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Anaitides albengai n. sp., paratype (ECOSUR 000, Sta. 26): anterior end, oblique frontal view, pharynx partially exposed by fracture of body wall.

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New species of hesionid and phyllodocid polychaetes (Annelida, Errantia) from Clipperton Island

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ABSTRACT
The study of marine annelids from oceanic islands has been problematic, especially because of the lack of infrastructure, or of easily accessible logistics for frequent expeditions. In this contribution, some specimens collected during the J.-L. Étienne Expedition to Clipperton Island in 2005, belonging to the families Hesionidae Grube, 1850 and Phyllodocidae Örsted, 1843 are newly described. Type material is deposited in the Muséum national d'Histoire naturelle, Paris, and a few others in El Colegio de la Frontera Sur, Chetumal. Hesionidae includes *Psamathe charpyi* n. sp. diagnosed by having eyes of similar size and neurochaetal blades 4-10 × longer than wide. In Phyllodocidae an assessment of the affinities within *Phyllodoce* Savigny *in* Lamarck, 1818 results in re-establishing its subgenera as distinct genera, and three species are newly described: *Anaitides albengai* n. sp., *Nereiphylla etiennei* n. sp., and *Pterocirrus bouchardi* n. sp. *Anaitides albengai* n. sp. is separated from more similar species by having the prostomium as long as wide, eyes ¼ as long as prostomial width, and basal pharynx region with 8-9 large papillae per row. *Nereiphylla etiennei* n. sp. differs from more similar species by having a rectangular prostomium, lateral antennae half as long as prostomial width, and ventral cirri barely longer than neurochaetal lobe. *Pterocirrus bouchardi* n. sp. separates from more similar species by having antennae of similar length, dorsal cirri tapered not distally constricted, and acicular lobes barely divergent. Keys are included for identifying all World species for each genus.

MOTS CLÉS
Anaitides, *Nereiphylla*, *Psamathe*, *Pterocirrus*, Hesionidae, Phyllodocidae, new species.

RÉSUMÉ

Nouvelles espèces de polychètes hesionides et phyllodocides (Annelida, Errantia) de l'île Clipperton.

L'étude d'annélides marins des îles océaniques a été problématique, notamment en raison du manque d'infrastructures, ou de moyens logistiques pour effectuer des expéditions fréquentes. Dans cette contribution, des spécimens collectés pendant l'expédition de J.-L. Étienne sur l'île Clipperton en 2005, appartenant aux familles Hesionidae Grube, 1850 et Phyllodocidae Örsted, 1843, sont décrits. Le material type est déposé au Muséum national d'Histoire naturelle, Paris, et quelques spécimens au El Colegio de la Frontera Sur, Chetumal. Les Hesionidae incluent *Psamathe charpyi* n. sp. diagnostiqué par des yeux de dimension semblable et des lames neurochaetales 4-10 × plus longues que larges. Chez les Phyllodocidae, une estimation des affinités au sein de *Phyllodoce* Savigny *in* Lamarck, 1818 a permis de rétablir ses sous-genres comme des genres distincts et trois espèces nouvelles sont décrites : *Anaitides albengai* n. sp., *Nereiphylla etiennei* n. sp., et *Pterocirrus bouchardi* n. sp. *Anaitides albengai* n. sp. est séparé des espèces les plus semblables par un prostomium aussi long que large, des yeux ¼ aussi longs que la largeur du prostomium, et la région pharyngiale basale, qui possède 8-9 grandes papilles par ligne. *Nereiphylla etiennei* n. sp. se distingue des espèces les plus semblables par un prostomium rectangulaire, des antennes latérales deux fois moins longues que la largeur du prostomium, et des cirri ventraux à peine plus longs que le lobe neurochaetale. *Pterocirrus bouchardi* n. sp. se distingue des espèces les plus semblables par ses antennes de même longueur, les cirri dorsaux effilés et non rétrécis distalement, et les lobes aciculaires à peine divergents. Pour chaque genre, des clefs sont données pour identifier toutes les espèces mondiales.

MOTS CLÉS
Anaitides, *Nereiphylla*, *Psamathe*, *Pterocirrus*, Hesionidae, Phyllodocidae, espèces nouvelles.

INTRODUCTION

In the Eastern Tropical Pacific, there are few studies concentrated on polychaetes from oceanic islands. Salazar-Vallejo (1989) included 65 species reported from the Revillagigedo Islands. Blake (1991) indicated that Galapagos include 192 species of polychaetes, although some others were added in recent years. Two recent contributions were by Solís-Weiss & Hernández-Alcántara (2009) on Clipperton Island, and by Dean *et al.* (2012) on Cocos Island. Solís-Weiss & Hernández-Alcántara (2009) reported 23 species and 42% were regarded as pantropical or cosmopolitan in distribution, whereas Dean *et al.* (2012) reported 100 species with 60 having a wide distribution.

Hesionid annelids are common in tropical environments; these annelids show diverging morphological patterns, one group having large, often colorful bodies with about 20 segments, whereas the other has smaller, brownish to pale bodies with many segments, and are sometimes associated with other invertebrates, especially echinoderms. Hesionids have a short, eversible pharynx that can have inner jaws for capturing their prey but feeding biology has been studied for only three species, out of 130, which emphasizes the need for additional field and lab studies on trophical ecology (Jumars *et al.* 2015; Salazar-Vallejo & Rizzo 2021).

On the other hand, phyllodocid annelids are present in all marine regions; most have long, thin colorful bodies with many segments, and are free-living in sandy or mixed bottoms. Phyllodocids produce abundant mucus and have long eversible pharynxes, whereas hardened structures are only known for a few species as denticulate papillae; their feeding biology has been documented for 12 species out of 400. They include carnivores, carrion-feeders, and one hydrothermal vent species sucking blood from other benthic annelids (Jumars *et al.* 2015; Villalobos-Guerrero *et al.* 2021).

Solís-Weiss & Hernández-Alcántara (2009) recorded no hesionids and two phyllodocid species from Clipperton Island: *Eumida sanguinea* (Örsted, 1843) originally described from Denmark, and *Phyllodoce madeirensis* Langerhans, 1880, originally described from Madeira. Dean *et al.* (2012) recorded four hesionid species including the Chilean *Psamathe ancuda* (Wesenberg-Lund, 1962), and four phyllodocid species, including *P. madeirensis* and *Nereiphylla castanea* (von Marenzeller, 1879) originally described from Japan.

In this contribution one hesionid and three phyllodocid species are newly described from Clipperton Island. For all genera, keys to all species in the world are also included.

Material and methods

Specimens were collected during the J.-L. Étienne Expedition to Clipperton Island in 2005. Most stations were sampled by a team of scuba divers and sometimes using a suction pump for gathering specimens; the station and field data were listed by Poupin *et al.* (2009: 214-215). Type and non-type material is deposited in the Muséum national d'Histoire naturelle, Paris (MNHN) and El Colegio de la Frontera Sur, Chetumal (ECOSUR). The taxonomic treatment is given per family and then by genus/species in alphabetical order, with a slight variation for *Phyllodoce*-like genera. Small specimens were mounted on a drop of preservative fluid, and aligned, covered with a coverslip, and then alcohol-glycerol was added for measurements and observations in the compound microscope. Unless otherwise indicated, parapodial features included in the keys refer to median segments. Dimensions for phyllodocid body structures differ slightly from Teixeira *et al.* (2020: 226), because dorsal and ventral cirri length are taken as the longest distance between tip and base, not including the peduncle or ceratophore, whereas the size of eyes or lateral antennae is given as a fraction of prostomial width or length. Keys are mostly dichotomic; a few triple options were kept for brevity,

and they include statements as antagonistic as possible. In keys and descriptions, for indicating the number of times one feature differs from another one, an × will be inserted after the number instead of the full word.

ABBREVIATIONS

ECOSUR El Colegio de la Frontera Sur, Chetumal;
MNHN Muséum national d'Histoire naturelle, Paris.

SYSTEMATICS

Family HESIONIDAE Grube, 1850
Subfamily PSAMATHINAE Pleijel, 1998

Genus *Psamathe* Johnston, 1836

Psamathe Johnston, 1836: 14-16. — Pleijel 1998: 122 (syn., diagnosis). — Parapar *et al.* 2004: 232.

TYPE SPECIES. — *Psamathe fusca* Johnston, 1836, by monotypy.

DIAGNOSIS. — Psamathinae with two lateral antennae, without median antenna; no frontal tubercle; eyes present; nuchal organs separate; palpostyles ovoid, as long as palpophores; 8 pairs of tentacular cirri; without notochaetae; neurochaetae with simple and compound falcigers; pharynx without jaws, with marginal papillae.

DISTRIBUTION. — The species of *Psamathe* are only known from temperate localities in the Atlantic and Pacific and from the Antarctic, in shallow water, rocky or mixed bottoms. A new species, *P. charpyi* n. sp., is described from the Eastern tropical Pacific. The confusion in the identification of the species and their rarity might explain these sporadic records.

REMARKS

Pleijel (1998: 122-124) reinstated *Psamathe* Johnston, 1836, clarified its taxonomic history, and provided a list of species, including some new combinations (Pleijel 1998: 162-163). There are currently five species in *Psamathe*: *P. ancuda* (Wesenberg-Lund, 1962) from Chile, *P. cirrata* Keferstein, 1862 from Normandy, France, *P. fauveli* (Averincev, 1972) from Antarctica, *P. fusca* Johnston, 1836 from the British coast in the English Channel, and *P. haploseta* (Perkins,

KEY TO SPECIES OF *PSAMATHE* JOHNSTON, 1836

REMARKS

Psamathe cirrhata Keferstein, 1862 might need a modification in the specific epithet. As usual for those times, etymology was not explained, but the h letter modifies the meaning (Brown 1954: 206) from having filaments, or provided with cirri, which is typical for most hesionids (*L. cirrus*), to being orange-colored (Gr. cirrho, *kirrhos*). However, the term was derived from the German noun for cirri, used several times along the original description and must be corrected for indicating cirri (ICZN 1999, Art. 32.5.1). *Psamathe fusca hibernica* was originally described as *Castalia* Savigny, 1822 (accepted as *Nereimyra* de Blainville, 1828), but in the brief diagnosis, Southern (1914: 49) regarded it as very similar to *P. fusca*; Hartman (1959: 183) included it as a subspecies. The Western Atlantic records of *P. cirrata* by Uebelacker (1984) differ from the Eastern Atlantic forms, and might belong to an undescribed species, because they have smaller eyes, positioned on the posterior prostomial half, and by having neurochaetae with blades 6-20× longer than wide.

1. Dorsal cirri longer than body width 2
— Dorsal cirri shorter than body width; ventral cirri reaching tips of neurochaetal lobes; all neurochaetae compound; neurochaetal blades 11-21× longer than wide; anterior eyes 2× larger than posterior ones; tentacular cirri as long as body width (pale) ..... *P. fauveli* (Averincev, 1972) Antarctic.

2(1) Ventral cirri reaching tips of neurochaetal lobes 3
— Ventral cirri not reaching tips of neurochaetal lobes 6

3(2) All neurochaetae compound 4
— Neurochaetae with single capillary chaetae; compound neurochaetal blades 7-15 longer than wide; anterior eyes 3× larger than posterior ones ..... *P. haploseta* (Perkins, 1984) Gulf of Mexico, subtidal sands.

4(3) Neurochaetal blades all unidentate; eyes blackish; neurochaetal blades 3-10× longer than wide 5
— Neurochaetal blades unidentate and bidentate; eyes reddish; neurochaetal blades 5-6 longer than wide .... *P. fusca hibernica* (Southern, 1914) Western Ireland, subtidal.

5(4) Anterior eyes 2-3× larger than posterior ones ... *P. cirrata* Keferstein, 1862 English Channel, France, intertidal.
— Anterior eyes slightly larger than posterior ones ..... *P. charpyi* n. sp. Clipperton Island, subtidal.

6(2) Ventral cirri tapered; neurochaetal blades of grading size (5-12× longer than wide); anterior eyes 4× larger than posterior ones (dorsum with 1-2 transverse dark, thin bands per segment) .... *P. fusca* Johnston, 1836 English Channel, intertidal rocks.
— Ventral cirri blunt; all neurochaetal blades of similar size (12× longer than wide); anterior eyes twice larger than posterior ones ..... *P. ancuda* (Wesenberg-Lund, 1962) Chile.

1984) from Florida, United States. On the other hand, Pleijel (1998) also regarded *P. fusca* and *P. cirrata* as synonyms, and Parapar *et al.* (2004: 232) followed it. However, despite the proximity of the type localities for these two species, both in the English Channel, there is no type material and topotype specimens for both species should be compared to corroborate this conclusion. There is one apparent difference regarding the length of ventral cirri according to the original descriptions, and some later illustrations (McIntosh 1908: pl. 69, fig. 16; Hartmann-Schröder 1996: 133, fig. 5b). In *P. fusca* it is short, not reaching the tip of neurochaetal lobes, whereas in *P. cirrata* it is longer, reaching the tip of neurochaetal lobes. The key below regards them as different species based on this feature.

Psamathe charpyi n. sp.
(Fig. 1)

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Type material. — **Holotype**. **Clipperton Island** • 1 specimen; Sta. 10; 10°17.31'N, 109°12.19'W; coral rubble, suction pump; 13 m; 17.I.2005; J.-M. Bouchard, L. Albenga & L. Dugrais leg; MNHN-IA-TYPE2040.

Diagnosis. — *Psamathe* with anterior eyes blackish, slightly larger than posterior ones; dorsal cirri longer than body width; ventral cirri reching tips of neurochaetal lobes; all neurochaetae compound, neurochaetal blades unidentate, 4-10× longer than wide.

Etymology. — The specific epithet is derived after Dr Loïc Charpy, from the Centre d'Océanologie de Marseille, France, in recognition of his editorial coordination of the volume on Clipperton Island (Charpy 2009). The specific epithet is a noun in the genitive case (ICZN 1999, Art. 31.1.2).

Distribution. — Only known from Clipperton Island, Eastern Pacific, in subtidal coral rubble (13 m depth).

Description

Body

Holotype (MNHN-IA-TYPE2040) anterior fragment; body colorless, subcylindrical, slightly wider posteriorly, 5.3 mm long, 1.4 mm wide, 22 chaetigers; all tentacular cirri lost, most dorsal cirri retained, tips lost (Fig. 1A). Right parapodia of chaetigers 10 and 14 removed to observe chaetae.

Anterior end

Prostomium slightly longer than wide (Fig. 1B), slightly wider anteriorly, lateral margins slightly curved. Lateral antennae lost, scars on anterior margin above palps. Palps directed ventrally, left palp lost, right palpostyle longer than palpophore, medially wider, tapered (Fig. 1C). Eyes large, blackish, positioned centrally on prostomium, anterior eyes slightly larger than posterior ones, directed anterolaterally. Nuchal organs following prostomial posterior corners. Tentacular belt partially visible dorsally. First two segments dorsally reduced, following two segments fused, distinct dorsally; anterior margin projected anteriorly, markedly wider than long, blunt. Eight pairs of tentacular cirri, all lost, cirrophores distinct.

Parapodia and chaetae

Parapodia (excluding chaetae) as long as body width, sesquiramous (Fig. 1D). Dorsal cirri with longer than wide articles, sometimes medially constricted. Prechaetal lobe subtriangular, blunt, as long as postchaetal round foliose lobe. Neurochaetae all compound heterogomph falcigers; upper and lower fascicle chaetae with shorter blades, longer in central fascicle chaetae; blades unidentate, 4-10× longer than wide, finely denticulate, basal denticles larger; guards reaching tip of denticle (Fig. 1D, insets). Ventral cirri long, tapered, reaching tip of neurochaetal lobes.

Posterior region

Unknown.

Remarks

Psamathe charpyi n. sp. resembles *P. cirrata* Keferstein, 1862 from the French Normandy coast because both species have ventral cirri reaching the tips of the neurochaetal lobes and all neurochaetae compound. They differ in the size of the eyes and of neurochaetal blades. In *P. charpyi* n. sp. eyes are almost of the same size, and the neurochaetal blades are 4-10× longer than wide, whereas in *P. cirrata* anterior eyes are 2-3× larger than posterior ones, and neurochaetal blades are 3-9× longer than wide. On the other hand, *P. charpyi* n. sp. differs from *P. ancuda* (Wesenberg-Lund, 1962), described from Central Chile, in the shape and size of the ventral cirri, and in the size of the neurochaetal blades. In *P. charpyi* n. sp. ventral cirri are tapered, reaching the neurochaetal lobes tips, and neurochaetal blades are of different size, whereas in *P. ancuda* ventral cirri are blunt, not reaching the neurochaetal lobes, and all neurochaetae have blades of similar size.

Family Phyllodocidae Örsted, 1843

Genus *Phyllodoce* Savigny *in* Lamarck, 1818 *sensu lato*

Phyllodoce Lamarck, 1818: 316. — Savigny 1822: 13, 42. — Pleijel 1991: 238; 1993b: 298. — de Oliveira *et al.* 2021: 5.

Type species. — *Phyllodoce laminosa* Savigny *in* Lamarck, 1818, by monotypy.

Remarks

Phyllodoce Savigny *in* Lamarck, 1818 is the largest genus in the family because it includes over 100 valid species (Pleijel 1991, 1993a, b). The authorship for the genus, as for most marine annelid taxa included by Lamarck (1818), must be attributed to Savigny, because Lamarck indicated he was making an abridged version of the large document Savigny had shared in the Royal Academy of Sciences, of the French Institute (ICZN 1999, Art. 50.1.1), and available from 1809, although the publication date was fixed as 1822 (Sherborn 1897), apparently based upon the second edition. Lamarck (1818: 279) indicated: "Néanmoins, la nature de notre ouvrage ne nous permet d'en donner qu'un extrait très-resserré" (Nevertheless, the nature of our work allows us to give just a very concentrated excerpt [free translation]).

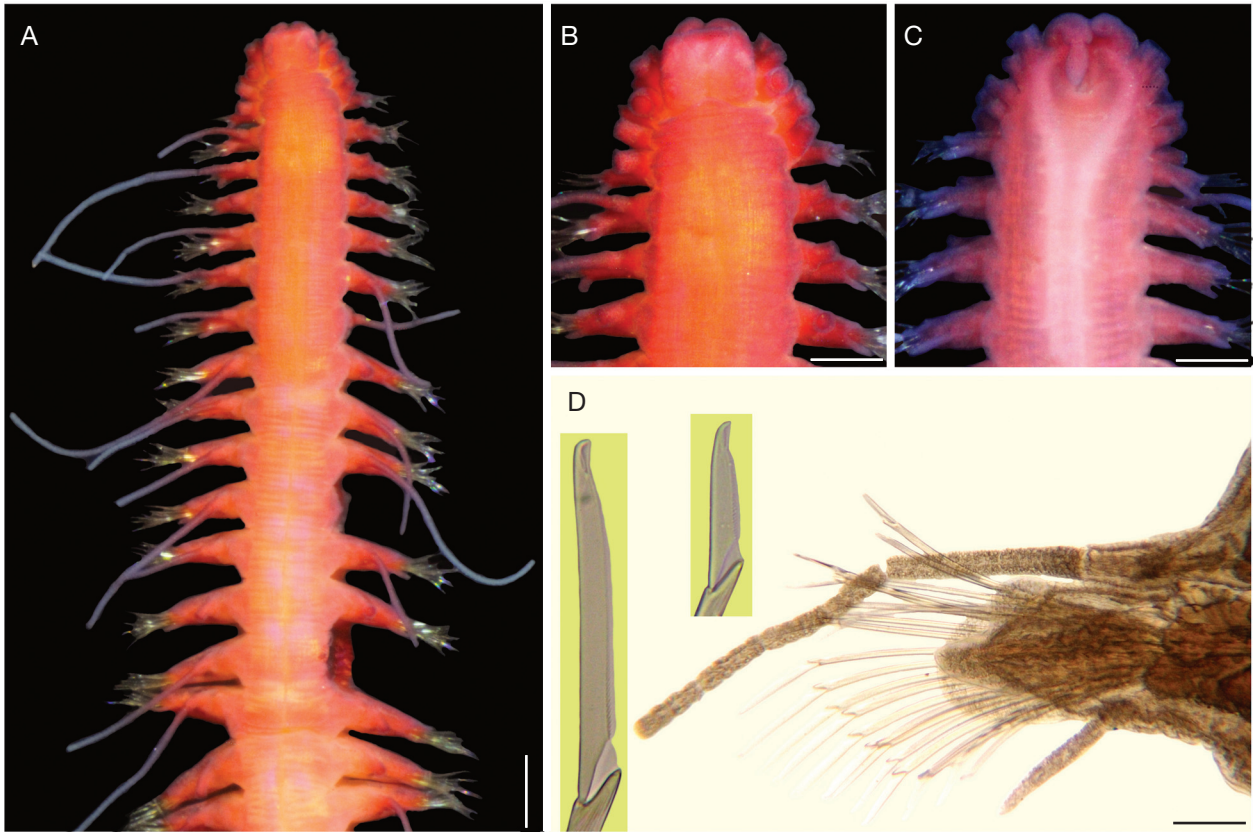

Fig. 1. — *Psamathe charpyi* n. sp., holotype (MNHN-IA-TYPE2040); **A**, anterior region, dorsal view (after Shirlastain-A); **B**, same, anterior end, dorsal view; **C**, same, ventral view; **D**, chaetiger 14, right parapodium, anterior view (insets: neurochaetal blades). Scale bars: A, 0.36 mm; B, 0.25 mm; C, 0.20 mm; D, 0.10 mm.

Bergström (1914: 55-56) used and standardized 14 characters for revising the delineation and diagnosis for the phyllodocids. He proposed three new families, and among phyllodocids he proposed nine genera, six of which were regarded as valid by Fauchald (1977). Bergström (1914: 118) keyed out *Anaitides* Czerniavsky, 1882, *Phyllodoce* and *Sphaerodoce* Bergström, 1914 by using the shape and length of the tentacular cirri (oblong or tapered, long in the former two, against globular, short in the latter), and the arrangement of pharynx papillae on the basal region (forming rows in *Anaitides*, *versus* diffuse in the two others). Bergström (1914) also indicated he was partially following the *Phyllodoce* species groups proposed by Augener (1913b: 213-215), based on pharynx papillae pattern and dorsal cirri shape. To these features, Bergström added the shape of the ventral cirri for his key to *Anaitides* species (Bergström 1914: 139-140). Chamberlin (1919), and later Hartman followed Bergström and regarded *Anaitides* and *Phyllodoce* as separate genera throughout their publications; Fauchald (1977) included them as independent genera. Hartmann-Schröder initially regarded *Anaitides* and *Phyllodoce* as distinct genera, and later changed her mind and used subgenera in *Phyllodoce*.

Most authors, however, have preferred to regard them as subgenera. The first to provide explanations for this was Fauvel (1919: 357-359). Because of the problems with following Bergström formula for indicating the appendages of the first segments, especially for detecting the presence of chaetae, Fauvel rejected its use, although he emphasized (Fauvel 1919: 357) Bergström "gave a correct importance to pharynx features". Fauvel also indicated that "a more serious inconvenience of his classification was the multiplication of genera in a certainly abusive way" (Fauvel 1919: 358). He also added that "after more than 20 years, I reject this atomization of genera, completely useless in polychaetes where species are relatively few in each family" (Fauvel 1919: 359), and concluded: "However, in a genus including hundreds of species, the fractioning is more justified than in a genus having a small number of species, as is generally the case in polychaetes." This was Fauvel, and he was both very productive and very influential on other colleagues working on polychaetes. Regretfully, the morphological features of the anterior end and pharynx papillation patterns were not evaluated, despite the fact that in several other errant families, these attributes are useful for separating similar genera.

Pleijel (1991) made the first phylogenetic analysis of the Phyllodocidae. He studied 21 taxa and assessed 26 characters, but the shape of antennae and tentacular cirri was not included, and his character 9 combined basal and distal regions of the pharynx, but the basal region was not clarified regarding papillae patterns, as opposed to the distal region. Among his conclusions, Pleijel (1991: 238) listed seven genera or subgenera as junior synonyms of *Phyllodoce*: *Anaitides*; *Aponaitides*

McCammon & Montagne, 1979; *Paracarobia* Czerniavsky, 1882, *Protocarobia* Czerniavsky, 1882, *Phyllouschakovius* Blake, 1988, *Sphaerodoce*, and *Zverlinum* Averincev, 1972. This synonymy reflects that some diagnostic features were disregarded, such that these taxa were regarded as similar under that perspective.

Pleijel (1991, 1993a, b) hesitated about including *Prophyllodoce* Hartman, 1966 because he could not study the type material. This latter genus resembled *Phyllodoce* especially regarding the papillae pattern on the basal pharynx area, but the presence of two small dorsal tubercles on segment 1 was regarded as an additional pair of tentacular cirri, and used to separate it from *Phyllodoce*, as indicated in the original proposal (Hartman 1966: 182, key, 187, diagnosis). Pleijel (1991, 1993b) was correct. In a newly described species of *Anaitides* (see below), there are two dorsal tubercles on segment 1, but it matches the generic delineation for *Anaitides*. These so-called tubercles, or additional tentacular cirri, were regarded as nuchal organs (Gravier 1896: 341; Uschakov 1972: 123), and they are present in some species such as *Phyllodoce laminosa* (Pleijel 1991: 239, fig. 1 A, B), the type species of *Phyllodoce*. Consequently, the presence of nuchal organs cannot be enough to separate *Prophyllodoce* from *Phyllodoce*.

The other genera are very homogeneous regarding the development of prostomial appendages and tentacular cirri, but they were originally proposed as different genera by using differences in the tentacular cirri pattern, and pharyngeal features, especially the spatial arrangement of papillae, and sometimes additional parapodial characters. For example, Chamberlin (1919: 100) keyed out *Anaitides*, *Phyllodoce* and *Sphaerodoce* by using the type of tentacular cirri, and for the two former ones, the arrangement of pharynx papillae.

Pleijel (1991: 238) also indicated that "splitting this large genus is desirable but should be based on defining properties for all subgroups and will have to await further studies". Pleijel (1993b: 296, 298-299) returned to the problem and proposed recognizing three subgenera: *Anaitides* (incl. *Aponaitides*) with about 19 species, *Phyllodoce* (incl. *Paracarobia* and *Sphaerodoce*, perhaps *Prophyllodoce*) with about 21 species, and *Zverlinum* (incl. *Phyllouschakovius*) with three species. Most species could not be included in the above genera because "available specimens of many species are few and in poor condition" (Pleijel 1993b: 297).

The standardized diagnoses for these subgenera are modified from Pleijel (1993b: 296, 298-299). They are herein regarded as distinct genera because they present a unique combination of morphological features, which was confirmed in the later phylogeny (Pleijel 1993b). Diagnoses and incorporation of their type species (ICZN 1999, Art. 13.2.3) are as specified below. These taxa can be separated with the key given below.

Genus *Phyllodoce*
Savigny *in* Lamarck, 1818 restricted

Phyllodoce (*Phyllodoce*) – Pleijel 1993b: 298 (*partim*; list of species).

Prophyllodoce Hartman, 1966: 187.

Aponaitides McCammon & Montagne, 1979: 363.

Type species. — *Phyllodoce laminosa* Savigny *in* Lamarck, 1818, by monotypy.

Diagnosis. — Phyllodocids with prostomium with two oblong, tapered lateral antennae, median antenna usually reduced into a nuchal papilla. Four pairs of tentacular cirri, all oblong, tapered. Dorsal cirrophore without acicula; supracicular lobes blunt, as long as subacicular ones; ventral cirri medially widened. Pharynx with two regions; basal region usually completely covered by small round papillae, rarely with dorsal smooth areas.

Remarks

As indicated above, *Prophyllodoce* Hartman, 1966, with *P. hawaiia* Hartman, 1966 as its type species, has its basal pharynx area as in *Phyllodoce*, but there is one pair of lateral short tubercles in addition to the first pair of tentacular cirri on segment 1. Hartman (1966) regarded these tubercles as additional cirri, and Fauchald (1977: 48) regarded them as papillae, and recognized *Prophyllodoce* in his key to genera. However, Uschakov (1972: 123) indicated that "the additional pair of tentacular cirri on the first segment are… projecting nuchal organs, observed in some species of the genus *Phyllodoce*". After this, it can be noted that the next statement by Uschakov was wrongly translated because due to the presence of everted nuchal organs, the genus cannot

Key to *Phyllodoce*-like genera

1. Antennae and all tentacular cirri monomorphic, oblong, tapered 2
— Antennae globular to conical; tentacular cirri dimorphic, segments 1-2 globular, cirriform on segment 3; dorsal cirri without aciculae; pharynx divided in two regions, basal region diffusely papillate, distal region minute, smooth ..... *Sphaerodoce* Bergström, 1914 reinst.

2(1). Dorsal cirri with aciculae; pharynx with two regions, basal region with papillae multidentate .... *Zverlinum* Averincev, 1972 reinst.
— Dorsal cirri without aciculae; pharynx with two regions, basal region with papillae unarmed, rarely denticulate 3

3(2). Basal pharynx region with smooth midventral surface, papillae unarmed, usually arranged in longitudinal rows ..... *Anaitides* Czerniavsky, 1882 reinst.
— Basal pharynx region without smooth midventral surface, papillae usually unarmed, rarely arranged in rows ..... *Phyllodoce* Savigny *in* Lamarck, 1818 restricted.

be justified. McCammon & Montagne (1979: 363) confirmed Uschakov conclusions, and that Moore (1909: 237) had referred to these structures as nuchal organs. Further, Pleijel (1991: 239, fig. 1 B) revealed the fine details of the everted nuchal organs, which have a marginal ciliary belt. On the other hand, *Aponaitides* McCammon & Montagne (1979) was regarded as a junior synonym of *Anaitides* by Pleijel (199 b); however, its type and only species, *Phyllodoce hartmanae* Blake & Walton, 1977 has papillae along the ventral surface of the pharynx basal region, and it must be included in *Phyllodoce* as herein restricted.

Genus *Sphaerodoce* Bergström, 1914 reinstated

Sphaerodoce Bergström, 1914: 101 (diagn. incl. pharynx), 154 (type species, diagn.).

Phyllodoce (*Phyllodoce*) – Pleijel 1993b: 298 (*partim*).

Type species. — *Phyllodoce quadraticeps* Grube, 1878, by original designation.

Diagnosis. — Phyllodocids with prostomium with two globular to conical lateral antennae, median antenna reduced to a nuchal papilla. Four pairs of tentacular cirri, segments 1 and 2 with globose cirri, segment 3 with oblong tapered cirri. Dorsal cirrophore without acicula; supracicular lobes blunt, as long as subacicular ones; ventral cirri oval, blunt. Pharynx with a very long basal region, with tiny globular papillae, distal region minute, smooth surfaces.

Remarks

Relevant features that help reinstate *Sphaerodoce* rely on the anterior part of the body. The type species, *P. quadraticeps* Grube, 1878 was described from the Philippines; it has a quadratic prostomium, and almost all its tentacular cirri, as well as lateral antennae and palps are all globular, whereas the prostomium is oval to cordate, and cirri are all subulate in *Phyllodoce.* Because these unique features were not included (shape of prostomium, shape of tentacular cirri), the type species groups with other species of *Phyllodoce sensu stricto* in the phylogeny by Pleijel (1993b). The papillae pattern on the pharynx was not described by Grube (1878). Gravier (1900: 1908) recorded *P. quadraticeps* for the Red Sea and observed the pharynx by dissection, and Day (1967: 146, fig. 5.2h) illustrated a specimen with a partially exposed pharynx. The pharynx is very long with abundant small papillae, but these Western Indian Ocean records might belong to a different species. Pleijel (1993b: 298) listed specimens deposited in several museums and regarded the papillation pattern of the basal pharynx area as dense and diffuse.

Genus *Zverlinum* Averincev, 1972 reinstated

Zverlinum Averincev, 1972: 106 (diagn., type species).

Phyllodoce (*Zverlinum*) – Pleijel 1993b: 298 (list of species).

Type species. — *Austrophyllum monroi* Hartman, 1964, by original designation.

Diagnosis. — Phyllodocids with prostomium with two oblong tapered lateral antennae, median antenna often reduced to a nuchal papilla. Four pairs of oblong tapered tentacular cirri. Dorsal cirrophore with acicula; supracicular lobe digitate; ventral cirri tapered, not medially widened, sharp. Pharynx with two regions, basal region with irregularly distributed, multi-denticulate papillae, without smooth areas, distal region with round irregular tubercles.

Remarks

Pleijel (1993b) indicated in the abstract that the type species, *Austrophyllum monroi* Hartman, 1964 was a junior synonym of *Phyllodoce bulbosa* Wesenberg-Lund, 1962, but no further details were incorporated in the publication. *Austrophyllym monroi* Hartman, 1964 was named after one specimen from South Georgia that Monro (1930: 74) had identified as *Phyllodoce longipes* Kinberg, 1865, and *P. bulbosa* was described from Central Chile. However, besides their type localities, there are certain morphological differences indicated in the original illustrations that would render such synonymy doubtful. For example, in *A. monroi* the prostomium is longer than wide, whereas it is wider than long in *P. bulbosa*, although this might be attributed to certain distortion due to pharynx eversion. The denticulate pharyngeal papillae illustrated for *A. monroi* were neither described, nor confirmed for *P. bulbosa*. Further, mid-body parapodia also differ. In *A. monroi* the dorsal cirri are longer than wide and supracicular lobes are very long, whereas in *P. bulbosa* cirri are as long as wide, and supracicular lobes are not so markedly projected. These differences might be explained because the parapodia were taken from different body regions. In any case, a re-examination of type or topotype material is required to corroborate the synonymy. *Phyllodoce micrognatha* de Oliveira, Magalhães & Lana, 2021 also belongs in *Zverlinum*.

Genus *Anaitides* Czerniavsky, 1882 reinstated

Anaitides Czerniavsky, 1882: 148 (key), 158 (diagn.), 159 (species list).

Phyllodoce (*Anaitides*) – Pleijel 1993b: 298 (list of species).

Type species. — *Phyllodoce groenlandica* Örsted, 1843 by subsequent designation (Bergström 1914: 138).

Diagnosis. — Phyllodocids with prostomium with two oblong tapered lateral antennae, median antenna often reduced into a nuchal papilla. Four pairs of oblong tapered tentacular cirri. Dorsal cirrophore without acicula; supracicular lobe usually blunt, as long as subacicular one; ventral cirri usually medially widened. Pharynx with two regions, basal region with large papillae, usually arranged in longitudinal rows, dorsal and ventral areas smooth (without papillae).

Etymology. — Anaitis, Anahita or Artemis Anaitis, is the love Godess for Armenians and Persians (Brosius 1998). Czerniavsky (1882) proposed several new phyllodocid genera, and for some of them followed Théel (1879) who proposed *Mystides* after *Mysta*. *Anaitides* Czerniavsky (1882: 158) was derived from *Anaitis* Malmgren, 1865. The latter was preoccupied by *Anaitis* Duponchel, 1829 (Lepidoptera) and *Anaitis* Roemer, 1857 (Mollusca), and was renamed *Paranaitis* by Southern (1914).

Gender. — Feminine. After the code (ICZN 1999, Art. 30.1.4.4), the suffix *–ides* "is to be treated as masculine unless its author, when establishing the name, stated it had another gender or treated it as such by combining it with an adjectival species-group name in another gender form." Czerniavsky (1882: 159) listed the species for his new genus, newly transferred from *Phyllodoce* (feminine) and made no modifications for their corresponding suffixes, thus implying he regarded his new genus-name as having a feminine gender.

Distribution. — The species of *Anaitides* have been described from shallow-water localities in tropical, temperate and polar seas.

Key to species of *Anaitides* Czerniavsky, 1882

Remarks

Pleijel (1993b: 295, fig 1G) regarded *P. citrina* Malmgren, 1865 as *incertae sedis* especially because it has less than 6 lateral rows of papillae per side on its pharynx basal region. More than six rows were documented for one *Anaitides* species (Day 1973: 22), as well as non-regular lateral rows for several other species (Hartmann-Schröder 1965b: 86; Gathof 1984: 19.33), and differences in the number of papillae per row (O'Connor 1987: 312). Further, in the new species described below, *A. albengai* n. sp., variations in the number of lateral rows were noted, and often in the same specimen there was a different number of rows along the left or the right side. However, the presence of smooth areas along dorsal and ventral surfaces are more regular and this explains why the midventral smooth surface is diagnostic, whereas the number of lateral rows is not. Consequently, *P. citrina* is included in *Anaitides* as indicated by Uschakov (1972: 130), and after the redescriptions by Pleijel (1988: 143), Pleijel & Dales (1991: 78), and Pleijel (1993a: 35). For the key below, the descriptions or redescriptions were used to key out the species; sometimes, more than one morphological pattern has received the same name, and this explains why the same species name may be reached in two or more alternatives. They are included and might mean problematic records deserving further study. Likewise, the distribution area is incorporated but it does not mean the full distribution of the species.

Anaitides catenula (Verrill, 1873), *A. groenlandica orientalis* (Zachs, 1933), and *A. heterocirra* Chamberlin, 1919 were not included because of a lack of information in the original descriptions.

1. Dorsal cirri oval 2
— Dorsal cirri lanceolate 26
— Dorsal cirri cordate; ventral cirri foliose, pointed 41

2(1). Dorsal cirri truncate (upper margin straight) 3
— Dorsal cirri non-truncate (upper margin curved) 13

3(2). Prostomium with eyes 4
— Prostomium without eyes; ventral cirri pointed, projected far beyond neurochaetal lobes; lateral antennae half as long as prostomial width; pharynx basal papillae globular .... *A. lamella* (de Oliveira, Magalhães & Lana, 2021) n. comb. Brazil.

4(3). Eyes small (1/10-1/15 prostomial width) 45
— Eyes large (1/4-1/7 prostomial width) 7

5(4). Ventral cirri pointed 6
— Ventral cirri blunt; prostomium wider than long; lateral antennae as long as 1/6 prostomial width; longest tentacular cirri reach segment 14-15; pharynx basal papillae polygonal .... *A. carloensis* Kudenov, 1975 Gulf of California.

6(5). Prostomium wider than long; lateral antennae 1/7 as long as prostomial width; longest tentacular cirri reach segment 14-15; pharynx basal papillae conical with a bare middorsal area .... *A. groenlandica* (Örsted, 1842) Greenland.
— Prostomium as long as wide; lateral antennae 1/5 as long as prostomial width; longest cirri reach segment 15-18; pharynx basal papillae conical without a middorsal bare area .... *A. lineata* (Claparède, 1870) Mediterranean Sea.

7(4). Ventral cirri pointed; lateral antennae 1/4 as long as prostomial width 8
— Ventral cirri blunt 11

8(7). Longest tentacular cirri reach segment 9-10; ventral cirri slightly longer than neurochaetal lobes 9
— Longest tentacular cirri reach segment 12-14 10

9(8). Prostomial posterior notch shallow; longest tentacular cirri reach segment 8-9 .... *A. australis* (Day, 1975) Western Australia.
— Prostomial posterior notch deep; longest tentacular cirri reach segment 10 .... *A. mucosa* (Örsted, 1843) Denmark.

10(8). Ventral cirri slightly longer than neurochaetal lobes ..... *A. africana* (Augener, 1918) West Africa.
— Ventral cirri markedly longer than neurochaetal lobes ..... *A. mucosa sensu* Gathof, 1984 Gulf of Mexico.

11(7). Ventral cirri foliose 12
— Ventral cirri oval; lateral antennae half as long as prostomial width; longest tentacular cirri reach segment 8 ..... *A. maculata* (Linnaeus, 1767) Northern European seas.

12(11). Eyes ¼ as long as prostomial width; lateral antennae half as long as prostomial width; longest tentacular cirri reach segment 9-13 ..... *A. citrina* (Malmgren, 1865) Faeroe Islands.
— Eyes ⅛ as long as prostomial width; lateral antennae ⅓ as long as prostomial width; longest tentacular cirri reach segment 8 ..... *A. williamsi* Hartman, 1936 California.

13(2). Ventral cirri foliose 14
— Ventral cirri cirriform; lateral antennae ⅖ as long as prostomial width; eyes ⅓ as long as prostomial width; longest tentacular cirri reach segment 10, pharynx basal papillae globular and denticulate .... *A. rosea* (M'Intosh, 1877) British Isles.

14(13). Ventral cirri pointed 15
— Ventral cirri blunt 22

15(14). Eyes small (⅓-1/12 prostomial width) 16
— Eyes large (⅕-⅐ prostomial width) 24

16(15). Tentacular cirri reach segment 8 17
— Tentacular cirri reach segment 10-12 18

17(16). Prostomium oval; lateral antennae half as long as prostomial width; eyes central, 1/10 as long as prostomial width ..... *A. pettibonae* (Blake, 1988) Northwestern Atlantic.
— Prostomium cordate; lateral antennae ⅓ as long as prostomial width; eyes posterior, 1/12 as long as prostomial width ..... *A. papillosa* (Uschakov & Wu, 1959) Yellow Sea.

18(16). Dorsal cirri as wide as long, or wider than long 19
— Dorsal cirri slightly longer than wide; longest tentacular cirri reach segment 9-10; lateral antennae ⅙ as long as prostomial width ..... *A. koreana* Lee & Jae, 1985 Yellow Sea.

19(18). Dorsal cirri barely wider than long; longest tentacular cirri reach segment 11-12; lateral antennae ⅕ as long as prostomial width 20
— Dorsal cirri 2-3× wider than long 21

20(19). Ventral cirri tips directed downwards; pharynx aperture with 8 papillae .... *A. longipes* (Kinberg, 1866) Chile (Wesenberg-Lund 1962).
— Ventral cirri tips directed laterally; pharynx aperture with 16 papillae .... *A. longipes sensu* Pleijel, 1993 NE Atlantic and Mediterranean.

21(19). Longest tentacular cirri reach segment 12; lateral antennae ¼ as long as prostomial width; dorsal cirri 3× wider than long ..... *A. nicoyensis* (Treadwell, 1928) Pacific Costa Rica.
— Longest tentacular cirri reach segment 10; lateral antennae ⅓ as long as prostomial width; dorsal cirri twice wider than long ..... *A. panamensis* (Treadwell, 1917) Pacific Panama.

22(14). Eyes large (⅕-⅙ prostomial width) 23
— Eyes small (1/10 prostomial width); prostomium oval, as long as wide; lateral antennae half as long as prostomial width; longest tentacular cirri reach segment 8-9 ..... *A. citrina* (Malmgren, 1865) *partim* NE Atlantic.

23(22). Prostomium oval, as long as wide; lateral antennae half as long as prostomial width; longest tentacular cirri reach segment 7-8 ..... *A. japonica* (Imajima, 1967) Japan
— Prostomium oval, longer than wide; lateral antennae ⅖ as long as prostomial width; longest tentacular cirri reach segment 6 ..... *A. parva* Hartmann-Schröder, 1965 Hawaii

24(15). Prostomium as long as wide; longest tentacular cirri reach segment 7; eyes ⅛ as long as prostomial width .... *A. diversiantennata* Hartmann-Schröder, 1986 Southern Australia
— Prostomium longer than wide 25

25(24). Longest tentacular cirri reach segment 9; eyes 1/7 as long as prostomial width .. *A. longipes* (Kinberg, 1866) Brazil (de Oliveira *et al.* 2021)
— Longest tentacular cirri reach segment 12-14; eyes 1/7 as long as prostomial width ....*A.* cf. *longipes* (Kinberg, 1866) NE Atlantic (Pleijel 1988, Fig. 5B; Pleijel & Dales 1991, Fig. 2B) Sweden (Pleijel 1993a).

26(1). Dorsal cirri as long as wide, or slightly longer than wide; prostomium cordate; ventral cirri pointed 27
— Dorsal cirri 2-3× longer than wide 33

27(26). Prostomium wider than long; eyes 1/6 as long as prostomial width 28
— Prostomium as long as wide; eyes 1/6-1/7 as long as prostomial width 31

28(27). Pharynx basal region with about 24 small papillae per row .... *A. sanctaevicentis* (M'Intosh, 1885) Caribbean Sea.
— Pharynx basal region with 7-13 papillae per row 29

29(28). Basal pharynx region without middorsal row of papillae 30
— Basal pharynx region with middorsal row of papillae, with up to 6 papillae; longest tentacular cirri reach segment 11-16 32

30(29). Longest tentacular cirri reach segment 15 ..... *A. erythrophylla* (Schmarda, 1861) Caribbean Sea
— Longest tentacular cirri reach segment 10 ..... *A. medipapillata* (Moore, 1909) California

31(27). Ventral cirri surpassing neurochaetal lobes; pharynx basal region with 8-9 large, foliose papillae per lateral, irregular row ..... *A. albengai* n. sp. Clipperton
— Ventral cirri as long as neurochaetal lobes; pharynx basal region with 11 large, round papillae per lateral row ....*A.* cf *medipapillata sensu* Villalobos-Guerrero & Tovar-Hernández, 2014 Western Mexico.

32(29). Lateral antennae 1/4 as long as prostomial width 33
— Lateral antennae 1/10-1/16 as long as prostomial width (preserved specimens brownish, sometimes with a mid-dorsal longitudinal band; cirri with darker core) ..... *A. oculata* (Ehlers, 1887) Florida (incl. *A. madeirensis sensu* Gathof, 1984; Mountford, 1991 Grand Caribbean).

33(32). Longest tentacular cirri reach segment 10 (preserved specimens pale, pharynx papillae and dorsal cirri brownish) ..... *A. madeirensis* (Langerhans, 1880) Madeira.
— Longest tentacular cirri reach segment 7 (preserved specimens colorful, reddish-violet to brownish) .... *A. variabilis* Hartmann-Schröder, 1965 Samoa.

33(26). Ventral cirri foliose, pointed 34
— Ventral cirri foliose, blunt 38

34(33). Eyes visible, large (1/5-1/7 prostomial width) 35
— Eyes indistinct; longest tentacular cirri reach segment 7; dorsal cirri twice longer than wide .... *A. dubia* Fauchald, 1972 Western Mexico.

35(34). Prostomium as long as wide 36
— Prostomium longer than wide 37

36(35). Eyes 1/5 as long as prostomial width; dorsal cirri twice longer than wide; lateral antennae half as long as prostomial width; dorsal cirri dark brown ..... *A. fuscacirrata* (Treadwell, 1926) Samoa.
— Eyes 1/7 as long as prostomial width; dorsal cirri 3× longer than wide; lateral antennae 1/3 as long as prostomial width; dorsal cirri pale ..... *A. salicifolia* (Augener, 1913a) Southwestern Australia.

37(35). Dorsal cirri twice longer than wide; lateral antennae half as long as prostomial width; eyes 1/4 as long as prostomial width ..... *A. erythraensis* (Gravier, 1900) Red Sea.
— Dorsal cirri 3× longer than wide; lateral antennae 1/3 as long as prostomial width; eyes 1/5 as long as prostomial width ..... *A. elongata* Imajima, 1967 Japan.

38(33). Dorsal cirri blunt, without distinct tips 39
— Dorsal cirri pointed, with distinct tips; eyes 1/5 as long as prostomial width; longest tentacular cirri reach segment 10 ..... *A. minuta* Treadwell, 1937 Gulf of California.

39(38). Prostomial posterior notch deep (reaching level of anterior margin of eyes); tentacular cirri thick, reach segment 7-8; eyes 1/5 as long as prostomial width; lateral antennae 1/3 as long as prostomial width .... *A. sanctijosephi* (Gravier, 1900) Red Sea.

— Prostomial posterior notch shallow (reaching level of posterior margin of eyes); tentacular cirri thin; lateral antennae ¼-⅕ prostomial width 40

40(39). Ventral cirri projected far beyond neurochaetal lobe tip; longest tentacular cirri reach segment 9 .... *A. pseudopatagonica* (Augener, 1922) Juan Fernandez.
— Ventral cirri as long as neurochaetal lobes; longest tentacular cirri reach segment 8 .... *A. thalia* (de Oliveira, Magalhães & Lana, 2021) n. comb. Brazil.

41(1). Dorsal cirri as long as wide, or slightly longer than wide 42
— Dorsal cirri twice wider than long 46

42(41). Prostomium cordate 43
— Prostomium oval, longer than wide; lateral antennae ⅓ as long as prostomial width; eyes ⅙ as long as prostomial width; longest tentacular cirri reach segment 8-9 ..... *A. multiseriata* (Rioja, 1941) Western Mexico.

43(42). Prostomium slightly longer than wide; lateral antennae ⅓ as long as prostomial width; eyes ⅙ as long as prostomial width 44
— Prostomium wider than long 45

44(43). Dorsal cirri with sharp tips; pharynx distal region with series of wider than long tubercles .... *A. adarensis* (Benham, 1927) Antarctica.
— Dorsal cirri with blunt tips; pharynx distal region with large, globular pointed papillae .... *A. longipes* Kinberg, 1866 *sensu* Blake, 1997 (California).

45(43). Eyes ⅐ as long as prostomial width; lateral antennae ¼ as long as prostomial width .... *A. cortezi* Kudenov, 1975 Gulf of California.
— Eyes ¼ as long as prostomial width; lateral antennae ⅕ as long as prostomial width .... *A. duplex* (M'Intosh, 1885) Southeastern Australia.

46(41). Prostomium oval, almost twice wider than long; lateral antennae ¼ as long as prostomial width; eyes minute (⅛ prostomial width) ..... *A. multipapillata* Kravitz & Jones, 1979 Washington.
— Prostomium cordate, slightly wider than long; lateral antennae ⅙ as long as prostomial width; eyes small (⅛ prostomial width) ..... *A. cuspidata* (McCammon & Montagne, 1979) California.

Anaitides albengai n. sp.
(Figs 2; 3)

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Type material. — **Holotype**. **Clipperton Island** • 1 specimen; Sta. 17; 10°19.22'N, 109°13.39'W; epifaunal organisms; hand collecting: 23 m; 20.I.2005; J.-M. Bouchard, L. Albenga & L. Dugrais, leg.; MNHN-IA-TYPE2041.
Paratypes. **Clipperton Island** • 2 specimens; Sta. 15 (no coordinates); chaetopterid tube mass and small stones; 37 m; 19.I.2005; J.-M. Bouchard, L. Albenga & L. Dugrais, leg.; ECOSUR 275 (small, dorsal cirri remaining in many parapodia; body 4.0-11.5 mm long, 0.2-0.5 mm wide, 27-79 chaetigers; largest one with pharynx partially exposed; longest tentacular cirri reaching chaetigers 2-6; anal cirri as long as last 2-3 chaetigers; pharynx basal dorsal and ventral surfaces smooth) • 1 specimen; Sta. 23; 10°17.50'N, 109°13.55'W; anchoring point of *Rara Avis*; night dive; coral rubble, platform margin; 18 m; 22.I.2005; S. Hourdez & K.-L. Kaiser, leg.; MNHN-IA-TYPE2042 (complete; no pigmentation left; pharynx papillae and parapodial features fit the original description; body 28 mm long, 0.8 mm wide, 156 chaetigers; longest tentacular cirri reach chaetiger 8; anal cirri as long as last 2 chaetigers) • 1 specimen; Sta. 24; 10°17.93'N, 109°14.00'W; coral rubble; night dive; 23 m; 22.I.2005; J.-M. Bouchard, L. Albenga & L. Dugrais, leg.; MNHN-IA-TYPE2043 (small specimen, pale; body 14 mm long, 0.5 mm wide, 90 chaetigers; pharynx basal region with 5 left rows and 12 irregular ones on the right side; ventral and dorsal surfaces smooth; longest tentacular cirri reach chaetiger 10; anal cirri as long as last 3 chaetigers) • 2 specimens; Sta. 26; 10°19.34'N, 109°13.40'W; base of coral mound; 54 m; 23.I.2005; J.-M. Bouchard & L. Dugrais, leg.; ECOSUR 276 (both without posterior end; larger one with about half as many segments as the smaller one; body 22-30 mm long, 1.5-2.0 mm wide, 84-185 chaetigers; longest tentacular cirri reach chaetiger 10; pharynx basal area with 6 rows on the left, and 5 ones on the right; middorsal pharynx surface with 4 papillae in an irregular line; midventral surface smooth; aperture with 16 marginal papillae).

Additional material. — **Clipperton Island** • 2 specimens; Sta. 18; 10°19.22'N, 109°13.38'W; rocks; suction pump, sediment under rocks; 55 m; 20.I.2005; J.-M. Bouchard, L. Albenga, L. Dugrais, leg. ECOSUR (smallest complete, pharynx not exposed; body pale, 28-38 mm long, 0.8-1.8 mm wide, 190-203 chaetigers) • 1 specimen; Sta. 26; 10°19.34'N, 109°13.40'W; base of coral mound; 54 m; 23.I.2005; J.-M. Bouchard, L. Dugrais, leg.; MNHN (complete, dried-out, broken into two pieces, posterior dorsal cirri with small, brown spots; larger section with most of body and few far, posterior chaetigers; body 20 (+8) mm long, 2.5 mm wide, pharynx fully everted 2.5 mm long) • 2 specimens; Sta. 36; 10°17.49'N, 109°13.56'W; anchoring of *Rara Avis*; 54 m; 27.I.2005; S. Hourdez, K.-L. Kaiser, J.-M. Bompar, leg.; MNHN (preserved in ethanol; soft, delicate, apparently dead before being fixed).

Diagnosis. — *Anaitides* with prostomium as long as wide; eyes ¼ as long as prostomial width; pharynx basal region with 8-9 large, foliose papillae per row; dorsal cirri lanceolate, slightly longer than wide; ventral cirri pointed, longer than neurochaetal lobes.

Etymology. — The specific epithet is to honor Laurent Albenga, who participated in the collecting team, and collected the holotype used for the description. The specific epithet is a noun in the genitive case (ICZN 1999, Art. 31.1.2).

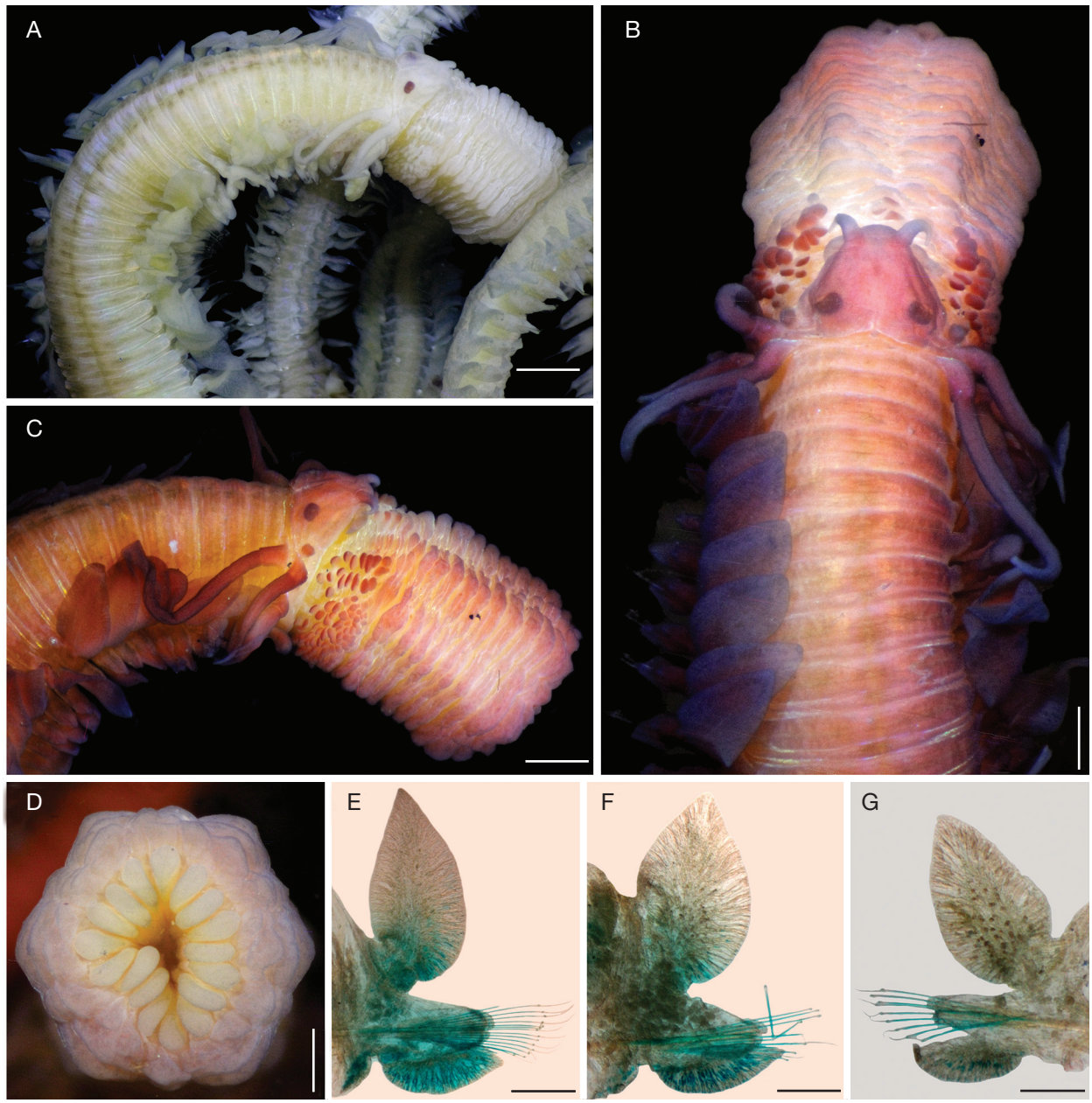

Fig. 2. — *Anaitides albengai* n. sp., holotype (MNHN-IA-TYPE2041): **A**, oblique lateral view of anterior region; **B**, anterior region, dorsal view (after Shirlastain-A); **C**, same, oblique lateral view; **D**, pharynx, anterior end, frontal view; **E**, chaetiger 50, left parapodium, anterior view (after Methyl green); **F**, chaetiger 120, left parapodium, anterior view (after Methyl green staining); **G**, chaetiger 220, right parapodium, anterior view (after Methyl green). Scale bars: A, 0.8 mm; B, 0.5 mm; C, E, 0.3 mm; D, 0.4 mm; F, G, 0.2 mm.

Distribution. — Only known from Clipperton Island, in rocks and corals, 18-54 m depth.

Description

Body

Holotype (MNHN-IA-TYPE2041) complete mature female, many dorsal cirri distorted or lost, pharynx completely everted (Fig. 2A). Body pigmentation almost completely faded out, with some dark pigment along dorsum forming a longitudinal, irregular band, and in some anterior dorsal cirri; body 74 mm long, 2.5 mm wide, 258 chaetigers.

Anterior end

Prostomium cordate, slightly distorted by pharynx eversion (Fig. 2B), about as long as wide, slightly bent ventrally, with a slight anterior projection. Palps and antennae oblong, tapered, of similar length; lateral antennae curved, palps oblong tapered, directed laterally. Nuchal papilla minute. Eyes dark brown, reniform, placed towards posterior prostomial half, ⅙-⅐ as long as prostomial width. Nuchal organs as long as wide, about as wide as lateral antennal bases, displaced laterally above tentacular cirri of segment 1. Posterior prostomial notch shallow. Segments 1 and 2 dorsally reduced, segment 3 projected anteriorly.

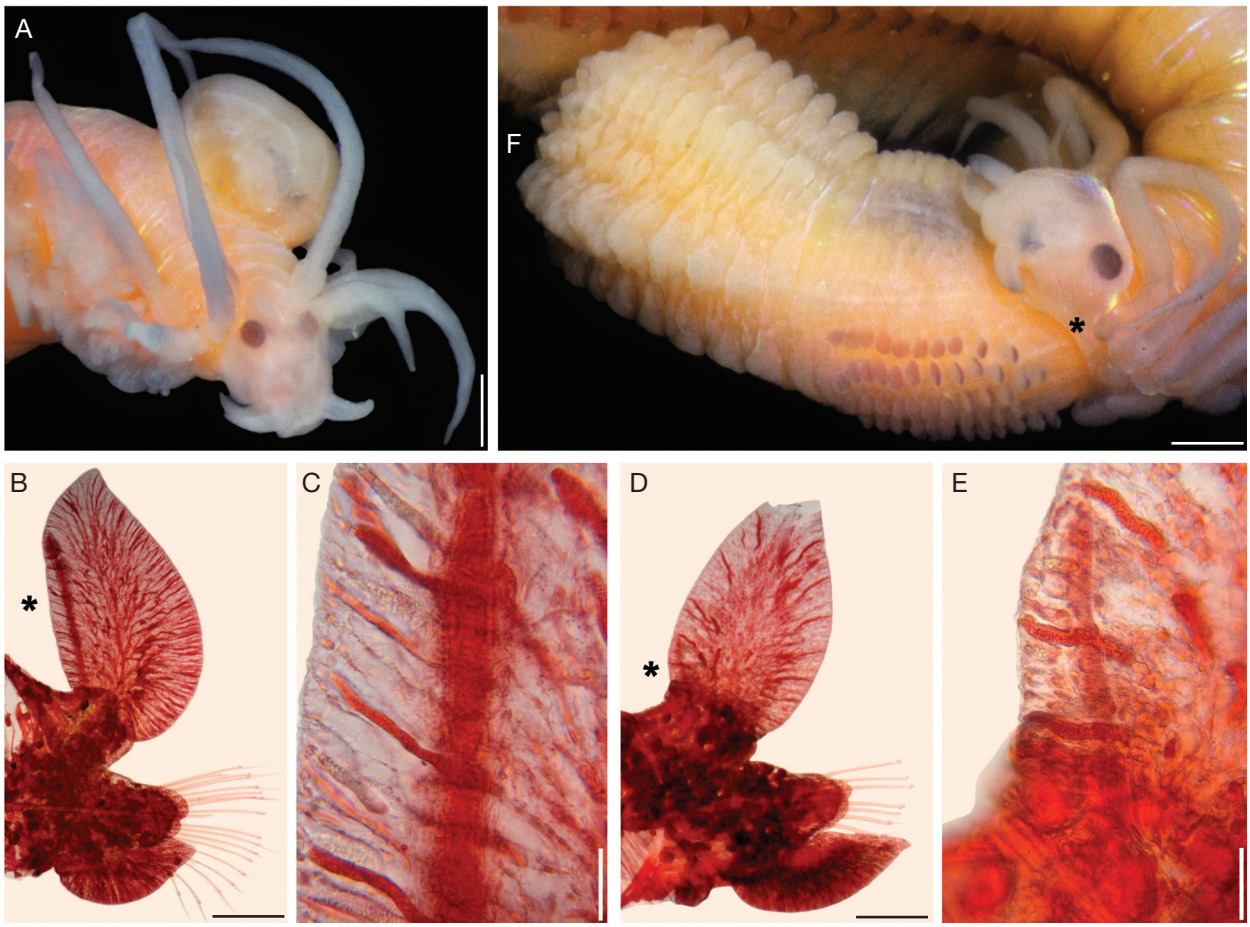

Fig. 3. — *Anaitides albengai* n. sp., paratypes (ECOSUR 276, Sta. 26): **A**, shorter paratype, anterior end, oblique frontal view, pharynx partially exposed by fracture of body wall; **B**, same, chaetiger 33, right parapodium, posterior view (after Shirlastain-A, asterisk indicates area to be enlarged); **C**, same, close-up of ciliary band; **D**, same, chaetiger 73, right parapodium, posterior view (asterisk indicates area to be enlarged); **E**, same, close-up of ciliary band; **F**, longer paratype, anterior end and pharynx, left lateral view (left antenna lost; asterisk indicates nuchal organ). Scale bars: A, B, 0.3 mm; C, D, 0.1 mm; E, 20 µm; F, 0.2 mm.

Pharynx

Pharynx completely everted, contracted, basal region ¼ as long as total pharynx length; lower papillae mostly larger, globular to depressed, smaller globular papillae; dorsal surface with 3 small papillae, left side with 6 irregular rows of similar papillae, right side with about 10 irregular rows, larger papillae dorsolateral, smaller papillae ventrolateral (Fig. 2C); ventral surface smooth. Pharynx distal region hexagonal in cross-section, corners with 11-12 large, blunt conical ridges per row; aperture with 17 marginal lobate papillae (Fig. 2D).

Tentacular cirri and parapodia

Tentacular cirri all cirriform; dorsal cirri of segment 1 reaching segment 6 (chaetiger 3); dorsal cirri of segment 2 reaching segment 13 (chaetiger 10); dorsal cirri of segment 3 displaced ventrally reaching segment 11 (chaetiger 8). Segment 3 without neurochaetae. Segment 4 with dorsal and ventral cirri foliose, lanceolate, and neurochaetal lobe and neurochaetae. Parapodia with dorsal and ventral cirri lanceolate, ventral cirri tapered, projected beyond neurochaetal lobe, progressively longer posteriorly. Anterior chaetigers (Fig. 2E) with dorsal cirri tapered, about twice longer than wide; neurochaetal lobe with supracicular lobe slightly longer than subacicular one, about 15 compound spinigers per bundle; ventral cirri slightly projected beyond neurochaetal lobe. Median chaetigers (Fig. 2F) with slightly shorter, wider dorsal cirri, slightly longer than wide; neurochaetal lobe with supracicular lobe more clearly projected than subacicular one, about 12 compound spinigers per bundle; ventral cirri more clearly projected beyond neurochaetal lobe. Posterior chaetigers (Fig. 2G) with slightly shorter dorsal cirri, about twice longer than wide; neurochaetal lobe with supracicular lobe longer than subacicular one, about 10 compound spinigers per bundle. Neurochaetae with handle smooth, distally expanded, with fine denticles covering all expanded area, denticles progressively longer distally: blades long, delicate, often bent, cutting edge finely denticulate along almost all its length.

Posterior region

Tapered into a blunt cone; pygidium with anus terminal, anal cirri lost.

Oocytes

Visible in parapodial spaces, especially abundant in median chaetigers; each about 50-60 µm in diameter.

Variation

The nuchal organs are retracted if the pharynx is not exposed (Fig. 3A); they become visible after the pharynx is fully exposed (Fig. 3F). The eye shape varies from reniform to oval. Tentacular cirri changes with size; smallest specimens had their longest ones reaching chaetiger 2; they stabilize about reaching chaetiger 10 at 14 mm body length. The basal pharynx region is variable; it is often asymmetrical having regular rows on one side, and irregular ones on the other, and the number of rows varies from 5-6 regular ones to about 10 irregular ones. The dorsal surface is often smooth, but there can be up to 3-4 papillae in an irregular row. The ventral surface is always smooth. The dorsal cirri are narrower in anterior and posterior chaetigers, whereas they are slightly wider in median ones. The typical ciliary band in dorsal cirri are present along their posterior surface; staining helps making them more visible, but their length is progressively reduced in posterior chaetigers. It runs close to the inner margin as a straight band, running almost the entire length of the inner margin in median chaetigers (Fig. 3B, C), and becoming shorter and thinner in posterior chaetigers (Fig. 3D, E). Anal cirri are rarely present because the posterior region is delicate; if present, they are as long as the length from the last 2-3 chaetigers before the anus.

Remarks

Anaitides albengai n. sp. resembles *A.* cf *medipapillata sensu* Villalobos-Guerrero & Tovar-Hernández, 2014 from Western Mexico because they have prostomium cordate, as long as wide, dorsal cirri lanceolate slightly longer than wide, and ventral cirri pointed. Their main differences are in the size of ventral cirri and in the shape and number of papillae per row in the basal pharynx region. In *A. albengai* n. sp. the ventral cirri extend beyond neurochaetal lobes, and there are 8-9 large, foliose papillae per row, whereas in *A.* cf *medipapillata* ventral cirri are as long as neurochaetal lobes, and there are 11 large, round papillae per row.

Genus *Nereiphylla* de Blainville, 1828

Neriphylla de Blainville, 1828: 465-466. — Hartman 1959: 157. — Pleijel 1991: 235. — Alós 2004: 121.

Genetyllis Malmgren, 1865: 93. — Hartman 1959: 153.

Type species. — *Nereiphylla paretti* de Blainville, 1828, by subsequent designation (Bergström 1914: 102, 163).

Diagnosis (modified after Pleijel 1991). — Phyllodocids with prostomium oval, with two oblong tapered lateral antennae; without median antenna or nuchal papilla. Nuchal organs not projected posteriorly. Four pairs of tentacular cirri, all cirriform, usually medially wider. Median segments with dorsal cirri cordate to oval, without aciculae. Ventral cirri oblique to neurochaetal lobes. Acicular lobes of similar size. Neurochaetal shafts with long marginal denticles. Anal cirri basally wider. Pharyngeal surface with diffuse round papillae.

Distribution. — The species of *Nereiphylla* have been described from tropical, temperate and polar localities throughout the world, mostly in shallow water.

Remarks

Many authors preferred to use the junior synonym, *Genetyllis* Malmgren, 1867, over *Nereiphylla*. Among these authors is Day (1967), whereas others used first the older (Fauvel 1923) and later the younger names (Fauvel 1953). Some other authors regarded both genera as valid (Bergström 1914; Hartman 1959), being separated by having cylindrical versus depressed tentacular cirri. Pleijel (1991: 235) noted tentacular cirri are flatter in larger specimens of both genera and concluded they could not be kept separate on this single difference and regarded them as synonyms. For the key to species, the lists available in WoRMS (Read & Fauchald 2020a, b) were adjusted mostly after Pleijel (1991).

Nereiphylla etiennei n. sp.
(Fig. 4)

urn:lsid:zoobank.org:act:3237FFEC-D57E-4F6D-8855-482224D3A114

Type material. — **Holotype**. **Clipperton Island** •1 specimen; Sta. 16; 10°19.22'N, 109°13.38'W; cryptic organisms among rocks; hand collecting; 55 m; 19.I.2005; J.-M. Bouchard, L. Albenga, L. Dugrais, leg.; MNHN-IA-TYPE2044.
Paratypes. **Clipperton Island** • 2 specimens; Sta. 16; 10°19.22'N, 109°13.38'W; stone cryptic organisms; hand collecting; 55 m; 19.I.2005; J.-M. Bouchard, L. Albenga, L. Dugrais leg.; MNHN-IA-TYPE2045 (without posterior region; pharynx partially or fully everted; dorsal cirri paler anteriorly, darker in median and posterior chaetigers; dark brown pigmentation in globular glands along dorsum, especially in parapodial regions forming an ill-defined band, sometimes reduced to two lateral spots close to parapodia, and variably abundant in parapodia; fragments 4.7-5.2 mm long, 0.25-0.30 mm wide, 65- 6 chaetigers) • 1 specimen; Sta. 15 (no coordinates); chaetopterid tube mass and small stones; 37 m; 19.I.2005; J.-M. Bouchard, L. Albenga, L. Dugrais, leg.; ECOSUR 277 (complete, broken into three pieces; pharynx partially everted; anterior fragment twisted, prostomium directed backwards; anterior fragment 2.7 mm long, 0.2 mm wide, 38 chaetigers; longest tentacular cirri reach chaetiger 5-6; anterior dorsal cirri pale, posterior ones darker; posterior fragment 0.8 mm long, 0.15 mm wide, 18 chaetigers).

Diagnosis. — *Nereiphylla* with prostomium rectangular, longer than wide; lateral antennae half as long as prostomial width; eyes ⅙-⅐ prostomial width; longest tentacular cirri reach chaetiger 5; dorsal cirri cordate, blunt, longer than wide; ventral cirri oval, blunt.

Etymology. — The specific epithet is after Dr. Jean-Luis Étienne, a famous French explorer and writer, as a modest homage after his efforts for organizing the Clipperton 2004-2005 Expedition. It meant a lot of work and coordination to support about 30 researchers doing field work for 5 months on the island. He also wrote the chapter on the history of the island (Étienne 2009). The specific epithet is a noun in the genitive case (ICZN 1999, Art. 31.1.2).

Distribution. — Only known from Clipperton Island, in rocky bottoms, 37-55 m depth.

Description

Body

Holotype (MNHN-IA-TYPE2044) an anterior fragment, almost cylindrical, brownish, with most cirri on site, anterior cirri paler (Fig. 4A); body truncate anteriorly, of similar

Key to species of *Nereiphylla* de Blainville, 1828

Remarks

Nereiphylla albovittata Grube, 1860 from the Adriatic Sea has not been found again, and it could not be incorporated in the key, but it can be keyed out by using keys in Fauvel (1923). *Nereiphylla oculata* (M'Intosh, 1885), described with hesitation as belonging in *Genetyllis*, from the Celebes Sea, does not belong in *Nereiphylla*. The specimen was slightly dried-out when McIntosh studied it, and he indicated it had several unique features. For example, the eyes resemble those present in alciopins, the tentacular cirri are displaced anteriorly and dorsally, such that they are arranged transverse to body length axis, and he also indicated the body wall differs from what is seen in other phyllodocids. Chaetae are compound falcigers, but nothing else could be indicative for its generic placement, and if its prostomial and tentacular cirri features are corroborated, it might represent an unknown group of bathypelagic polychaetes. The anterior end of the single specimen was subjected to histological sectioning for illustrating fine details of eyes, although it was referred to as *N. lutea* (Malmgren, 1865) in the following page with a contribution by Marcus Gunn on the eyes and cephalic ganglion. In any case, being it a confusion of the species name, or a detailed study based on the Scandinavian species, fresh specimens from the Celebes Sea are needed to clarify its affinities.

1. Dorsal cirri cordate 2
— Dorsal cirri oval 16

2(1). Dorsal cirri blunt 3
— Dorsal cirri with a distal attenuation; prostomium wider than long 12

3(2). Dorsal cirri as long as wide 4
— Dorsal cirri longer than wide 8
— Dorsal cirri wider than long, prostomium oval; eyes 1/10 as long a prostomial width; lateral antennae as long as prostomial width; longest tentacular cirri reach segment 5; ventral cirri lanceolate ..... *N. vittata* Ehlers, 1864 Adriatic.

4(3). Prostomium oval 5
— Prostomium cordate; ventral cirri oval (200 segments) ..... *N. castanea* von Marenzeller, 1879 (Izuka 1912) Japan.

5(4). Eyes large, 1/3-1/4 prostomial width 6
— Eyes 1/6 as long as prostomial width; lateral antennae as long as prostomial width; longest tentacular cirri reach segment 7; dorsal cirri deep purple or red ..... *N. fragilis* (Webster, 1879) Virginia.

6(5). Lateral antennae half as long as prostomial width 7
— Lateral antennae about as long as prostomial width; longest tentacular cirri reach chaetiger 9-10; dorsal cirri brownish with yellowish margins ..... *N. paretti* de Blainville, 1828 France.

7(6). Longest tentacular cirri reach segment 10; prostomium with a posterior median notch; dorsal cirri with reddish spots ..... *N. macrophthalma* (Hartmann-Schröder, 1979) Iberian Peninsula.
— Longest tentacular cirri reach segment 7; prostomium with posterior margin entire; dorsal cirri reddish to orange brownish ..... *N. castanea sensu* Alós, 2004 Iberian Peninsula.

8(3). Prostomium oval, longer than wide, rarely rectangular 9
— Prostomium cordate, as long as wide; lateral antennae half as long as prostomial width ..... *N. hera* Kato & Mawatari, 1999 Japan.

9(8). Eyes large, 1/4 as long as prostomial width; lateral antennae as long as prostomial width; dorsal cirri markedly longer than wide; longest tentacular cirri reach segment 7 (palps and antennae with subdistal constriction?) ..... *N. dohrnii* (Langerhans, 1880) Madeira.
— Eyes small, 1/6-1/7 as long as prostomial width 10

10(9). Longest tentacular cirri reach segment 5; ventral cirri oval, blunt 11
— Longest tentacular cirri reach segment 17; lateral antennae twice longer than prostomial width; ventral cirri oval, pointed ..... *N. ferruginea* (Moore, 1909) California.

11(10). Lateral antennae 1/3 as long as prostomial width; prostomium oval; ventral cirri longer than neurochaetal lobe ..... *N. castanea sensu* Gardiner 1976 North Carolina.
— Lateral antennae half as long as prostomial width; prostomium rectangular; ventral cirri barely longer than neurochaetal lobe ..... *N. etiennei* n. sp. Clipperton.

12(2). Dorsal cirri longer than wide 13
— Dorsal cirri wider than long 14

13(12). Eyes ⅕ as long as prostomial width; lateral antennae half as long as prostomial width; ventral cirri lanceolate, blunt ..... *N. rubiginosa* (de Saint-Joseph, 1888) Brittany, France.
— Eyes ⅓ as long as prostomial width; lateral antennae as long as prostomial width; ventral cirri oval, blunt . ..... *N. undulaticirra* Averincev, 1972 Antarctic.

14(12). Prostomium as long as wide 15
— Prostomium longer than wide; eyes ⅕ as long as prostomial width; lateral antennae half as long as prostomial width ..... *N. lutea* (Malmgren, 1865) Sweden.

15(14). Eyes small, ⅛ as long as prostomial width; lateral antennae blunt; ventral cirri longer than neurochaetal lobe ..... *N. polyphylla* (Ehlers, 1897) South Georgia.
— Eyes large, ¼ as long as prostomial width; lateral antennae tapered; ventral cirri as long as neurochaetal lobe ..... *N. castanea* (von Marenzeller, 1879) *sensu* Gathof 1984; Salazar-Vallejo 1996 Grand Caribbean.

16(1). Dorsal cirri as long as wide, or longer than wide 17
— Dorsal cirri wider than long 24

17(16). Dorsal cirri as long as wide; prostomium as long as wide; eyes ¼ as long as prostomial width; lateral antennae as long as prostomial width; longest tentacular cirri reach segment 5; ventral cirri oval, blunt .... *N. pusilla* (Claparède, 1870) Mediterranean Sea.
— Dorsal cirri longer than wide 18

18(17). Prostomium as long as wide 19
— Prostomium longer than wide 23
— Prostomium wider than long; eyes ¼ as long as prostomial width; longest tentacular cirri reach segment 5 ..... *N. mimica* Eibye-Jacobsen, 1992 Belize.

19(18). With eyes 20
— Without eyes; lateral antennae as long as prostomial width; longest tentacular cirri reach segments 3-4 .... *N. antennata* Hartman, 1965 New England.

20(19). Lateral antennae long, as long as, or longer than prostomium 21
— Lateral antennae short, ⅐ as long as prostomial width; eyes ⅕ as long as prostomial width .... *N. violacea* Hartmann-Schröder, 1965 Samoa.

21(20). First tentacular cirri as long as segment width; eyes ¼ as long as prostomial width 22
–First tentacular cirri half as long as segment width; eyes ⅙ as long as prostomial width .... *N. bermudae* (Verrill, 1900) Bermuda.

22(21). Longest tentacular cirri reach segment 8-9; lateral antennae longer than prostomial width .... *N. castanea sensu* Blake, 1997 California.
— Longest tentacular cirri reach segment 10; lateral antennae as long as prostomial width .... *N. tuberculata* (Bobretzky, 1868) Black Sea.

23(18). Eyes ⅕ as long as prostomial width; longest tentacular cirri reach segment 5-6; ventral cirri lanceolate .... *N. gruai* (Rullier, 1972) Kerguelen Island.
— Without eyes; longest tentacular cirri reach segment 9-10; ventral cirri oval .... *N. caeca* Averincev, 1972 Antarctic.

24(16). Lateral antennae as long as prostomial width; eyes ⅓ as long as prostomial width .... *N. magnaoculata* (Treadwell, 1902) Puerto Rico.
— Lateral antennae shorter than prostomial width 25

25(24). Eyes large, ¼ as long as prostomial width; lateral antennae half as long as prostomial width .... *N. crassa* Imajima, 2003 Japan.
— Eyes small, ⅐ as long as prostomial width; lateral antennae ⅓ as long as prostomial width .... *N. pusilla sensu* Alós, 2004 Iberia.

width throughout fragment, 2.7 mm long, 0.3 mm wide, 33 chaetigers.

Prostomium rectangular, slightly longer than wide (Fig. 4A). Lateral antennae and palps oblong tapered, of similar length, half as long as prostomial width (Fig. 3B); without median antenna. Eyes dark brown, about ⅐ as long as prostomial width. Posterior prostomial notch not seen, a paler area visible, but not depressed. Segment 1 completely reduced dorsally. Nuchal organs not seen.

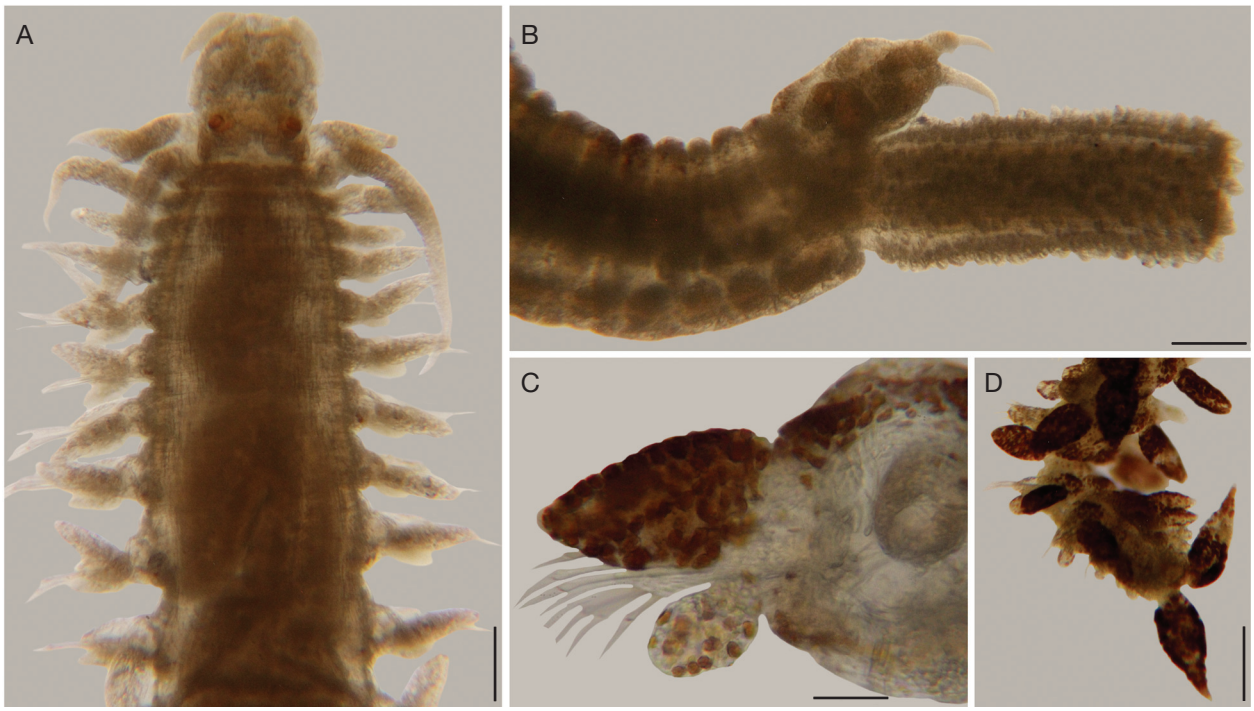

Fig. 4. — *Nereiphylla etiennei* n. sp.: **A**, holotype (MNHN-IA-TYPE2044), anterior region, dorsal view; **B**, paratype (MNHN-IA-TYPE2045), anterior region, right lateral view; **C**, paratype (ECOSUR 277), posterior chaetiger, posterior view; **D**, same, posterior region, dorsal view. Scale bars: A, B, D, 0.1 mm; C, 30 µm.

Pharynx

Pharynx partially exposed in paratypes (Fig. 4B), brownish, as long as first 6 segments; surface completely covered by globular papillae, in alternating rows, each papilla slightly longer than wide; 8-9 larger papillae in aperture.

Tentacular cirri

Tentacular cirri all cirriform, tapered; cirri of segment 1 reaching segment 4 (chaetiger 2); dorsal cirri of segment 2 longest, reaching segments 7-8 (chaetiger 5-6), ventral cirri of segment 2 reaching segment 4 (chaetiger 2); dorsal cirri of segment 3 reaching segment 7 (chaetiger 5). Segment 3 with neuropodial lobe and chaetae.

Parapodia and chaetae

Parapodia with dorsal cirri cordate, longer than wide, with better defined tips in anterior chaetigers, blunt in median and posterior ones; dorsal cirri paler in anterior chaetigers, darker in median and posterior chaetigers (Fig. 4C, D). Parapodial glands globular, brownish to dark brown, often projected from body wall giving cirri a rugose outline. Neuropodial lobe conical, acicular lobes not defined. Neurochaetae 7-8 compound spinigers per bundle; handle prismatic, almost smooth, blades delicate, 8-9× longer than wide, finely denticulate. Ventral cirri oval, blunt, with less pigmented glands than dorsal cirri, barely longer than neurochaetal lobe. Posterior parapodia in one paratype (ECOSUR 277) with abundant spermatids in coelom.

Posterior region

Visible in one paratype (Fig. 4D) tapered into a blunt cone; pygidium with anus terminal, anal cirri 2-3× longer than dorsal cirri of previous chaetigers, lanceolate, with long tips and abundant brownish globular glands.

Variation

Pigmentation varies, with the anterior region often paler than median and posterior ones. Globular pigmented glands vary in abundance along body; dorsum often with a transverse band with abundant to sparse glands, and in paler segments often one pair of pigmented glands are visible one on each side, close to parapodial bases. The prostomial shape is not modified after pharynx eversion. Dorsal cirri are longer and with tips better defined along anterior chaetigers, but in median and posterior chaetigers they become shorter and with tips less defined. One of the paratypes (ECOSUR) has spermatids in parapodial coelom and although the other specimens were not dissected, they are regarded as mature organisms, not juveniles despite their small size.

Remarks

Nereiphylla etiennei n. sp. resembles what Gardiner (1976: 113, Fig. 7h-k) recorded from the Northwestern Atlantic as *N. castanea* (von Marenzeller, 1879). These two species have prostomium longer than wide, eyes ⅙-⅐ as long as prostomial width, longest tentacular cirri reaching chaetiger 5, dorsal cirri cordate, longer than wide, and ventral cirri oval, blunt. These species differ especially because in *N. etiennei* n. sp. the prostomium is rectangular, lateral antennae are half as long as prostomial width, and ventral cirri are barely longer than neurochaetal lobe, whereas in Gardiner's specimens the prostomium is oval, lateral antennae are ⅓ as long as prostomial width, and ventral cirri are longer than neurochaetal lobes.

On the other hand, *N. castanea* has been recorded from many different localities throughout the world. Some of the records include descriptions and illustrations such that they were regarded as different from the typical form in the key above, as redescribed by Izuka (1912: 199, Pl. 21, Fig. 3). These differences deserve a further study to clarify their relevance and if confirmed, they should be regarded as distinct species. This, however, is beyond the objective of this contribution.

Genus *Pterocirrus* Claparède, 1868

Pterocirrus Claparède, 1868: 558. — Michaelsen 1892: 103. — de Saint-Joseph 1895: 226. — Ehlers 1904: 17. — McIntosh 1908: 62. — Uschakov 1972: 151. — Pleijel 1991: 240.

Type species. — *Eulalia* (*Pterocirrus*) *velifera* Claparède, 1868 by subsequent designation (Bergström 1914: 98); junior synonym of *Phyllodoce (Eulalia) macroceros* Grube, 1860 after Grube (1880: 211).

Diagnosis (modified after Pleijel 1991). — Phyllodocids with prostomium oval to cordate with two lateral antennae, median antenna well developed; eyes usually large, well developed. Nuchal organs not projected posteriorly. Four pairs of tentacular cirri; dorsal cirri cylindrical to medially widened, ventral cirri similar except in segment 2, being larger, foliose. Median segments with dorsal cirri lanceolate to cordate. Supracicular lobes blunt to tapered, sometimes more projected than subacicular lobes. Neurochaetal shafts with scarce distal denticles. Anal cirri tapered. Pharyngeal surface with abundant filiform papillae, rarely globose.

Distribution. — The species of *Pterocirrus* have been described mostly from shallow-water localities from tropical, temperate and polar seas.

Remarks

Pterocirrus Claparède, 1868 was proposed as a subgenus in *Eulalia* Savigny, 1822, and it was regarded as an independent genus by Michaelsen (1892: 103), de Saint-Joseph (1895: 226), and Ehlers (1904: 17). However, Bergström (1914: 99) regarded it as a junior synonym of *Sige* Malmgren, 1865. His conclusion was surprising because of three facts. First, *Sige* lacks winged ventral cirri in segment 2, which were used for naming the subgenus as *Pterocirrus.* Second, *Sige* has digitate, markedly projected supracicular lobes, which are not so projected in *Pterocirrus.* Third, in *Sige* the pharynx appears smooth, but in *Pterocirrus* it was characterized as having abundant large, blunt papillae by McIntosh (1908: 62).

As part of his monograph on Northwestern Pacific polychaetes, Uschakov (1972: 151) included a key to phyllodocid genera, reinstated *Pterocirrus* as an independent genus, and provided a diagnosis and a key for identifying its species. Uschakov's proposal was followed by Banse (1973), Banse & Hobson (1974), and Fauchald (1977). Pleijel (1991) analysed

Key to species of *Pterocirrus* Claparède, 1868 (modified after Ushakov 1972)

1. Median antenna inserted close to anterior prostomial margin 2
— Median antenna inserted towards prostomial central area, between eyes 13
— Median antenna inserted towards posterior prostomial margin; prostomium oval, slightly wider than long ... 20

2(1). Prostomium cordate (widened posteriorly) 3
— Prostomium oval, usually longer than wide 9

3(2). Eyes oval, markedly pigmented 4
— Without eyes, two large oblique, scarcely pigmented spots; dorsum dark olive green .... *P. slastnikovi* (Annenkova, 1946) Arctic Ocean.

4(3). Dorsum with homogeneous pigmentation 5
— Dorsum with heterogeneous pigmentation, transverse brownish bands, segments 4-5 pale, intersegmental areas pale; eyes half as long as prostomium; supracicular lobes more projected than subacicular ones .... *P. burtoni* Pleijel, Aguado & Rouse, 2012 California.

5(4). Prostomium middorsally projected posteriorly; dorsum grayish to pale green;eyes ⅓-¼ as long as prostomium ..... *P. limbatus* (Claparède, 1868) Mediterranean Sea
— Prostomium posterior margin not projected, pigmented; dorsum brownish 6

6(5). Palps and lateral antennae of similar length (palps terminal) 7
— Palps half as long as lateral antennae (palps displaced ventrally); supracicular lobes more projected than subacicular ones ..... *P. macroceros* (Grube, 1860) Mediterranean, Northeastern Atlantic.

7(6). Segments dorsally smooth, without papillae 8
— Segments with a dorsal row of minute papillae; acicular lobes parallel; about 26 neurochaetae per bundle ... . *P. macroceros orientalis* (Imajima & Hartman, 1964) Japan.

8(7). Median antenna as long as lateral ones; dorsal cirri tapered, without subdistal constriction; acicular lobes barely divergent; 12-22 neurochaetae per bundle (6.5-17.0 mm long) ..... *P. bouchardi* n. sp. Clipperton Island.
— Median antenna shorter than lateral ones; dorsal cirri with a subdistal constriction; acicular lobes divergent; about 20 neurochaetae per bundle (35 mm long) ..... *P. montereyensis* (Hartman, 1936) California.

9(2). Eyes large, oval 10
— Eyes minute; dorsal cirri lanceolate, slightly longer than wide ..... *P. parvoseta* (Banse & Hobson, 1968) Washington.

10(9). Median antenna longer than lateral ones; eyes half as long as prostomium ..... *P. foliosus* (Treadwell, 1924) Caribbean Sea.
— Median antenna as long as lateral ones 11

— Median antenna shorter than lateral ones; dorsum pale purple ..... *P. marginatus* (Claparède, 1868) Mediterranean Sea.

11(10). Dorsal cirri cordate 12
— Dorsal cirri lanceolate, about twice longer than wide; dorsum dark greenish-brown with pale intersegmental bands ..... *P. ceylonicus* Michaelsen, 1892 Sri-Lanka.

12(11). Prostomium as wide as long, or wider than long; dorsal cirri ⅓ longer than wide; dorsum with broad longitudinal band ..... *P. foliosus* (Treadwell, 1924) *sensu* Eibye-Jacobsen 1992 Grand Caribbean.
— Prostomium longer than wide; dorsal cirri as long as wide; dorsum homogeneously yellowish brown ..... *P. nidarosiensis* Pleijel, 1987 Norway.

13(1). Prostomium cordate (wider posteriorly) 14
— Prostomium oval 19

14(13). Median antenna shorter than prostomial width 15
— Median antenna as long as prostomial width 18

15(14). Eyes small, 1⁄10 as long as prostomial length; dorsal cirri twice longer than wide, lanceolate, tapered; neurochaetal blades 8× longer than wide ..... *P. magalaensis minuta* (Averincev, 1972) Antarctica.
— Eyes large, ⅓ to ¼ prostomial length 16

16(15). Median antenna long, 7× longer than wide; eyes ⅓ as long as prostomial length ..... *P. microcephalus* (Claparède, 1870) Mediterranean Sea.
— Median antenna short, 3-4× longer than wide; eyes ¼ as long as prostomial length 17

17(16). Neurochaetal blades 12× longer than wide; dorsal cirri 2.5× longer than wide; median antenna 4× longer than wide ..... *P. brevicirris* Ehlers, 1904 New Zealand.
— Neurochaetal blades up to 6× longer than wide; dorsal cirri twice longer than wide; median antenna 3× longer than wide ..... *P. magalaensis* (Kinberg, 1865) Magellan's Strait, Chile.

18(14). Eyes small, 1⁄7 as long as prostomial length; dorsal cirri cordate, slightly longer than wide ..... *P. hunteri* (Benham, 1921) Antarctic Ocean.
— Eyes large, ⅓ as long as prostomial length; dorsal cirri lanceolate, twice longer than wide ..... *P. macleani* (Benham, 1921) Antarctic Ocean.

19(13). Eyes small, 1⁄7 as long as prostomial width; dorsal cirri lanceolate, slightly longer than wide ..... *P. giribeti* Leiva & Taboada *in* Leiva *et al.* 2018.
— Without eyes; dorsal cirri lanceolate, twice longer than wide ..... *P. remus* Böggemann, 2009 Western Africa.

20(1). Eyes large, ¼ as long as prostomial length; dorsal cirri cordate, slightly longer than wide ..... *P. notoensis* (Imajima, 1967) Japan.
— Without eyes (larger dark spots displaced anteriorly); dorsal cirri lanceolate, 4× longer than wide ..... *P. imajimai* Ushakov, 1972 Japan, California, 3260-5460 m.

the phylogeny and proposed a new classification for the Phyllodocidae, including revised diagnosis for all genera.

On the other hand, *Pterocirrus* resembles *Eulalia* Savigny, 1822 because in both genera, ventral cirri of segment 2 are wider than the others, although in *Eulalia* they are not so markedly expanded as in *Pterocirrus*, and in *Eulalia* the pharynx has globular papillae, but they are thinner, filiform in *Pterocirrus*. Further, in *Eulalia* acicular lobes are blunt, of similar size, whereas in *Pterocirrus* the supracicular lobe is often more projected than the subacicular one.

Pterocirrus bouchardi n. sp.
(Figs 5; 6)

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Type material. — **Holotype**. **Clipperton Island** • 1 specimen; Sta. 34; 10°18.75'N, 109°12.02'W; fallen coral mound; 20 m to 55 m; 26.I. 2005; S. Hourdez, K.-L. Kaiser, J.-M. Bompar, leg.; MNHN-IA-TYPE2046.
Paratypes. **Clipperton Island** • 3 specimens; Sta. 15 (no coordinates); chaetopterid tube mass and small stones; 37 m; 19.I.2005;

Fig. 5. — *Pterocirrus bouchardi* n. sp., holotype (MNHN-IA-TYPE2046): **A**, complete, dorsal view; **B**, anterior region, dorsal view; **C**, median chaetiger, right parapodium, without dorsal cirrus, posterior view (after Methyl green); **D**, posterior chaetiger, right parapodium, dorsal cirrus bent posteriorly, posterior view (after Methyl green); **E**, posterior region. Scale bars: A, 0.6 mm; B, 0.3 mm; C, D: 0.1 mm; E, 0.2 mm.

J.-M. Bouchard, L. Albenga, L. Dugrais, leg.; MNHN-IA-TYPE2047 (anterior body third widest, without tentacular cirri, most dorsal cirri lost; largest paratype mature female, without posterior end; 6-5-17.0 mm long, 0.9-1.9 mm wide, complete paratypes with 76-98 segments, largest with 106 segments. 15-22 neurochaetae per bundle. Oocytes in parapodial space from segment 40, each 30-40 µm in diameter. Medium-sized specimen with blackish pigmentation along posterior body half) • 1 specimen; Sta. 24; 10°17.93'N, 109°14.00'W; coral rubble; night dive; 23 m; 22.I.2005; J.-M. Bouchard, L. Albenga, L. Dugrais, leg.; ECOSUR 278 (Body twisted, brownish anteriorly, dorsally with continuous pigmentation, darker inter-segmentally, ventrally up to segment 25 with a paler midventral oval area, following segments paler. Anterior fragment 6.6 mm long, 0.8 mm wide (excluding chaetae), 54 segments; dorsal tentacular cirri of segment 2 reach chaetiger 25-26; ventral tentacular cirri of segment 2 with long arista, tip curved; about 14 neurochaetae per bundle).

Additional material. — Clipperton Island • 1; Sta. 18; 10°19.22'N, 109°13.38'W; rocks; suction pump, sediment under rocks; 55 m; 20.I.2005; J.-M. Bouchard, L. Albenga, L. Dugrais, leg. ECOSUR (anterior fragment twisted, tentacular and dorsal cirri lost, pharynx not exposed; dorsum brownish; fragment 8.5 mm long, 0.8 mm wide, chaetigers).

Diagnosis. — *Pterocirrus* with prostomium cordate, posterior margins entire, not projected posteriorly, median antennae inserted close to anterior margin; palps and antennae of similar size; dorsum with homogeneous pigmentation; acicular lobes of similar size; neurochaetae with handles smooth. Pharynx with abundant long papillae.

Etymology. — The specific name is to honor Dr Jean-Marie Bouchard, a crustacean specialist who participated in the Clipperton Expedition, and was involved in sampling benthic samples, including the ones used for naming this species. The specific epithet is a noun in the genitive case (ICZN 1999, Art. 31.1.2).

Distribution. — Only known from the type locality, Clipperton Island, in subtidal rocky bottoms, 20-55 m depth.

Description

Body

Holotype (MNHN-IA-TYPE2046), juvenile with many dorsal cirri retained, pharynx almost completely exposed (Fig. 5A); body truncate anteriorly, wider by segment 20, tapered posteriorly; dorsum brownish, paler medially and posteriorly: body 9 mm long, 0.9 mm wide, 78 segments.

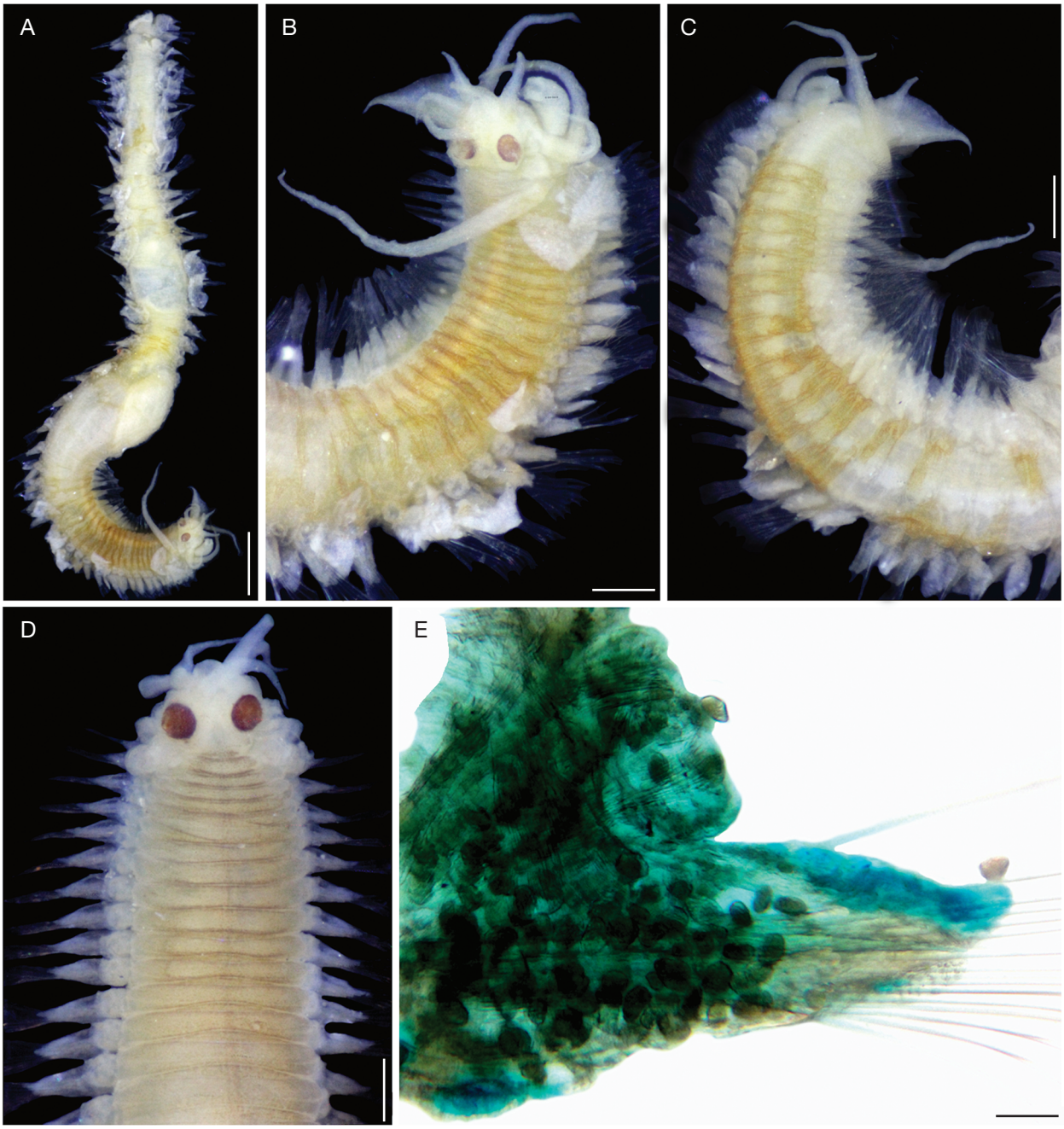

FIG. 6. — *Pterocirrus bouchardi* n. sp., paratypes: **A**, juvenile paratype (ECOSUR 278), without posterior region; **B**, same, anterior region, oblique dorsal view; **C**, same, oblique ventral view; **D**, largest paratype (MNHN), mature female, anterior region, dorsal view (tentacular and parapodial cirri lost); **E**, same, median chaetiger, left parapodium, anterior view with many oocytes (after Methyl green). Scale bars: A, 0.6 mm; B, C, D, 0.3 mm; E, 60 µm.

Anterior end

Prostomium cordate, distorted by everted pharynx, slightly bent posteriorly, barely wider than long, without anterior protuberance (Fig. 5B). Palps and antennae oblong tapered; palps and antennae of similar length, median antennae inserted close to anterior prostomial margin. Eyes large, brownish, subcircular, ⅓ as long as prostomial width. Posterior prostomial notch not seen. Segment 1 visible as a thin fusiform pigmented area. Nuchal organs not seen.

Pharynx

Pharynx exposed, including a smooth posterior enteric region, twice longer than pharynx, pharynx with abundant papillae (Fig. 5B), almost twice as wide as enteric portion. Each papilla 3-4× longer than wide, tapered, tips bent posteriorly. Pharynx aperture not seen.

Tentacular cirri

Tentacular cirri of segment 1 cirriform, reaching segments 9-10 (chaetigers 5-6); dorsal cirri of segments 2 and 3 cir-

riform, reaching segments 18-20 (chaetigers 14-16); ventral cirri of segment 2 with a large foliose projection, reaching segments 9-10 (chaetigers 5-6). Segment 3 without neuropodial lobes or chaetae. Segment 4 with neuropodial lobes and chaetae. Parapodia with dorsal cirri lanceolate, basally asymmetrical, mucronate, twice longer than wide, becoming slightly thinner in posterior segments (Fig. 5D). Supracicular lobes larger, more projected than infracicular ones (Fig. 5C), especially along anterior segments. Neurochaetae 12-15 compound spinigers per bundle; handles subdistally smooth (under 40 X enlargements), blades delicate, 20-25× longer than wide, denticulate, denticles larger basally. Ventral cirri oval, pointed, about twice longer than wide.

Posterior region

Tapered into a blunt cone; pygidium with anus terminal, anal cirri lost.

Variation

The holotype and three of the paratypes are juveniles (6.5-9.0 mm long, 0.8-0.9 mm wide) showing brownish pigmentation dorsally and ventrally along anterior region in one paratype. One juvenile paratype (ECOSUR 278), slightly damaged (Fig. 6A), has darker intersegmental areas dorsally (Fig. 6B), and ventrally with pale midventral oval areas along a few anterior segments (Fig. 6C), following segments with a progressively smaller pigmented area. The largest paratype (MNHN-IA-TYPE2047) is a colorless, posteriorly incomplete mature female without tentacular or parapodial cirri (Fig. 6D) which also has intersegmental darker dorsal areas, but venter pale. This adult female is an anterior fragment (17 mm long, 1.9 mm wide), with oocytes floating in the coelomic parapodial spaces (Fig. 6E), each oval about 30-40 µm in length, and starting from about segment 40. Prostomial features such as eyes (size and pigmentation), as well as palps and antennae (size and insertion) are conservative, and show no modifications in the type material, although one antenna or cirrus were frequently missing. Because tentacular and dorsal cirri are dehiscent, their size-related modifications remain unknown; however, in the holotype dorsal cirri retain a similar shape throughout body, although they become slightly narrower along posterior segments. Neurochaetal numbers are somehow size-dependent because there are about 14 in smaller paratypes, and 22 in the largest one. In *Pterocirrus* species, neurochaetal handles look smooth, as indicated by Eibye-Jacobsen (1991), because they have a very short distal denticulated area.

Remarks

Pterocirrus bouchardi n. sp. resembles *P. montereyensis* (Hartman, 1936) described from central California, and recently redescribed by Pleijel *et al.* (2012), because they have a cordate prostomium, palps and lateral antennae of similar size, median antenna inserted close to anterior prostomial margin, eyes half as long as prostomial length, and segments dorsally smooth. These two species differ regarding the relative size of median to lateral antennae, dorsal cirri, and acicular lobes. In *P. bouchardi* n. sp. the median antenna is as long as lateral ones, dorsal cirri are tapered, without subdistal constriction, and acicular lobes are barely divergent, not separated from each other. On the contrary, in *P. montereyensis* the median antenna is smaller than the lateral ones, dorsal cirri are subdistally constricted, and acicular lobes are divergent, and medially separated from each other.

The reason why the juvenile was selected as the holotype is after it has the characteristic limbate ventral cirrus in chaetiger 2, whereas the adult specimen lost the cirri almost completely, and especially the diagnostic ones.

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