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Kristianides, A New Genus of Scale Worms from the Northern Gulf of Mexico and New Records of *Phyllohartmania taylori* (Annelida: Polychaeta: Polynoidae)

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Phyllohartmania Pettibone, 1961 is a monotypic genus in the subfamily Polynoinae Kinberg, 1856. It is characterized by having lateral antennae with ventral ceratophores, cephalic peaks and neuropodia with pre-chaetal lobes being longer than post-chaetal lobes. *Phyllohartmania taylori* Pettibone, 1961 was described using only one specimen collected at Bird Point, Seahorse Key, Florida. During a study of Polynoids from the Grand Caribbean to corroborate features and records, the holotype and additional material of *P. taylori* housed at the National Museum of Natural History, Smithsonian Institution were examined and an unknown genus of Eulagiscinae Pettibone, 1997 confused with *Phyllohartmania* was found; the present study erects this as a new genus. *Kristianides* gen. nov. is distinguished by having prostomium without cephalic peaks, lateral antennae inserted terminally on indistinct ceratophores and notopodia and neuropodia with projecting acicular lobes well developed. *Kristianides cylindricum* sp. nov. differs from the other species of Eulagiscinae by having ventral lamellae; 15 pairs of elytra with fringe of papillae, surface with sclerotized microtubercles and macrotubercles; being conical the microtubercles and cylindrical the macrotubercles. In addition, two records of *P. taylori* from the northern Gulf of Mexico are published herein, as is a taxonomic key to differentiate *Kristianides* gen. nov. from its congeners in Eulagiscinae. This finding also increases the number of species with ventral lamellae, a convergent feature.

Key words: Eulagiscinae, Polynoinae, Convergent features, Worms, Mississippi Sound, Elytra.

BACKGROUND

Aphroditiformia is a suborder of Annelida, traditionally composed of six families: Acoetidae Kinberg, 1856, Aphroditidae Malmgren, 1867, Eulepethidae Chamberlin, 1919, Pholoidae Kinberg, 1858, Polynoidae Kinberg, 1856, and Sigalionidae Malmgren, 1867. Recent phylogenetic studies recognize Aphroditiformia as a monophyletic clade with six families, but Pholoidae within Sigalionidae (Wiklund et al. 2005; Gonzalez et al. 2018) and Iphionidae Kinberg, 1856, recognized as a family, were separated from Poynoidae (Norlinder et al. 2012; Zhang et al. 2018a).

Aphroditiformia contains about 1200 species grouped in 256 genera (Zhang et al. 2018b). The possession of elytra attached dorsally distinguishes all the members, constituting a synapomorphy for Aphroditiformia (Norlinder et al. 2012). In Polynoidae, elytra are present only on segments lacking dorsal cirri; elytra covers the entire dorsum (or partially); their surface is smooth or with microtubercles, macrotubercles and papillae; such functions are associated to respiration

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and bioluminescence (Plyuscheva and Martin 2009; Aneli et al. 2018).

Polynoidae is the largest family of Aphroditiformia (Zhang et al. 2018b). It is composed of over 900 species that are widely distributed in marine shallow habitats of tropical and polar regions and in deep sea ecosystems (Zhang et al. 2018a). A high number of representatives (140 species) are endemic to chemosynthetic habitats, such as hydrothermal vents and cold seeps (Zhou et al. 2017 2018; Wu and Xu 2018). Most polynoids are free living, but some are symbionts with a wide range of specificity, from a few hosts to many different hosts (Serpetti et al. 2017).

Polynoidae classification is based mainly on the number of segments and elytra, insertion of antennae, features of the parapodia, and ornamentation of elytra and chaetae (Salazar-Silva and Carrera-Parra 2014; Salazar-Vallejo et al. 2015; Zhang et al. 2018a). There are many taxonomic problems in species of Polynoidae and other polychaetes, some related to their original descriptions being brief or in Latin, others based on a single specimen in poor condition (Salazar-Vallejo 2017; Wang et al. 2018), as well as due to the traditional approach under which polychaetes species with supposed wide distribution were synonymized. Thus the reevaluation of the type materials has allowed researchers to clarify the species' identity, its generic status, geographical distribution and even the recognition of new, previously confused species (Conde-Vela et al. 2018; Delgado-Blas and Carrera-Parra 2018).

One such contribution is *Kristianides* gen. nov. for *K. cilindricum* sp. nov. This study was part of a project to revise the taxonomy of the polynoids registered in the Grand Caribbean. The new species was found to be confused with *Phyllohartmania taylori* Pettibone, 1961 by the presence of ventral lamallae, but *P. taylory* belongs in the subfamily Poynoidae Kinberg 1856 because it has lateral antennae with ventral ceratophores and cephalic peaks. The new genus and species belonging to the subfamily Eulagiscinae Pettibone, 1997 because they have lateral antennae inserted terminally, prostomium without cephalic peaks. *Kristianides* gen. nov. is the fourth genus of the recently emended Eulagiscinae by Bonifácio and Menot (2019) to include species without a nuchald lobe. *Kristianides cilindricum* sp. nov. is described from the Mississippi Sound, Gulf of Mexico and can be distinguished by the following unique combination of morphological characters: indistinct ceratophores of lateral antennae, ornamentation of its elytra, and ventral lamellae on each segment. In addition, this study provides two new records of *Phyllohartmania taylori*.

MATERIALS AND METHODS

Type and non-type material of *Phyllohartmania taylori* were examined in the National Museum of Natural History (USNM), Smithsonian Institution, Washington, DC, USA. Parapodia, chaetae and elytra were observed using a stereomicroscope. Ornamentation of elytra, antennae, palps and cirri were analyzed with a compound microscope. Diagnostic structures were photographed with a digital camera mounted on the compound microscope. Terminology used in descriptions follows Wehe (2006):

Prostomium: in most Polynoidae, it is formed by two lobes; the insertion of median antenna is dorsally visible. It may present small projections frontally, commonly known as cephalic peaks.

Segment two: it can be projected anteriorly over the prostomium as a small lobe (nuchal lobe), or forming a nuchal flap over prostomium; its dorsal surface can have small nodules.

Insertion of lateral antennae: the insertion is regarded as ventrally if the ceratophores emerge below the prostomium lobes as distinct structures from the lobes. They are terminally if ceratophores emerge from the frontal border of the prostomium lobes. Another condition, regarded as subterminal or termino-ventral does not describe a type of antennal insertion, looks as an intermediate state.

Insertion of elytra: in case of previous removal, elytral insertion pattern can be recognized by the elytrophores, and it is consistent among genera. Along the first 23 segments the elytra are inserted in segments 2, 4, 5, 7, 11, 13, 15, 17, 19, 21, 23, alternated with dorsal cirri, except on segments 4 and 5, after segment 23 elytra can alternate with two or three dorsal cirri per side.

Elytra: elytral margin is papillated, having a fringe of papillae along outer margins, or smooth if no papillae are present. Elytral surface can have filiform papillae, microtubercles, and macrotubercles.

Parapodia: birramous. Notopodia are smaller than neuropodia, with acicular lobes short or long. Neuropodia have acicular lobes larger than post-chaetal ones, or they are of similar size.

Ventral lamellae: each segment has one pair of depressed lobes ventrally; they may be small, rounded, inserted postero-laterally or laterally to the parapodial base.

RESULTS

SYSTEMATICS

Family Polynoidae Kinberg, 1856
Subfamily Polynoinae Kinberg, 1856
Genus *Phyllohartmania* Pettibone, 1961

Phyllohartmania taylori Pettibone, 1961
(Figs. 1–3)

Phyllohartmania taylori Pettibone, 1961: 170-172, Figs 2–3. — Taylor, 1971: 82–84, Table 12–13. (partim).

Material examined: Holotype USNM 30010, Seahorse Key, Florida, sand, Bird Point, 20 Jul. 1958, E. Lowe Pierce, J. L. Taylor, coll. Additional material: one specimen USNM 45517, Tampa Bay, Florida, 26 Jul. 1963, J. L. Taylor. One specimen. USNM 075623, Alabama, Mississippi Sound, 30°11'35"N, 088°16'32"W; 1 Apr. 1981, sta. 581, 12.2 m, Army Corp of Engineers coll.

Description (based on holotype): body dorsoventrally flattened, 2.0 cm long, 0.5 cm wide, 37 segments. Prostomium as wide as long, hexagonal, with distinct cephalic peaks, no facial tubercle, eyes small, of similar size. Median antenna shorter than prostomial length, tip filiform, surface finely papillated, ceratophore short inserted between prostomial lobes. Lateral antennae small, filiform, shorter than prostomial length, surface with filiform papillae and ceratophores inserted ventrally, short, not reaching prostomial front edge, not fused ventrally. Palps long, larger than prostomial

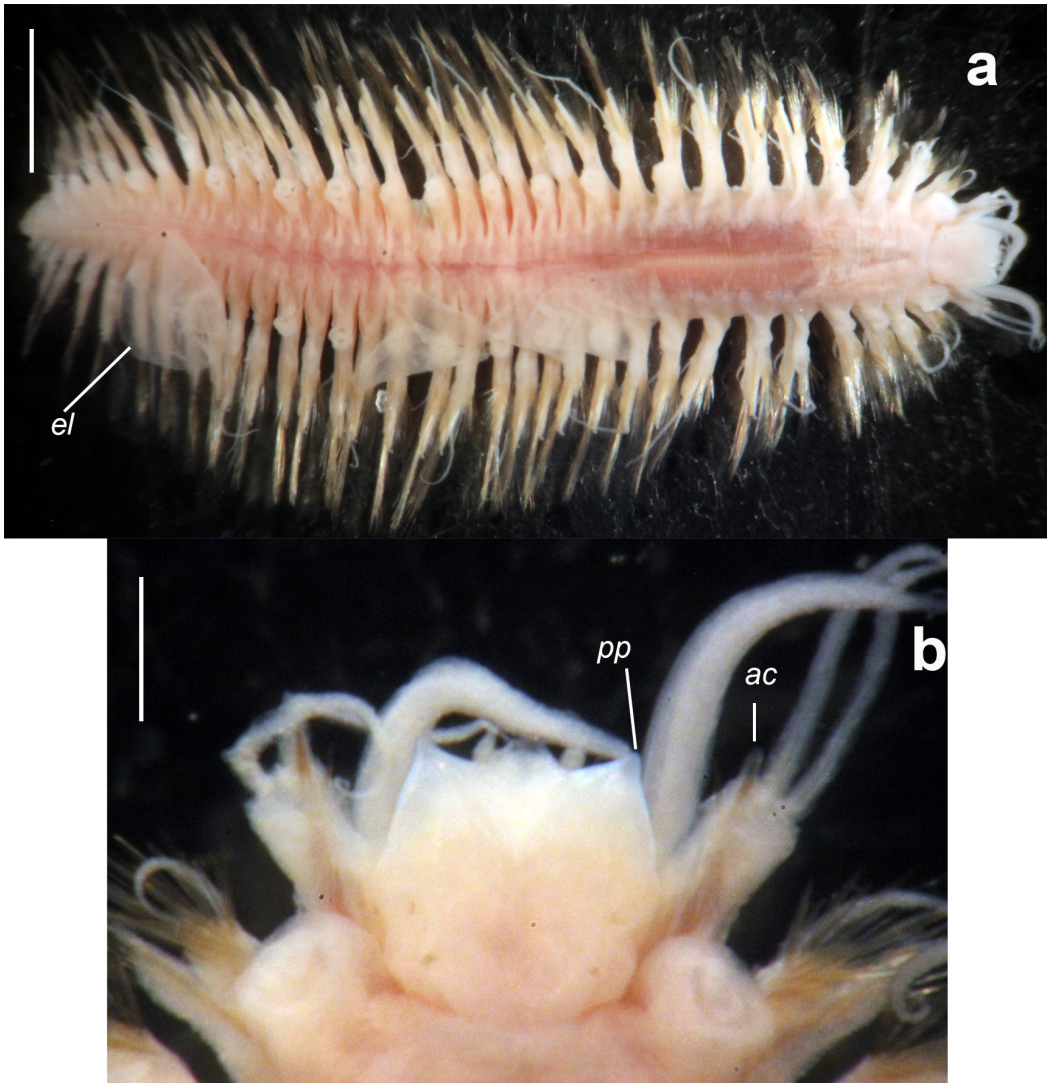

Fig. 1. *Phyllohartmania taylori* Pettibone, 1961 (USNM 45517). Body flattened, a, dorsal view, showing some elytra still attached (*el*); b prostomium, showing cephalic peaks (*pp*) and tentaculophores with aciculum tip (*ac*). Scale bars: a = 2.92 mm; b = 0.79 mm.

length, tapering to fine tips surface with tiny papillae. Pharynx with 11 pairs of soft marginal papillae.

Tentacular segment not visible dorsally; tentaculophores with one or a few tiny chaetae; aciculae golden, thick, protruding; tentacular cirri filiform, as long as almost reaching palps tips. Segment 2 with anterior margin straight, without mid-dorsal nodules.

Elytra 15 pairs, completely covering dorsum, overlapping. Elytra in segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, and 32. First 12 pairs of elytra alternate with one dorsal cirri, except on segments 4 and 5; subsequent to pair 12 they alternate with 2 dorsal cirri; only dorsal cirri along last five segments. Elytral surface with numerous sclerotized microtubercles and short papillae, filiform with globular tips. Elytral margins with a fringe of short filiform papillae.

Parapodia long, biramous. Dorsal tubercles inconspicuous. Elytrophores rounded. Dorsal cirri long, very thin; tapering to filiform tips.

Notopodia well developed, shorter than neuropodia, acicular lobes pointed, aciculae stout| Neuropodia long, acicular lobes projected, aciculae

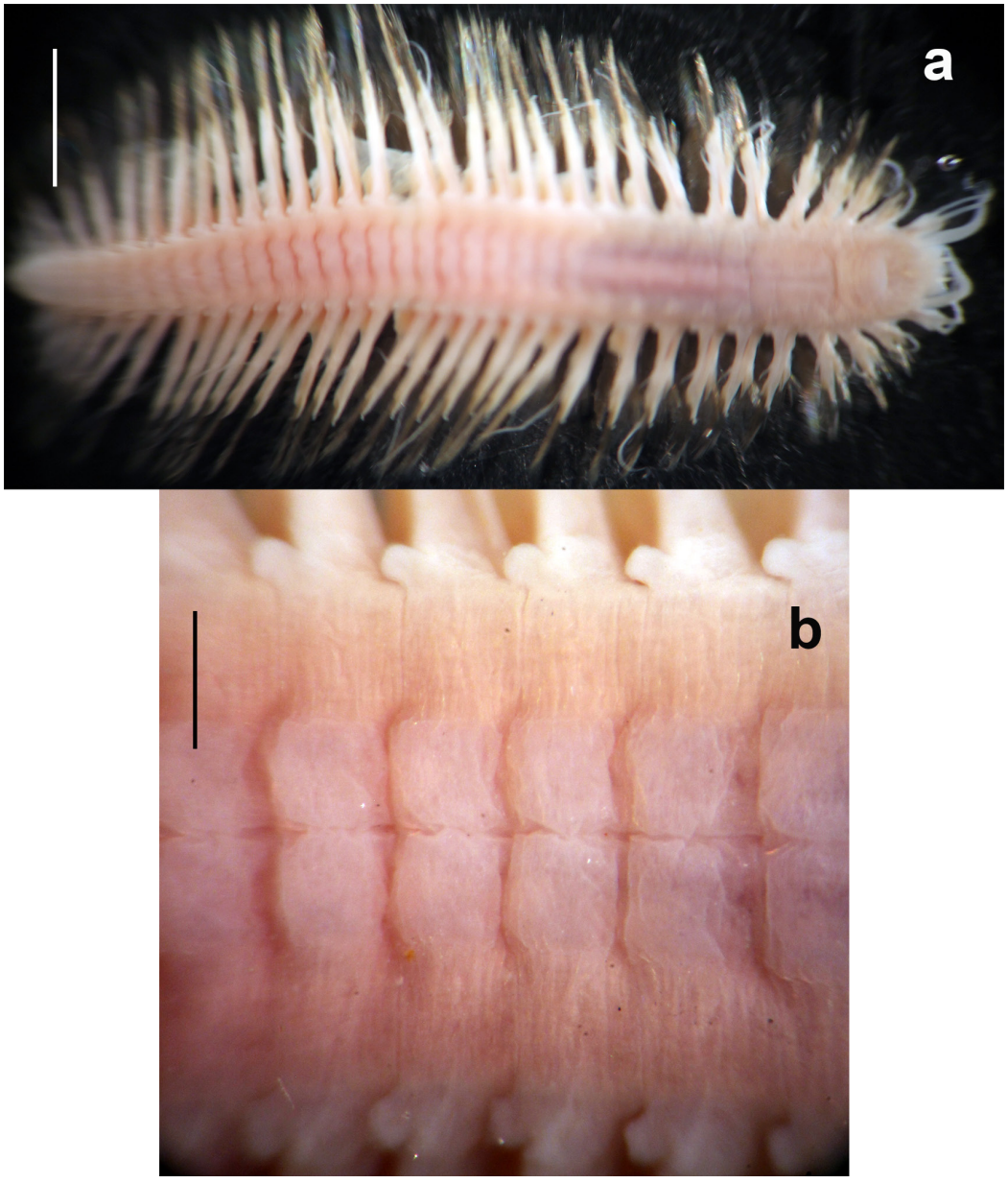

Fig. 2. *Phyllohartmania taylori* Pettibone, 1961 (USNM 45517). a, Body flattened, ventral view, b median segments, ventral view, showing ventral lamellae. Scale bars: a = 2.92 mm; b = 1.14 mm.

stout, supra-acicular digitiform lobe; post-chaetal lobe rounded, shorter than pre-chaetal lobes.

Notochaetae abundant of two types; the thick are long, surface with rows of inconspicuous spines, and short tips; the slender with longer spinous region and capillary tips. Neurochaetae of two types; subacicular neurochaetae with rows of short spines; tips long, bare, unidentate; supraacicular neurochaetae longer, with long spinous region, long spines, tips bare unidentate. First pair of parapodia (on segment two) with notochaetae shorter and thicker, tips short.

Ventral lamellae present postero-laterally in each segment from fourth parapodia, small and round. Ventral cirri long, cirrophore thick. Nephridial papillae from third segment. Pygidium with terminal anus, two anal cirri.

Type locality: Bird Point, Florida, USA.

Distribution: Tampa Bay, Florida to Alabama, Mississippi Sound (30°11'35"N, 88°16'32"W).

Remarks: Pettibone (1961) described the species from a single specimen. The records provided here extend its distribution from Tampa Bay, Florida to Alabama, Mississippi Sound. The specimen from Tampa Bay (USNM 45517) was recorded in Taylor's dissertation (1971). Although they were collected at different times, the diagnostic features are consistent: body depressed, tapering posteriorly (Figs. 1a, 2a); prostomium with cephalic peaks and tentaculophores with thick aciculae (Fig. 1b). 15 pairs of elytrophores (Fig. 1a), elytra translucid (Fig. 1a) with microtubercles, papillae on both margins and surface; ventrally each segment with a small ventral lamellae (Fig. 2b);

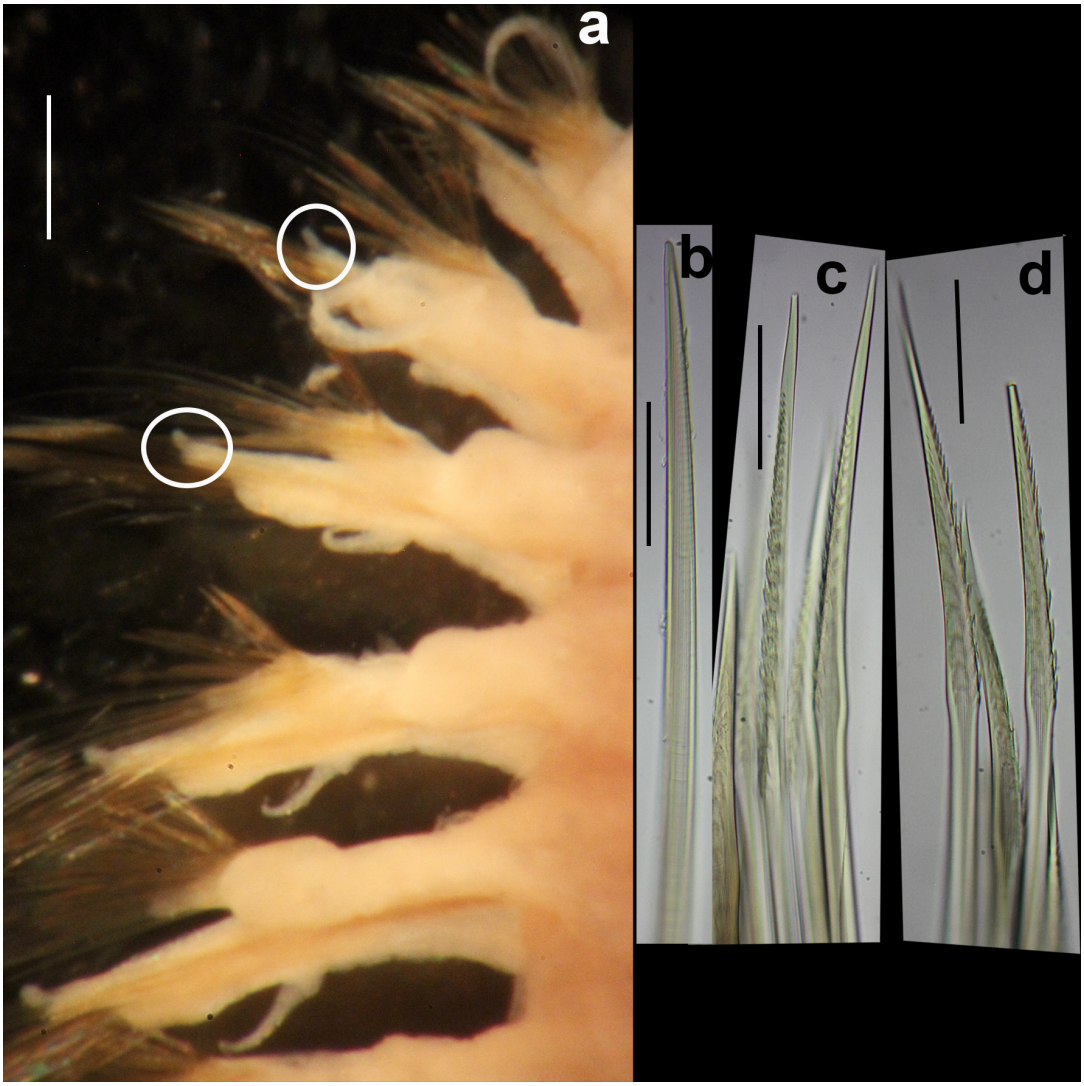

Fig. 3. *Phyllohartmania taylori* Pettibone, 1961 (USNM 45517). a, Parapodia showing a supra-acicular lobe; b, notochaeta, c-d neurochaetae. Scale bars: a = 0.710 mm; b–d = 2.04 µm.

neuropodia with a supra-acicular round lobe (Fig. 3a); thick notochaetae, most with short tip (Fig. 3b) other slender with long capillary tips. Neurochaetae with long unidentate tips (Fig. 3c–d), the supracicular one with numerous long spines, and long tips.

Subfamily Eulagiscinae Pettibone, 1997

Kristianides gen. nov.

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Etymology: The new genus is named to honor the late Dr. Kristian Fauchald, in recognition of his valuable contributions to numerous studies on polychaetes, and especially for his unrestricted support for museums and research on scale worms, one of his favorite polychaete groups.

Gender: Masculine.

Type species: *Kristianides cylindricum* sp. nov.

Diagnosis: Eulagiscinae, body with many segments. Ventral lamellae thin, semicircular. Prostomium bilobed without cephalic peaks; no facial tubercle; two pair of circular eyes, small, dark; three antennae, median antenna with ceratophore short, inserted frontally with ceratostyle short, slender; lateral antennae with ceratophores indistinct, short, thick, inserted terminally as prostomial continuations, at the same level as median antenna; ceratostyle minute, slender. Palps slender, long. Tentacular segment not visible dorsally; tentaculophores with protruding thick acicula; segment two without nuchal fold. Fifteen pair of elytra on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, 32, last six segments with dorsal cirri. Elytra thin, imbricate, covering dorsum; elytral margin with fringe of thin papillae and elytral surface with sclerotized microtubercles and macrotubercles. Parapodia birramous; notopodia and neuropodia well developed; notochaetae abundant, long, a few thicker and short, mostly slender with long spinous region and tips capillary; neurochaetae of two types, subacicular with rows of long spines, and long bare entire tips; supraacicular neurochaetae with longer spinous region and entire tips.

Remarks: Three subfamilies have been proposed in Polynoidae based on the terminal insertion of the lateral antennae as extensions of prostomium: Lepidonotinae Willey, 1902, Lepidastheniinae Pettibone, 1989, and Eulagiscinae Pettibone, 1997. They have a similar prostomium but differ principally in the shape of parapodia. In Lepidonotinae neuropodia are entire without distinct pre-chaetal and post-chaetal lobes, and short notopodia. In Lepidastheniinae the neuropodia have distinct pre-chaetal and post-chaetal lobes, the acicula is not projected, and notopodia are reduced. Eulagiscinae was defined by having neuropodia and notopodia well developed; both with distinct pre-chaetal and post-chaetal lobes; acicula projected in a longer pre-acicular lobe and an occipital lobe.

Kristianides gen. nov. is characterized by having lateral antennae inserted terminally, as in Lepidonotinae and Lepidastheniinae, but in *Kristianides* gen. nov., both neuropodia and notopodia bear a projected pointed acicular lobe, corresponding with Eulagiscinae after Pettibone 1997. Therefore, this new genus is being referred to the latter subfamily. *Kristianides* gen. nov. differs from the other Eulagiscinae genera, *Eulagisca* McIntosh, 1885 and *Pareulagisca*, Pettibone, 1997, because it lacks of an occipital fold and it has ventral lamellae. Recently Bonifácio and Menot (2019) emended the description of Eulagiscinae to include the absence of a nuchald fold, characters observed in the species of *Bathymorea* Pettibone, 1967. Thus *Kristianides* gen. nov. constitutes the fourth genus of Eulagiscinae and differs from the others of this subfamily as shown in key below.

Kristianides is also distinguished from other genera of others subfamilies provided with ventral lamellae as is indicated in table 1.

Kristianides cylindricum sp. nov.

(Figs. 4–7)

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Material examined: Holotype USNM 075622, Gulf of Mexico, off Alabama, Mississippi Sound, R/V Mississippi Sound, sta. 581, 30°11'35"N, 088°16'32"W, depth 12.2 m, 29 Oct. 1980, Army Corp of Engineers, coll.

Description: Holotype USNM 075622 complete. Body with 38 segments, length 1.5 cm, width 2.0 mm without chaetae, pale yellow pale, parapodia long, slender (Fig. 4a), venter markedly segmented (Fig. 6b).

Prostomium bilobed, wider than long, facial tubercle absent, without cephalic peaks (Fig. 4b). Eyes dark, small, on posterior prostomial half, anterior eyes dorsolateral; posterior eyes displaced anteriorly. Median antenna with thick ceratophore, inserted frontally, between prostomial lobes; slender ceratostyle papillated, shorter than prostomium length, tapered into filiform tip. Lateral antennae with stout, short ceratophores, inserted terminally as prolongations of prostomial lobes; ceratostyles thin, surface papillated, shorter than prostomial length. Palps long, thin, papillated, tapered into fine tips. Pharynx not everted.

Tentacular segment not visible dorsally; tentaculophores without chaetae; aciculae thick

protruding. Tentacular cirri thin; long, almost palps length; surface papillated; tapering into filiform tips. Segment two without nuchal lobe (Fig. 4b).

Fifteen pairs of elytrophores on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, 32; first 12 pairs alternate with one dorsal cirri, except on segments 4 and 5; last six segments with dorsal cirri. Elytra translucent, imbricated, covering dorsum. Elytral margin with fringe of long, abundant papillae (Fig. 5d). Elytral surface with microtubercles and macrotubercles (Fig. 5a–c, e), and filiform papillae with globular tips (Fig. 5e–f). Microtubercles conical, amber in color (Fig. 5f); macrotubercles cylindrical-conical, amber in color (Fig. 5e–g).

Dorsal tubercles inconspicuous; elytrophores rounded. Dorsal cirri long, extended beyond neurochaetal tips (Fig. 7a), surface with short papillae; cirrophore cylindrical, long; ventral cirri short, papillated, tip filiform.

Parapodia biramous, separated from each other, almost as long as body width. Notopodia well developed, acicular lobe projected. Neuropodia long with distinct pre-chaetal and post-chaetal lobes; pre-chaetal lobe projected like an acicular lobe, post-chaetal lobe shorter (Fig. 7a–b).

Notochaetae more abundant than neurochaetae (Fig. 7a–c). First two notopodia with notochaetae thicker, short, curved, blunt tips, with a few capillary notochaetae; from third notopodia notochaetae longer; some shorter curved, lateral wit rows of inconspicuous spines, tips short (Fig. 7d); mostly longer spinous with capillary tips (Fig. 7e). Neurochaetae thicker than notochaetae; subacicular neurochaetae with rows of spines, tips entire, long, curved (Fig. 7h–i); supraacicular neurochaetae (Fig. 7f) longer, slender, spinous region long, spines long, tips capillary (Fig. 7g).

Pygidium with terminal anus; anal cirri lost. Ventral lamellae from segment 3, thin, depressed, wide,

Table 1. Genera with ventral lamellae: comparisons of some features

Characters	*Gastrolepidia* Schmarda, 1861	*Paralepidonotus* Horst, 1915	*Branchinotogluma* Pettibone, 1985
Subfamily	Arctonoinae *sensu* Hanley 1989 Polynoinae *sensu* Serpetti et al. (2017); Zhang et al. (2018a)	Polynoinae *sensu* Read (2006) Lepidonotinae *sensu* Zhang et al. (2018a)	Branchinotogluminae *sensu* Pettibone, (1985); Zhang et al. (2018a b)
Number of segments	Up to 60	Up to 40	21
Pairs of elytra	31	15	10
Cephalic peaks	absent	Absent	Absent
Facial tubercle	Well developed	Weakly developed	Absent
Ceratophores of lateral antennae	Inserted termino-ventral, converging mid-ventrally	Inserted termino ventrally merging in ventral midline	Absent, no ceratostyle
Nuchald Fold	Present on second segment	Absent	Absent
Ventral lamellae	Beginning at segment 3	Beginning at fourth segment	2 to 6 pairs of lamellae on segments 13-18
Nephridial papillae	Beginning on segments 6-8	Nephridial papillae from segment 6	1 to 7 pairs on segments 12-15
Neuropodia	Pre-chaetal lobe rounded, not projected as an acicular lobe, similar in length and shape to post-chaetal	Pre-chaetal lobe projected as an acicular lobe, longer than post-chaetal lobe. With or without supra-acicular lobe	Pre-chaetal lobe projected as an acicular lobe, longer than post-chaetal lobe. No supra-acicular lobe

Characters	*Phyllohartmania* Pettibone 1961	*Kristianides* gen. nov
Subfamily	Polynoinae *sensu* Pettibone 1961	Eulagiscinae *sensu* Pettibone 1997; this study
Number of segments	37	38
Pairs of elytra	15	15
Cephalic peaks	Pointed	Absent
Facial tubercle	Absent	Absent
Ceratophores of lateral antennae	Inserted ventrally, merging in midline	Inserted terminally as extensions of prostomium
Nuchald Fold	Absent	Absent
Ventral lamellae	Ventral lamellae from fourth parapodia	Beginning at segment 3
Nephridial papillae	Begining at segment 3	Not visibles
Neuropodia	Pre-chaetal lobe projected as an acicular lobe, longer than post-chaetal lobe. Supra-acicular lobe.	Pre-chaetal lobe projected as an acicular lobe, longer than post-chaetal one. No supra-acicular lobe.

semicircular, with a bilobed appearance (Fig. 6a–c).

Type locality: Alabama, Mississippi Sound (30°11'35"N, 088°16'32"W).

Distribution: Only known from the type locality.

Etymology: The species is named after the shape of elytral macrotubercles, being cylindrical.

Remarks: *Kristianides cylindricum* n. sp. was previously identified as *Phyllohartmania taylori* Pettibone, 1961 because it has ventral lamellae, but in *P. taylori* the lateral antennae have ceratophores inserted ventrally, while in *Kristianides* they are inserted terminally, as prolongations of the prostomial lobes.

Lagisca lamellifera (Marenzeller, 1879) was described with ventral lamellae, but its prostomium has cephalic peaks, and lateral antennae inserted ventrally on distinct ceratophores. Moore (1910) considered that the ventral lamellae referred to by von Marenzeller in *L. lamellifera* are not diagnostic, because they appear under certain conditions of preservation in many species. For Uschakov (1982), the ventral lamellae may only be present on large specimens of *Gastrolepidia clavigera* Schmarda, 1861 and might have a reproductive function, but Hanley (1989) found that their presence was not size-dependent. In *Branchinotogluma* Pettibone, 1985 the ventral lamellae and presence of long nephridial papillae are regarded as indicative of sexual dimorphism in males (Zhang et al. 2018b); as indicated above, this dimorphism has been documented in polynoids, mainly from hydrothermal vents (Glover et al. 2005).

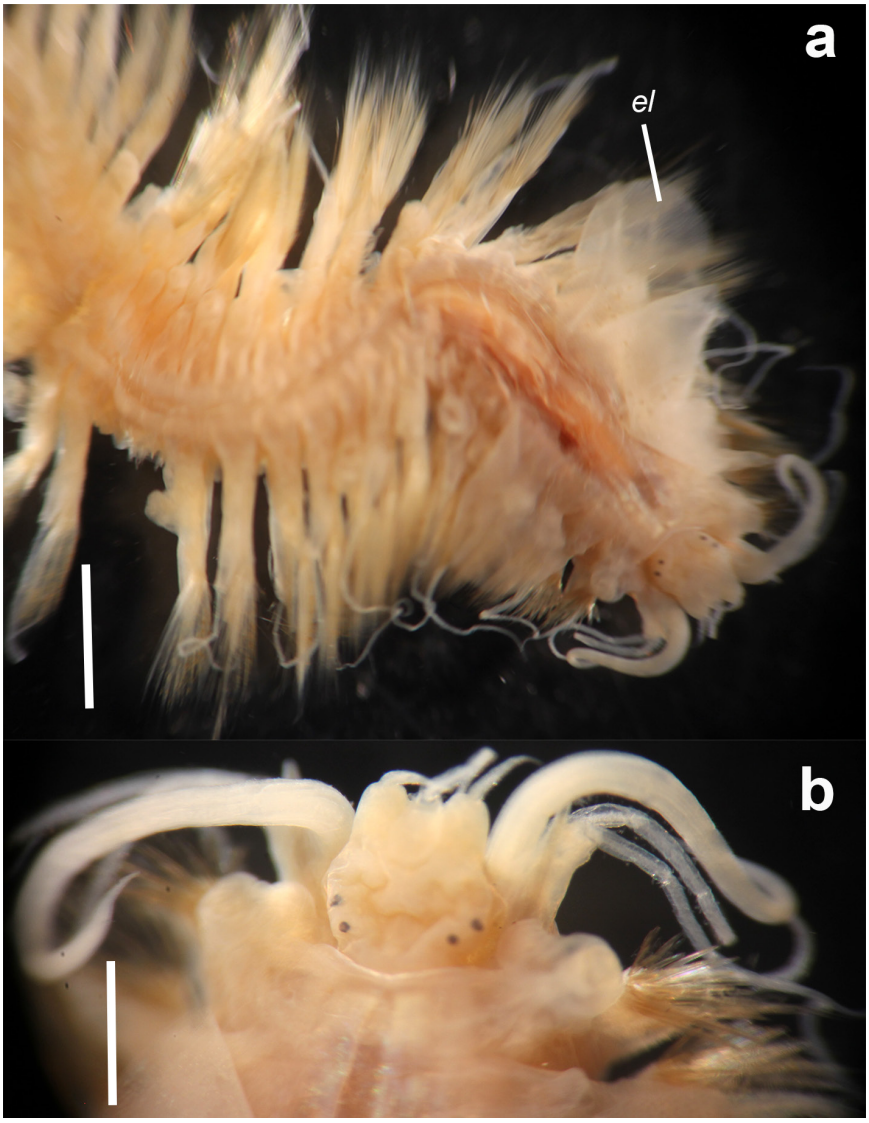

Fig. 4. *Kristianides cylindricum* sp. nov., holotype USNM 075622. a, Dorsal view of anterior region, showing some elytra still attached (*el*); b, prostomium showing segment two without projections. Scale bars: a = 1.33 mm; b = 0.70 µm.

The new species can be distinguished by the combination of their prostomium, ornamentation of its elytra, presence of a pair of ventral lamellae laterally on each segment, which are not frequent in the species of Polynoidae.

DISCUSSION

The ventral lamellae are consistent structures and are not likely related to fixation or preservation. In *Kristianides cylindricum* n. sp, they begin from segment

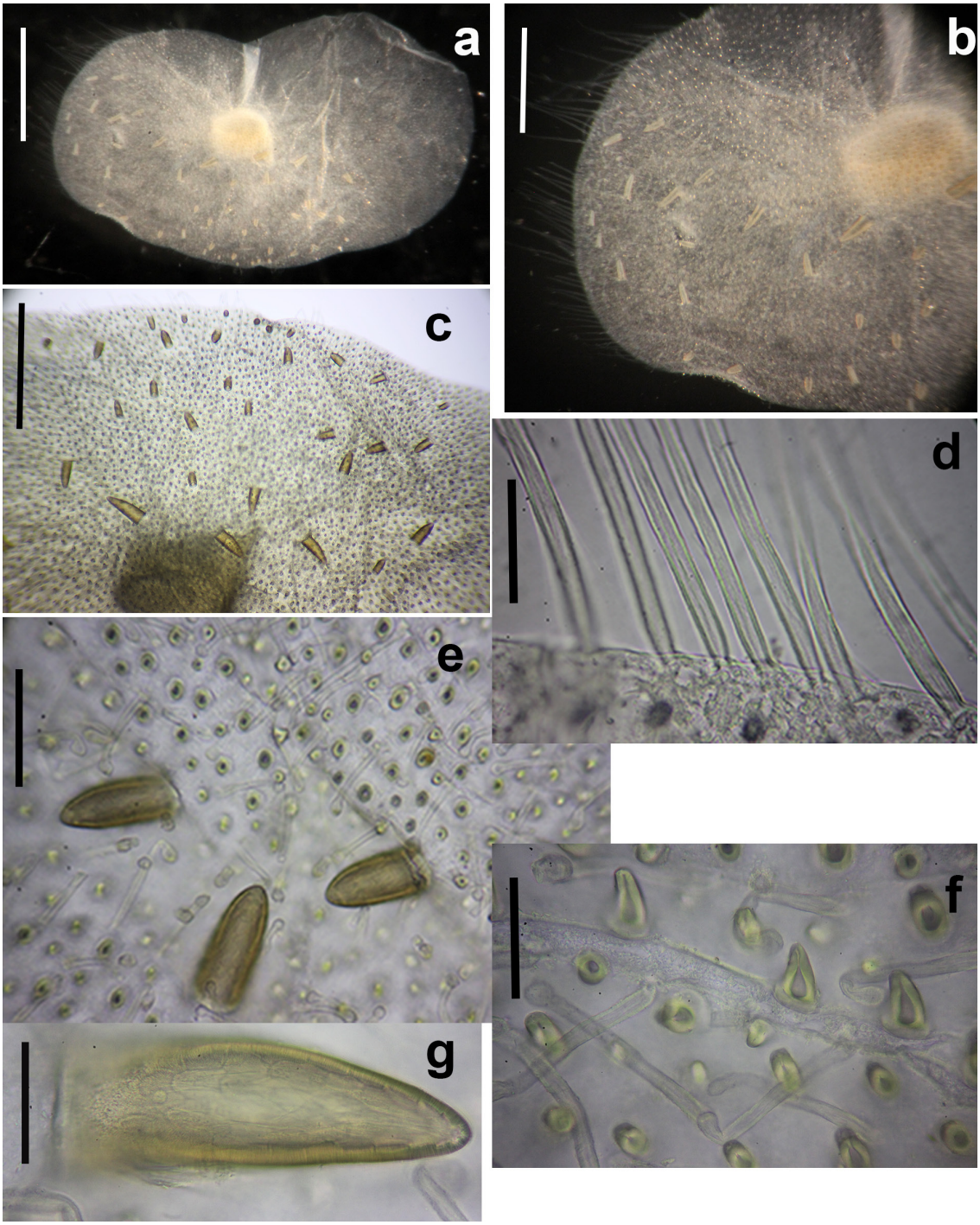

Fig. 5. *Kristianides cylindricum* sp. nov., holotype USNM 075622. a, b, elytra of middle segments, showing fringe and tubercles; c, close-up of elytral surface, showing macrotubercles; d, elytral margin, showing fringe of papillae; e, g, macrotubercles sclerotized cylindrical; f, microtubercles sclerotized, and papillae with globular tips. Scale bars: a = 830 µm; b = 463.71 µm; c = 511.72 µm; d, e = 125 µm; f = 37 µm; g = 38 µm.

3 (parapodia two), which suggests they are not size-dependent. These ventral lamellae are also present in *Gastrolepidia* Schmarda, 1861, *Paralepidonotus* Horst, 1915, *Phyllohartmania* Pettibone, 1961 and *Branchinotogluma* Pettibone, 1985 after Zhou et al. (2018).

Sexual dimorphism has been reported in *Branchinotogluma* a deep-sea polynoids with ventral parapodial lamellae (Van Dover et al. 1999; Jollivet et al. 2000; Zhang et al. 2018b), showing differences

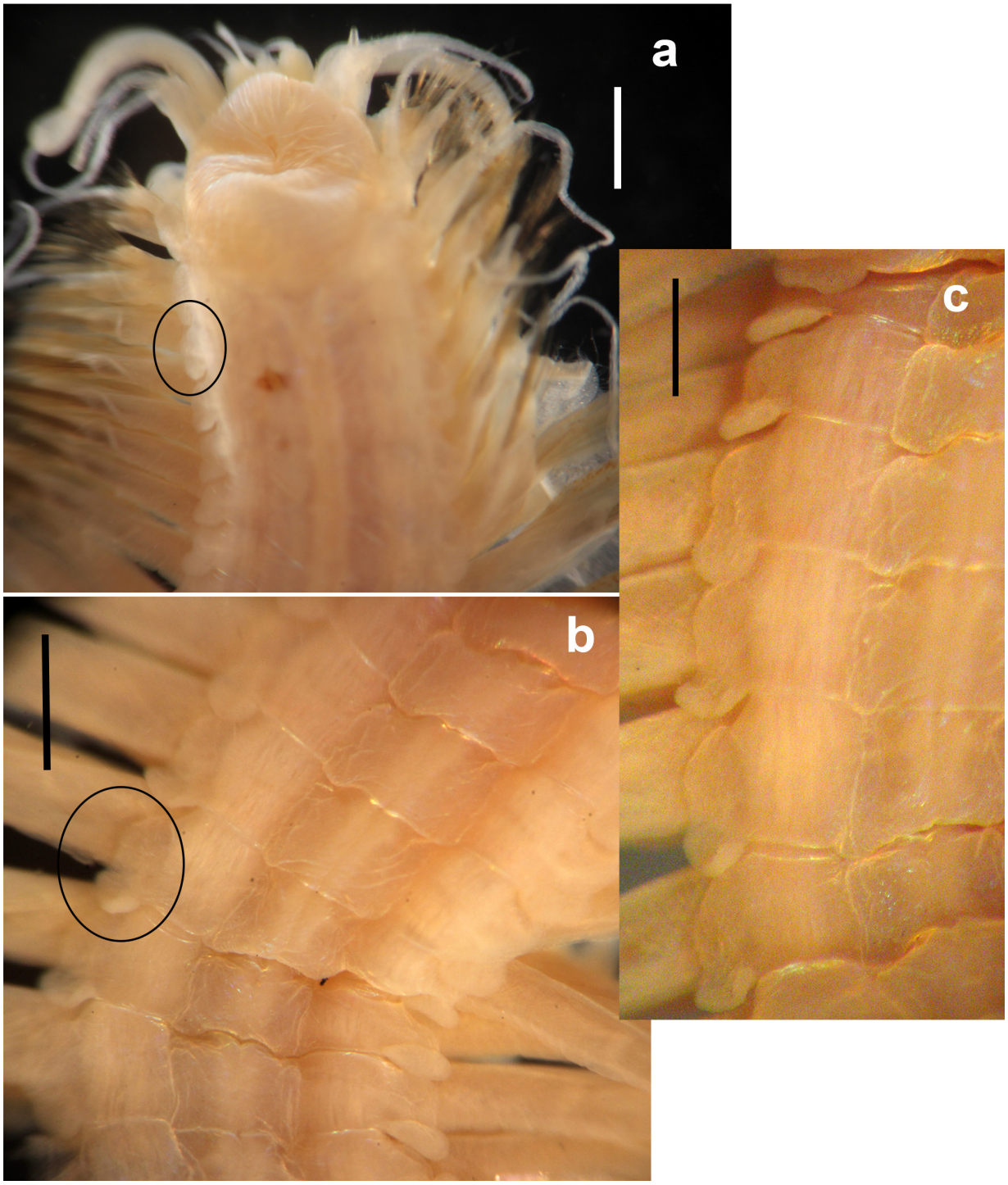

Fig. 6. *Kristianides cylindricum* sp. nov., holotype USNM 075622. a, Anterior region, ventral view, showing lamellae, b, c, median segments, ventral view, showing lamellae. Scale bars: a = 0.984 mm; b = 0.647 mm; c = 0.492 mm.

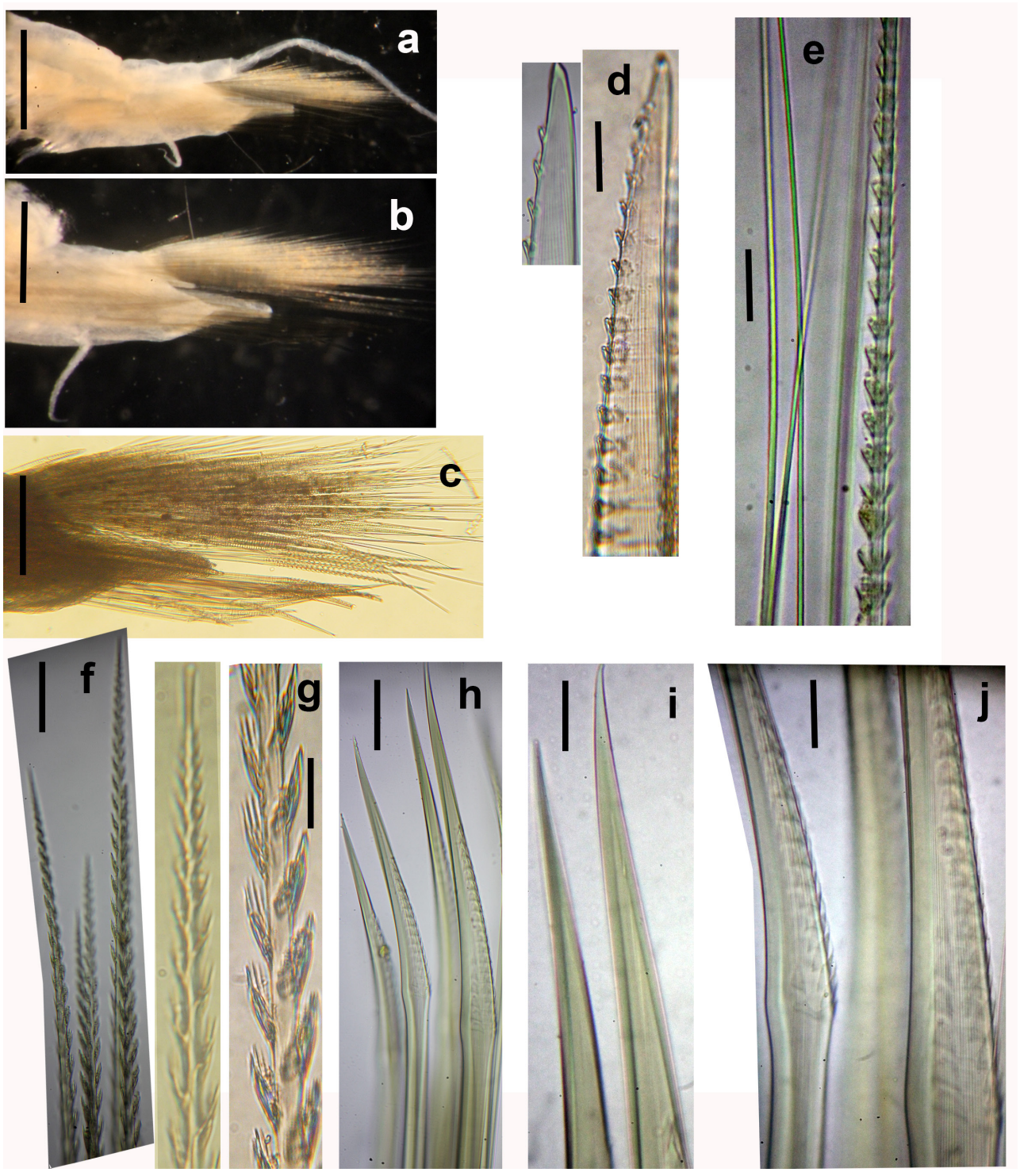

Fig. 7. *Kristianides cylindricum* sp. nov., holotype USNM 075622. a, Parapodium left showing dorsal cirri; b, parapodium left without cirrophore and abundant notochaetae; c, parapodium showing notochaetae and neurochaetae; d, thick notochaetal tips; e, spinulose region of slender bpnotochaetae; f, supraacicular neurochaetal tips; g, spines of supraacicular neurochaetae; h, neurochaetae, complete; i, neurochaetal tips; j, neurochaetal base showing rows of spines. Scale bars: a, b = 510 µm; c = 520 µm; d, e, g, i, j = 50 µm; f, h = 100 µm.

in the number of prominent nephridial papillae and lamellae. On shallow-water polynoids with pairs of ventral lamellae laterally on each segment, the sexual dimorphism has not been recognized but nephridial papillae are elongated during sexual maturation of oocytes and these regress when oocytes are released after spawning through these papillae (Van Dover et al. 1999; Jollivet et al. 2000).

CONCLUSIONS

This study corroborates the identity of unpublished specimens of *Phyllohartmania taylori*, the record of this species and its range of distribution is expanded into the Gulf of Mexico (EU). This is relevant because *P. taylori* and many other species of Polychaetes, including Polynoids, have been described solely with one or several specimens, and their distributions are known only from the type locality.

Kristianides cylindricum gen. nov. and sp. nov. is established with one specimen, previously assigned to *P. taylori*. The apparent similarity between these species and many others Polynoids has been the reason for misidentifications and misclassifications, and that new species remains undescribed and unknown. This study shows that it is still necessary to revise the descriptions of species described long ago and specimens deposited in collections.

This research contributes to the knowledge of a new species with ventral lamellae and corroborates their presence in *P. taylori*. To date the ventral lamellae function is unknown, its presence in species of different subfamilies of Polynoidae, some of them restricted to the deep sea (*Branchinotogluma*) lead us to believe that the ventral lamellae are the result of convergence, though further investigations should be performed. *Phyllohartmania taylori* and *K. cylindricum* sp. nov. share similar environments, but the others polynoids with lamellae share similar lifestyles and are commensal species.

Taxonomic Key to genus of Eulagiscinae

Based on Pettibone 1967 1997; Bonifácio and Menot 2019; and this study.

1. Nuchald fold absent 2
- Nuchald fold present 3

2(1) Two pairs of eyes well defined, facial tubercle absent, ventral lamellae at base of parapodia ..... *Kristianides* gen. nov.
- One pair of eyes as opaque or whitish ocular areas, facial tubercle bulbous, ventral lamellae absent .... *Bathymoorea* Pettibone, 1967:10.

3(1) 16 pairs of elytra; elytra smooth, without tubercles or papillae; facial tubercle absent, tentaculophores without projecting acicular lobe ..... *Pareulagisca* Pettibone 1997:548.
- 15 pairs of elytra; elytra with tubercles or papillae; Facial tubercle bulbous, tentaculophores with projecting acicular lobe .. .. *Eulagisca* McIntosh, 1885:91.

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