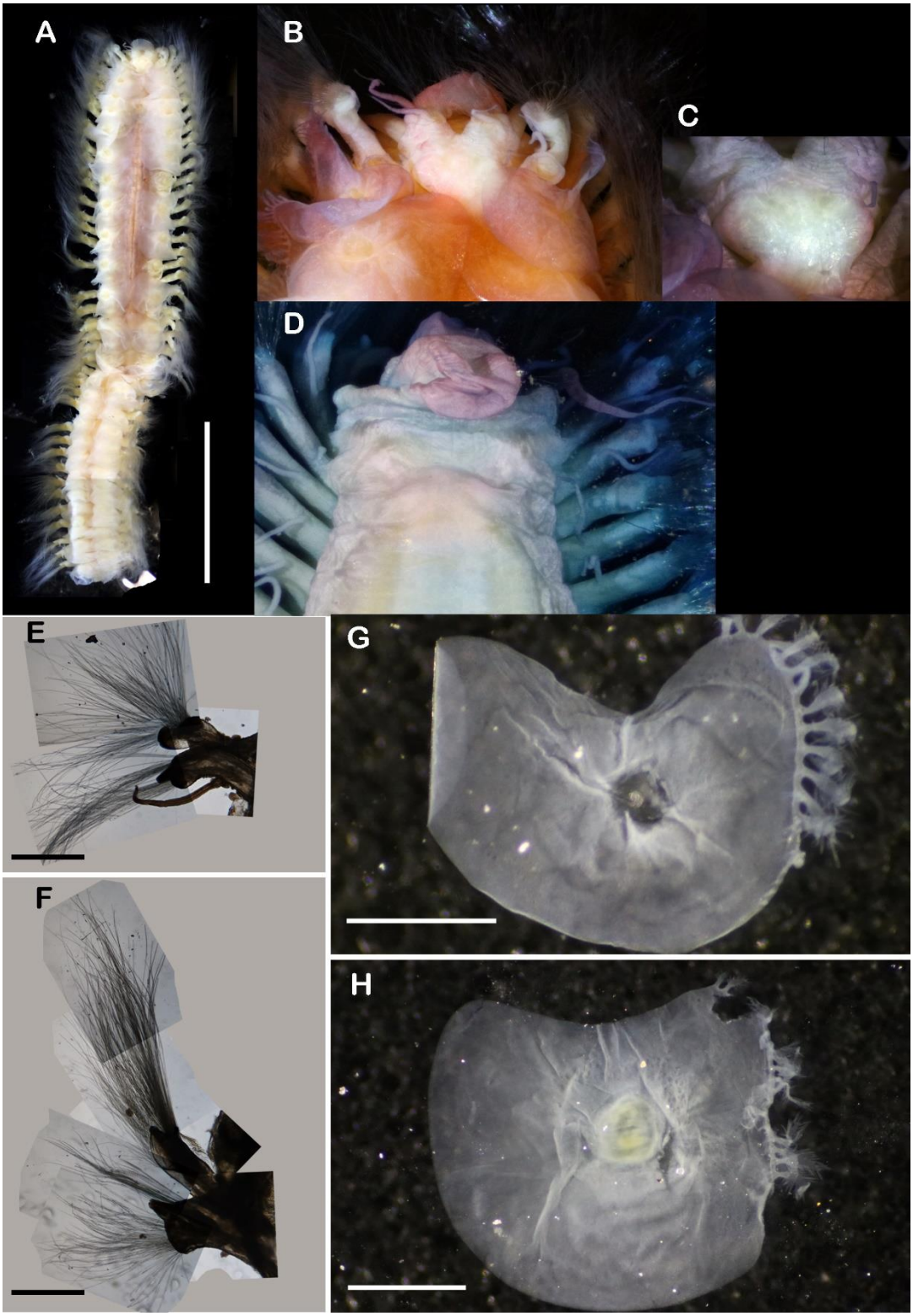

FIGURE 5. ***Sigalion pourtalesii*** **Ehlers, 1887.** Non-type specimen (UMML 6709-852). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, close-up, same. D, prostomium, ventral view. E, segment 3, right parapodium. F, segment 16, right parapodium. G, second right elytron. H, posterior right elytron. Scale bars: A: 1 cm, E–H: 1 mm.

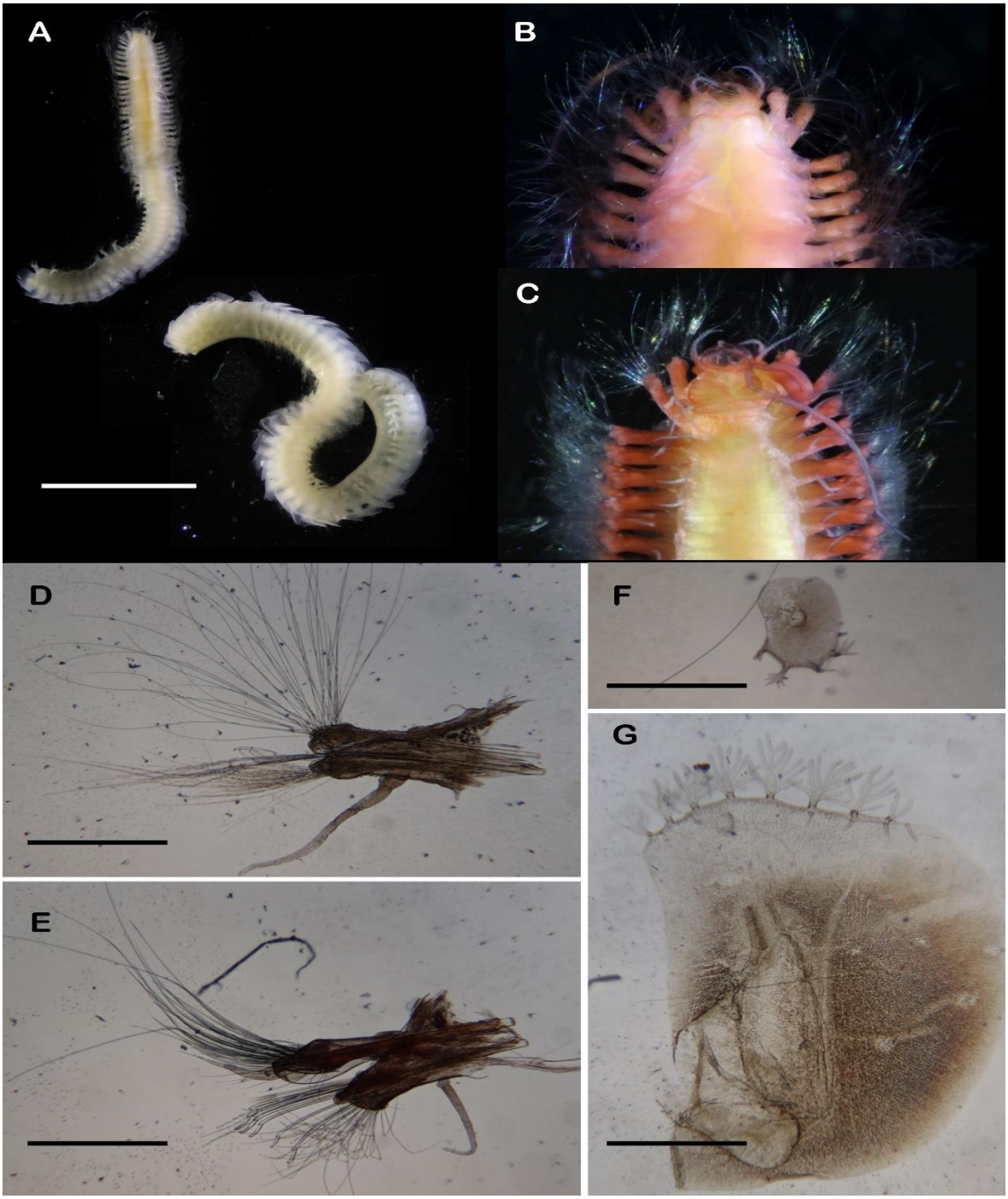

FIGURE 6. ***Sigalion wolfi*** **n. sp.** Holotype (UMML 7001-1162). A, fragmented incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 36, right parapodium. G, first right elytron. G, posterior right elytron. Scale bars: A: 1 cm, D–G: 500 µm.

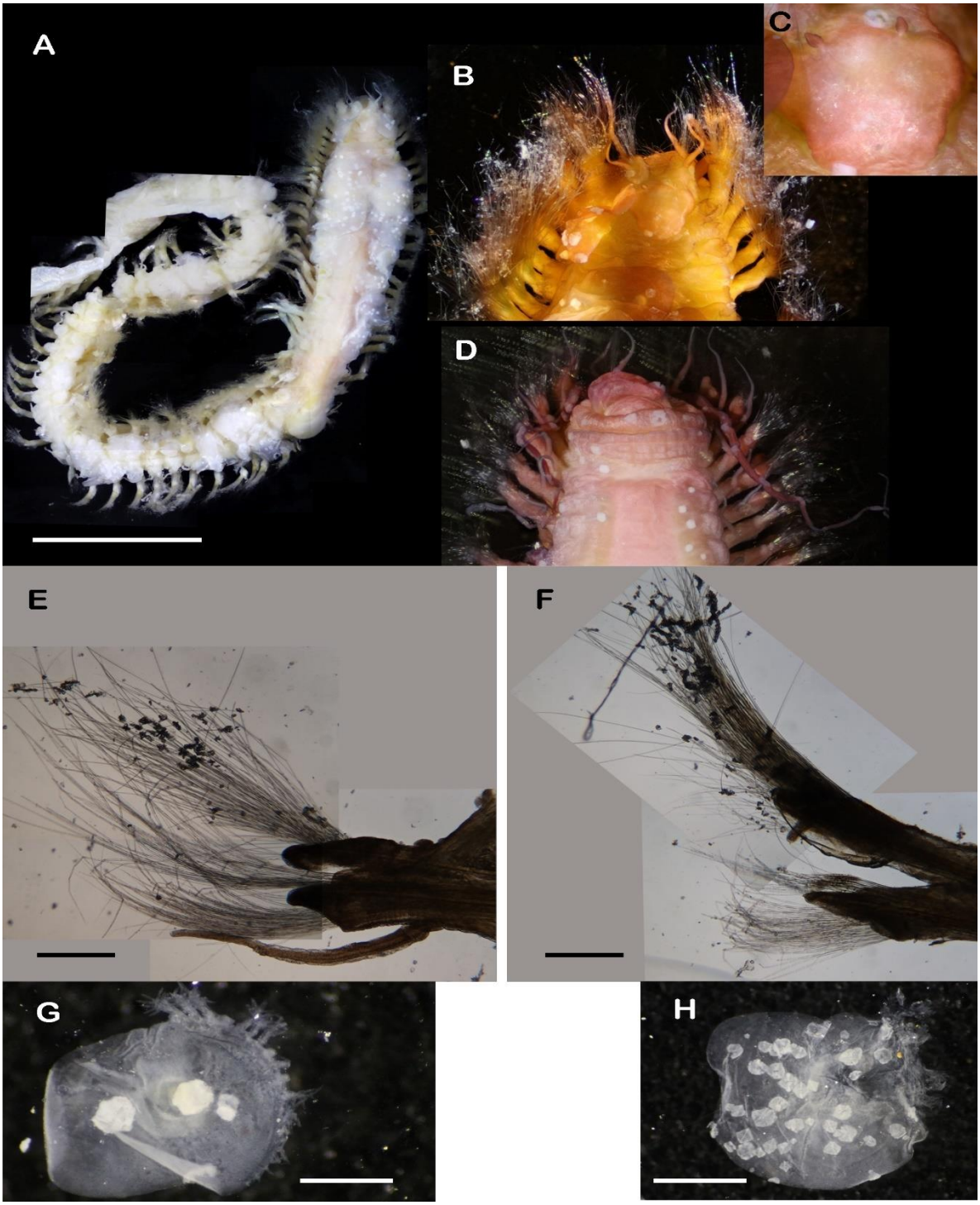

FIGURE 7. *Sigalion* n. sp. 1. Holotype (UMML 84-4226). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, close-up, same. D, prostomium, ventral view. E, segment 3, right parapodium. F, segment 30, right parapodium. G, first right elytron. H, posterior right elytron. Scale bars: A: 1 cm, G, H: 1 mm, E–F: 500 µm.

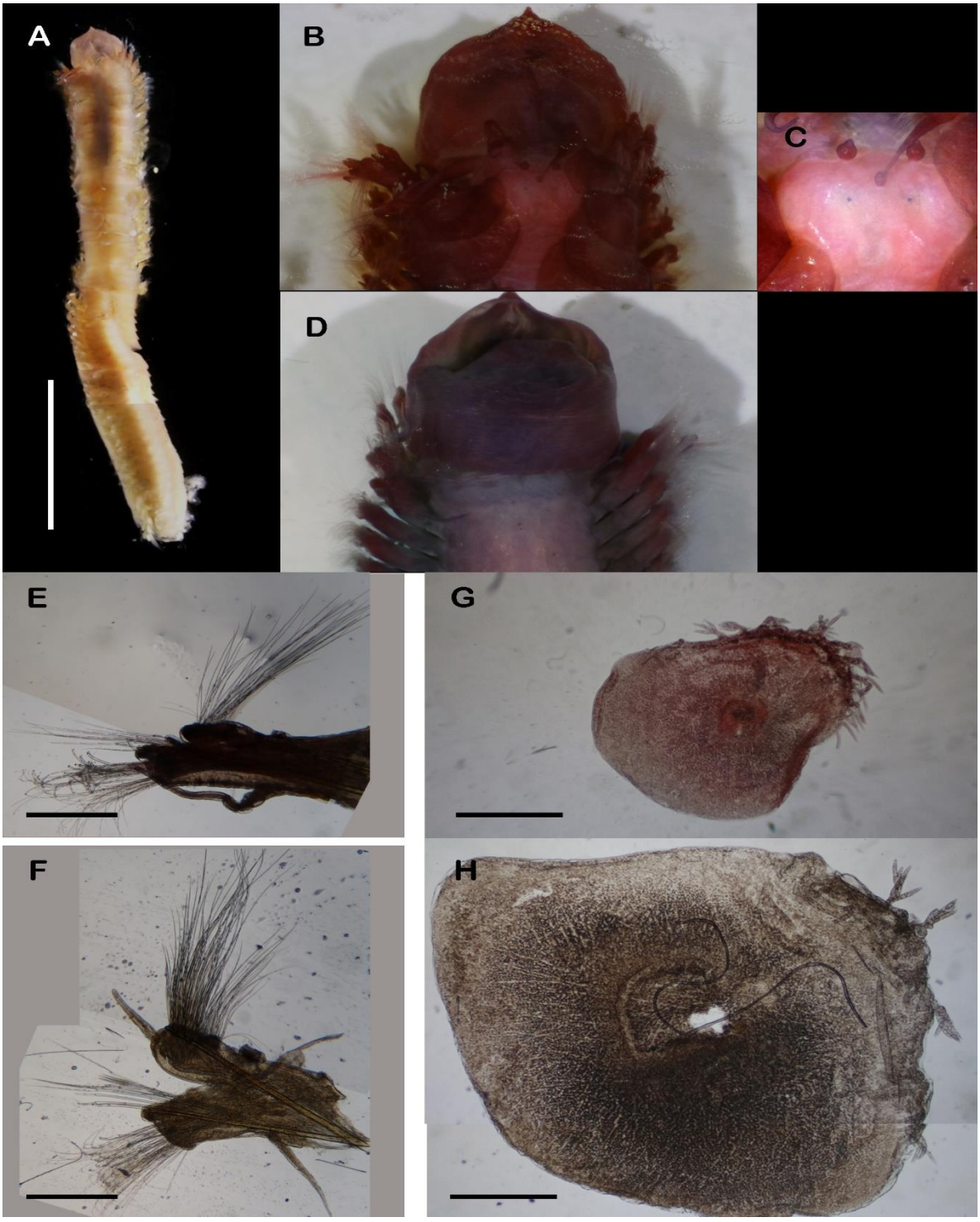

FIGURE 8. ***Sigalion*** **n. sp. 2.** Holotype (BCC 16629). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, close-up, same. D, prostomium, ventral view. E, segment 3, right parapodium. F, segment 22, right parapodium. G, first right elytron. H, posterior right elytron. Scale bars: A: 1 cm, E–H: 500 µm.

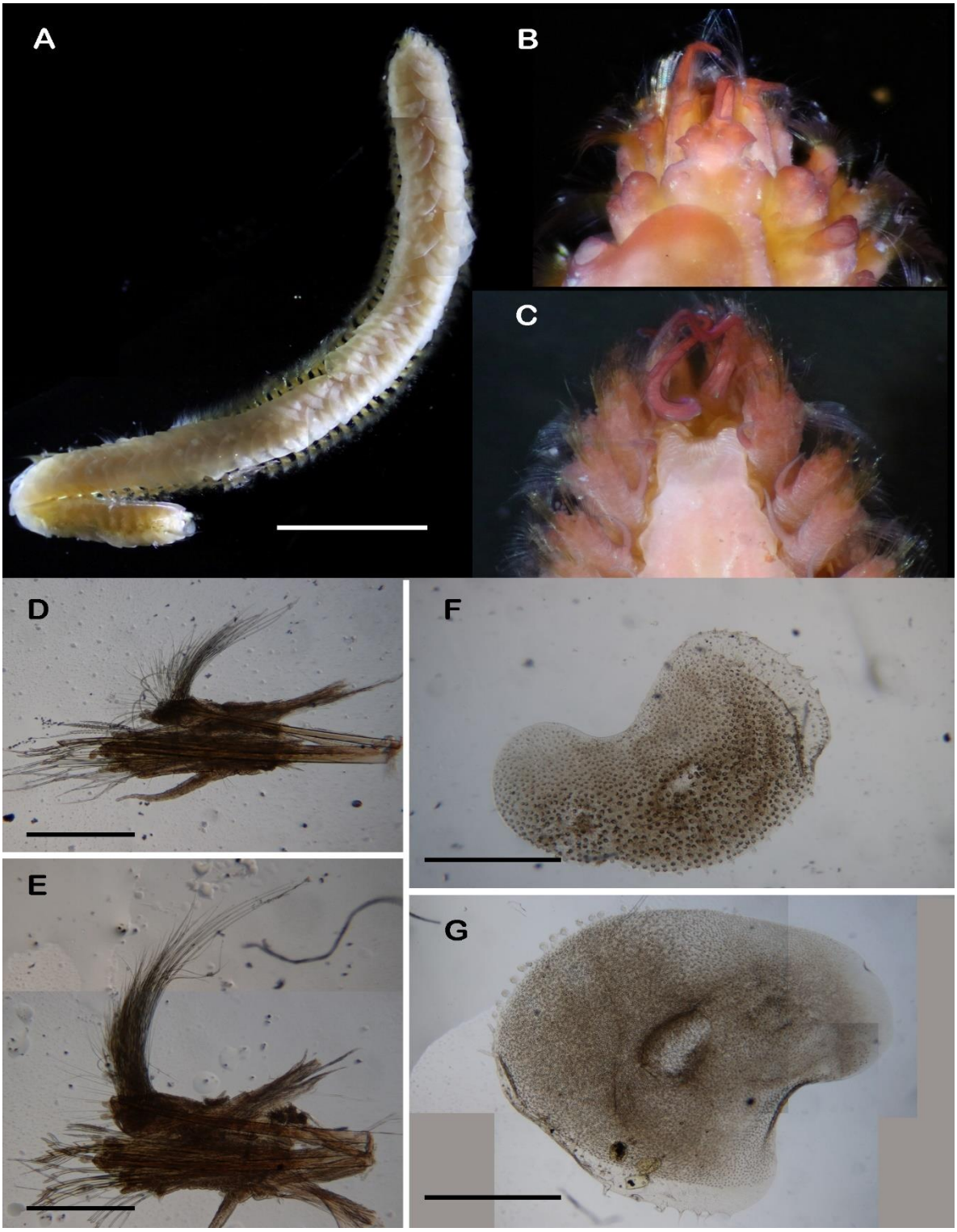

FIGURE 9. ***Sthenelais globosa*** **n. sp.** Holotype (ECOSUR-XXX). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 24, right parapodium. F, second right elytron. G, posterior right elytron. Scale bars: A: 5 mm, D–G: 500 µm.

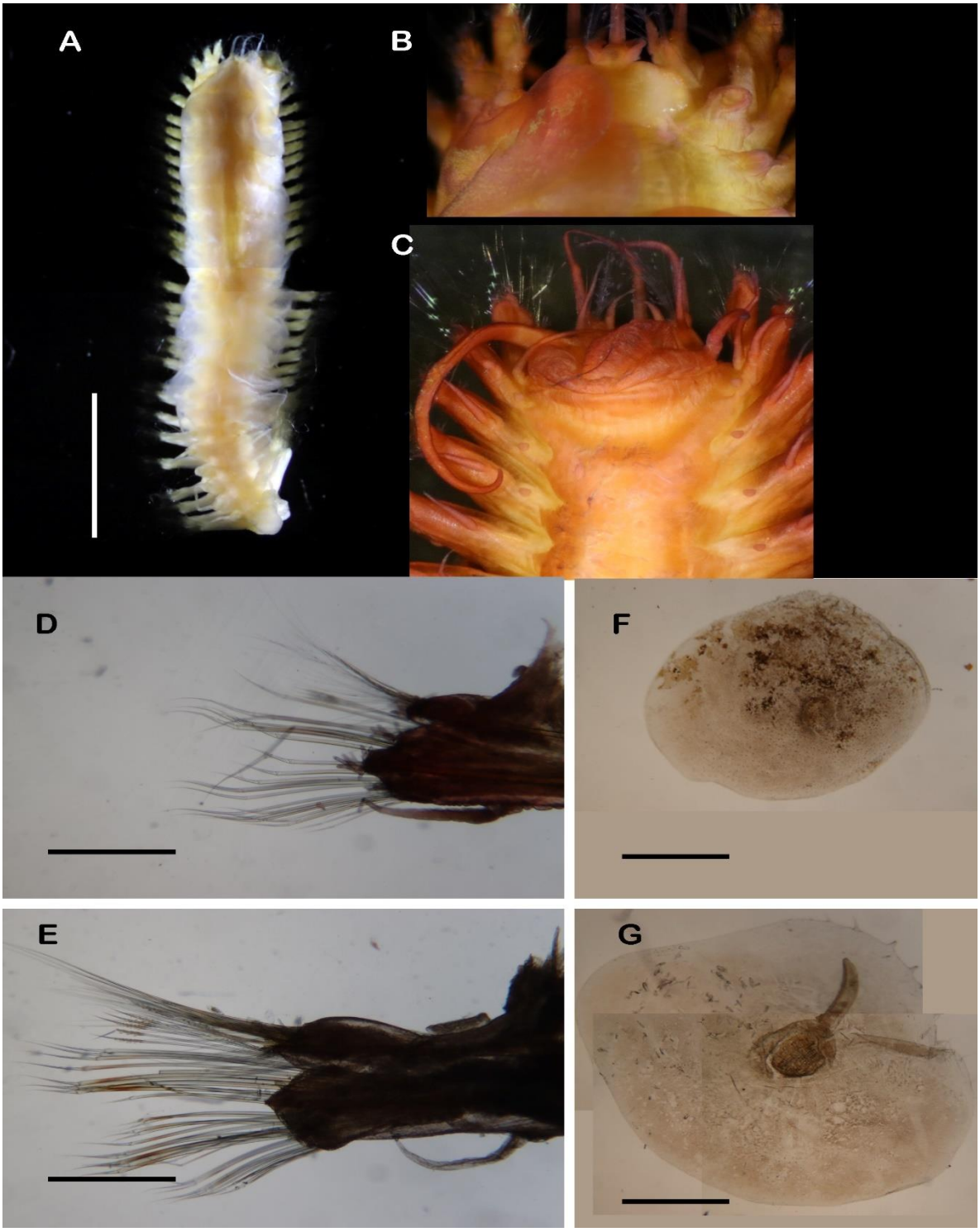

FIGURE 10. *Sthenolepis grubei* (Treadwell, 1901). Non-type specimen (UMML 7006-1213). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 29, right parapodium. F, first right elytron. G, posterior right elytron. Scale bars: A: 5 mm, D–G: 500 µm.

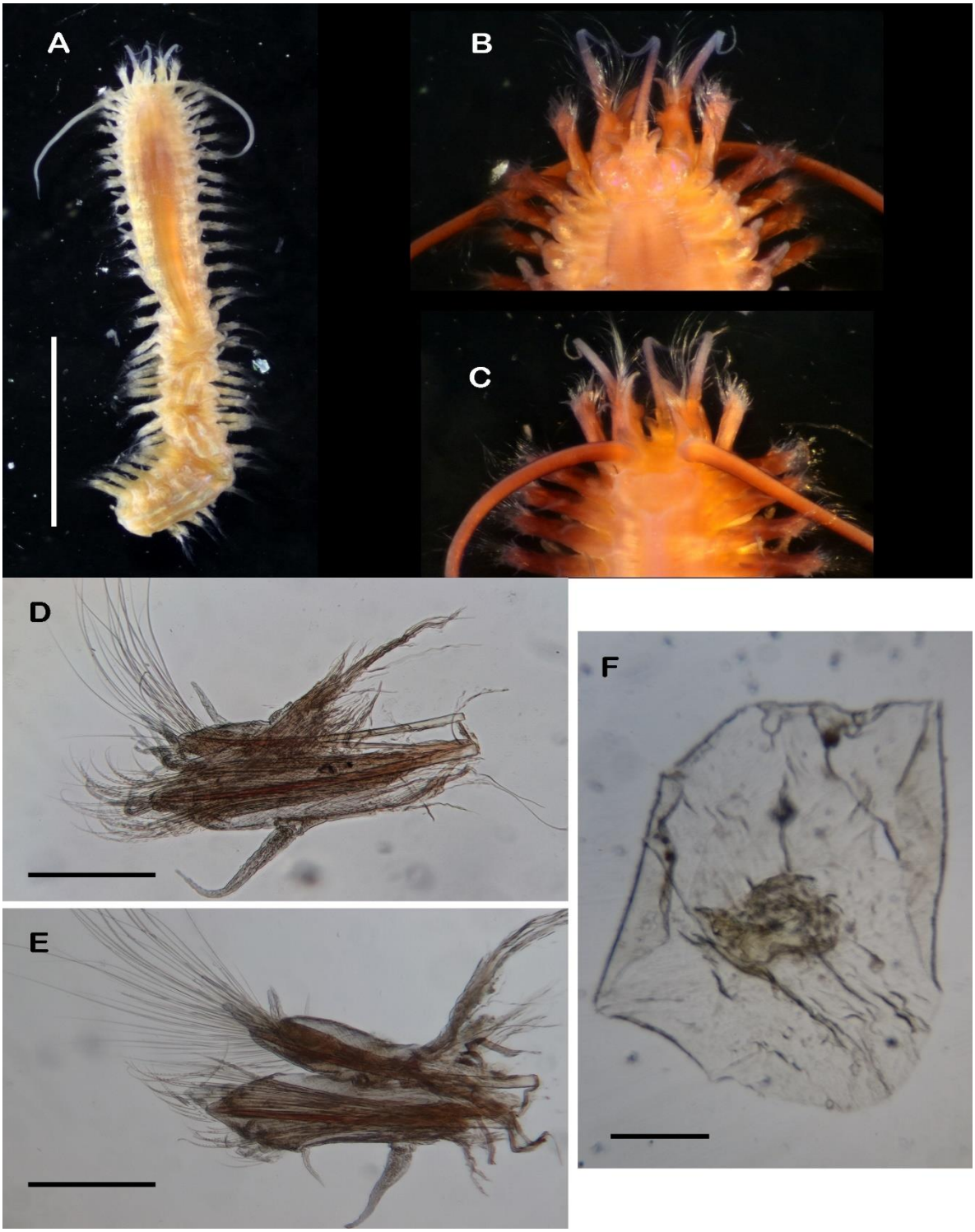

FIGURE 11. *Sthenolepis* aff. *oculata*. Non-type specimen (BBB 18039). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 16, right parapodium. F, posterior right elytron. Scale bars: A: 5 mm, D–F: 200 µm.

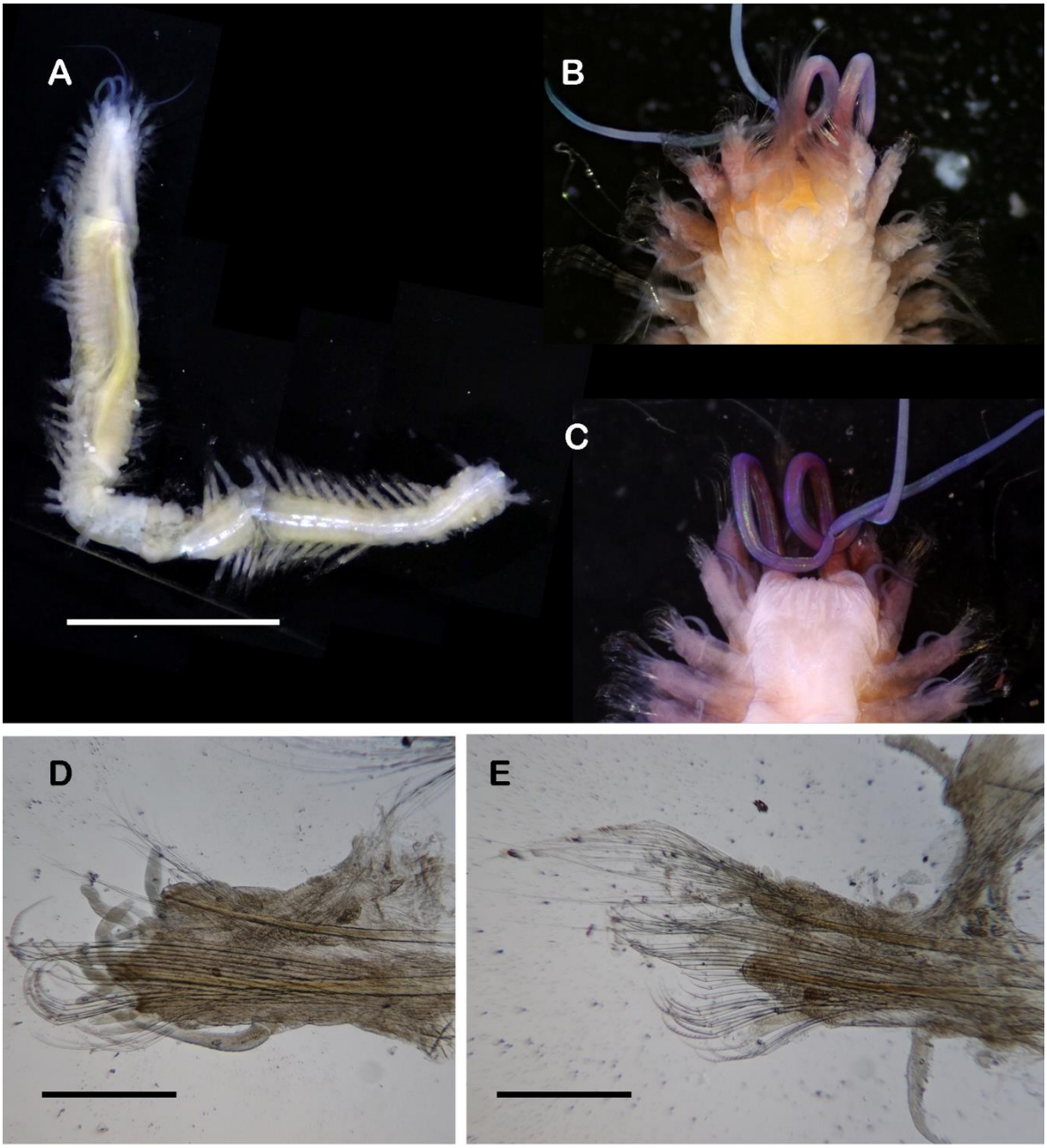

FIGURE 12. *Sthenolepis* n. sp. Holotype (UMML 6907-944). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 3, right parapodium. E, segment 23, right parapodium. Scale bars: A: 1 cm, D–E: 500 µm.

Capítulo 5

Chrysopetalins (Annelida, Phyllodocida, Chrysopetalidae) from the Grand Caribbean region

Por editarse y someterse: ZOOTAXA

Chrysopetalins (Annelida, Phyllodocida, Chrysopetalidae) from the Grand Caribbean region

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Abstract

The subfamily Chrysopetalinae Ehlers, 1864 is recognized by having the largest number of species among chrysopetalid subfamilies. In the Grand Caribbean region, this subfamily is frequently recorded; however, some of these records are questionable or briefly described. The goal of this study is to improve the faunistic knowledge of Chrysopetalinae in the region. Materials were loaned from three scientific collections: University of Miami Marine Laboratory (UMML), Miami, Reference Collection of Benthos (ECOSUR) of El Colegio de la Frontera Sur, Chetumal, and Reference Collection of Laboratorio de Biodiversidad y Cambio Climático (BIOMARCCA), Campeche, Mexico. Five species were determined, including one newly described: *Acanthopale perkinsi* San Martín, 1986, *Bhawania goodei* Webster, 1884, *Treptopale rudolphi* Perkins, 1985, *Chrysopetalum elegans* Bush *in* Verrill, 1900, and *Arichlidon eugathofi* **n. sp.**

Key words: *Arichlidon*, Chrysopetalinae, taxonomy, tropical America

Introduction

Chrysopetalid polychaetes are distinguished by having tiny and fragile bodies, usually covered by iridescent notochaetae. For many years, these were the features used to recognize the family Chrysopetalidae Ehlers, 1864; however, recent studies placed other former families as derived clades of chrysopetalids (Aguado *et al.* 2013), which concluded in increasing the variety of forms

seen in the family. Eventually, reflected in the reordering of the classification, currently separated in three subfamilies: Calamyzinae Hartmann-Schröder, 1971, Dysponetinae Aguado, Nygren & Rouse, 2013 and Chrysopetalinae Ehlers, 1864.

In terms of species, the subfamily Chrysopetalinae is the most diverse with about 40 species (Read & Fauchlad 2020; Cruz-Gómez *et al. in press*), almost half of all chrysopetalids known. This subfamily appears as an apparently well-known group of worms in the Grand Caribbean region, with 21 species recorded. However, these records include five questionable ones: *Chrysopetalum debile* (Grube, 1855) described from the Mediterranean Sea, *C. occidentale* Johnson, 1807 described from California*, 'Chrysopetalum' riveti* Gravier, 1908 described from Peru, *Paleanotus chrysolepis* Schmarda, 1861 described from South Africa, and *P. purpurea* Rioja, 1947 described from the Gulf of California (Rullier 1974, Suárez & Fraga 1978, Cubit & Williams 1983, Ibarzabál 1986, Carrera-Parra & Vargas-Hernández 1997). On the other hand, many regional species have only been recorded when they were originally described, usually with vague descriptions and few drawings.

The aim of this study is to improve the knowledge of the subfamily Chrysopetalinae in the region, completing descriptions of species previously recorded and newly discovered.

Material and methods

Material was loaned from three scientific collections: University of Miami Marine Laboratory (UMML), Reference Collection of Laboratorio de Biodiversidad y Cambio Climático (BIOMARCCA), and Reference Collection of El Colegio de la Frontera Sur (ECOSUR). All specimens were fixed in a 10% formalin-seawater solution and preserved in 70% ethanol. Because of its tiny size some specimens were temporally stained, with either Shirlestain-A or Methyl-green solution to improve contrast. Standardized measurements were performed: number of segments, total length, from the anterior end to posterior end; total width from the widest middle segment including chaetae, and from the anterior end to segment 30.

Chrysopetalins are tiny, fragile worms, and dissecting a single parapodium may prove difficult; therefore, three complete segments from the midbody region were dissected from each species. Dissected segments were mounted in anterior position in semi-permanent preparations

with 1:1 ethanol-glycerol solution, then parapodia were observed, described and illustrated. Chaetal terminology follows Watson Russell (1986; 2015) and Cruz-Gómez (*in press*). Using a Canon EOS REBEL T8i mounted in a light microscope, several photographs were taken and staked using Helicon Focus 7. Plates were arranged with Photoshop CC.

Systematics

Phylum Annelida Lamarck, 1809

Order Phyllodocida Dales, 1962

Family Chrysopetalidae Ehlers, 1864

Subfamily Chrysopetalinae Ehlers, 1864

Genus *Acanthopale* San Martín, 1986

Type species. *Acanthopale perkinsi* San Martín, 1986 by original designation.

Diagnosis (after San Martín 1986). Chrysopetalinae with body long, slender, cylindrical. Paleae fan silver to golden bright, partially imbricate dorsally, notochaetae directed upwards. Prostomium rounded, non-retractile, laterally fused with anterior segments. Nuchal organ, rounded, ciliated. Segment 1 and 2 with ventral and dorsal cirri. Posterior segments with dorsal cirri, cirrophores short, cirrostyles non-retractile. Notochaetae paleae asymmetrical, marginal serrated, few internal ribs; and thick spines. Pharynx with one pair of thin stylet jaws. Pygidium quadrangular, with ventral cone, with two anal cirri.

Remarks. *Acanthopale* San Martín, 1986 resembles *Chrysopetalum* Ehlers, 1864 in prostomial, parapodial, and neurochaetal features. San Martín (1986) indicated that the main differences between these genera are the insertion of the median antenna and notochaetal composition and origin. *Acanthopale* has median antenna inserted on antero-ventral margin of prostomium; two fascicles of notochaetae, anterior and posterior; and few developmental centers. On the contrary, *Chrysopetalum* has median antenna inserted dorsally in front of, or between, the first pair of eyes;

one fascicle of notochaetae, anterior, and numerous developmental centers. However, histological techniques might help to confirm the actual status of this genus.

***Acanthopale perkinsi* San Martín, 1986**

Fig. 1

Acanthopale perkinsi San Martín, 1986: 306, Figs 1–9. —Watson & Faulwetter 2017: 8, Fig. 2–3 (buccal structure).

Type locality: West Point, Isla de Pinos and Matías Cay, Cuba.

Examined material. Gulf of Mexico. Veracruz. One spec. (BCC19604), R/V Justo Sierra, off Tecolutla (20º46'42.30"N, 96º58'26.58"W) 49 m, March 17, 2018, coll. Anabel Leon. **Midpoint of Gulf of Mexico.** One spec. (BCC06269), anterior fragment, R/V Justo Sierra (23º30'0.24"N, 88º33'0.52"W) 59 m, Decembre 07, 2012, coll. Sara B. Balam [13 segments, 2 mm long, 0.8 wide].

Description. Based on BCC-19604. Anterior fragment, 26 segments, 0.23 cm long, 0.1 cm wide. Small body, rectangular. Body pale yellow. Paleae fans bright golden, non-imbricated dorsally, directed upwards (Fig. 1A).

Prostomium rounded, non-retracted, visible dorsally. Lateral and median antennae lost. Eyes two pairs, anterior eyes slightly larger, red violet (Fig. 1B). Nuchal organ rounded, large, as long as prostomium, non-covering prostomium. Palps cylindrical, long, slightly longer than prostomium. Mouth fold triangular, inserted between segments 3 and 4 (Fig. 1C. Pharynx eversible with two very slender stylets.

Parapodium from segment 26 (Fig. 1D). Dorsal cirri, long, 3x as long as neuropodia. Notochaetae spine-like to slender paleae, densely serrated marginally, two fascicles, one inserted anteriorly and another inserted posteriorly. Anterior fascicle separated in three main groups. Lateral group: 2 paleae, slender, short, 2/3 as long as main group, with one internal rib. Main group: 6–8 paleae wider, with 1–2 internal ribs (Fig. 1E). Median group: 2–3 paleae, longer, asymmetrical,

with one raised rib. Posterior fascicle, one type of notochaetae, spine-like, slender, spiculate, long, 3x as long as main paleae.

Neuropodium lanceolate, larger than notopodium. Ventral cirri long, as long as neuropodia. Neurochaetae only compound falcigers, basally serrated, blade bifurcated (Fig. 1F). Unit 1: 2 falcigers, straight, long blades, 9x longer than wide. Unit 2: 4–6 falcigers, medium-sized blades, 5x longer than wide. Unit 3: 3–5 falcigers, long, 7–8x longer than wide. Unit 4: 1–2 falcigers, long blades, 9x longer than wide.

Posterior region lost.

Distribution. Grand Caribbean region, from Veracruz, Cuba to Venezuela.

Remarks. Recently, Díaz-Díaz *et al.* (2013) recorded *A.* cf. *perkinsi* from Venezuela and cautiously differentiated it from the nominal species. Although they did not adequately describe and named the species, their specimen differs from the nominal one, and the specimens examined here by having long dorsal cirri on parapodia, extending beyond neurochaetae. In contrast, the nominal species has dorsal cirri are as long as neurochaetae.

Genus *Arichlidon* Watson Russell, 1998

Type species: *Arichlidon hanneloreae* Watson Russell, 1998, by original designation.

Diagnosis (after Watson 1998; 2000). Chrysopetalinae with body rectangular, wider, depressed. Paleae fan golden bright, completely imbricate dorsally. Prostomium rectangular, retractile, laterally fused with the anterior segments. Nuchal organ triangular, non-ciliated. Segment 1 and 2 with ventral and dorsal cirri. Posterior segments with dorsal cirri, cirrophores short, cirrostyles non-retractile. Notochaetae paleae symmetrical, marginal serrated, numerous internal ribs. Pharynx with one pair of thick stylet jaws. Pygidium bulbous, with ventral cone; two anal cirri.

Arichlidon eugathofi n. sp.

Fig. 2

Arichlidon gathofi.—Watson Russell 2000: 468, Figure 2 (*partim*, *non* Watson Russell 2000)

Paleanotus sp. A. —Gathof 1984: 26-9, Fig. 26-5, 26-6

Type material. Grand Bahamas. Holotype. In separated vial, UMML 6528-708, R/V Pillsbury, St. 708 (26°27'N 78°47'W), 650 m, July 22, 1965. **Paratype.** Two spec., same data as holotype [45–60 segments, 0.4–0.6 cm long, 0.3–0.37 cm to segment 30, 0.1 cm wide].

Description. Holotype, male mature with sperm masses. Complete, 47 segments, 0.4 cm long, 0.33 to segment 30, 0.1 cm wide. Body small, rectangular, tapered posteriorly. Body pale yellow. Paleae fans bright golden, imbricated dorsally (Fig.. 2A).

Prostomium rectangular, retracted between first two segments. Lateral antennae short, as long as prostomium, inserted on antero-ventral prostomial margins, median antenna slightly longer than lateral ones. Eyes two pairs, fused, red violet (Fig. 2B). Nuchal organ triangular, large, as long as prostomium partially covering prostomium. Palps cylindrical, long, twice as long as prostomium. Mouth fold triangular, inserted between segments 4 and 5 (Fig. 2C). Pharynx eversible with two slender stylets.

Parapodium from segment 22 (Fig. 2D). Dorsal cirri, long, twice as long as neuropodia. Notochaetae serrated marginally, separated in three main groups. Lateral group: inserted in front notaciculum, 2 paleae, symmetrical, short, half as long as main group, with 9–10 internal ribs. Subunit 1: 2 paleae, symmetrical, short, subequal to main group, with 10–12 internal ribs. Main group: 15–16 paleae wide, symmetrical with 17–18 internal denticulated ribs (Fig. 2E). Subunit 2: 1 palea, asymmetrical, subtriangular, long, as long as main group, with 9 internal ribs, 2 raised ribs. Median group: 3 paleae, asymmetrical, subtriangular; the distalmost, long, slightly shorter than main group one, 8 internal ribs, 2 raised rib, the next proximal palea smaller, 9 internal ribs, 2 raised ribs, and the most proximal, smallest with 7 internal ribs, one raised rib.

Neuropodium conical, larger than notopodium. Ventral cirri short, as long as neuropodia. Neurochaetae only compound falcigers, basally serrated (Fig. 2F). Unit 1: 2–3 falcigers, slightly curved up wards, long blades, 12x longer than wide. Unit 2: 5–7 falcigers, medium-sized blades, 7x longer than wide. Unit 3: 8–10 falcigers, short blades, 2–3x longer than wide. Unit 4: 7–10 falcigers, short blades, 2x longer than wide, smooth basally.

Pygidium quadrangular, with a ventral cone and two anal cirri, long, twice as long as ventral cone.

Distribution. Grand Caribbean region, from Florida to Cuba.

Etymology. The specific name of the species indicates the stem of the specific epithet adding the prefix Greek *Eu-* meaning true, which is referred to as the original form detected by Gathof (1984).

Remarks. *Arichlidon eugathofi* **n. sp.** was previously recognized by Gathof (1984) as *Paleanotus* sp. A from the Gulf of Mexico. Watson Russell (2000) described *A. gathofi* using material from along the Caribbean region, including the material examined by Gathof (1984). However, she detected subtle differences regarding the tips of main paleae, and separated them into four forms, each with a different distribution in the Caribbean, possibly related to temperature or type of habitat (*sensu* Watson Russell 2000: 473). Watson (2000) used specimens from North Carolina as type material and indicate *A. gathof* has paleae with 'form 1'; however, drawings made by Gathof (1984) fits with 'form 2'. The specimens here examined fit with the description of *Paleanotus* sp. A, and *A. gathofi* (form 2, *sensu* Watson Russell 2000), but *A. gathofi sensu stricto* ('form1'). The species here described differs among *A. gatofi sensu lato* in having long dorsal cirri, ventral short cirri, broad shoulders in main paleae, and neurochaetae with blades subequal, except unit 4 which is really short.

Genus *Bhawania* Schmarda, 1861

Type species. *Bhawania myralepis* Schmarda, 1861 by monotypy.

Diagnosis (after Cruz-Gómez *in press*). Chrysopetalinae with body long, broad, depressed. Paleae fan yellow to golden bright, completely imbricate dorsally, exhibiting mid-dorsal line surface smooth; in middle segments paleal fascicles markedly imbricated. Prostomium rounded, retractile, laterally fused with anterior segments. Segment 1 and 2 with ventral and dorsal cirri. Posterior segments with dorsal cirri, cirrophores short, cirrostyles retractile into cirrophores. Notochaetae paleae symmetrical with internal ribs and crossbars, but crossbars absent on distal paleal section, instead fragile reticulate surface. Main paleae with raised ribs with flattened denticles. Pharynx with one pair of thick stylet jaws. Pygidium bulbous with two anal cirri, often a ventral cone.

***Bhawania goodei* Webster, 1884**

Fig. 3

Bhawania goodei Webster, 1884: 308 Pl. 7, Figs. 10–15.—Perkins 1985: 895, Figs. 21, 22 (redescr.).

Type locality: Bermuda.

Examined material. Yucatán. One spec. (ECOSUR XXX), San Felipe (21°34'16.0"N 88°13'40.2"W) 2–4 m, on rock, February 18, 1999, coll. J. Rolando Bastida-Zavala & Sergio I. Salazar-Vallejo.

Description. Female with oocytes. Complete specimen, 166 segments, 4.3 cm long, 0.75 cm to segment 30, 0.2 cm wide. Body long, elongate, tapered posteriorly. Body bright yellow. Paleae fans bright golden, imbricated dorsally (Fig. 3A).

Prostomium rectangular, retracted between first five segments. Lateral antennae short, half as long as prostomium, inserted on antero-ventral prostomial margins, median antenna slightly longer than lateral ones. Eyes two pairs, anterior eyes slightly larger, red violet (Fig. 3B). Nuchal organ triangular, half as long as prostomium, partially covering prostomium. Palps cylindrical, long, slightly longer than prostomium. Mouth fold truncated, inserted between segments 2 and 3 (Fig. 3C). Pharynx eversible with two thick stylets.

Parapodium from segment 61 (Fig. 3D). Dorsal cirri, short, 1/3 as long as neuropodia. Notochaetae smooth marginally, separated in three main groups. Each paleae of lateral and subunit 1 group with upper half fragile and surface reticulate. Lateral group: inserted in front of notaciculum, 6 paleae, symmetrical, rounded distally, short, half as long as main group, with barely seen 2–3 internal ribs. Subunit 1: 1 palea, symmetrical, tapered distally, long, as long as main group, with one internal rib. Main group: 16–18 paleae wide, symmetrical, rounded distally, with 17–18 internal denticulated ribs, and 2 raised ribs with rounded denticles, scale-like (Fig. 3E). Median group: 2–3 paleae, symmetrical, rounded distally, distalmost, narrower, short, 2/3 as long

as main group ones, 13 internal ribs, one raised rib, the next proximal palea smaller, 9 internal ribs, and the most proximal, smallest with 9 internal ribs.

Neuropodium conical, as long as notopodium, with acicular lobe, 1/2–1/3 as long as neuropodia. Ventral cirri short, half as long. Neurochaetae compound spinigers and falcigers, basally serrated (Fig. 3F,G). Unit 1: 5–6 spinigers, straight, blades long, 15x longer than wide. Unit 2: 3–4 falcigers, blades medium-sized, 4x longer than wide. Unit 3, 8–10 falcigers, blades, 3–4x longer than wide. Unit 4, 5–8 falcigers, blades short, 2x longer than wide.

Pygidium rounded, three anal cirri, short, as long as pygidial segment.

Distribution. Grand Caribbean region, from Bermuda to Venezuela.

Remarks. This species fits with the redescription made by Perkins (1985), but here was detected an acicular lobe on neuropodia, which was not described or illustrated by Webster (1884) nor Perkins (1985). Indeed, Perkins (1985: 896, Fig. 21E) only draw the notopodia.

Genus *Treptopale* Perkins, 1985

Type species. *Treptopale rudolphi* Perkins, 1985, by original designation.

Diagnosis (after Perkins 1985, Watson 2010). Chrysopetalinae with body long, narrowed. Paleae fan golden bright, non-imbricate dorsally. Prostomium subtriangular, retractile, laterally fused with anterior segments. Nuchal organ, crescent, non-ciliated. Segment 1 with ventral and dorsal cirri, segment 2 only dorsal cirri. Posterior segments with dorsal cirri, cirrophores short, cirrostyles non-retractile. Notochaetae paleae symmetrical, marginal serrated, numerous internal ribs. Pharynx with one pair of thick stylet jaws. Pygidium quadrangular, with two anal cirri.

Treptopale rudolphi Perkins, 1985

Fig. 4

Type locality: Biscayne Bay, Florida.

Examined material. Quintana Roo. One spec. (ECOSUR XXX), E66, R/V Onyuko, March 2002, coll. Patricia Salazar-Silva, Victor H. Delgado-Blas.

Description. Female with oocytes. Incomplete specimen, 49 segments, 0.5 cm long, 0.2 cm to segment 30, 0.05 cm wide. Body long, elongate. Body pale orange. Paleae fans bright golden, imbricated dorsally (Fig. 4A).

Prostomium subtriangular, retracted between first three segments. Lateral antennae not seen, median antenna slightly longer than prostomium. Eyes two pairs, anterior eyes slightly larger, red violet (Fig. 4B). Nuchal organ not seen. Palps oval, longer than wide, slightly shorter than prostomium. Mouth fold triangular, inserted between segments 2 and 3 (Fig. 4C). Pharynx eversible with two thick stylets.

Parapodium from segment 47 (Fig. 4D). Dorsal cirri, short, half as long as neuropodia. Notochaetae slightly serrated marginally, separated in three main groups. Lateral group: inserted in front of notaciculum, 3 paleae, spine-like, tapered distally, short, 1/3 as long as main group, with 1–2 internal ribs. Main group: 6–7 paleae wide, symmetrical, mucronate distally, with 15–17 internal denticulated ribs (Fig. 4E). Median group: 2–3 paleae, asymmetrical, acute distally; distalmost, narrower, short, half as long as main group ones, 13 internal ribs, the next proximal palea smaller, 11 internal ribs, and the most proximal, smallest with 11 internal ribs.

Neuropodium conical, slightly longer than notopodium. Ventral cirri short, half as long as neuropodium. Neurochaetae compound, only falcigers, basally serrated (Fig. 4F). Unit 1: 3–5 falcigers, straight, blades long, 20x longer than wide. Unit 2: 3–4 falcigers, blades short, 2–3x longer than wide. Unit 3: 2–3 falcigers, blades short, 3–4x longer than wide. Unit 4: 2–3 falcigers, blades medium-sized, 4–5x longer than wide.

Posterior region lost.

Distribution. Gulf of Mexico, from Florida to Quintana Roo.

Remarks. The specimen examined fits with the descriptions made by Perkins (1985) and Watson (*partim* 2010). Watson (2010) redescribed *T. rudolphi*, but not using the holotype, and included records from the NE Atlantic, from Northern to Southern Africa, which used for illustrations, and sections of the description were generated from those specimens.

Chrysopetalum Ehlers, 1864

Type species. *Chrysopetalum fragile* Ehlers, 1864 (accepted as *C. debile* (Grube, 1855)), by monotypy.

Diagnosis (after Perkins 1985). Chrysopetalinae with body long, narrowed. Paleae fan silver to golden bright, non-imbricate dorsally. Prostomium rounded, non-retractile, laterally fused with the anterior segments. Nuchal organ, rounded, ciliated. Segment 1 and 2 with ventral and dorsal cirri. Posterior segments with dorsal cirri, cirrophores long or short, cirrostyles non-retractile. Notochaetae, paleae asymmetrical rarely asymmetrical, marginal serrated, numerous internal ribs. Pharynx with pair of slender stylet jaws. Pygidium quadrangular or rounded, with two anal cirri.

Chrysopetalum elegans Bush *in* Verrill, 1900

Fig. 5

Chrysopetalum elegans Bush *in* Verrill, 1900: 668.—Perkins 1985: 871, Figs. 5–7 (reexamination of syntype series).

Type locality: Bermuda.

Examined material. Off Jamaica. One spec. (UMML 7006-1250), anterior fragment, R/V Pillsbury, St. 1250 (17°20'N 78°48'W), 24 m, July 14, 1970.

Description. Female with oocytes. Incomplete specimen, 30 segments, 0.6 cm long, 0.15 cm wide. Body short, rectangular. Body pale yellow. Paleae fans bright silver to golden, non-imbricated dorsally (Fig. 5A).

Prostomium rounded, non-retracted. Lateral antennae long, as long as prostomium, inserted on antero-ventral prostomial margins, median antenna short, half as long as lateral ones. Eyes two pairs, anterior eyes slightly larger, red violet (Fig. 5B). Nuchal organ rounded, large, as long as prostomium partially covering prostomium. Palps cylindrical, long, twice as long as prostomium.

Mouth fold triangular, inserted between segments 3 and 4. Pharynx eversible with two slender stylets.

Parapodium from segment 30 (Fig. 5D). Dorsal cirri, long, as long as neuropodia. Notochaetae serrated marginally, separated in three main groups. Lateral group: inserted in front notaciculum, 4 paleae, asymmetrical, spine-like, 2/3 as long as main group, with 2–3 internal ribs, one raised rib. Subunit 1: one palea, asymmetrical, spine-like, as long as lateral ones, with 2 internal ribs. Main group: 13–16 paleae wider, asymmetrical, machete-like, with 4–6 internal ribs (Fig. 5E). Subunit 2: 3 paleae, asymmetrical, spine-like, slightly longer than main group, with 4–5 internal ribs. Median group: 3–4 paleae, narrowed, asymmetrical, spine-like; distalmost, long, slightly shorter than main group ones, 3–4 internal ribs, one raised rib, the next proximal palea smaller, 6 internal ribs, one raised rib, and the most proximal, smallest with 4 internal ribs.

Neuropodium lanceolate, slightly larger than notopodium. Ventral cirri long, as long as neuropodia. Neurochaetae only composed falcigers, basally serrated, bidentate (Fig. 5F). unit 1: 3–4 falcigers, blades straight, long, 12x longer than wide. Unit 2: 5–6 falcigers, blades medium-sized, 6x longer than wide. Unit 3: 4–5 falcigers, blades medium-sized, 5x longer than wide. Unit 4: 3–4 falcigers, blades short, 3–4x longer than wide.

Posterior region lost.

Distribution. Grand Caribbean region, from Bermuda to Quintana Roo.

Remarks. Perkins (1985) indicated that *C. elegans* differs from other species in having interramal glands. Nowadays, there are other species from the Eastern Pacific which also have interramal glands (*i.e. C. elegantoides* Aguado, Capa & San Martin, 2003, *C. mexicanum* and *C. tovarae* Cruz-Gómez, *in press.*). However, *C. elegans* differs in having the slimmest and shortest main paleae among species of the genus.

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Figures

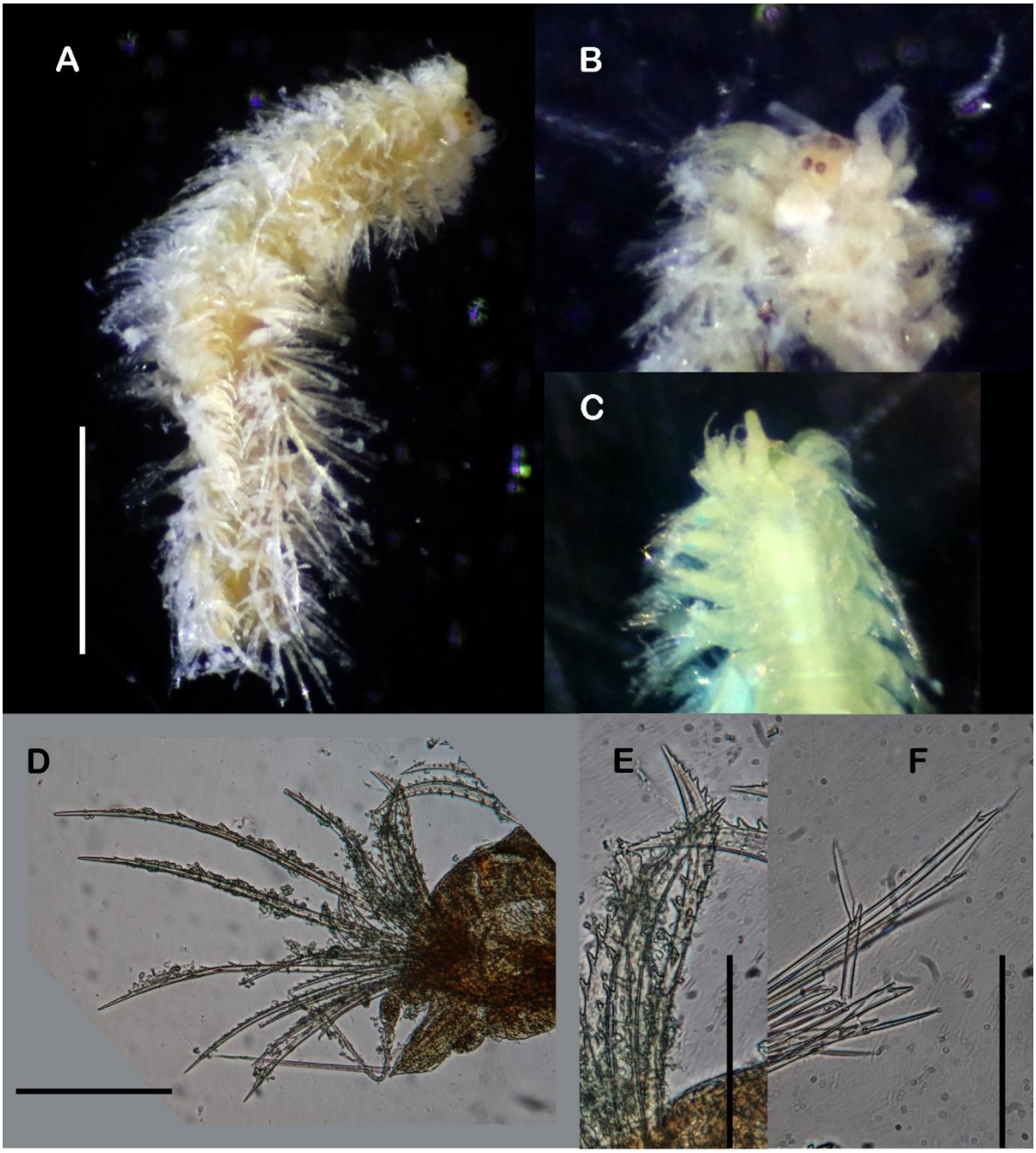

FIGURE 1. ***Acanthopale perkinsi*** **San Martín, 1986.** Non-type specimen (BCC 19604). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 26, right parapodium. E, main paleae group. F, neurochaetae. Scale bars: A: 1 mm, D: 200 µm, E–F: 100 µm.

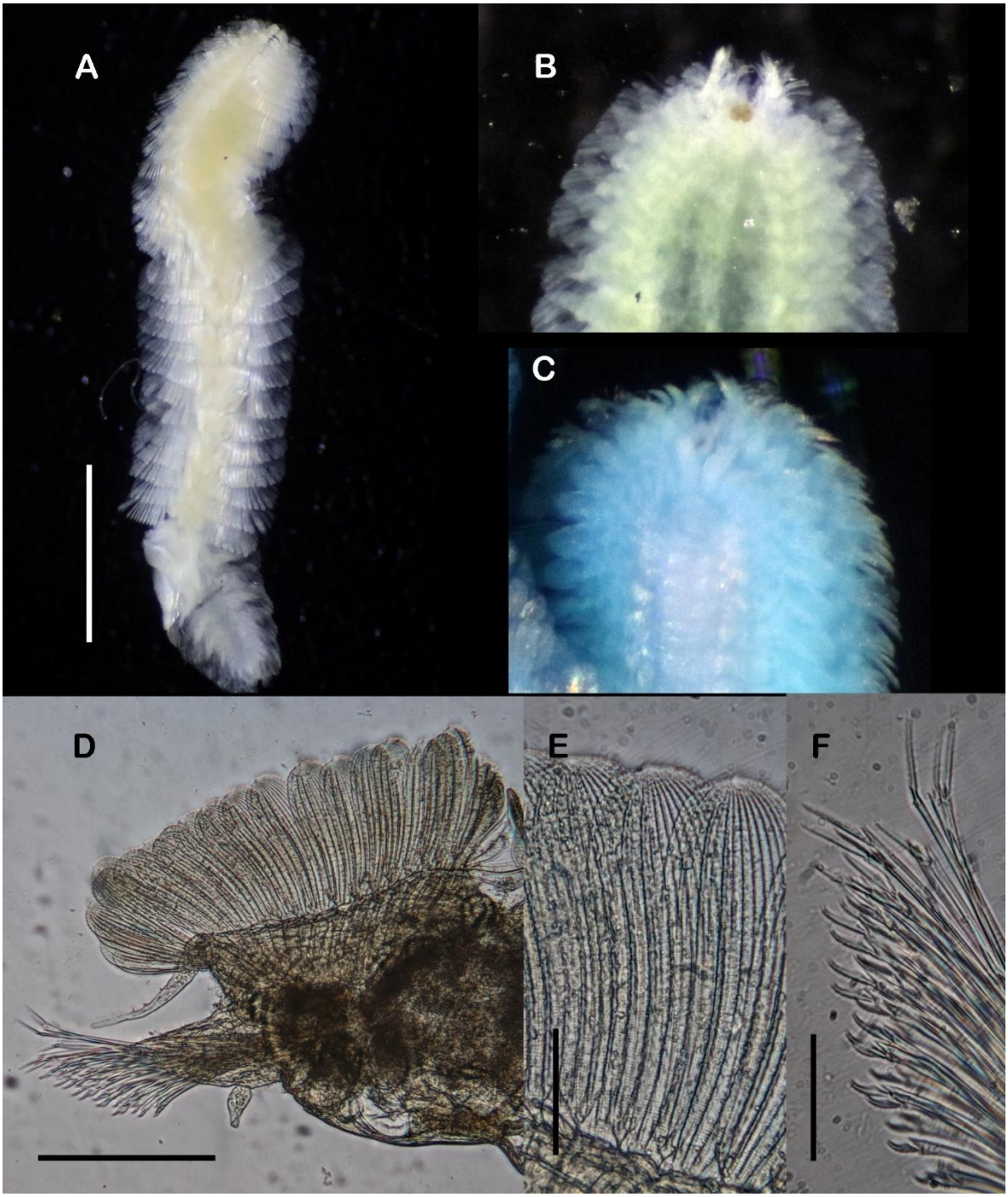

FIGURE 2. ***Arichlidon eugathofi*** **n. sp.** Holotype (UMML 6528-708). A, complete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 26, right parapodium. E, main paleae group. F. neurochaetae. Scale bars: A: 1 mm, D: 200 µm, E–F: 50 µm.

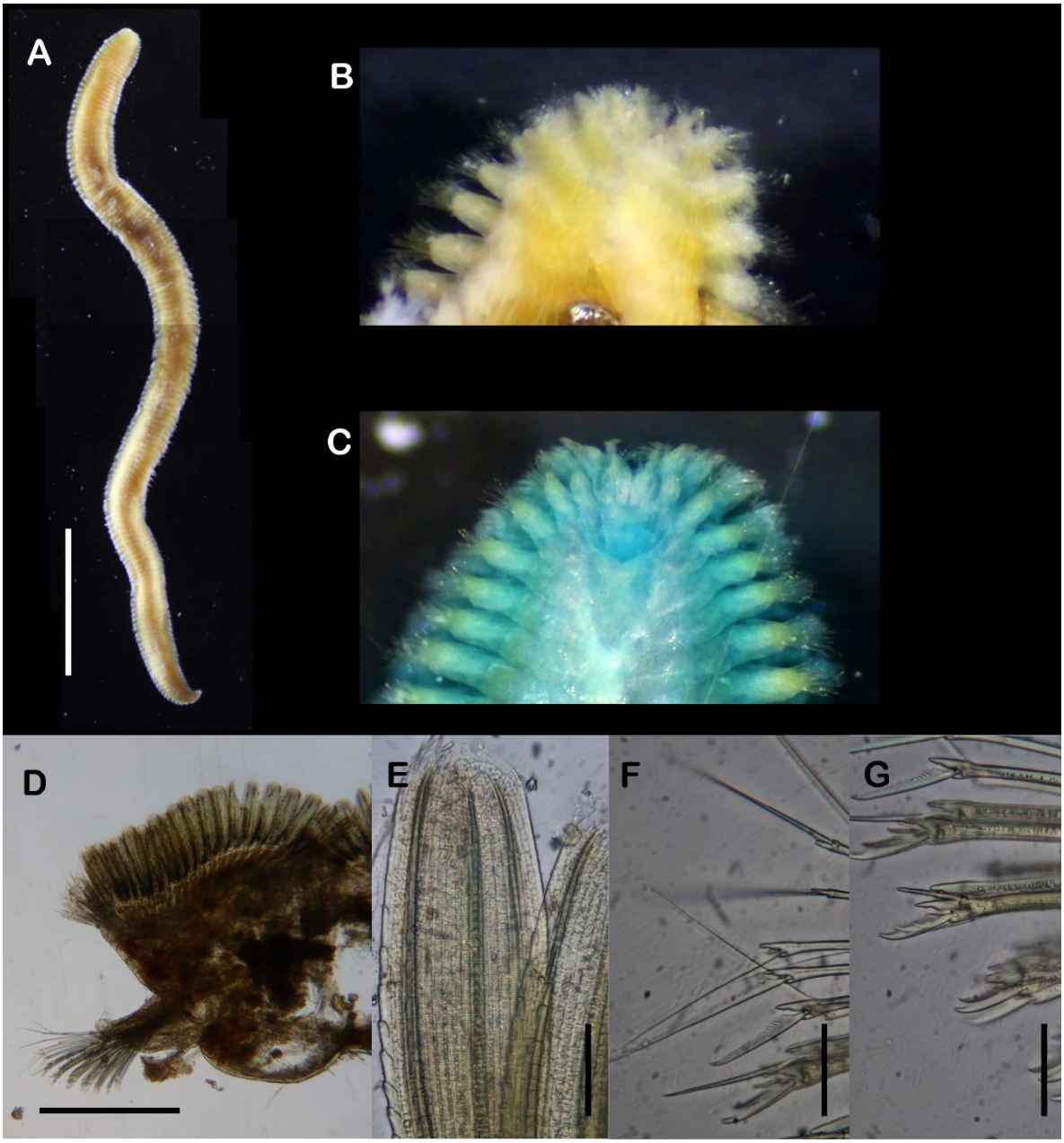

FIGURE 3. *Bhawania goodei* Webster, 1884. Non-type specimen (ECOSUR XXX). A, complete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 61, right parapodium. E, main paleae group. F, neurochaetae. Scale bars: A: 1 cm, D: 200 µm, E–G: 50 µm.

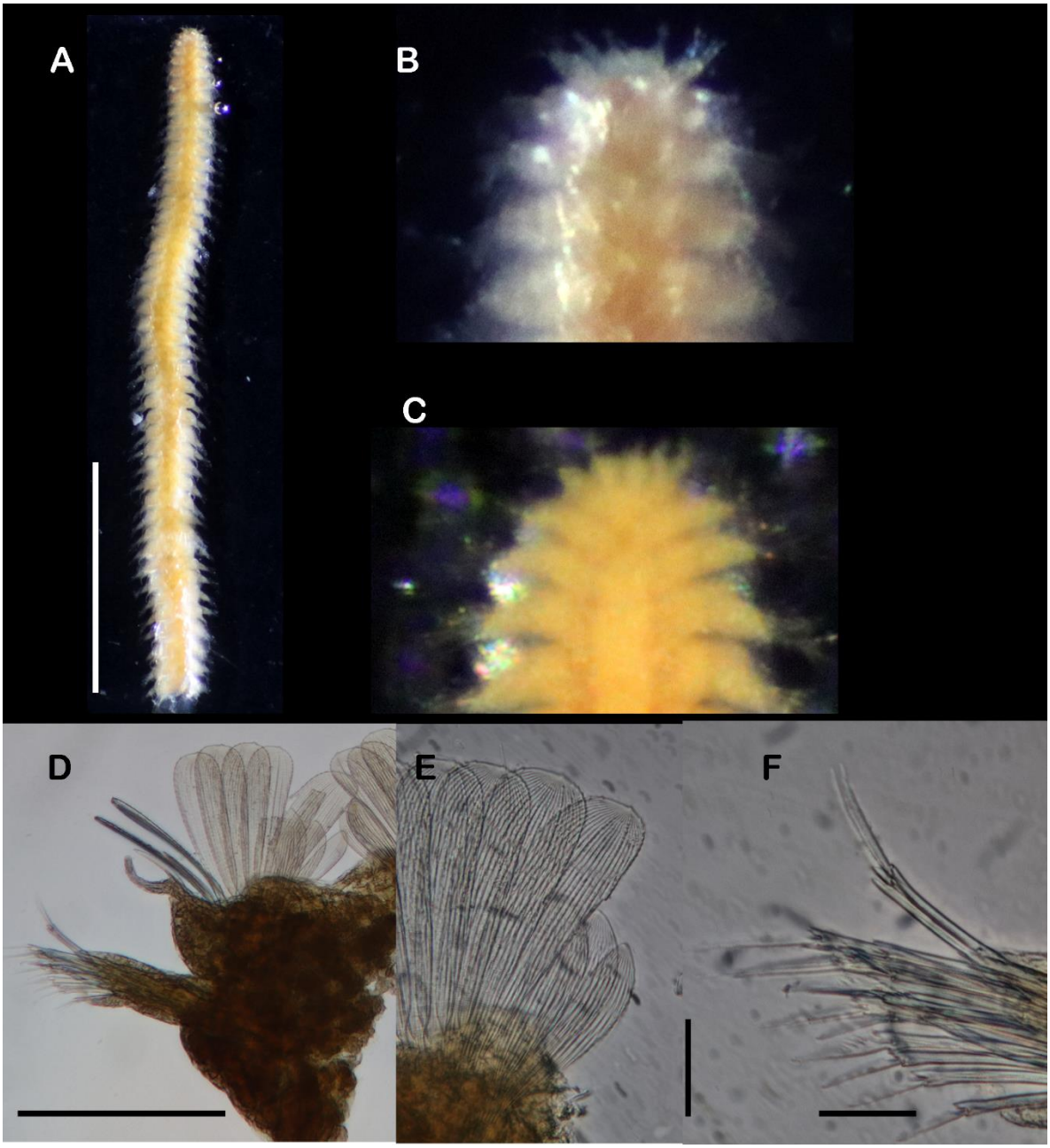

FIGURE 4. ***Treptopale rudolphi*** **Perkins, 1985.** Non-type specimen (ECOSUR XXX). A, complete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 47, right parapodium. E, main paleae group. F, neurochaetae. Scale bars: A: 1 mm, D: 200 µm, E–F: 50 µm.

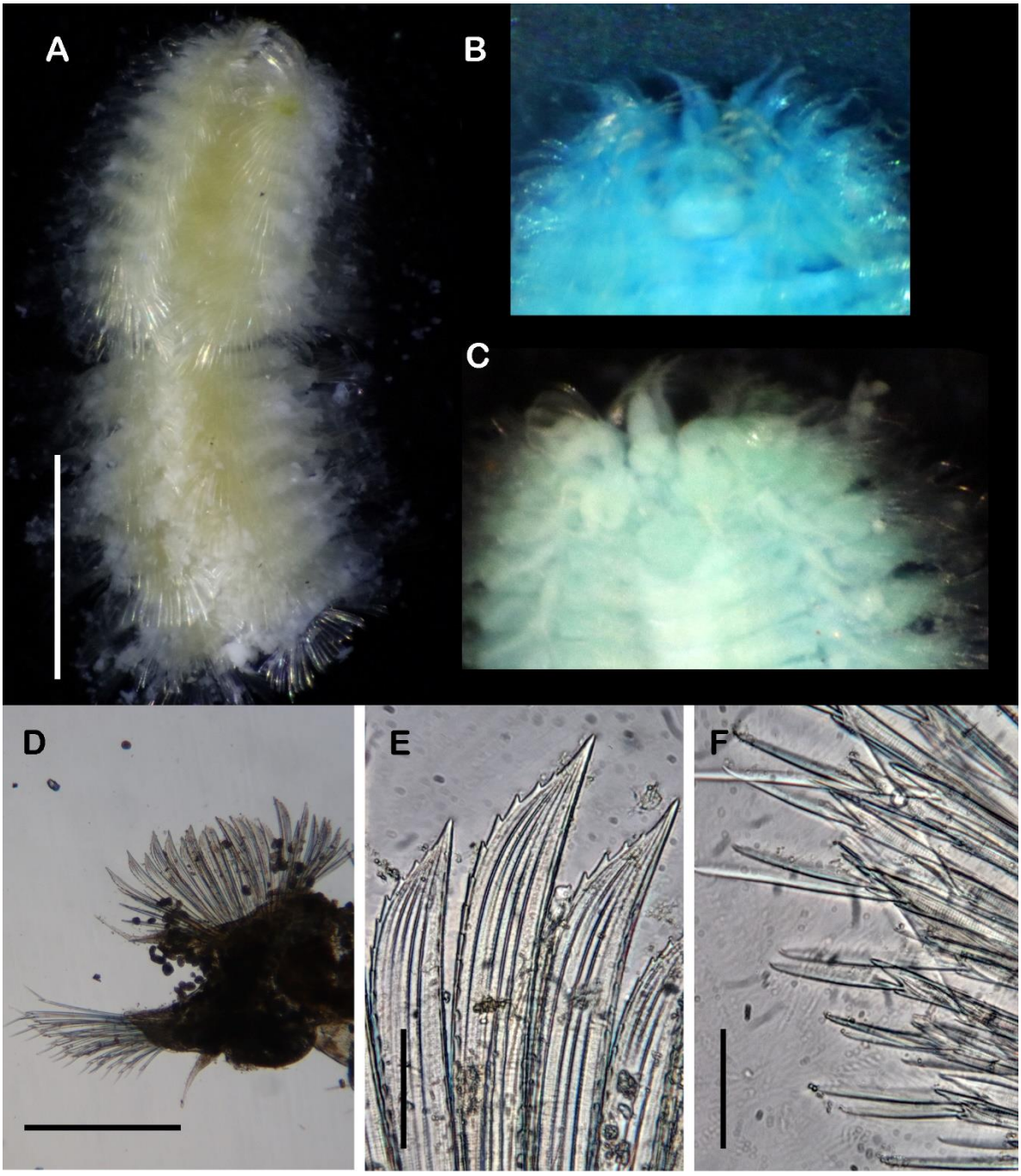

FIGURE 5. *Chrysopetalum elegans* Bush *in* Verrill, 1900. Non-type specimen (UMML 7006-1250). A, incomplete specimen, dorsal view. B, prostomium, dorsal view. C, prostomium, ventral view. D, segment 47, right parapodium. E, main paleae group. F, neurochaetae. Scale bars: A: 2 mm, D: 200 µm, E–F: 50 µm.

CONCLUSIONES

En el primer capítulo se consideró a la familia Sigalionidae Kinberg, 1856, donde se restableció *Sthenelais simplex* Ehlers, 1887 descrita del Golfo de México, y que fuera sinonimizada con *Ehlersileanira incisa* Grube, 1877 del Congo. El restablecimiento fue hecho con base en ejemplares provenientes de sitios cercanos a la localidad tipo de ambas especies. La evidencia morfológica indicó que ambas especies pertenecen al género *Ehlersileanira* Pettibone, 1970, y que son distintas a nivel específico. Adicionalmente, la revisión de las descripciones originales de los supuestos sinónimos de *E. incisa*, permitió reconocerlos como especies distintas, lo cual fue sintetizado en la clave de identificación propuesta. Sin embargo, la revisión del género *Ehlersileanira* es imperativa.

En el segundo capítulo, se estudió la subfamilia Pelogeniinae Chamberlin, 1919. De los resultados obtenidos, cinco géneros fueron registrados, que incluye siete nuevas especies y la confirmación de cuatro en la región. Los géneros *Dayipsammolyce* Pettibone, 1997 y *Hartmanipsammolyce* Pettibone, 1997 dejaron de ser monoespecíficos. Los géneros *Pelogenia* Schmarda, 1861 y *Neopsammolyce* Pettibone, 1997 fueron enriquecidos con la descripción de tres y dos nuevas especies, respectivamente. Especies de pelogéninos previamente registradas en la región fueron también encontradas. Llama la atención encontrar *Psammolyce flava* Kinberg, 1856, una especie descrita del centro-sur de Brasil, y frecuentemente registrada a lo largo de la costa atlántica de América. No obstante, la revisión de los ejemplares no permitió reconocerlos como diferentes, por lo que se considera una especie de amplia distribución en la región.

En el tercer capítulo, se consideraron sigaliónidos de las subfamilias Pholoinae Kinberg, 1858, Pisioninae Ehlers, 1901 y Sthenelanellinae Aungtonya *in* González *et al.* 2017. Se encontraron cuatro especies, una ya conocida ampliando su distribución, y se describieron tres nuevas. Se encontró, describió y nombró el único registro previo del género *Sthenelanella* Moore, 1910 en la región, el cual fue reconocido hace 36 años. Además, otra especie del mismo género fue descrita y nombrada. La descripción de *Taylorpholoe anabelae* sp. n. fue interesante en dos sentidos, rompió la idea de que el género era monoespecífico, y también disipó la idea de que *T. hirsuta* (Rullier &

Amoureux, 1979) era una especie única de amplia distribución en el Atlántico occidental tropical, aunque aparentemente sigue teniendo amplia distribución, ya no es la única del género en la región. *Pisione wolfi* San Martín, López & Núñez, 1999 fue el único sigaliónido no escamoso encontrado en el estudio; los ejemplares examinados permitieron ampliar un poco más sobre la morfología de la especie, principalmente en las neurosetas.

El cuarto capítulo de la tesis, y el último de los sigaliónidos aborda a la subfamilia Sigalioninae Kinberg, 1856. En esta contribución se determinaron seis géneros, y 12 especies. Se encontró una forma novedosa y reconocida como un género nuevo, *Neoleaniroides* gen. n., única por tener el cirro dorsal largo y un apéndice neuropodial en el segmento III. También se registró por primera vez el género *Labioleanira* en la región del Gran Caribe, con la descripción de una nueva especie. *Sigalion* fue el género de sigaliónino con mayor número de especies encontradas (4), de las cuales tres fueron nuevas especies. Le siguieron *Leanira* Kinberg, 1874, *Sthenelais* Kinberg, 1856 y *Sthenolepis* Willey, 1905 con la descripción de una nueva especie cada una. Para el caso de las especies previamente descritas, la revisión de material de *Sigalion pourtalesii* Ehlers, 1887 permitió complementar su descripción incluyendo la presencia de un gran estilodo dorsal. Para *Sthenolepis grubei* (Treadwell, 1901) y *Leanira cirrata* (Treadwell, 1934) se ampliaron las descripciones previas al ampliar la descripción de la variación de neurosetas.

El estudio sistemático y estandarizado de la familia Sigalionidae permitió detectar inconsistencias y problemas en la taxonomía, pero también hizo posible encontrar sitios de acción y de ajustes. Además de las especies descritas e ilustradas, el estudio pretende ser relevante por el aporte al conocimiento y estudio de esta familia. Recientemente, en una serie de contribuciones en el Océano Índico (Aungtonya 2002–2018), la autora enfatizó que las características de los segmentos anteriores, son críticos en el estudio de esta familia, ya que albergan caracteres discriminantes a nivel genérico y específico. Sin embargo, como lo fue antes en las numerosas contribuciones por Marian H. Pettibone, en el estudio referido, las neurosetas fueron parcialmente consideradas. Con este capítulo en particular, y como un resultado paralelo a la tesis, la propuesta novedosa de

clasificación de las neurosetas se puso en práctica, con el objetivo de que la composición setal sea reconocida como un elemento taxonómico angular.

Finalmente, la última contribución aborda la familia Chrysopetalidae Ehlers, 1864, particularmente a los crisopetálidos originales, la subfamilia Chrysopetalinae Ehlers, 1864. Con el material examinado, se encontraron cinco géneros, cada uno con una especie. *Acanthopale perkinsi* San Martín, 1986, especie tipo y única del género. Se realizó una comparación con el género *Chrysopetalum* Ehlers, 1864, un género cercano. Se encontraron diferencias morfológicas concretas; sin embargo, se sugiere hacer estudios histológicos y moleculares para robustecer la hipótesis de que sean dos grupos distintos. Se describieron *Bhawania goodei* Webster, 1884, *C. elegans* Bush *in* Verrill, 1900 y *Treptopale rudolphi* Perkins, 1985 con anotaciones en su morfología y énfasis en la aparente amplia distribución de *B. goodei* y *T. rudolphi*. Por otro lado, se describe *Arichlidon eugathofi* sp. n. a partir de una especie previamente conocida, *A. gathofi* Watson Russell, 2000. Debe mencionarse que la autora describió cuatro distintas formas de la punta de las notosetas, atribuyéndoselo a las condiciones de hábitat o temperatura, además, ligándolo a una aparente distribución restringida. La autora utiliza como ejemplares tipo a crisopetálidos de Carolina del Norte, e indica que coinciden con los descritos por Gathof (1984), es decir notosetas con ‘forma 1’. Sin embargo, la revisión de la descripción y las ilustraciones de Gathof (1984) coinciden con los ejemplares encontrados, la que Watson Russell (2000) llamo ‘forma 2’. Los ejemplares examinados, así como los ilustrados por Gathof (1984) fueron diferenciados a partir de las notosetas, encontrando también diferencias en neurosetas, y proporción de cirros dorsales y ventrales.

La síntesis del estudio realizado aumenta el conocimiento que se tiene de las familias Chrysopetalidae y Sigalionidae en la región del Gran Caribe. En conjunto, se registraron 14 especies locales con registros previos en la región, ampliando su distribución, y complementando sus descripciones e ilustraciones. También, 18 nuevas especies para la ciencia fueron descritas, y una nueva hipótesis morfológica fue reconocida a través de la propuesta de un nuevo género.

En la familia Sigalionidae, se reconoció un patrón en la distribución y morfología de las setas durante la realización de este estudio. Las notosetas siempre están insertas rodeando la notacicula; simples verticiladas, con hileras no continuas que rodean al eje de la seta. Como resultado de este estudio se describen y reportan por primera vez las características finas de las notosetas en la familia. Las neurosetas fueron descritas usando una clasificación práctica propuesta. La clasificación de las setas se generó al estudiar los parápodos en posición anterior y, con base en la posición y características de las setas, separarlas por unidades o subunidades. Esta propuesta permitió hacer menos verbosas las descripciones, comparables y otorgó mayor relevancia a las setas como caracteres taxonómicos importantes. De este modo, utilizando un nuevo acercamiento al estudio de los sigaliónidos, permitió reconocer los cambios en su morfología y composición de las setas, revelando novedades.

En cuanto a los élitros, se agregó una nota de las papilas superficiales y marginales. Fueron diferenciados considerando su morfología y su condición de adherencia, resumido en un glosario. Por otro lado, se reportó por primera vez microtubérculos en la superficie de los élitros de la subfamilia Pelogeniinae, anteriormente solo conocidos en Sigalioninae.

Finalmente, el formato de estudio de los crisopetálidos es conocido y ampliamente utilizado, ya que permite observar y describir de forma estandarizada a las especies (Watson Russell 1986). Sin embargo, la proximidad morfológica es repetidamente encasillada en complejos de especies o variaciones de la misma especie (*i.e.* Watson Russell 2000; Wei *et al.* 2013; Watson *et al.* 2019; Watson com. pers). En este estudio la observación fina permitió reconocer y diferenciar una nueva especie de una previamente descrita, usando como punto de partida las aparentes variaciones.

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