

## *Ceuthonoe nezhai* gen. et sp. n. (Polynoidae: Polynoinae) commensal with sponges from Weijia Guyot, western Pacific

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### Abstract

*Ceuthonoe*, a new genus with type species *C. nezhai* sp. n. commensal with euplectellid glass sponge (Hexactinellida: Euplectellidae), is described and illustrated, based on the material collected from Weijia Guyot, western Pacific. The new genus is distinguished by a combination of characters: body with 32 segments; 14 pairs of elytra; prostomium with prominent cephalic peaks and facial tubercle; aciculae and chaetae on tentaculophores; biramous parapodium, each ramus with a long aciculum penetrating epidermis, without supra- or subacicular process; and noto- and neurochaetae with unidentate tips. *Ceuthonoe* gen. n. is mostly similar to genera of Polynoinae in morphology. However the phylogenetic analysis based on cytochrome c oxidase subunit I, 16S, 18S, and 28S genes suggested that this new genus was separated from the main branch of Polynoinae. The study also discussed the genera related to the new genus.

**Key words:** new genus, new species, Polynoidae, taxonomy

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### 1 Introduction

Polynoidae is one of the most diverse polychaete families, in the number of genera and species (Salazar-Vallejo et al., 2015; Bonifácio and Menot, 2019). It is widely distributed from the intertidal zone to the hadal zone (Paterson et al., 2009). Polynoids are characterized by having dorsoventrally flattened bodies, two palps, one to three antennae, elytrae on the dorsum and biramous parapodia with simple chaetae. Among approximately 900 polynoid species, more than 200 are known to be involved in about 550 associations with other marine invertebrates (Britayev et al., 2014; Martin and Britayev, 2018).

To date, about 58 genera have been included in the subfamily Polynoinae (Read and Fauchald, 2019). Most primitive species in Polynoinae are obligate symbionts with specific morphological adaptations (Serpetti et al., 2017; Taboada et al., 2020). Eight species (*Harmothoe hyalonemae* Martín, Rosell & Uriz, 1992; *H. spongicola* Hanley & Burke, 1991; *Hermadion fauveli* Gravier, 1918; *Hololepidella nigropunctata* (Horst, 1915); *Intoshella euplectellae* (McIntosh, 1885); *I. dictyaulus* Sui, Li & Kou, 2018; *Malmgreniella murrayensis* Pettibone, 1993a; *Neopolynoe acaneliae* (Verrill, 1881)) from six genera in Polynoinae are commensal with sponges (Martin and Britayev, 1998, 2018). The host-specificity of polynoids is not very high, and some species may also be commensal with other hosts, such as corals.

In May 2016, a sponge specimen (Hexactinellida: Lyssacinosida: Euplectellidae) was collected by the Chinese manned deep-sea submersible *Jiaolong* at a depth of 2 505 m from Weijia

Guyot, western Pacific. A pair of polynoids were separated from the inner cavity of the sponge. Following a detailed examination of the morphology and sequence comparisons of mitochondrial cytochrome c oxidase subunit I (COI) using the BLAST search in GenBank, a new species of Polynoinae was fully described and illustrated, and a new genus was proposed after morphological comparison and phylogenetic analysis.

### 2 Materials and methods

Four gene fragments (COI, 16S, 18S, and 28S) were used to infer the phylogenetic relationship of the new specimens with other polynoid scale worms. The non-coding 16S, 18S, and 28S gene sequences were aligned separately with MAFFT v.7.450 (Kato and Standley, 2013); COI gene sequences were aligned using the MUSCLE algorithm. The alignments were manually concatenated in Geneious R.11, resulting in a concatenated alignment of 4 054 bp: COI (552 bp), 16S (520 bp), 18S (1 953 bp), and 28S (1 029 bp). Nucleotide substitution models were selected based on the BIC criterion using jModelTest v. 2.1.10: GTR + F + I + G4 for COI and 16S, TN+F+R3 for 18S and TIM3+F+R3 for 28S. Sigalionidae and Acoetidae were selected as the outgroups based on previous studies (Zhang et al., 2018; Taboada et al., 2020). Maximum likelihood (ML) analyses were conducted in IQtree 1.6.10, with the bootstrap support values for each node determined using an ultrafast bootstrap algorithm for 100 000 replicates. Bayesian inference (BI) analyses were implemented in MrBayes v3.2 (Ronquist et al., 2012), with the substitution models re-

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placed by GTR+G+I. Two parallel chain runs were performed each for 2 000 000 generations, with topologies sampled at every 1 000 generations. Tracer v1.6 was used to estimate the burn-in value, visualize, and ensure convergence.

Two specimens were removed from the body cavity of the sponge (Hexactinellida: Lyssacinosa: Euplectellidae: *Placopogon* sp.) collected by submersible *Jiaolong*, from Weijia Guyot, the western Pacific in May 2016. The specimens were preserved in 95% ethanol, subsequently dissected, and examined under a stereomicroscope (Zeiss Discovery V20). Notochaetae and neurochaetae were dissected carefully from the body, observed and photographed under a microscope (Zeiss Axio Imager A2). For barcoding purposes, COI, 18S, 28S, and 16S genes were amplified and sequenced. DNA was extracted using a DNAeasy Tissue Kit (Qiagen) following the manufacturer's protocol. Primer pairs and PCR programmes used to amplify polynoid genetic markers were the same as those described by Zhou et al. (2019). GenBank accession numbers are presented in Table 1.

The type specimens are deposited in the Sample Repository of Second Institute of Oceanography (RSIO), Ministry of Natural Resources, Hangzhou, China.

### 3 Results

#### 3.1 DNA barcoding and phylogenetics

Pairwise GTR-corrected distances of COI between *Ceuthonoe* and non-*Ceuthonoe* genera, which averaged 27.50% (range 21.46%–33.74%), fell in the range of inter-generic genetic distance among non-*Ceuthonoe* genera (range 6.90%–38.31%, average 24.53%; Appendix Table A1). Both ML and BI analyses obtained similar topology, in which *Ceuthonoe nezhai* sp. n. clustered with an undescribed polynoid commensal to a carnivorous sponge *Chondrocladia verticillata* Topsent, 1920, Polynoidae sp. 2 ST-2019 (Taboada et al., 2020), forming a discrete lineage outside a clade composed of species from Arctonoinae, Lepidastheniinae, Lepidonotopodinae, Macellicephalinae, and Polynoinae (Fig. 1).

**Table 1.** List of taxa included in the phylogenetic analysis including the NCBI accession number

Family	Subfamily	Taxon	18S	28S	16SrRNA	COI
Acoetidae		<i>Panthalis oerstedii</i>	AY839572	JN852845	JN852881	AY839584
Iphionidae		<i>Iphione</i> sp.	JN852819	—	JN852886	JN852921
		<i>Thermiphione</i> sp.	JN852820	JN852849	JN852887	JN852922
Polynoidae	Polynoinae	<i>Ceuthonoe nezhai</i> gen. et sp. n.	—	MW063140	MW063141	MW064265
	Polynoinae	<i>Acholoe astericola</i>	AY839567	JN852850	JN852888	AY839576
	Lepidastheniinae	<i>Alentia gelatinosa</i>	AY839566	—	—	AY839577
	Polynoinae	<i>Antarctinoe ferox</i>	MG905039	—	MG905033	KJ676611.1
	Polynoinae	<i>Antinoe aequiseta</i>	—	—	—	MH337356.1
	Polynoinae	<i>Antipathipolyeunoa</i> sp.	KU738169	KU738184	KU738149	KU738202.1
	Polynoinae	<i>Austrolaenilla antarctica</i>	—	—	KJ676606	KJ676627.1
	Macellicephalinae	<i>Bathykurila guaymasensis</i>	DQ074765	—	MG905034	DQ074766
	Macellicephalinae	<i>Branchinotogluma sandersi</i>	JN852821	JN852851	JN852889	JN852923
	Macellicephalinae	<i>Branchipolynoe symmytilida</i>	—	—	AF315055	AY646021
	Polynoinae	<i>Brychionoe</i> sp.	KU738182	KU738200	KU738167	—
	Polynoinae	<i>Bylgides elegans</i>	JN852822	JN852852	JN852890	JN852924
	Polynoinae	<i>Bylgides sarsi</i>	JN852823	JN852853	JN852891	JN852925
	Arctonoinae	<i>Capitulatinoe cf. cupisetis</i>	KF919301	KF919302	KF919303	—
	Polynoinae	<i>Enipo torelli</i>	—	HQ023831	—	HQ023480.1
	Polynoinae	<i>Eunoe nodosa</i>	JN852824	JN852854	JN852892	JN852926
	Polynoinae	<i>Gastrolepidia clavigera</i>	JN852825	JN852855	JN852893	JN852927
	Polynoinae	<i>Gattyana ciliata</i>	AY894297	DQ790035	—	AY894312
	Polynoinae	<i>Gattyana cirrhosa</i>	JN852826	JN852856	JN852894	JN852928
	Macellicephalinae	<i>Gesiella jameensis</i>	Ky454403	Ky823476	Ky454412	Ky454429
	Polynoinae	<i>Gorgoniapolynoe corralophila</i>	KU738173	KU738189	KU738154	KU738208.1
	Polynoinae	<i>Grubeopolynoe tuta</i>	—	—	—	MF121411.1
	Lepidonotinae	<i>Halosydnella australis</i>	KY823449	KY823463	KY823480	KY823495
	Lepidonotinae	<i>Halosydna brevisetosa</i>	JN852827	JN852857	JN852895	AY894313
	Polynoinae	<i>Harmothoe glabra</i>	JN852828	JN852858	JN852896	JN852929
	Polynoinae	<i>Harmothoe imbricata</i>	AY340434	AY340400	AY340463	AY839580
	Polynoinae	<i>Harmothoe impar</i>	JN852829	JN852859	JN852897	JN852930
	Polynoinae	<i>Harmothoe oculinarium</i>	AY894299	JN852860	JN852898	AY894314
	Polynoinae	<i>Hermadion truncata</i>	—	—	—	MH242794.1
	Lepidonotinae	<i>Hermenia verruculosa</i>	JN852830	JN852861	JN852899	JN852931
	Lepidastheniinae	<i>Hyperhalosydna striata</i>	JN852831	JN852862	JN852900	JN852932
	Polynoinae	<i>Intoshella dictyaulus</i>	MG519807	—	—	MG519808.1
	Lepidastheniinae	<i>Lepidastenia elegans</i>	JN852832	JN852863	JN852901	JN852933
	Lepidonotinae	<i>Lepidonotus clava</i>	JN852833	JN852864	JN852902	JN852934
	Lepidonotinae	<i>Lepidonotus squamatus</i>	AY176290	JN852865	JN852903	AY894316

to be continued

Continued from Table 1

Family	Subfamily	Taxon	18S	28S	16SrRNA	COI
	Polynoinae	<i>Leucia violacea</i>	—	—	—	KX946860.1
	Polynoinae	<i>Malmgreniella mcintoshi</i>	JN852834	JN852866	JN852904	JN852935
	Polynoinae	<i>Melaneis loveni</i>	JN852835	JN852867	JN852905	JN852936
	Polynoinae	<i>Neopolynoe acanellae</i>	MN653050	MN653123	MN653064	MN656076
	Polynoinae	<i>Neopolynoe paradoxa</i>	JN852836	JN852868	JN852906	JN852937
	Polynoinae	<i>Neopolynoe chondrocladiae</i>	MN653051	MN653124	MN653092	MN656104
	Polynoinae	<i>Paradyte crinoidicola</i>	JN852837	JN852869	JN852907	JN852938
	Polynoinae	<i>Paralepidonotus ampulliferus</i>	JN852838	AF185164	JN852908	JN852939
Macellicephalinae		<i>Pelagomacellicephalo</i> cf. <i>iliffei</i> 2	KY454408	KY823474	KY454420	KY454435
Macellicephalinae		<i>Pelagomacellicephalo</i> cf. <i>iliffei</i> 3	KY454411	KY823475	KY454428	KY454443
Macellicephalinae		<i>Pelagomacellicephalo</i> cf. <i>iliffei</i> 4	KY454405	—	KY454416	KY454431
	Polynoinae	<i>Polyeunoa laevis</i>	KF713424	KU738193	KF713464	KU738213.1
	Polynoinae	<i>Polynoe scolopendrina</i>	JN852839	JN852870	JN852909	JN852940
	Polynoinae	<i>Robertianella synophthalma</i>	MN653053	MN653126	MN653122	MN656132
Lepidonotinae		<i>Thormora jukesii</i>	JN852840	JN852871	JN852910	JN852941
	Polynoidae ?	<i>Polynoidae</i> sp. 2 ST 2019	MN653052	MN653125	MN653121	MN656131
	Polynoinae	<i>Subadyte pellucida</i>	—	—	—	KX946868.1
Sigalionidae		<i>Neoleanira tetragona</i>	AY839570	JN852872	JN852911	AY839582
		<i>Psammolyce</i> sp.	JN852843	JN852877	JN852916	—
		<i>Sigalion bandaensis</i>	AB106254	AF185165	—	AY583699
		<i>Sigalion spinosus</i>	AY894304	DQ790062	—	AY894319
		<i>Sthenelais boa</i>	AY839575	DQ779711	DQ779635	AY839587
		<i>Sthenelais limicola</i>	JN852844	JN852878	—	—
		<i>Sthenelanella uniformis</i>	AY894306	DQ790064	—	AY894322

Note: — means the sequence was not reported.

### 3.2 Systematics

Family Polynoidae Kinberg, 1856

Genus *Ceuthonoe* gen. n.Type species. *Ceuthonoe nezhai* gen. et sp. n.

Generic diagnosis. Body short, with about 32 segments. Elytra 14 pairs, on segments 2, 4, 5, and 7, alternate segments to 23, 26, and 29. Elytra without fringed papillae and with conical micro-tubercles.

Prostomium bilobed, with two distinct cephalic peaks, with paired palps, and three antennae. Lateral antennae with ceratophores inserted ventrally; a prominent conical facial tubercle under the median antenna. Eyes two pairs. Pharynx with two pairs of hooked jaws without denticulation on the inner border. Tentaculophore with an aciculum and few chaetae. Second segment with first pair of elytra and biramous parapodia.

Parapodia biramous; noto- and neuropodia well-developed with elongate acicular lobes; tips of noto- and neuroacicula penetrating the epidermis. Notochaetae thicker than neurochaetae. Nephridial papillae bulbous.

Etymology. The genus name is a combination of the Greek words “Ceuth” meaning “hidden” and “noe” from “Polynoe”, a sea nymph of Greek mythology. It refers to the type species commensal with sponges. Gender: feminine.

Remarks. This new genus is unique in having a low number of segments, prominent cephalic peaks, facial tubercle, aciculae, and chaetae on the tentacular segment, long aciculae spines penetrating the epidermis.

The new genus may be confused with *Harmothoe*, which has neurochaetae with bidentate tips whereas *Ceuthonoe* gen. n. has neurochaetae with unidentate tips. The new genus is also superficially similar to *Antarctinoe* Barnich et al. 2006, *Bylgides* Chamberlin 1919, *Eunoe* Malmgren 1866, and *Gattiyana* McIntosh, 1897. They all have a low number of segments, cephalic peaks,

and a facial tubercle. *Antarctinoe* and *Bylgides* are distinguishable from the new genus by having a digitiform supra-acicular process on neuropodia. The new genus differs from *Eunoe* and *Gattiyana* in the form of chaetae. The distal tips of notochaetae of *Eunoe* are pointed and glabrous or blunt and split. Notochaetae of the new species have slightly curved, smooth tips. Neurochaetae of *Eunoe* are sturdy and have somewhat expanded and serrated subterminal parts, while that of the new genus are slender with tapering ends. Additionally, the neuropodia of *Eunoe* have a digitiform supra-acicular process (Wehe, 2006). Notochaetae of *Gattiyana* are thinner than neurochaetae, while notochaetae of the new genus are thicker than neurochaetae.

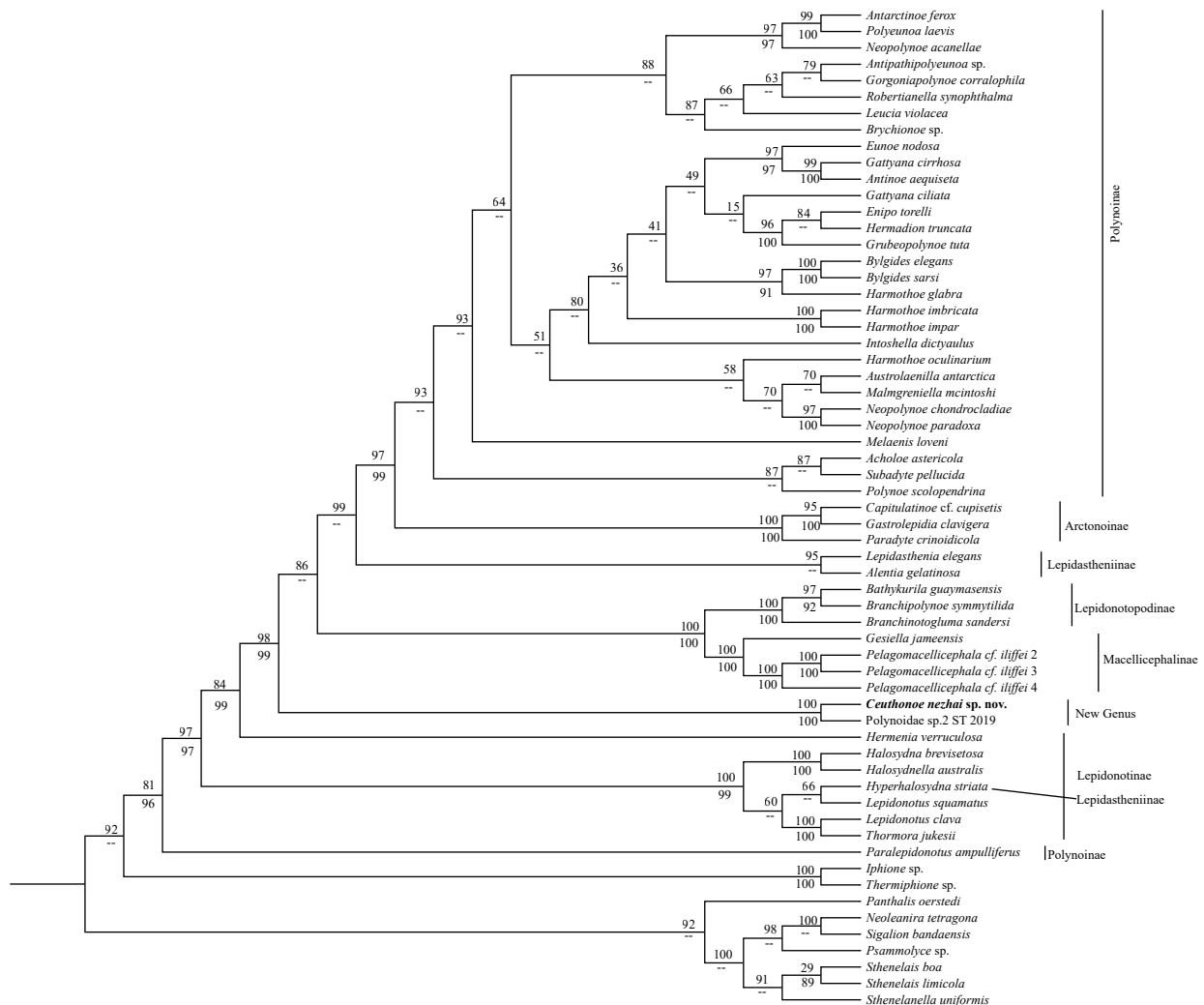
***Ceuthonoe nezhai* gen. et sp. n.**

(Figs 2 and 3)

Type material. Holotype: B6317500002, complete, Weijia Guyot, western Pacific Ocean, JL-Dive106, Station S3-1, 13.018 45°N, 156.948 00°E, 2 505 m depth, May 1, 2016. Paratype: B6317500004, one complete specimen, same collecting data as holotype.

Description. Holotype about 19.8 mm from the prostomium to the end of the body (without anal cirri), 2.7 mm wide at the widest part excluding parapodia (Fig. 2a). Paratype about 15.2 mm in length and 1.8 mm wide at the widest part excluding parapodia (Fig. 2b). Parapodia long and subequal to the width of corresponding segments. The following description is based on holotype and paratype.

Body short, with 32 segments, tapering posteriorly; the ventral side flattened and the dorsal side slightly convex. A deep longitudinal groove on the ventral side. Elytra 14 pairs, on segments 2, 4, 5, and 7, alternate segments to 23, 26, and 29. Elytra large, covering the dorsum except the middle part. Elytra oval in shape, without fringed papillae, with many conical microtubercles on surfaces (Figs 2c, 3c and d). Microtubercles near anterior and inner regions increasing in number and becoming larger. Dorsal



**Fig. 1.** Phylogeny of polynoids based on the concatenated alignments of four genes using BI and ML analyses, imposed on the consensus ML tree. Node supports are shown as ML bootstrap values (BP, above) and Bayesian posterior probabilities (PP, below). Nodes not recovered in the BI analysis are marked with --.

cirri and dorsal tubercles near each other, present on non-elytrigerous segments. Dorsal cirri composed of short cylindrical cirrophores and long styles, up to three times the length of the parapodia (Figs 2j and 3b).

Prostomium bilobed, wider than long, with distinct cephalic peaks and three antennae; ceratophore of median antenna in the anterior notch, lateral antennae with ceratophores inserted ventrally to median antenna (Figs 2d, e and 3a). Median antenna missing in both specimens. Styles of lateral antennae covered with short soft papillae (Fig. 2k). A pair of stout palps with smooth surface. A distinct conical facial tubercle under the ceratophore of the median antenna. Two pairs of eyes arranged in a reverse trapezium, posterolaterally on the widest part of the prostomium (Fig. 2f). Pharynx with two pairs of hooked jaws without denticulation on the inner border (Fig. 2l). Tentaculophores lateral to prostomium, each with a long projecting aciculum and many chaetae projecting anteriorly (Fig. 3a). Notochaetae similar to those in the following segments. Tentacular cirri shorter and thinner than palps.

Second segment with first elytra, biramous parapodia, and coiled ventral cirri longer than the following ones, without nuchal lobe. Parapodia biramous, with yellowish noto- and

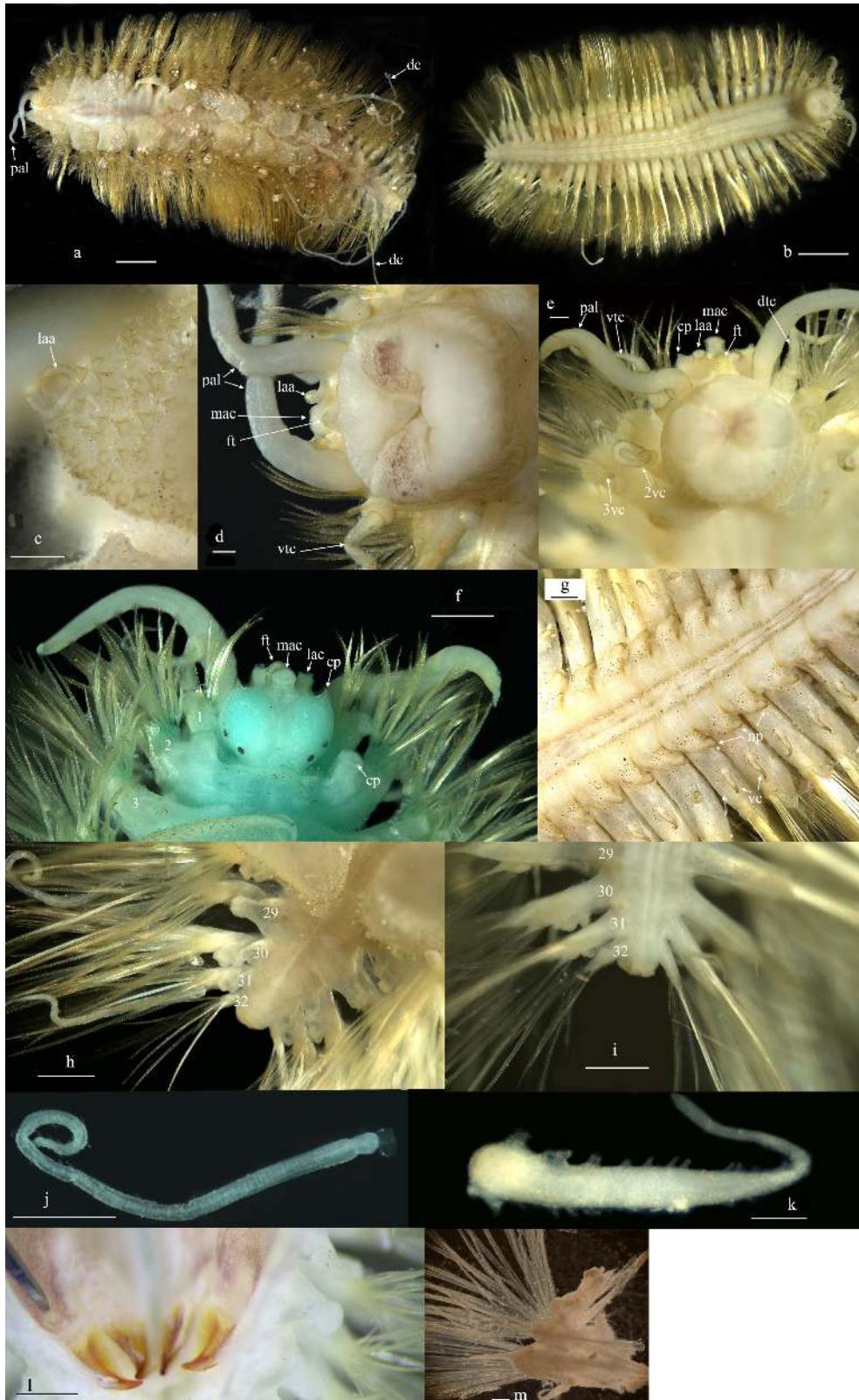
neuroaciculae and numerous chaetae (Figs 2m and 3b). Notopodium shorter than neuropodium, with a slender acicular lobe, and tip of aciculum penetrating epidermis (Fig. 3f). Notochaetae and neurochaetae the same from the anterior segments to the posterior end. Notochaetae stout, about 1.5 times as wide as neurochaetae. Notochaetae projecting dorsally, with numerous rows of spinules having slightly curved, smooth tips (Figs 2m and 3e). Neuropodium well developed, with obtuse postchaetal lobe and longer prechaetal acicular lobe, and tip of aciculum penetrating epidermis. The upper part of neurochaetae extending, wider than the shaft, with spinous regions. The tips of neurochaetae slightly curved and smooth (Fig. 3g). Ventral cirri short and less than half length of parapodia.

Nephridial papillae short bulbous, beginning on Segment 5. Anal cirri lost.

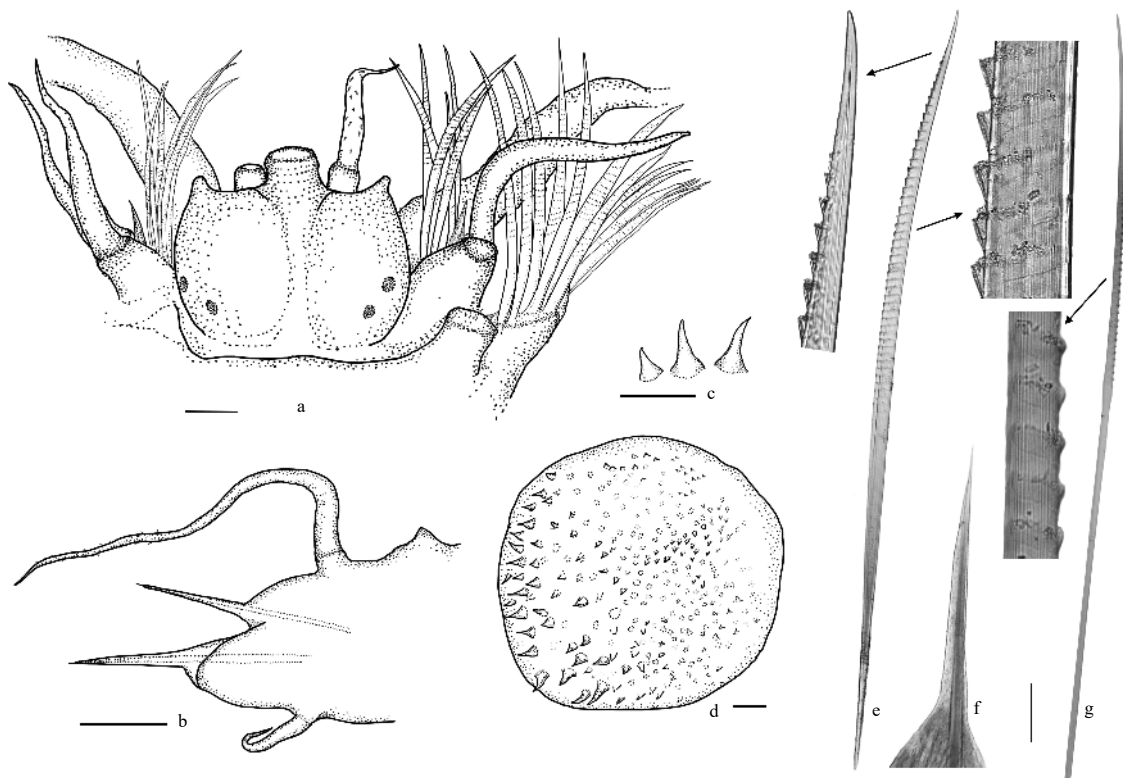
Pigmentation. Significant brown pigmentation on the ventral side of parapodia and body, especially on sides of the ventral groove. Tips of ventral cirri dark-brown. Pigmentation stable in alcohol-preserved specimens.

Type locality. Weijia Guyot, western Pacific.

Distribution. Only known from the type locality. Commensal with sponges.



**Fig. 2.** *Ceuthorhoe nezhai* gen. et sp. n.: Holotype, dorsal view (a), Paratype, ventral view (b), Elytra from Segment 2 (c), Appendages of prostomium from holotype and paratype (d and e), Dorsal view of prostomium (first pair of elytra removed) (f) Median segments, ventral view (g), anal segment, dorsal and ventral view (h and i), Dorsal cirrus (j), Lateral antenna (k), Dorsal view of jaws from paratype (l), and Parapodium of Segment 8, end view (m). dc: dorsal cirrus, dtc: dorsal tentacular cirrus, ep: elctrophore, ft: facial tubercle, laa: lateral antenna, lac: lateral antenna ceratophore, mac: median antenna ceratophore, np: nephridial papilla, pal: palp, vc: ventral cirrus, vtc: ventral tentacular cirrus, 2vc: ventral cirrus on Segment 2, and 3vc: ventral cirrus on Segment 3. Scale bars: 2.0 mm (a, b, k), 0.2 mm (c-e), 0.5 mm (f-j), and 1.0 mm (m).



**Fig. 3.** *Ceuthonoe nezhai* gen. et sp. n. Holotype. a. Prostomium, b. Parapodium of Segment 8 (chaetae omitted), end view, c. Tubercles on elytra, d. Elytra, e. Notochaeta and detailed view, f. Notoacicula, and g. Neurochaeta and detailed view. e–g are views under light microscope. Scale bars: 0.2 mm (a–d), 0.1 mm (e–g).

**Etymology.** The specific name is dedicated to Nezha, which is a Chinese mythological figure.

**Remarks.** Polynoids are often found to be associated with other invertebrates, such as sponges, corals, echinoderms, mollusks, and other polychaetes. Eight Polynoinae species (*Harmothoe hylonemae* from Western Mediterranean, 1 083–2 256 m; *H. spongicola* from Fairway Reefs, Coral Sea, 720 m; *Hermadion fauveli* from Cape Verde Islands, Atlantic Ocean; *Hololepidella nigropunctata*, widely distributed in Indo-west and central Pacific Ocean, 1–76 m; *Intoshella euplectellae* from Philippines, 184 m; *I. dictyaulus* from near the Mariana Trench, West Pacific, 890 m; *Malmgreniella murrayensis* from the South Arabian Coast, 38 m; *Neopolynoe acanellae* from east coast of the MA, USA) are reported commensal with sponges. *Ceuthonoe nezhai* sp. n. is similar to *Harmothoe* species in having distinct cephalic peaks, a facial tubercle, and lateral antennae inserted ventrally on the prostomium. However, the new species differs from the latter by possessing neurochaetae all with unidentate tips. *Hololepidella*, *Intoshella* and *Malmgreniella* species can also be easily distinguished from the new species by the number of segments, morphology of elytra, neurochaetae and prostomium. *Hololepidella nigropunctata* has 55 or more segments, with mostly smooth elytra, smooth dorsal cirri, and bidentate neurochaetae (Barnich et al., 2004; Wehe, 2006). *Intoshella* species has smooth elytra and no cephalic peaks. *Malmgreniella murrayensis* has 36 segments, no cephalic peaks, and bidentate neurochaetae. The new species is also closely related to species of *Bylgides* Chamberbin, 1919. They all have a small number of segments and elytrae, and aciculae on tentaculophores. They can be distinguished by the form of the chaetae and acicular lobes. Neurochaetae of *Bylgides* have long spinous regions and capillary tips, but the neurochaetae of

*Ceuthonoe nezhai* sp. n. have blunt tips. Long conical neuroacicular lobes of *Bylgides* have a supraacicular digitiform process, but the acicular lobes of *Ceuthonoe nezhai* sp. n. have no supraacicular or subacicular process. The new species is also very similar to genus *Neopolynoe* species in anterior body. The species of *Neopolynoe* are distinguishable from the new species by having numerous segments and naked dorsum of the posterior body. Comparisons of diagnostic morphological characteristics of closely related genera with those of the new genus are presented in Table 2.

#### 4 Discussion

Polynoidae is one of the most diverse polychaetes family having the highest number of species involved in symbiotic relationships (Britayev et al., 2014). To date, phylogenetic relationships within Polynoidae have not been fully resolved. Phylogenetic analyses conducted on a limited number of polynoid sequences indicate that Polynoinae is not a monophyletic group (Bonifácio and Menot, 2019; Taboada et al., 2020). The morphological characteristics of the new genus suggest that it should be a member of Polynoinae based on the diagnosis given by Wehe (2006). However, the results obtained from molecular phylogenetic analyses reveal that Polynoinae is a polyphyletic group. The new genus and *Paralepidonotus* are separated from the major clade of Polynoinae, which is intermingled with species of Arctonoinae, Lepidastheniinae, Lepidonotopodinae, and Macellicephalinae in the phylogenetic tree, indicating that a wider range of taxa and genetic marker sampling is needed for further revision of this clade. Members belonging to Arctonoinae have subbiramous parapodia and no chaetae on tentaculophores, while those belonging to the Polynoinae usually have chaetae on tentaculo-

**Table 2.** Morphological comparison of Genera related to *Ceuthonoe* gen. n. Unless otherwise indicated, character information is from original descriptions and illustrations

No.	Genus	Num. of segments— elytrae pairs	Facial tubercle	Chaetae on tentaculophore	Cephalic peaks	Bidentate tip of neurochaetae	supraacicular process	neuroacicula penetrating epidermis	Symbiotic relations	Ref.
1	<i>Antarctinoe</i>	<50; 15	+	+	+	-	+	+		Barnich et al. (2006)
2	<i>Australonoe</i> *	up to 39; 16	+	+	+	+	+	?		Hanley (1993)
3	<i>Bathynotalia</i> *	21; 11	?	-	+	-	-	-		Levenstein (1982)
4	<i>Bylgides</i>	up to 38; 14/15	?	+/-	+	-	+	?		Pettibone (1993b)
5	<i>Eucranota</i>	38–40; 15	?	?	+	+	?	?		Uschakov (1982)
6	<i>Eunoe</i>	34–40; 15	?	+/-	+/-	-	?	?	<i>E. opalina</i> commensal with Synallactida	Uschakov (1982)
7	<i>Gathyana</i>	34–40; 15	?	+/-	+/-	-	?	?	<i>G. spp.</i> commensal with other polychaetes	Uschakov (1982)
8	<i>Harmothoe</i>	up to 50; 15	+	+	+	+	+	+	<i>H. spp.</i> commensal with Aleyonacea, polychaete, decapod, Bivalve, Sponge	Barnich et al. (2006)
9	<i>Hermadion</i>	up to 50; 15	?	+	-	-	-	+		Bock et al. (2010)
10	<i>Hermedia</i>	26; 12	+	+	-	+	-	-		Pettibone (1975)
11	<i>Hololepidella</i>	>55; 20–55; less	?	+/-	+	+	?	?	commensal with Ochrophyta and Scleractinia	Wehe (2006)
12	<i>Intoshella</i>	up to 50; up to 23	-	+	-	+	+	?	commensal with Holothuroid, Sponge	Sui et al. (2019)
13	<i>Leucia</i>	up to 50; 16	-	+	+	+	+	+	<i>L. violacea</i> commensal with Scleractinia	Fiege and Barnich (2009)
14	<i>Malmgreniella</i>	up to 46; 14/15	?	+/-	-	+/-	+	?	<i>M. spp.</i> commensal with Holothuroid, Ophiuroid, Polychaete, Sipunculid, Echinoid, Asteroid, Cnidarian, Balanoglossid, Decapod and Sponge	Pettibone (1993a)
15	<i>Neopolynoe</i>	up to 59; 15	-	+/-	+	-	+	+	<i>N. acaneliae</i> commensal with Cnidarian and Sponge; <i>N.</i> <i>paradoxa</i> commensal with Cnidarian	Bock et al. (2010)
16	<i>Paralepidonotus</i>	36–41; 15	+	+	-	+/-	+/-	+/-		Hanley (1991)
17	<i>Parahalosydna</i>	reduced number of segments; 15	-	-	-	-	-	?		Jirkov (2001)
18	<i>Ceuthonoe</i> gen. n.	32; 14	+	+	+	-	-	+	commensal with glass sponge <i>Placopegia</i> sp.	this study

Note: + indicates with, - indicates without, ? indicates unknown information, and \* indicates monotypic genera. Symbiotic relations referencing to Martin and Britayev (1998, 2018).

phores and biramous parapodia (Barnich and Fiege, 2001). This new genus is more similar to a member of Polynoidea. Members of Lepidastheniinae are characterized by lateral antennae terminal, tentaculophores without chaetae, and reduced notopodia; notochaetae are usually missing (Salazar-Vallejo et al., 2015). The new genus is similar to *Parahalosydna* Horst, 1915 (Lepidastheniinae) in the number of segments and elytra. However, lateral antennae are in the terminal position in *Parahalosydna* and in the ventral position in the new genus. Subfamily Lepidonotopodinae was erected for genus *Lepidonotopodium* Pettibone (1983), characterized by having no lateral antennae. Bonifácio and Menot (2019) synonymized Lepidonotopodinae with Macellicephalinae based on the phylogenetic analysis of morphological and molecular datasets. Both subfamilies were characterized by the synapomorphic absence of lateral antennae. Hatch et al. (2020) analyzed the phylogenetic relationships of Branchinotogluminae, Branchiplicatinae, Branchipolynoidea, Lepidonotopodinae, *Bathykurila guaymasensis*, and *Levensteiniella* (described as Macellicephalinae). The results suggested that these taxa formed a well-supported clade. Therefore, the oldest subfamily name Lepidonotopodinae Pettibone 1983 was reinstated, including *Branchipolynoidea*, *Branchinotogluma*, *Bathykurila*, *Branchiplicatus*, *Lepidonotopodium*, *Levensteiniella*, *Thermopolynoidea*, and *Peinaleopolynoidea*. Our result showed that these two subfamilies were sister groups with robust support (Fig. 1). Lepidonotinae has a fixed number of segments (26) or more (up to 70 and more), with lateral antennae inserted terminally or subterminally on the prostomium. This new genus is closely related to the short-bodied genus *Hermeria* belonging to Lepidonotinae. Both of them have chaetae on the tentacular segment and a bulbous facial tubercle. Parapodia of *Hermeria* are subbiramous with reduced notopodia forming small lobes on the anterodorsal faces of stout neuropodia, while those of the new genus are biramous with normal-sized notopodia. Neurochaetae of *Hermeria* are stout, with falcate tips and 1 or 2 stout teeth. Neurochaetae of the new genus have unidentate tips. According to the taxonomic revision of Wehe (2006), the new genus is similar to the genera *Eunoe* and *Harmothoe*; they all have cephalic peaks, ventrally inserted lateral antennae, and chaetae on tentaculophores. Their differences are discussed in remarks on the new genus.

Symbiotic relationships between annelid polychaetes and other marine invertebrates are common; approximately 45% of all known commensal species belong to Polynoidea Kinberg, 1856 (Taboada et al., 2020). The species Polynoidea sp. 2 ST-2019 reported by Taboada et al. (2020) may also be included in this new genus owing to its close molecular phylogenetic relationship with *Ceuthonoe nezhai* gen. et sp. n. Both of them are similar in morphological characteristics. Polynoidea sp. 2 ST-2019 was collected in association with carnivorous sponge *Chondrocladia verticillata* from the Gulf of Mexico, while *Ceuthonoe nezhai* gen. et sp. n. was collected in association with sponge *Placopegma* sp. More findings are needed to clarify the aforementioned relationships.

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## Appendix:

Table A1. GTR corrected distance between genera

	<i>Acholoe astericola</i>	<i>Alentia gelatinosa</i>	<i>Antarctinoe ferox</i>	<i>Antinoe aequisetata</i>	<i>Antipathipoly-eunoa</i> sp.	<i>Austrolaenilla antarctica</i>	<i>Bathykurila guaymasensis</i>	<i>Branchinotog-luma sandersi</i>	<i>Branchipolynoe symmytilida</i>	<i>Bylgides elegans</i>	<i>Enipio torelli</i>
<i>Acholoe astericola</i>	0.269 511 76										
<i>Alentia gelatinosa</i>	0.231 803 84	0.240 436 13									
<i>Antarctinoe ferox</i>	0.230 661 56	0.240 084 59	0.238 238 74								
<i>Antinoe aequisetata</i>	0.223 309 43	0.224 370 71	0.196 251 31	0.200 569 18							
<i>Antipathipolyeunoa</i> sp.	0.202 646 68	0.236 284 87	0.185 219 68	0.194 404 15	0.195 290 08						
<i>Austrolaenilla antarctica</i>	0.274 921 18	0.337 522 95	0.287 268 84	0.287 884 17	0.294 589 25	0.270 288 77					
<i>Bathykurila guaymasensis</i>	0.281 914 74	0.271 519 12	0.270 206 93	0.260 584 28	0.270 202 27	0.244 822 91	0.252 109 06				
<i>Branchinotog-luma sandersi</i>	0.309 160 94	0.284 317 45	0.271 797 33	0.315 925 49	0.289 288 93	0.252 788 07	0.227 130 61	0.283 901 42			
<i>Branchipolynoe symmytilida</i>	0.226 497 14	0.226 630 04	0.211 128 53	0.222 389 21	0.220 205 22	0.186 782 59	0.299 272 87	0.246 542 57	0.319 554 30		
<i>Bylgides elegans</i>	0.214 481 27	0.267 762 17	0.221 269 04	0.177 320 96	0.237 277 14	0.201 776 54	0.300 720 36	0.255 073 55	0.347 967 32	0.198 563 52	
<i>Enipio torelli</i>	0.197 076 00	0.266 600 16	0.199 355 95	0.167 388 09	0.179 691 39	0.183 210 39	0.277 403 25	0.236 569 86	0.298 012 57	0.219 793 65	0.173 788 99
<i>Eunoe nodosa</i>	0.242 957 88	0.290 416 73	0.259 805 33	0.237 094 81	0.244 147 70	0.215 785 44	0.287 618 36	0.291 316 93	0.329 487 16	0.246 373 89	0.240 090 99
<i>Gastrolepidia clavigera</i>	0.212 864 51	0.244 646 38	0.239 538 42	0.122 068 74	0.176 761 36	0.184 642 70	0.269 115 61	0.267 278 54	0.287 962 53	0.200 045 79	0.204 698 22
<i>Gattyana cirrhosa</i>	0.193 333 76	0.260 437 08	0.192 422 22	0.188 417 29	0.135 026 24	0.166 976 60	0.268 311 74	0.282 361 87	0.280 199 88	0.223 725 86	0.173 564 55
<i>Gorgoniapolynoe corrallophila</i>	0.220 858 89	0.267 683 01	0.198 286 67	0.195 345 06	0.195 528 71	0.175 008 95	0.288 466 02	0.241 374 59	0.303 052 61	0.188 509 19	0.165 281 12
<i>Grubeopolynoe tuta</i>	0.246 788 18	0.238 669 65	0.242 028 98	0.233 554 11	0.245 726 78	0.230 254 20	0.301 610 36	0.249 249 98	0.296 928 61	0.227 365 33	0.234 313 35
<i>Halosydna brevisetosa</i>	0.192 352 03	0.244 530 07	0.216 255 57	0.191 693 62	0.209 978 24	0.184 001 30	0.280 242 77	0.275 991 52	0.294 245 75	0.170 236 82	0.214 601 17
<i>Harmothoe glabra</i>	0.229 504 67	0.251 499 76	0.219 228 82	0.159 241 33	0.208 486 08	0.190 918 68	0.308 311 79	0.293 185 09	0.322 352 42	0.232 435 32	0.156 596 02
<i>Hermadion truncata</i>	0.305 168 84	0.269 749 68	0.256 179 24	0.295 978 15	0.281 563 30	0.282 018 94	0.344 430 19	0.280 998 35	0.337 009 88	0.291 506 20	0.284 984 95
<i>Hermenia verruculosa</i>	0.273 750 83	0.231 817 83	0.235 834 70	0.278 617 54	0.244 322 85	0.241 693 28	0.307 256 22	0.264 947 19	0.309 317 45	0.235 659 74	0.268 375 32
<i>Hyperhalosydna striata</i>	0.194 629 57	0.265 175 37	0.216 771 35	0.221 247 99	0.189 103 76	0.196 123 93	0.279 661 45	0.281 273 84	0.268 856 26	0.215 814 17	0.197 426 94
<i>Intoshella dicyatulus</i>	0.316 665 68	0.361 590 51	0.331 609 20	0.334 787 72	0.317 127 13	0.306 283 23	0.299 539 01	0.309 792 58	0.294 255 56	0.383 103 97	0.344 926 36
<i>Iphione</i> sp.	0.258 976 51	0.227 797 27	0.207 000 92	0.243 207 28	0.212 362 65	0.178 575 62	0.285 072 42	0.277 965 74	0.300 226 39	0.237 199 40	0.259 237 35
<i>Lepidasthenia elegans</i>	0.247 554 50	0.242 824 25	0.208 851 81	0.243 305 83	0.213 591 09	0.187 816 39	0.288 998 41	0.246 952 91	0.305 522 14	0.233 925 37	0.261 132 73
<i>Lepidomotus clava</i>	0.194 010 48	0.243 055 26	0.226 959 85	0.194 385 23	0.166 102 50	0.175 617 13	0.260 462 13	0.246 952 91	0.297 629 16	0.209 694 44	0.186 552 32
<i>Leucia violacea</i>	0.232 223 17	0.246 995 25	0.202 821 73	0.185 027 50	0.193 855 30	0.158 548 82	0.285 923 59	0.275 636 02	0.318 913 51	0.201 501 20	0.198 394 53
<i>Malmgreniella mcintoshi</i>	0.244 679 84	0.246 257 21	0.232 654 72	0.179 744 00	0.195 361 77	0.189 717 60	0.274 822 25	0.242 988 83	0.296 000 19	0.218 078 70	0.190 774 79
<i>Melaenais loveni</i>	0.211 068 22	0.287 160 42	0.187 489 18	0.213 484 61	0.204 421 34	0.170 350 44	0.290 913 03	0.258 700 07	0.277 083 64	0.210 487 41	0.177 050 14
<i>Neopolynoe paradoxa</i>	0.207 096 61	0.276 264 54	0.216 611 69	0.187 294 12	0.169 536 94	0.185 016 15	0.258 660 71	0.243 733 42	0.281 107 32	0.185 766 25	0.213 930 20
<i>Paradyte crinoitidicola</i>	0.274 653 67	0.298 324 79	0.259 376 15	0.271 419 99	0.235 694 85	0.258 323 07	0.294 102 04	0.288 761 42	0.303 365 44	0.244 609 84	0.286 540 02
<i>Paralepidonotus ampulliferus</i>	0.258 812 32	0.261 462 18	0.186 313 11	0.190 165 03	0.171 548 02	0.221 625 88	0.287 715 35	0.264 763 76	0.312 900 01	0.221 275 26	0.240 161 40
<i>Polyeunoe laevis</i>	0.230 075 01	0.232 860 97	0.227 610 52	0.245 412 48	0.246 152 12	0.216 098 89	0.304 536 93	0.288 410 09	0.294 613 49	0.234 203 21	0.233 852 75
<i>Polynoe scolopendrina</i>	0.204 346 96	0.260 655 32	0.240 490 63	0.235 773 84	0.219 236 64	0.217 392 50	0.301 267 81	0.313 934 90	0.305 682 76	0.236 602 34	0.243 015 01
<i>Subadyte pellucida</i>	0.283 893 21	0.249 393 81	0.255 527 20	0.294 418 02	0.277 039 43	0.248 392 38	0.300 535 92	0.291 855 58	0.288 677 19	0.285 407 60	0.272 284 18
<i>Thermiphione</i> sp.	0.266 083 22	0.256 615 03	0.256 609 22	0.283 712 09	0.258 401 10	0.279 393 90	0.308 337 30	0.282 862 82	0.333 650 04	0.263 473 57	0.275 364 88
<i>Thornora.jukesii</i>											

to be continued

Continued from Table A1

<i>Ceuthonoe nezhai</i> gen. et sp. n.	<i>Acholoe</i> <i>astericola</i>	0.277 990 39	0.235 979 10	0.249 207 93	0.300 987 09	0.281 188 34	0.243 551 99	0.337 392 74	0.274 951 94	0.324 302 20	0.247 913 46	0.300 167 41
<i>Gesiella jameensis</i>	<i>Alentia</i> <i>gelatinosa</i>	0.252 124 85	0.300 859 60	0.272 240 16	0.239 164 15	0.279 897 28	0.221 936 89	0.272 362 16	0.308 544 64	0.290 703 32	0.279 877 94	0.249 943 21
<i>Pelagomacellitcephala</i> cf. <i>iliffi</i> 2	0.264 930 78	0.258 735 24	0.276 788 20	0.287 890 34	0.248 698 64	0.248 698 64	0.278 013 05	0.330 923 79	0.310 294 94	0.345 141 98	0.299 767 44	0.284 886 32
<i>Halosydnella australis</i>	0.252 941 22	0.234 158 89	0.244 374 41	0.236 259 02	0.242 185 79	0.242 185 79	0.256 159 53	0.288 168 04	0.237 212 48	0.267 194 41	0.237 171 24	0.251 627 76
Polynoidae sp. 2 ST 2019	0.253 565 13	0.247 879 10	0.231 397 79	0.287 037 04	0.257 491 59	0.257 491 59	0.256 217 50	0.302 787 53	0.285 703 69	0.284 474 27	0.253 523 10	0.271 653 55
<i>Robertianella synophthalma</i>	0.210 912 34	0.220 457 62	0.203 697 34	0.194 457 67	0.172 252 91	0.172 252 91	0.182 272 99	0.272 772 77	0.254 813 47	0.286 825 3	0.208 351 71	0.169 457 35
<i>Eumoe nodosa</i>												
<i>Gastrolepidia clavigera</i>	<i>Gastrolepidia</i> <i>clavigera</i>						<i>Halosydna</i> <i>brevisetosa</i>	<i>Harmothoe</i> <i>glabra</i>	<i>Hermadion</i> <i>truncata</i>	<i>Hermenia</i> <i>verruculosa</i>	<i>Hyperhalosydna</i> <i>striata</i>	<i>Intoshella</i> <i>dictyaulus</i>
<i>Acholoe astericola</i>	<i>Alentia gelatinosa</i>	<i>Antarctinoe ferox</i>	<i>Antinoe aequisetata</i>	<i>Antipathipolyeumoa</i> sp.	<i>Austrolaenilla antarctica</i>	<i>Bathykurila guaymasensis</i>	<i>Branchinotog-luma sandersi</i>	<i>Branchipolynoe symmytilida</i>	<i>Byligides elegans</i>	<i>Enipo torelli</i>	<i>Eumoe nodosa</i>	<i>Gastrolepidia clavigera</i>
<i>Gatiyana cirrhosa</i>	<i>Gorgonia-polyinoe corralophila</i>	<i>Gorgonia-cirrhosa</i>	<i>Gorgonia-polyinoe corralophila</i>	<i>Grubeopolynoe tuta</i>	<i>Halosydna brevisetosa</i>	<i>Harmothoe glabra</i>	<i>Hermadion truncata</i>	<i>Hermenia verruculosa</i>	<i>Hyperhalosydna striata</i>	<i>Intoshella dictyaulus</i>	<i>Iphione</i> sp.	<i>Lepidasthenia elegans</i>
<i>Gastrolepidia clavigera</i>	0.230 553 42	0.176 298 19	0.234 438 00	0.182 612 24	0.198 853 27	0.177 961 08	0.184 155 78	0.221 042 24	0.182 638 65	0.204 819 49	0.253 316 97	0.248 028 91
<i>Gorgoniapolyinoe corralophila</i>	0.182 612 24	0.198 853 27	0.177 961 08	0.184 155 78	0.221 042 24	0.182 638 65	0.204 819 49	0.252 711 79	0.286 497 41	0.253 979 65	0.236 245 97	0.252 711 79
<i>Grubeopolynoe tuta</i>	0.252 711 79	0.286 497 41	0.253 979 65	0.236 245 97	0.247 410 81	0.203 279 96	0.157 801 96	0.191 495 70	0.248 724 62	0.187 712 73	0.175 291 04	0.191 894 05
<i>Halosydna brevisetosa</i>	0.191 495 70	0.248 724 62	0.187 712 73	0.175 291 04	0.203 279 96	0.157 801 96	0.157 801 96	0.191 894 05	0.223 757 95	0.185 233 86	0.208 363 62	0.286 394 57
<i>Harmothoe glabra</i>	0.286 394 57	0.313 060 00	0.296 280 09	0.276 232 50	0.247 410 81	0.203 279 96	0.157 801 96	0.286 394 57	0.313 060 00	0.296 280 09	0.276 232 50	0.260 873 72
<i>Hermadion truncata</i>	0.260 873 72	0.277 651 58	0.249 057 91	0.260 622 67	0.223 436 46	0.223 436 46	0.172 953 66	0.260 873 72	0.277 651 58	0.249 057 91	0.260 622 67	0.183 429 46
<i>Hermenia verruculosa</i>	0.183 429 46	0.225 124 80	0.197 763 21	0.190 982 56	0.172 953 66	0.172 953 66	0.190 982 56	0.183 429 46	0.225 124 80	0.197 763 21	0.190 982 56	0.324 520 94
<i>Hyperhalosydna striata</i>	0.324 520 94	0.331 518 98	0.315 205 02	0.313 046 18	0.294 201 05	0.294 201 05	0.310 234 10	0.324 520 94	0.331 518 98	0.315 205 02	0.313 046 18	0.223 113 99
<i>Intoshella dicyaulus</i>	0.223 113 99	0.256 619 95	0.203 475 14	0.211 745 18	0.209 645 53	0.209 645 53	0.197 876 74	0.223 113 99	0.256 619 95	0.203 475 14	0.211 745 18	0.204 499 44
<i>Iphione</i> sp.	0.204 499 44	0.254 313 36	0.224 049 89	0.213 950 69	0.207 991 33	0.207 991 33	0.231 825 58	0.204 499 44	0.254 313 36	0.224 049 89	0.213 950 69	0.194 010 48
<i>Lepidasthenia elegans</i>	0.194 010 48	0.243 055 26	0.226 959 85	0.194 385 23	0.166 102 50	0.166 102 50	0.175 617 13	0.194 010 48	0.243 055 26	0.226 959 85	0.194 385 23	0.196 958 40
<i>Lepidonotus clava</i>	0.196 958 40	0.242 155 33	0.207 399 27	0.159 617 90	0.198 844 16	0.198 844 16	0.211 095 15	0.196 958 40	0.242 155 33	0.207 399 27	0.159 617 90	0.199 703 28
<i>Leucita violacea</i>	0.199 703 28	0.224 598 57	0.188 333 16	0.173 354 66	0.185 409 05	0.185 409 05	0.235 414 95	0.199 703 28	0.224 598 57	0.188 333 16	0.173 354 66	0.258 211 50
<i>Malimgreniella mcintoshi</i>	0.258 211 50	0.287 408 57	0.195 908 72	0.258 211 50	0.287 408 57	0.195 908 72	0.258 211 50	0.258 211 50	0.287 408 57	0.195 908 72	0.258 211 50	0.218 006 00
<i>Melaenis loventi</i>	0.218 006 00											

to be continued

Continued from Table A1

	<i>Eunoe nodosa</i>	<i>Gastrolepidia clavigera</i>	<i>Gattyana cirrhosa</i>	<i>Gorgonia-polyneae corrallophila</i>	<i>Grubeopolynoe tuta</i>	<i>Halosydna brevisetosa</i>	<i>Harmothoe glabra</i>	<i>Hermadion truncata</i>	<i>Hermenia verruculosa</i>	<i>Hyperhalosydna striata</i>	<i>Intoshella dictyaulus</i>
<i>Neopolynoe paradoxa</i>	0.217 263 64	0.240 369 26	0.214 145 35	0.146 993 96	0.183 532 45	0.213 418 75	0.203 498 14	0.191 350 88	0.279 434 65	0.245 411 80	0.222 117 69
<i>Paradyte crinoideola</i>	0.175 448 28	0.221 621 43	0.165 450 59	0.164 970 01	0.198 606 51	0.208 852 84	0.184 042 66	0.228 521 74	0.315 447 07	0.224 258 82	0.210 535 58
<i>Paralepidonotus ampulliferus</i>	0.249 283 83	0.318 035 72	0.242 480 56	0.268 899 62	0.190 062 62	0.297 300 20	0.265 164 31	0.240 878 53	0.293 344 58	0.277 046 47	0.234 892 15
<i>Polyeunoe laevis</i>	0.184 910 02	0.244 840 93	0.176 401 85	0.167 527 27	0.200 012 62	0.233 991 51	0.189 429 18	0.218 635 03	0.273 161 74	0.239 704 14	0.210 475 10
<i>Polynoe scolopendrina</i>	0.244 755 21	0.268 659 78	0.247 842 24	0.211 480 47	0.250 635 47	0.245 013 12	0.257 187 26	0.246 196 07	0.324 827 68	0.260 268 20	0.237 975 66
<i>Subadyte pellucida</i>	0.233 765 57	0.250 280 36	0.193 058 37	0.167 634 48	0.206 039 06	0.275 731 28	0.198 133 89	0.253 302 23	0.285 443 58	0.285 458 40	0.217 177 49
<i>Thermiphione</i> sp.	0.276 234 08	0.263 181 65	0.265 361 85	0.275 164 57	0.272 733 23	0.255 222 52	0.298 458 60	0.264 910 80	0.224 641 27	0.246 763 16	0.256 312 08
<i>Thormora jukesii</i>	0.268 978 33	0.217 538 43	0.270 850 39	0.266 804 65	0.266 917 31	0.238 240 83	0.293 402 84	0.278 678 68	0.218 003 77	0.218 974 20	0.262 411 77
<i>Ceuthonoe nezhai</i> gen. et sp. n.	0.276 396 21	0.305 799 82	0.286 475 96	0.284 129 43	0.270 907 13	0.244 206 38	0.242 056 05	0.277 236 82	0.263 989 56	0.283 160 18	0.290 976 75
<i>Gesiella jameensis</i>	0.254 264 96	0.262 184 39	0.227 858 62	0.238 921 91	0.242 303 75	0.294 418 97	0.234 671 26	0.234 262 95	0.378 684 02	0.278 753 18	0.225 928 92
<i>Pelagomacellitcephala</i> cf. <i>iliffi</i> 2	0.290 277 05	0.299 494 26	0.276 459 00	0.226 452 54	0.314 473 22	0.261 203 35	0.281 603 88	0.288 750 13	0.312 755 78	0.273 650 22	0.306 710 16
<i>Halosydna australis</i>	0.232 425 03	0.286 432 11	0.249 430 97	0.273 323 00	0.220 579 49	0.196 589 56	0.282 000 77	0.249 248 59	0.240 995 10	0.221 562 33	0.260 490 71
<i>Polynoidae</i> sp. 2 ST 2019	0.276 219 07	0.264 289 79	0.262 096 38	0.270 379 22	0.242 365 35	0.241 605 94	0.237 146 06	0.216 446 34	0.256 813 00	0.255 874 27	0.268 627 51
<i>Robertianella synophthalma</i>	0.174 658 16	0.221 806 28	0.181 413 18	0.141 881 76	0.190 976 75	0.223 334 57	0.188 236 68	0.196 780 63	0.271 056 61	0.246 077 83	0.182 762 73
<i>Iphione</i> sp.	<i>Lepidasthenia elegans</i>	<i>Lepidonotus clava</i>	<i>Leucia violacea</i>	<i>Malmgreniella mcintoshi</i>	<i>Neopolynoe paradoxa</i>	<i>Melaenistia loveni</i>	<i>Paradyte crinoideola</i>	<i>Paralepidonotus ampulliferus</i>	<i>Polyeunoe laevis</i>	<i>Polynoe scolopendrina</i>	
<i>Acholoe astericola</i>	<i>Alentia gelatinosa</i>	<i>Antarctinoe ferox</i>	<i>Antinoe aequisetata</i>	<i>Antipathipolyeunoa</i> sp.	<i>Austrolaenilla antarctica</i>	<i>Bathylkurila guaymasensis</i>	<i>Branchinotogluma sandersi</i>	<i>Branchipolynoe symmytilida</i>	<i>Byligides elegans</i>	<i>Enippo torelli</i>	<i>Eunoe nodosa</i>
<i>Gastrolepidia clavigera</i>	<i>Gattyana cirrhosa</i>	<i>Gorgoniapolynoe corrallophila</i>	<i>Grubeopolynoe tuta</i>	<i>Halosydna brevisetosa</i>	<i>Harmothoe glabra</i>	<i>Hermadion truncata</i>	<i>Hermenia verruculosa</i>				

to be continued



Continued from Table A1

	<i>Subadyte pellucida</i>	<i>Thermiphione</i> sp.	<i>Thormora jukesii</i>	<i>Ceuthonoe nezhai</i> gen. et sp. n.	<i>Gesiella jameensis</i>	<i>Pelagomacelliephala</i> cf. <i>iliffi</i> 2	<i>Halosydnella australis</i>	<i>Polynoidae</i> sp. 2 ST 2019
<i>Gastrolepidia clavigera</i>								
<i>Gattyana cirrhosa</i>								
<i>Gorgoniapolynoe corrallophila</i>								
<i>Grubeopolynoe tuta</i>								
<i>Halosydna brevisetosa</i>								
<i>Harmoithoe glabra</i>								
<i>Hermadion truncata</i>								
<i>Hermenia verruculosa</i>								
<i>Hyperhalosydna striata</i>								
<i>Intoshella dictyaulus</i>								
<i>Iphione</i> sp.								
<i>Lepidasthenia elegans</i>								
<i>Lepidonotus clava</i>								
<i>Leucia violacea</i>								
<i>Malmgreniella mcintoshi</i>								
<i>Melaenis loveni</i>								
<i>Neopolynoe paradoxa</i>								
<i>Paradyte crinoïdicola</i>								
<i>Paralepidonotus ampulliferus</i>								
<i>Polyeunoa laevis</i>								
<i>Polynoe scolopendrina</i>								
<i>Subadyte pellucida</i>	0.304 207 13							
<i>Thermiphione</i> sp.		0.214 375 32						
<i>Thormora jukesii</i>	0.279 639 16	0.253 297 56	0.291 380 26					
<i>Ceuthonoe nezhai</i> gen. et sp. n.	0.274 900 97	0.308 232 42	0.360 050 13	0.316 815 13				
<i>Gesiella jameensis</i>	0.252 228 82	0.291 921 97	0.284 222 39	0.279 183 68	0.286 840 27			
<i>Pelagomacelliephala</i> cf. <i>iliffi</i> 2	0.299 009 24	0.231 993 28	0.238 275 86	0.260 840 91	0.315 887 72	0.311 794 26		
<i>Halosydnella australis</i>	0.270 208 81	0.235 863 10	0.269 466 07	0.214 625 26	0.241 997 03	0.292 326 13	0.216 593 34	
<i>Polynoidae</i> sp. 2 ST 2019	0.267 175 30	0.251 141 20	0.263 141 64	0.272 085 73	0.246 861 48	0.255 376 93	0.244 626 42	0.232 877 43
<i>Robertianella synophthalma</i>	0.192 200 27							