

Descriptions of two new species of *Eunice* Cuvier, 1817 (Polychaeta: Eunicidae) from coastal islands of the State of São Paulo, Brazil*

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SUMMARY: Two new species of *Eunice* from coastal islands of the state of São Paulo are described, both of them living in colonies of the coral *Mussismilia hispida*. One species was also collected from a sandy beach. *Eunice insularis* has short palps and antennae in a horseshoe, without articulations; most of the specimens studied are abranchiate, but some have one branchial filament in a few parapodia. *Eunice marconii* also has palps and antennae without articulations, in a horseshoe, and 1-3 long slender branchial filaments from the anterior to posteriormost chaetigers. These new species are compared with the morphologically closest congeners.

Key words: *Eunice*, Eunicidae, *Mussismilia hispida*, systematics, state of São Paulo, Brazil.

INTRODUCTION

Eunice Cuvier, 1817 is characterised by having 1 central antenna, 1 pair of lateral antennae, 1 pair of slender dorsolateral palps (formerly considered as an additional pair of antennae), and 1 pair of peristomial cirri (Orrhage, 1995). Chaetae include limbate and pectinate chaetae, compound falcigers, subacicular hooks, and in some species compound spinigers and pseudocompound falcigers; the subacicular hooks and falcigers are protected by paired guards (Fauchald, 1992). Branchiae may be present, and some species have been described with both branchiate and abranchiate forms. However, Fauchald (1992) stated that this character, at least in some species, is

invariable and therefore these different "forms" should be considered as different species.

Fauchald (1992) reviewed the genus and considered more than 200 species as valid. Other species were not included in his revision, or were described later (Miura, 1986, 1987; Orensanz, 1990; Carrera-Parra and Salazar-Valejo, 1998; Lu and Fauchald, 1998). In Brazil, 26 species of *Eunice* have been identified up to the present (Hartman, 1948; Nonato, 1981; Nonato and Luna, 1970; Rullier and Amoureux, 1979; Lana, 1981; Morgado and Amaral, 1981), but except for the species of the southeastern and southern areas, most Brazilian polychaetes are poorly known.

Two new species of *Eunice* are described herein. Both live in colonies of the stony coral *Mussismilia hispida* (Verrill, 1902) on coastal islands of the state

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of São Paulo. One of the species was also found in a sandy beach.

MATERIAL AND METHODS

The specimens described in this paper came from collections made for two independent projects carried out on the coast of the state of São Paulo. The first project examined the intertidal macrofaunal polychaetes along the São Sebastião Channel. The other project analysed the fauna present in colonies of the stony coral *Mussismilia hispida* (Verrill, 1868) on rocky shores of coastal islands (Nogueira, 1995), and particularly the polychaetes in colonies of the same coral in two islands in the same area (Nogueira, 2000).

For the first project, samples of sediment from every kind of intertidal environment along São Sebastião Channel were collected. The macrofaunal polychaetes were fixed in 4% formalin, transferred to 70% alcohol, and identified. Collections were made monthly in 1992-1993 and 1995-1998. The particular collection at Engenho d'Água Beach, São Sebastião Island, a sandy beach where *Eunice insularis* sp. n. was found, was made in September 1992. For the second project, a total of 18 colonies of the massive coral *M. hispida* were collected on the rocky shores of two islands off the coast of São Paulo: Alcatrazes Island (26°06'S, 45°42'W), on 30 March 1995 and 4 December 1996, and Laje de Santos (24°19'S, 46°11'W), on 17 March 1996. On both islands the rocky shores have hemispheric colonies of *M. hispida* scattered over the rocks, as well as large colonies of the cnidarians *Palythoa* and *Zoanthus*, and some algal tufts. Corals were fixed in 4% formalin and later decalcified with formalin-formic acid solution. Polychaetes were sorted from the sediment and transferred to 70% alcohol prior to identification.

Observations and measurements were made using Nomarski interference contrast optics. Drawings were made with a drawing tube. Scanning electron micrographs of the material were made at the Laboratório de Microscopia Eletrônica, Instituto de Biociências, Universidade de São Paulo. Type material is deposited at the Museu de História Natural, Instituto de Biologia, Universidade Estadual de Campinas (UNICAMP; Catalogue series MHN-BPO 74 and MHN-BPO 75).

With this methodology, it was not possible to determine whether these species are truly associated

with the corals, or if they are merely cryptic species sheltering beneath the corals.

DESCRIPTION OF SPECIES

Family EUNICIDAE Berthold, 1827

Genus *Eunice* Cuvier, 1817

Eunice insularis sp. n.

(Figs. 1-2)

Material examined: 194 specimens, 5 from São Sebastião Island, 21 from Laje de Santos, and 168 from Alcatrazes Island. Holotype: MHN-BPO 74/0, from Alcatrazes, paratypes from São Sebastião: MHN-BPO 74/1-2, paratypes from Laje de Santos: MHN-BPO 74/3-7; paratypes from Alcatrazes: MHN-BPO 74/8-13.

Etymology: The species was named *Eunice insularis* because, although the area has been extensively studied by Dr. Amaral and associates, it has never been recorded from the mainland of the state of São Paulo, but only from islands.

Description: Holotype complete specimen, with 127 chaetigers, in good condition, about 29.8 mm long and 1.9 mm wide, at the level of chaetiger 18. Body slender, anterior part ventrally flattened, cylindrical from midbody. Prostomium slightly longer than peristomium, superior lip projections distally rounded, inflated dorsally and ventrally, with median sulcus (Fig. 1A, H, I). Palps and antennae in horseshoe, ceratophores short, ring-shaped, without articulations; ceratostyles digitiform, slightly thicker distally, wrinkled, but without true articulations. Palps and lateral antennae very close to each other, separated from central antenna by a gap. Palps reaching posterior border of anterior peristomial ring, lateral antennae reaching midlength of chaetiger 1, and central antenna reaching midlength of chaetiger 2. One pair of black eyes, posterior to bases of palps (Fig. 1A). Anterior peristomial ring extending through 3/4 of total peristomium length; separation between peristomial rings distinct on all sides; inferior lip distinct, muscular. Peristomial cirri digitiform, anterior half of anterior peristomial ring. Mandibles with light narrow shafts, and concentric lines on cutting edges (Fig. 2G). Maxillary formula: I- 1+1, II- 6+7, III- 8+0, IV- 8+11, V- 1+1 (Fig. 2H). Branchiae observed in few specimens (absent in holotype), as a single filament, flattened, in few parapodia (Fig. 1D). Dorsal cirri short, tapering, with slightly inflated oval bases; anterior dorsal cirri short (Fig. 1C), becoming even shorter on midbody (Fig. 1E, G), and somewhat longer on posterior ones (Fig. 1F).

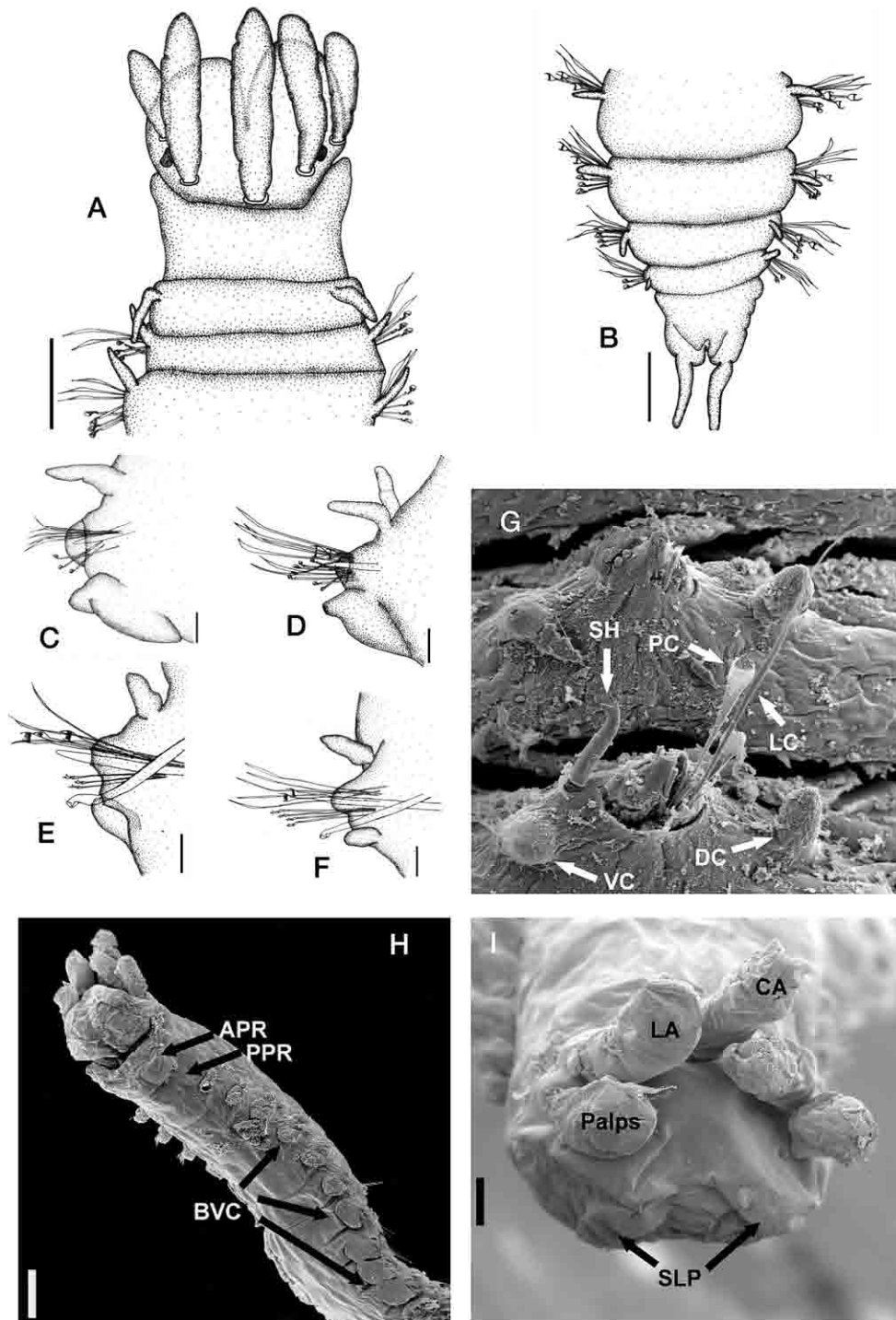


FIG. 1. – *Eunice insularis* sp. n. A, anterior end, dorsal view; B, pygidium, dorsal view; C, G, parapodia: C, chaetiger 15; D, chaetiger 15 (individual from São Sebastião Island), E, chaetiger 52, F, chaetiger 132, G, chaetiger 63; H, anterior end, lateral view; I, anterior end, frontal view. APR, anterior peristomial ring; BVC, bases of ventral cirri; CA, central antenna; DC, dorsal cirrus; LA, lateral antennae; LC, limbate chaetae; PPR, posterior peristomial ring; PC, pectinate chaetae; SH, subacicular hook; SLP, superior lip projections; VC, ventral cirrus. Scale bars: A, B: 200 μ m; C, F: 100 μ m; G: 47 μ m; H: 500 μ m; I: 160 μ m.

Ventral cirri of first three chaetigers digitiform, without inflated bases; from chaetigers 4-31, with inflated oval bases, and tips short and rounded (Fig. 1C, H); from chaetigers 32-38, inflated bases decreasing in size, disappearing from chaetiger 39

on, tips slightly increasing in length and thickness (Fig. 1E, F, G). Limbate chaetae much longer than other chaetae, limb with very short teeth (visible in SEM micrographs; Figs. 1G; 2A, F). Four to six pectinate chaetae per parapodium, symmetrical,

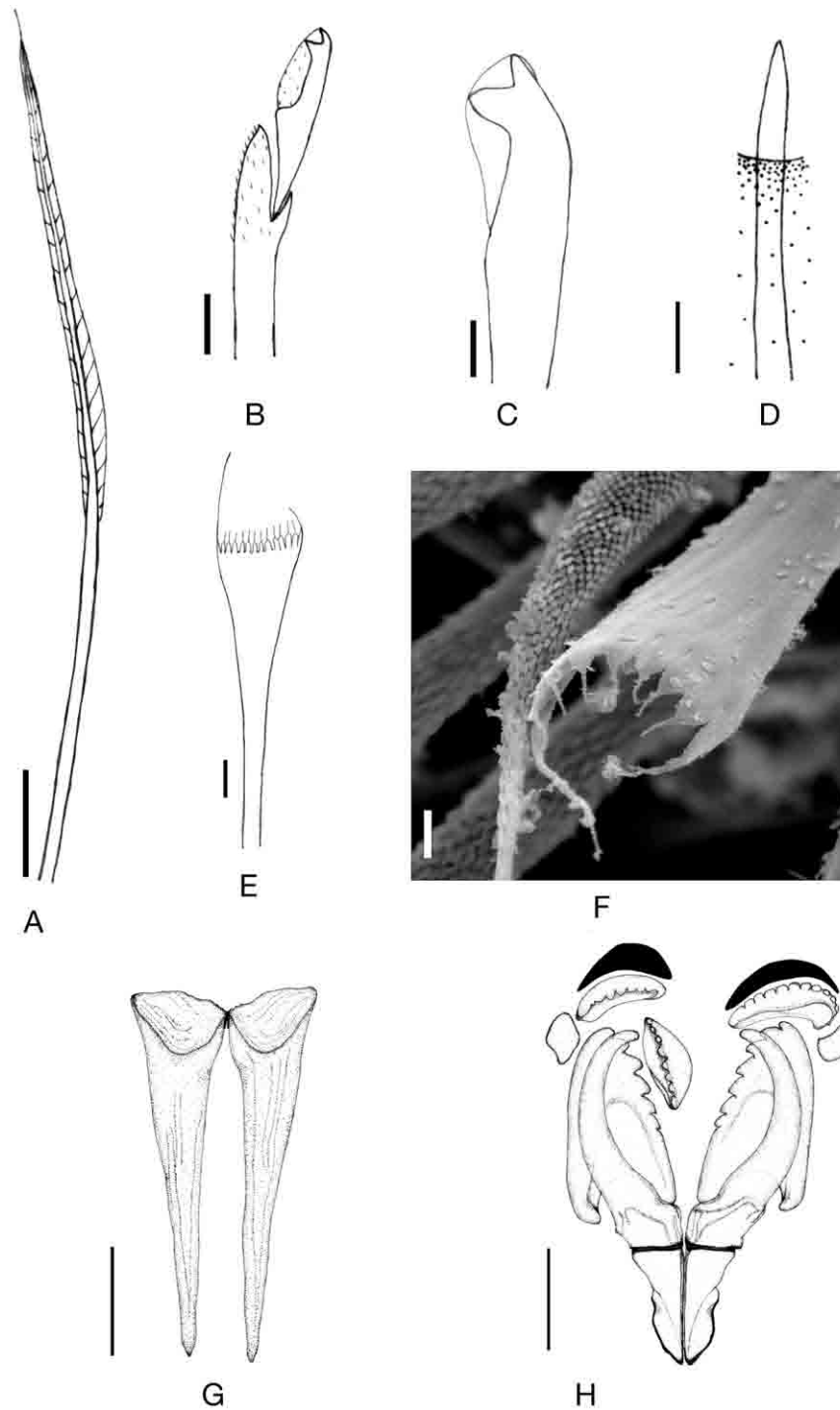


FIG. 2. – *Eumice insularis* sp. n. A, limbate chaeta; B, compound falciger; C, subacicular hook; D, aciculum; E, pectinate chaeta; F, pectinate and limbate chaetae, anterior parapodium; G, mandibles; H, maxillae. Scale bars: A: 50 μ m; B, C, E: 10 μ m; D: 20 μ m; F: 4 μ m; G, H: 200

furled, with 10-13 sharp teeth, lateral teeth longer than other teeth, one of the lateral twice as long as the other; other teeth short and stout, abruptly tapering, with filamentous tips (Figs. 1G; 2E, F). Compound chaetae exclusively falcigers, more than 10 on anterior chaetigers, 3-5 from midbody; all chaetae about same length, shafts distally inflated,

with minute serrations and short beak. Blades of falcigers strongly bidentate, both teeth directed laterally, separated by wide gap; distal tooth narrower and shorter; guards rounded, covering the blade, denticulated, without mucros (Fig. 2B). One or two acicula per parapodium, straight, bluntly conical, clear and translucent on anterior chaetigers, darkening

from chaetiger 25-30 (25 in holotype), then dark brown (Fig. 2D). Subacicular hooks from chaetiger 20-28 (27 in holotype), single, brown, bidentate; proximal tooth directed laterally, much larger than upwardly directed distal tooth (Figs. 1G; 2C). Pygidium with 1 pair of anal cirri (Fig. 1B).

Variation: Branchiae were present in one specimen from São Sebastião Island, in some parapodia from chaetigers 15-22, and in several specimens from Alcatrazes Island, on the posterior chaetigers. In addition to the position, the size of the filaments also varied, from very short filaments in the specimen from São Sebastião Island, to spiral filaments, much longer than the dorsal cirri, in some specimens from Alcatrazes. The presence or absence of branchiae does not depend on the size of the worm.

Younger specimens lack peristomial cirri, but are identical to the larger specimens in all other features. The absence of peristomial cirri and branchiae would place those specimens in a different genus, *Paramarphysa* Ehlers, 1887, but they are in fact merely juveniles of the same species and, as in the case of *Eunice wui* Lu and Fauchald, 1998, the presence of peristomial cirri depends on the size of the worms.

Discussion: Although Fauchald (1992) considered the presence or absence of branchiae to be a very important character for the identification of a species (at least for some species, such as *Eunice cariboea*), this is a highly variable character in *Eunice insularis*. In this species, the branchiate and abranchiate forms are absolutely identical in all other features, and the branchiae, when present, also differ in position and length from one specimen to another. Among branchiate *Eunice*, the species most similar to *E. insularis* are *E. excariboea* Fauchald, 1992 and *E. gagzoi* Augener, 1922, two species that were frequently identified as branchiate forms of *E. cariboea* Grube, 1856, before Fauchald's review of the genus (1992). *Eunice excariboea* differs from *E. insularis* in having: palps and antennae with articulated ceratostyles, as well as dorsal cirri; branchiae palmate, with 2-3 filaments instead of 1, as in *E. insularis*; subacicular hooks beginning far posteriorly, from segment 78 in the paratype and segment 87 in the holotype, while in *E. insularis* they begin from setiger 20-28; and subacicular hooks with proximal tooth shorter than that of *E. insularis* (Fauchald, 1992). *Eunice gagzoi* differs from *E. insularis* in that its branchial filaments are longer, as long as the body width where best developed; the

pectinate chaetae have both lateral teeth about the same size, and in *E. insularis* one of the lateral teeth is about twice as long as the other; the blades of the compound chaetae have both teeth directed obliquely distally, while in *E. insularis* both teeth are directed laterally; the acicula have bent tips, versus the straightly tapering, distally blunt condition, as in *E. insularis*; subacicular hooks with proximal tooth much larger, strongly bent, pointed, basally directed, while in *E. insularis* the corresponding tooth is straight, distally blunt, laterally directed; and the maxillary formula is different from *E. insularis* (Fauchald, 1992).

On the other hand, among abranchiate species there is a group with small palps and antennae in a horseshoe, without articulations, where *E. insularis* fits quite well. This group includes 5 species besides *E. insularis*: *E. cariboea*, *E. cincta* (Kinberg, 1865), *E. goodei* Fauchald, 1992, *E. imogena* (Monro, 1924), and *E. wasinensis* Fauchald, 1992. Table 1 lists the features of the 6 species.

Eunice cincta seems to be morphologically closest to *E. insularis*, but its description is incomplete and, according to Fauchald (1992), the holotype is damaged, making more precise analysis impossible. We rely on the differences in the size of palps, antennae, and peristomial cirri, as well as in the shape of the tips of the ventral cirri, in considering it as a different species. Moreover, *E. cincta* is known from the Society Islands in the Pacific Ocean, and has never been found in the Atlantic.

Habitat: *Eunice insularis* was found associated with a stony coral, and in a sandy beach with coarse sand and stones of different sizes, being much more common and abundant in the corals.

***Eunice marconii* sp. n.**
(Figs. 3-4)

Material examined: 41 specimens, all from Alcatrazes Island. Holotype: MHN-BPO 75/0, paratypes: MHM-BPO 75/1-10.

Etymology: The name *Eunice marconii* is given in homage to Marconi Holanda Mendes, who has extensively assisted the senior author and made it possible for him to conclude his Ph. D. course.

Description: Holotype complete specimen, with 287 chaetigers and 133 mm in length. Body robust, flattened ventrally, on anterior chaetigers, cylindrical from midbody. Prostomium shorter, slightly narrow-

TABLE 1. – Morphological characteristics of *Eumice insularis* sp. n. and the morphologically most similar species (source: Fauchald, 1992); APR, anterior peristomial ring; CA, central antenna; LA, lateral antennae; PPR, posterior peristomial ring.

	<i>E. cariboea</i>	<i>E. cincta</i>	<i>E. goodei</i>	<i>E. imogena</i>	<i>E. insularis</i>	<i>E. wasinensis</i>
Number of chaetigers (Holotypes)	113-157	Holotype incomplete, with 65 chaetigers	Holotype incomplete, with 56 chaetigers	108-138	88-150	84
Peristomium	APR about 3/4 of total length, separation between rings visible dorsally and ventrally	APR about 1/2 of total length, separation between rings visible dorsally and ventrally	APR about 2/3 of total length, separation between rings visible dorsally and ventrally	APR about 2/3 of total length, separation between rings visible dorsally and ventrally	APR about 3/4 of total length, separation between rings visible dorsally and ventrally	APR about 2/3 of total length, separation between rings visible on all sides
Palps and Antennae	In horseshoe, thick, without articulations, sausage-shaped. Bases of palps and lateral antennae (LA) close, separated from central antenna (CA). Palps to middle of APR, LA and CA to middle of PPR	Thick and digitiform, irregularly constricted. All to PPR	In horseshoe, digitiform. Bases of palps and LA close, separated from CA. Palps and CA to chaetiger 1	In horseshoe, medially inflated, irregularly constricted. Bases evenly spaced. Palps to middle of APR, LA and CA to posterior border of PPR	In horseshoe, thick, bases slightly narrower, irregularly constricted. Bases of palps and LA close, separated from CA. Palps to posterior border of APR, LA to middle of chaetiger 1 and CA to middle of chaetiger 2	In horseshoe, sausage shaped. Evenly spaced. Palps and antennae not projecting beyond tip of prostomium, nor posterior border of PPR
Eyes	1 pair, small, indistinct, posterior to bases of palps and LA	Unknown	1 pair, posterior to bases of palps and LA	1 pair, reniform, posterior to bases of palps	1 pair, big, rounded, posterior to bases of palps and LA	1 pair, posterior to bases of palps and LA
Peristomial Cirri	Ovate, to posterior end of APR	Ovate, to posterior end of APR	Ovate, short, probably regenerating in holotype	Digitiform, to anterior border of PPR	Digitiform, to half of APR	Short, tapering, to anterior border of PPR
Maxillary Formula	1+1, 5+5, 6+0, 4+9, 1+1	Unknown	Not said	1+1, 5+5 (?6+6), 7+0, 6+9, ?1+1	1+1, 6+7, 8+0, 8+11, 1+1	1+1, 5+5, ?4+0, ?3+8, 1+1
Ventral Cirri	From chaetiger 4-49, bases transversely elongated; tips digitiform. From chaetiger 50, inflated bases decrease. Posteriormost cirri very short, nearly tubercular, without inflated bases	Anterior and midbody cirri thick and tapering. Posterior cirri unknown. Midbody cirri without inflated bases	From chaetigers 1-9, cirri tapering. From chaetiger 10, bases inflated, large, nearly hemispherical, and tips very reduced. Posterior chaetigers without inflated bases, tips thin, digitiform	From chaetigers 1-9, cirri digitiform. From chaetiger 10, bases inflated, until end of the body, although retracted inside body wall in posterior chaetigers. Tips very short in midbody chaetigers, longer and tapering posteriorly	From chaetigers 4-32, bases inflated and tips short and rounded. From chaetigers 32-37, inflated bases reduce, disappearing from 38. Tips thick and rounded from midbody, slightly longer on posterior chaetigers.	From chaetigers 1-4, thick and tapering. Inflated bases transverse wells. Midbody cirri with bases indistinctly inflated, Posterior cirri without inflated bases, tips nearly tubercular
Dorsal Cirri	Tapering, decreasing in length antero-posteriorly	Anterior cirri medially inflated. Midbody cirri digitiform. Posterior cirri unknown	Anterior and midbody cirri tapering, with bases slightly inflated. Posterior cirri slender, digitiform, bases not inflated	Anterior cirri tapering, twice the length of ventral cirri, increasing progressively in length towards midbody chaetigers. From chaetiger 50 length decreases. Posterior cirri short and tapering	Anterior cirri longer than midbody cirri, tapering, ovate bases slightly inflated. Midbody cirri short and stout. Posterior cirri more elongate and slightly tapering	Short, increasingly filiform from anterior to posterior body, with even length
Limbate Chaetae	Short, stout, and geniculate; marginally serrated	Thin, marginally serrated	Long and thin, marginally smooth	Not described	Very long, thin, and geniculate; hood denticulate	Unknown

TABLE 1. (Cont.)— Morphological characteristics of *Eunice insularis* sp. n. and the morphologically most similar species (source: Fauchald, 1992); APR, anterior peristomial ring; CA, central antenna; LA, lateral antennae; PPR, posterior peristomial ring.

	<i>E. cariboea</i>	<i>E. cincta</i>	<i>E. goodei</i>	<i>E. imogena</i>	<i>E. insularis</i>	<i>E. wasinensis</i>
Compound Falcigers	Shaft marginally serrated, without beak. Blades short, teeth close, proximal tooth shorter	Shaft coarsely serrated, with beak. Blades bidentate, distal tooth longer, laterally directed; proximal tooth basally directed; teeth with wide gap	Shaft marginally smooth, without beak. Blades thin, bidentate, with teeth about the same size, obliquely distally directed	Shaft coarsely serrated, with beak. Blades bidentate, teeth about the same size, thin, laterally directed	Shaft finely spinulated, with short beak. Blades bidentate, teeth laterally directed, with wide gap, proximal tooth thicker and longer than distal tooth	Shaft marginally smooth, without beak. Blades thin, bidentate
Acicula	1 per parapodium, straight, stout, pointed, mucronate, dark brown from midbody chaetigers.	Straight, tapering, distally blunt, without mucros, brown	Straight, sharply pointed, dark yellow to dark brown	1 per parapodium, straight, stout, tapering, distally blunt, without mucros, dark brown from midbody chaetigers	1 per parapodium, straight, stout, tapering, distally blunt, without mucros, dark brown	1 per parapodium, straight, stout, tapering, distally blunt, without mucros, dark brown
Subacicular hook	From chaetiger 26-32, dark brown. Both teeth pointed, laterally directed, proximal tooth about twice as large as distal tooth	Form chaetiger 21, 1 per parapodium. Both teeth laterally directed, proximal tooth slightly larger than distal tooth	From chaetiger 23, 1 per parapodium. Proximal tooth larger, triangular, laterally directed; distal tooth distally directed	From chaetiger 50, 1 per parapodium. Proximal tooth larger, laterally directed; distal tooth distally directed	From chaetiger 27-31, Proximal tooth shorter, laterally directed; distal tooth tapering, distally directed	From chaetiger 27-31, Proximal tooth shorter, laterally directed; distal tooth tapering, distally directed

er, and less than half as deep as peristomium (Fig. 3A, G, H). Upper lip projections rounded, dorsally and ventrally inflated, median sulcus deep (Fig. 3G, H); inferior lip distinct, muscular (Fig. 3A, G). Anterior peristomial ring about 5/6 of total peristomium length, separation between rings distinct dorsally and ventrally. Palps and antennae in horseshoe, bases covered by a fold of peristomium, palps and lateral antennae close, central antenna separated by a gap; ceratophores ring-shaped, without articulations; ceratostyles distally rounded in adults (Fig. 3A, G, H), tapering in juveniles. Palps reaching midlength of anterior peristomial ring, lateral antennae reaching midlength of posterior peristomial ring, central antenna reaching chaetiger 1. Peristomial cirri subulate, reaching anterior half of anterior peristomial ring (Fig. 3A, G). Mandibles with light shafts and many concentric lines in the cutting edges, without distal expansions (Fig. 4G). Maxillary formula: I- 1+1, II- 6+4, III- 6+0, IV- 2+8, V- 1+1, VI- elongate plates; Mx II with 2 dark chitinous plates, superior and inferior (Fig. 4H; present near both Mx II, drawn only in one); Mx V with superior tooth, evident in lateral view (Fig. 4H). Dorsal cirri long and filiform, with 2-4 very thin acicula; palmate branchiae present from chaetiger 21-23 to posteriormost chaetigers, 1 single filament on anterior chaetigers, then 2, and occasionally 3 filaments (Fig. 3D-F). Inflated bases of ventral cirri present from chaetiger 4, initially ovate, as stout ventral ridges with short tips from chaetigers 7-44; bases reduced from chaetiger 45 and disappearing from chaetiger 50 (visible with light microscope), tips slightly longer; posterior ventral cirri with bases ovate and tips more elongate (Fig. 3C-G). Three to five limbate chaetae per parapodium, thin, limb minutely denticulate (seen with SEM), slightly longer than other chaetae, especially on anterior chaetigers (Fig. 4A). Five to eight pectinate chaetae, slightly asymmetrical, very slender, furled, with 10-13 sharp teeth, one of the lateral teeth longer (Fig. 4E, F). Compound chaetae exclusively falcigers, shafts slightly inflated distally, short spinulation, beak indistinct; many chaetae in anterior and posterior chaetigers, 5-8 in midbody. Blades of falcigers strongly bidentate, teeth laterally directed; in anterior chaetigers, with teeth about the same size; from midbody, proximal tooth larger; blade guards rounded, covering the blade, denticulate, without mucros (Fig. 4B). Acicula expanded distally and laterally into hammer-head structure, 2 in anterior chaetigers, 1 from midbody; younger specimens with additional aciculum in posterior chaetigers, straight,

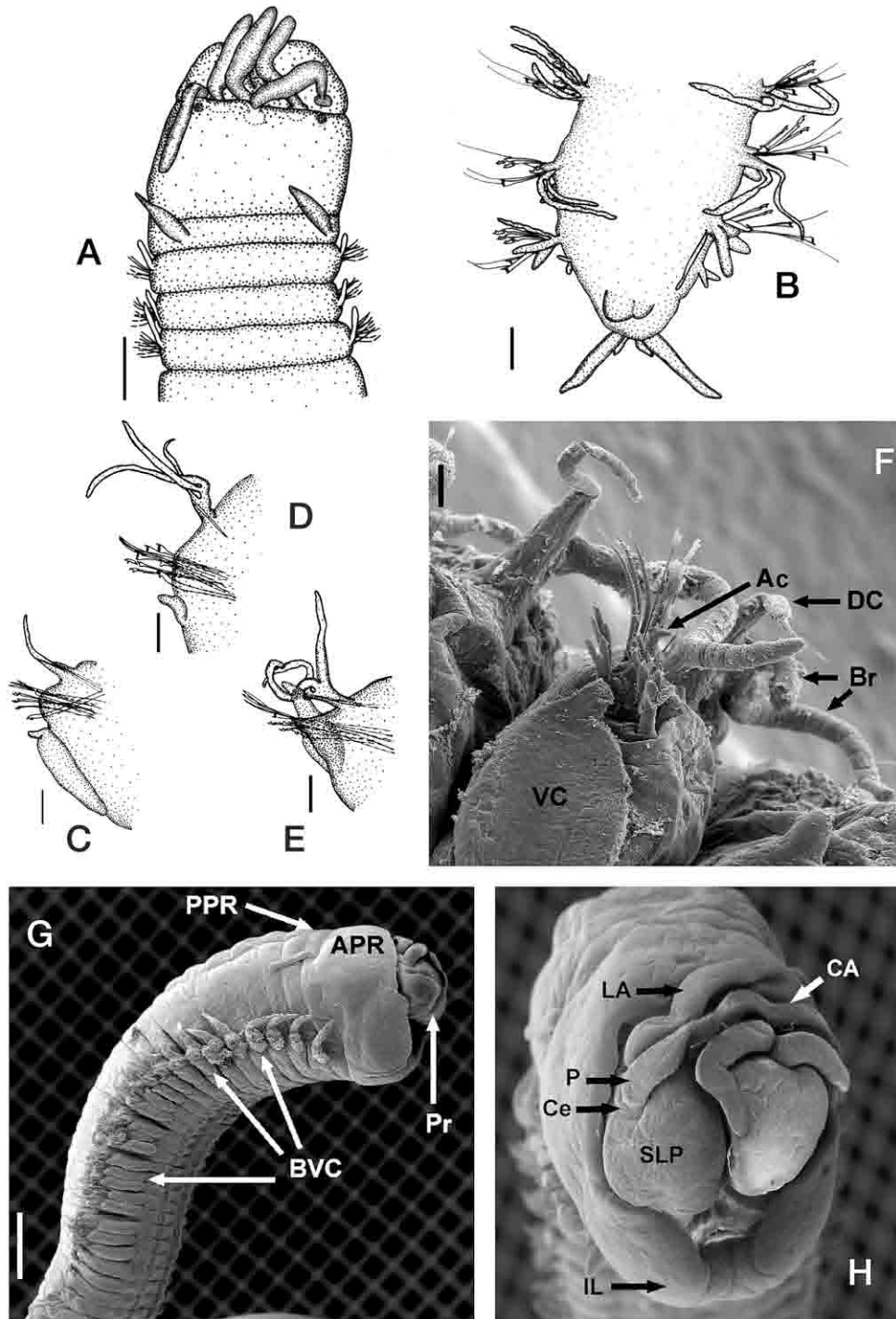


FIG. 3. – *Eunice marconii* sp. n. A, anterior end, dorsal view; B, pygidium; C, E, parapodia: C, chaetiger 10, D, chaetiger 65, E, chaetiger 274; F, chaetiger 47, G, anterior end, lateral view, H, anterior end, frontal view. Ac, aciculum; APR, anterior peristomial ring; Br, branchiæ; BVC, bases of ventral cirri; CA, central antenna; Ce, ceratophore; DC, dorsal cirrus; IL, inferior lip; LA, lateral antenna; P, palps; PPR, posterior peristomial ring; Pr, prostomium; SLP, superior lip projections; VC, ventral cirrus. Scale bars: A, B: 1000 µm; C, E: 300 µm; F: 150 µm; G: 120 µm; H: 50 µm.

tapering, mucronate (Fig. 3F, 4D). Single subacicular hook per parapodium from chaetiger 17-25 to the end of the body, 2 in some posterior chaetigers; hook with rounded hood, bidentate, proximal tooth much larger, basally directed, distal tooth laterally directed

(Fig. 4C); tridentate hook only seen in 2 posterior chaetigers on holotype, with teeth in a crest: proximal tooth larger, basally directed, intermediate tapering, about same size as distal tooth, laterally directed, and distal tooth upwardly directed. Pygidium

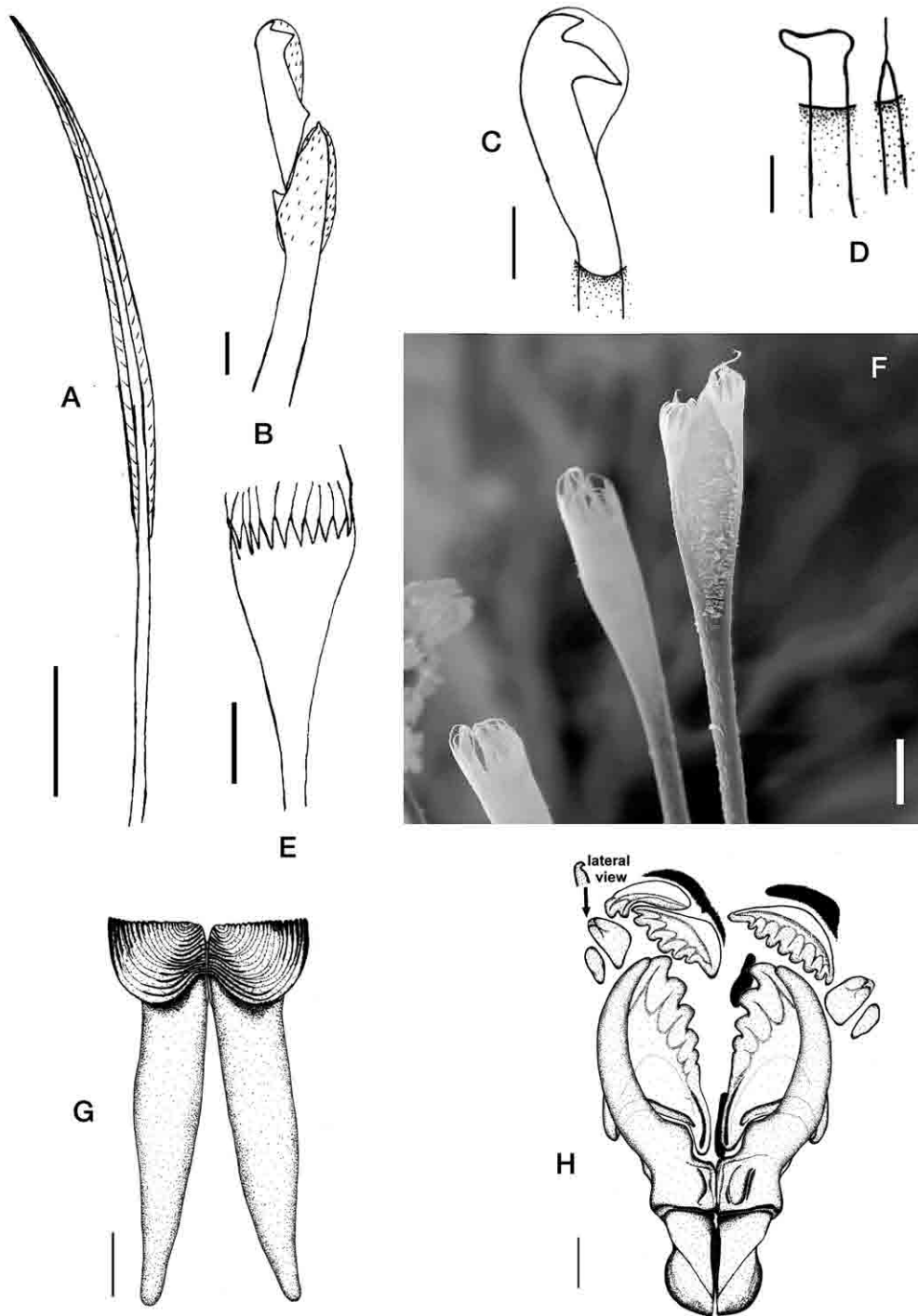


FIG. 4. – *Eunice marconii* sp. n. A, limbate chaeta; B, compound falciger; C, subacicular hook; D, acicula; E-F pectinate chaetae; G, mandibles; H, maxillae. Scale bars: A, B: 50 µm; C, E: 25 µm; D: 13 µm; F: 20 µm; G: 320 µm; H: 350µm.

with 2 pairs of anal cirri, superior pair about four times as long as inferior pair (Fig. 3B).

Discussion: *Eunice marconii* is similar to *E. filamentosa* Grube, 1856 and *E. spongicola* (Treadwell, 1921), two very close species, which have long been considered synonymous (Hartman, 1956; Fauchald,

1992). *Eunice marconii* is somewhat intermediate between them, apparently closer to *E. filamentosa*, as can be seen in Table 2. However, the differences, mainly in the jaws, branchiae, and acicula, are sufficient to consider it a separate species.

The most distinctive character of *E. marconii* is the structure of the jaws. *Eunice spongicola* was

TABLE 2. – Morphological characteristics of *Eunice marconii* and the morphologically most similar species (sources: Treadwell, 1921; Fauchald, 1992); APR, anterior peristomial ring; CA, central antenna; LA, lateral antennae; PPR, posterior peristomial ring.

	<i>Eunice filamentosa</i>	<i>Eunice marconii</i>	<i>Eunice spongicola</i>
Number of chaetigers (Holotypes)	119	287	152
Prostomium	Shorter and narrower than peristomium, and less than half as deep; upper lip projections frontally truncated, dorsoventrally flattened, median sulcus deep	Shorter and slightly narrower than peristomium, and less than half as deep; upper lip projections rounded, dorsoventrally inflated, median sulcus deep	Shorter and narrower than peristomium, and less than half as deep; upper lip projections frontally truncated, dorsoventrally flattened, median sulcus deep
Peristomium	Tapering anteriorly. APR about 7/8 of total length; separation between rings visible dorsally and ventrally	APR about 5/6 of total length; separation between rings visible dorsally and ventrally	About twice as large and as broad as prostomium. APR about 5/6 of total length; separation between rings only seen ventrally
Palps and antennae	Palps and LA close, with gap to CA. Palps to middle of anterior peristomial ring; LA and CA to chaetiger 1	Bases of palps and antennae covered by peristomial fold; palps and LA close, with gap CA. Palps to middle of anterior peristomial ring; LA to posterior border of anterior peristomial ring; CA to chaetiger 1	Evenly spaced. All ending before posterior border of peristomium
Mandibles	With distal expansion on cutting edges	Without distal expansion on cutting edges	Without distal expansion on cutting edges
Maxillary formula	1+1, 4+4, 6+0, 4+9, 1+1	1+1, 6+4, 6+0, 2+8, 1+1, Mx VI as elongate plates	1+1, 4+4, 7+0, 3+5, 1+1
Peristomial cirri	Slender, digitiform, to middle of anterior peristomial ring	Tapering, to half of anterior peristomial ring	Digitiform, to posterior end of anterior peristomial ring
Branchiae	From chaetigers 23-27 to posteriormost chaetigers, longer than dorsal cirri. 1 flattened filament, short, on anterior and midbody chaetigers; 2 filaments much longer, nearly as long as body width, on posterior chaetigers	From chaetigers 23-27 to posteriormost chaetigers; longer than dorsal cirri; 2 filaments in most chaetigers	From chaetiger 24 to last, not present on posteriormost; longer than dorsal cirri; most chaetigers with 3 filaments
Ventral cirri	Bases inflated from chaetiger 4, as thick ventral ridge from 15-50, short tips; posterior cirri digitiform, bases not inflated	Inflated bases ovate, from chaetigers 4-6, as stout ventral ridges from chaetigers 7-45; tips very small. From chaetiger 50, cirri slightly longer, bases not inflated	From chaetiger 4-50 inflated bases ovate; narrow digitiform tips. Posterior cirri digitiform
Capillary chaetae Pectinate chaetae	Slender, marginally smooth Shafts stout, blades furred; about 12 teeth	Slender, hood denticulate 5-8 per parapodium, furred, about 10-13 sharp teeth	Long and slender, marginally serrated Flat, about 15 teeth
Compound falcigers	Shafts serrated, beak distinct. Blades bidentate, proximal tooth much longer, basally directed; distal tooth tapering, obliquely distally directed	Shafts with spinulation short, beak indistinct. Blades bidentate, both teeth laterally directed; from midbody, proximal tooth larger	Shafts serrated, beak indistinct; blades bidentate, teeth about the same size, distal laterally directed, proximal slightly more basally
Acicula	2 per parapodium, symmetrical hammer-head shaped	2 per parapodium, 1 from midbody, asymmetrical hammer-head shaped. Younger specimens with additional acicula posteriorly, straight and mucronate	1 per parapodium, asymmetrical hammer-head shaped
Subacicular hook	From chaetiger 17-22. 1 per parapodium; proximal tooth much larger, basally directed; distal tooth distally blunt, laterally directed; hood truncated	From chaetiger 17-25, 1 per parapodium, 1-2 in posterior chaetigers; proximal tooth much larger, basally directed; distal tooth laterally directed, distally blunt; hood rounded. Tridentate hooks may be present in few posterior chaetigers	From chaetiger 26; 1 per parapodium; bidentate; proximal tooth much larger, basally directed; distal tooth digitiform, distally blunt

described by Treadwell (1921) and redescribed by Fauchald (1992) and, although these authors did not agree about the number of teeth in some plates, neither of them mentioned either the presence of Maxilla VI or the chitinous plates observed superiorly and inferiorly on Maxilla II, as in *E. marconii*. The same occurs in Treadwell's description of *E. filamentosa* (1921).

Habitat: Eunice marconii was found inside thick mucous tubes in algal tufts or other biogenic structures in dead areas of the coral colonies.

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