

# A New Species of the Genus *Ehlersileanira* (Polychaeta: Sigalionidae) from the Andaman Sea, Thailand

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*Ehlersileanira andamanensis* n. sp. is described from southwestern Thailand in the Andaman Sea, based on specimens collected during the Thai-Danish BIOSHELF Project in 1996–2000. The new species differs from *E. incisa* (Grube, 1877) by having auricles and ctenidia on the ceratophore of the median antenna and dorsal tubercles on segment 3, whereas in the latter species the ceratophore of the median antenna only has auricles and there are no dorsal tubercles on segment 3.

**Key Words:** Sigalionidae, *Ehlersileanira*, Andaman Sea.

## Introduction

*Ehlersileanira* Pettibone, 1970 is characterized by having three small antennae, each with a ceratophore and a short, biarticulate style, and the ceratophore of the median antenna with lateral auricles. The genus was erected by Pettibone (1970b), who only recognized one species, *E. incisa* (Grube, 1877).

The first published report on sigalionids from the Andaman Sea was by Tampi and Rangarajan (1964) for the Andaman Islands group, India, in which only one species of sigalionid was recorded, *Leanira japonica* McIntosh, 1885. Another report of sigalionids from the Andaman Sea, southwestern Thailand, was published by Phasuk (1992) based on material from the Fifth Thai–Danish Expedition in 1966, but this was a checklist with information on distribution but no descriptions or comments. Sigalionid polychaetes from the Andaman Sea off southwestern Thailand were preliminarily studied by Aungtonya (2002), who recorded nine species representing nine genera from the BIOSHELF Project. Subsequent studies of sigalionid species from in the Andaman Sea were published by Aungtonya (2007, 2008), Aungtonya and Eibye-Jacobsen (2013), and Aungtonya *et al.* (2010, 2013). *Ehlersileanira incisa* is the only species of this genus presently listed in the WoRMS database (Fauchald 2013).

The aims of this study are to describe and illustrate the species of *Ehlersileanira* from the Andaman Sea as part of a continuing effort to understand the sigalionid fauna of Thailand.

## Materials and Methods

The samples from the Andaman Sea included here were collected during the Thai-Danish BIOSHELF Project during 1996–2000 (Aungtonya *et al.* 2000). Examinations were carried out using a Nikon SMZ-U stereo-microscope and a Nikon E600 compound microscope. A camera lucida was routinely used to facilitate drawing. The specimens were stained with Shirlastain (Petersen 1998). Body width was measured at segment 10–15. The maximum number of segments was counted. Parapodia were removed from the left side of the body and illustrated in posterior and anterior views. Neurochaetae were illustrated from the same parapodia.

Specimens for scanning electron microscopy were dehydrated, critical-point dried, sputter-coated with gold, and examined in a JSM–5800 scanning electron microscope.

Morphological terms are used in accordance with Aungtonya (2003). The specimens are deposited in the Reference Collection of the Phuket Marine Biological Center (PMBC), Phuket, Thailand.

## Taxonomy

Family Sigalionidae Kinberg, 1856

*Ehlersileanira* Pettibone, 1970

**Type species.** *Sthenelais incisa* Grube, 1877: 519–520 (by original designation).

**Diagnosis.** Prostomium dorsally fused with tentacular parapodia. Three small antennae, each with ceratophore and short style, all biarticulate; ceratophore of median antenna with lateral auricles and/or ctenidia; lateral antennae fused with dorsal side of tentacular parapodia. Dorsal tentacu-

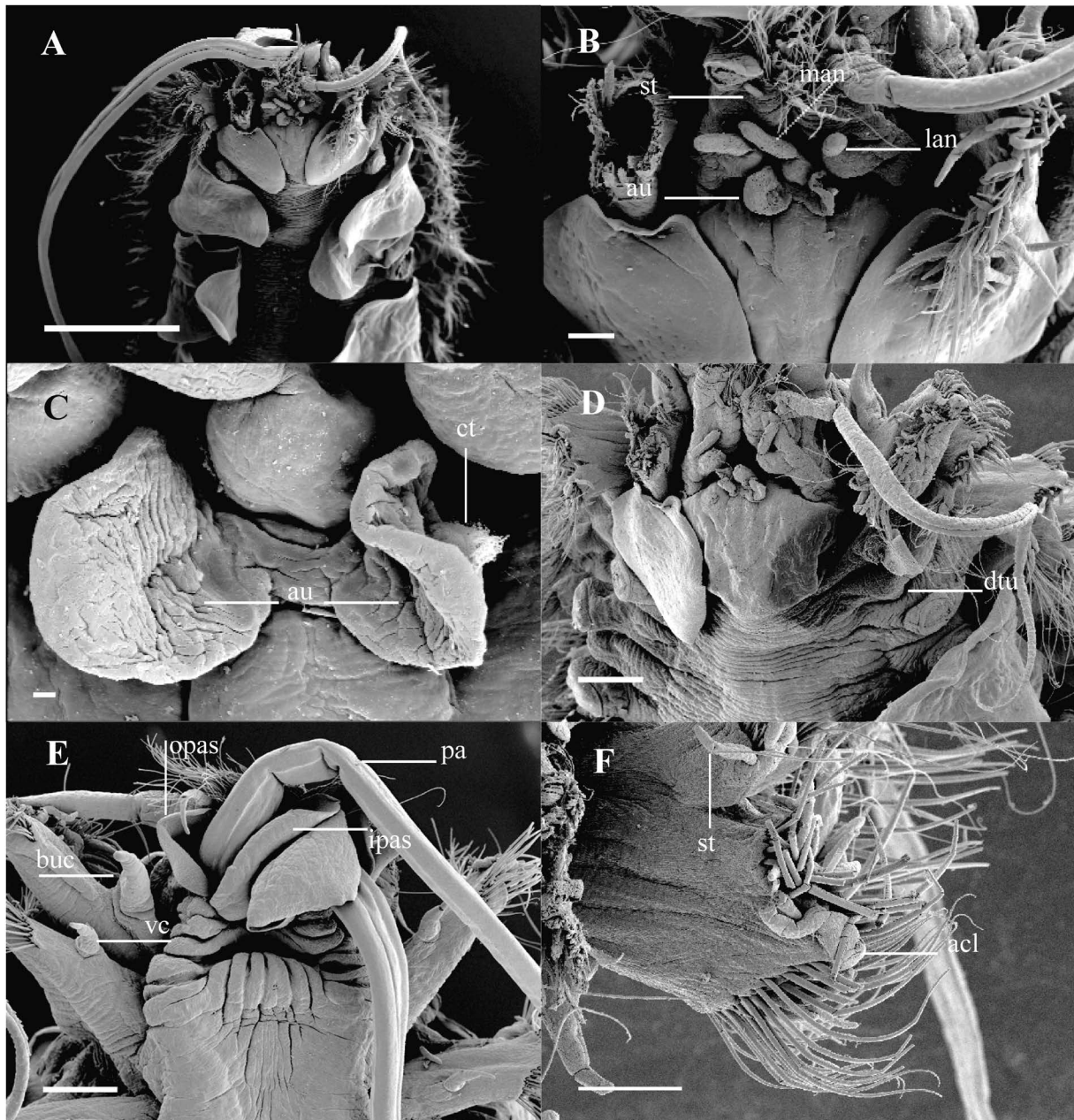


Fig. 1. *Ehlersileanira andamanensis* n. sp. A–B, anterior end, dorsal view, with dorsal tentacular cirri and second parapodium on left removed; C, close-up of ceratophore of median antenna, showing auricles and one ctenidium; D, anterior end, dorsal view, (right elytron of segment 2 removed, and specimen was recoated); E, anterior end, ventral view; F, neuropodium of segment 3, anterior view. SEM micrographs all of PMBC 19633. Scales=1.0 mm (A), 200  $\mu$ m (D–E), 100  $\mu$ m (B, F), and 10  $\mu$ m (C). Abbreviations: acl=acicular lobe, au=auricle, buc=buccal cirrus, ct=ctenidium, dtu=dorsal tubercle, ipas=inner palpal sheath, lan=lateral antenna, man=median antenna, opas=outer palpal sheath, pa=palp, st=stylode, vc=ventral cirrus.

lar crests and inner tentacular lobes absent. Nuchal organs present or absent. Inner and outer palpal sheaths present. Facial tubercle present. Segment 2 with ventral buccal cirri. Segment 3 without dorsal cirri, dorsal tubercles present or absent. Ventral cirri with outer basal knob. Elytral surface smooth; outer lateral margin entire, without papillae and tubercles. Notopodia with well developed posterior upper lobe and anterior lower lobe, anterior upper lobe with circlets of stylodes, and large distal stylode. Ctenidial pads present between notopodium and dorsal tubercle or elytraphore. Notochaetae present as simple, coarsely to finely spinous cap-

illaries. Neuropodia with posterior upper and lower lobes basally covering base of chaetae, anterior upper and lower lobes indistinct. Parapodial stylodes present. Neurochaetae present as compound spinigers with canaliculate blades; upper simple spinous capillaries sometimes present.

**Remarks.** The characters in bold text in the above diagnosis are particularly important in recognizing members of this genus, although they are not necessarily autapomorphies for the genus. It is the combination of these characters that distinguishes species of *Ehlersileanira* from other genera.

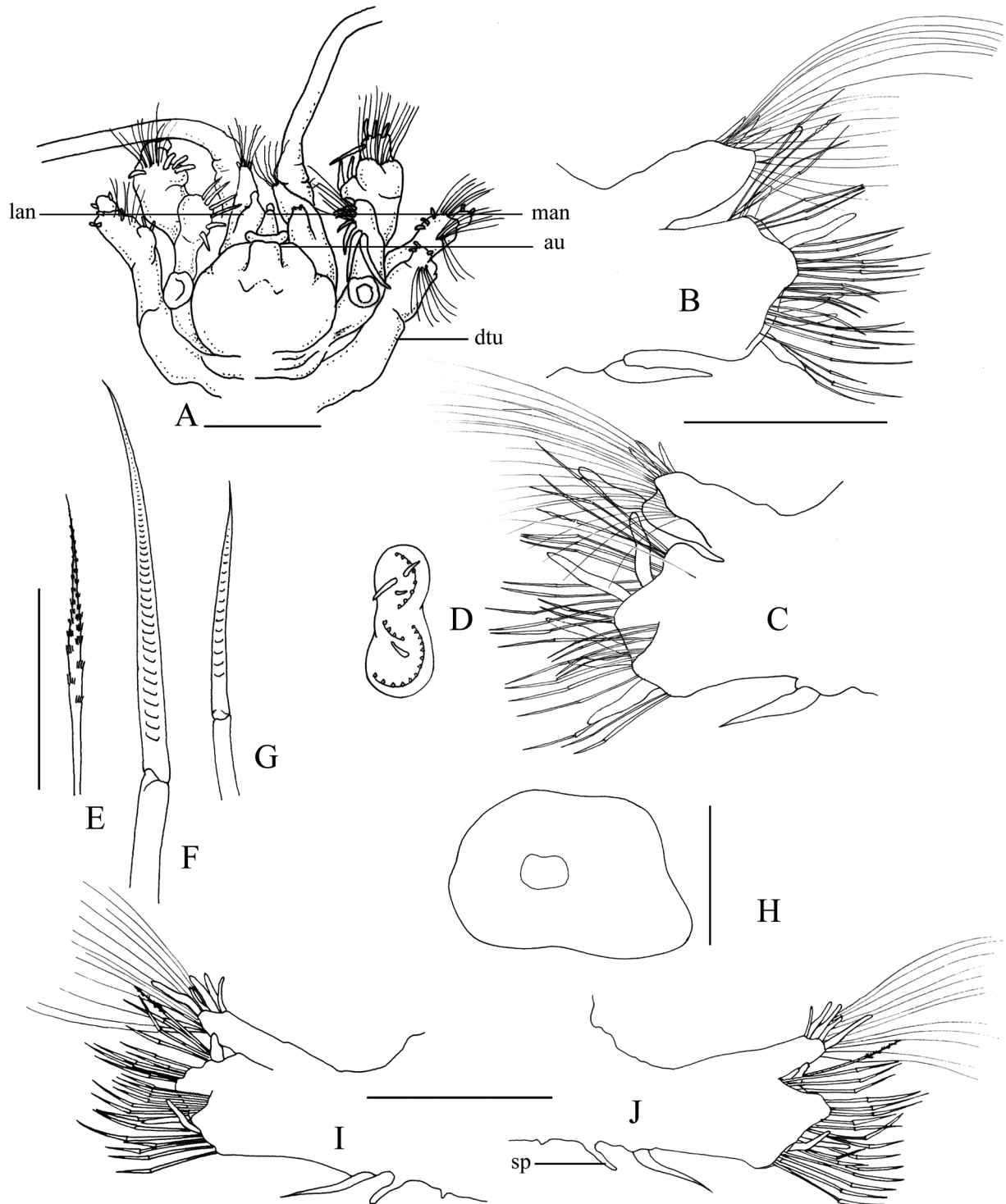


Fig. 2. *Ehlersileanira andamanensis* n. sp.: A, anterior end, dorsal view, auricles are relatively big but the specimen was drawn at the attitude in order to show the lateral antenna on left, second article of median and left lateral antennae are folding, while that of lateral antennae on right is missing, dorsal tubercles on segment 3 are noticed; B, parapodium of segment 17, anterior view; C, posterior view of B; D, diagrammatic end-view of neuropodium from B, chaetae and stylodes indicated, anterior to left; E, upper neurochaeta (simple, spinous capillary) from B; F–G, neurochaetae (compound spinigers) from B; H, left elytron from segment 17, position of scar indicated; I, parapodium of segment 34, posterior view; J, anterior view of same, PMBC 20304 (A–H) and PMBC 15814 (I–J). Scales = 1.0 mm (H), 0.5 mm (A–C, I–J), and 200  $\mu$ m (E–G). Abbreviation: sp = segmental papilla.

According to Aungtonya (2003, 2005), auricles, ctenidia, and dorsal tentacular crests are defined. An auricle is an ear-shaped lobe (Fauchald 1977), whereas a ctenidium is a comb-like structure (Lawrence 1989). A ctenidium is usu-

ally found between elytophores or between dorsal tubercles and notopodia or on the lateral lips of the mouth in *Fimbriosthenelais* and *Sthenelais* (Pettibone 1971: figs 1b, 15b; Aungtonya 2003: figs 4b, 6d). The appendages on the cera-



tophore of the median antenna in *Ehlersileanira* (Pettibone 1970b: 19, fig. 10b) and *Horstleanira* (Pettibone 1970c: 378, fig. 11b) are lateral auricles, not ctenidia (Aungtonya 2003: fig. 1b, e). The ctenidium on the dorsal surface of segment 1, previously mentioned by Pettibone (1970c, 1971, 1992) in *Fimbriosthenelais*, *Horstleanira*, *Labiosthenolepis*, *Sthenelais*, and *Willeysthenelais*, has been renamed the dorsal tentacular crests (Aungtonya 2003: figs 1d–f, 2f, 3c–d).

Aungtonya (2005) discussed the confusion in the use of the terms ‘neuropodial bracts’ and ‘neuropodial lobes’ in earlier papers. Pettibone referred to neuropodial bracts when describing the lobes in *Ehlersileanira* (1970b: fig. 11a–c), *Euthalenessa* (1970a: fig. 2a–c), and *Horstleanira* (1970c: 378), as well as in *Sthenelais* (1971: fig. 2b–d) and *Willeysthenelais* (1971: fig. 7a–c). Subsequently, she mentioned the lobes covering the base of the neurochaetae in *Labiosthenolepis* (1992: 615) and *Labioleanira* (1992: 621), but she returned to using the term bracts in a paper on Pelogeniinae (1997: fig. 2c–e). This variation in use of terms has created some confusion. The general meaning of “bract” in botany is a modified leaf in whose axil an inflorescence or flower arises, or else a floral leaf or a leaf-like structure (Lawrence 1989). In the present paper, the term ‘neuropodial lobe’ is used for structures covering the bases of the chaetae, following Aungtonya (2005).

According to Pettibone (1970b), the genus *Ehlersileanira* lacks dorsal cirri and dorsal tubercles on segment 3, but small tubercles are present in the species reported in this study (Fig. 1D).

***Ehlersileanira andamanensis* n. sp.**

(Figs 1A–F, 2A–J; Table 1)

*Ehlersileanira incisa* (not of Grube, 1877)—Aungtonya 2002: 226, fig. 13.

*Ehlersileanira* sp.—Aungtonya 2003: fig. 1a–b.

**Holotype.** PMBC 20305, posteriorly incomplete, 39 segments, length 17 mm, width 3.25 mm including parapodia (about 3.5 mm wide including chaetae), BIOSHELF st. L-2/AT, 6°45'N, 99°04'E, 59–63 m, soft mud, 28 February 2000.

**Paratype.** PMBC 20304, posteriorly incomplete, 53 segments, length 23 mm, width 2.75 mm including parapodia

(about 3.5 mm wide including chaetae), BIOSHELF st. K-2/OS, 7°00'N, 99°00'E, 60 m, soft mud, 6 May 1996.

**Other material examined.** PMBC 15814, 1 (dried), BIOSHELFst. L-2/AT, 6°45'N, 99°04'E, 59–63 m, soft mud, 28 Feb 2000; PMBC 19633, 1 spec. on SEM stub, st. L-2/AT, 6°45'N, 99°04'E, 59–63 m, soft mud, 28 Feb 2000.

**Description.** All specimens posteriorly incomplete, PMBC 20304 being the largest.

Prostomium oval, wider than long, dorsally fused with tentacular parapodia. Parapodia of segments 1–3 directed anteriorly (Figs 1A, E, 2A). Three small antennae present; ceratophore of median antenna located on anterior margin of prostomium, with pair of prominent lateral auricles, and ctenidia seen beneath auricles (Fig. 1B–C); style of median antenna short, with two articles (Fig. 1B); lateral antennae both with similar style, ceratophore fused with dorsal side of tentacular parapodia. Eyes and nuchal organs indistinct. Dorsal side of tentacular parapodia with 1–2 stylodes on each side between base of dorsal tentacular cirrus and lateral antenna (Fig. 1B). Upper lip with facial tubercle. Palps extending to about segment 18–24, with inner and outer palpal sheaths (Fig. 1E). Segment 2 with ventral buccal cirri (Fig. 1E). Segment 3 without dorsal cirri but dorsal tubercles present (Fig. 1D). Branchiae beginning at about segment 15 or 17; ctenidial pads between notopodia and elytraphores beginning at about same place. Ventral cirri short, tapered, with small outer basal knob. Beginning at about segment 25–27 (Fig. 2I–J), tubular segmental papilla near base of ventral cirrus. Elytral surface smooth; outer lateral margin lacking papillae (Figs 1A, 2H).

Notopodia with well developed posterior upper lobe and anterior lower lobe, anterior upper lobe with circlets of stylodes, and with a large stylode near tip of acicular lobe. Notochaetae simple, coarsely to finely spinous capillaries. Neuropodia furnished with long, large stylodes, with short posterior upper and lower lobes covering bases of chaetae, distinct in posterior view, acicular lobe in the middle distinct in anterior view, anterior upper and lower lobes indistinct (Figs 1F, 2B–D, I–J). Neurochaetae compound spinigers with canaliculate blades; 1–2 simple spinous capillaries in an upper position may be present (Fig. 2E–G).

**Etymology.** This species is named for the Andaman Sea.

**Remarks.** The main features of these specimens resem-

Table 1. Comparison of *Ehlersileanira* species. Information on *E. incisa* is from Pettibone (1970b) and the present study.

Species	<i>E. incisa</i> (Grube, 1877)	<i>E. andamanensis</i> n. sp.
Distribution	North and South Atlantic (off West Africa, South and Central America, Gulf of Mexico, Florida, West Indies), Indo-Pacific (Malay Archipelago, Philippine Islands). 15–930 m	Andaman Sea off Thailand. 59–63 m
Ceratophore of median antenna	with auricles	with auricles and ctenidia
Stylodes medial to cirrophores of the dorsal tentacular cirri	1–5, short	2, short
Dorsal tubercles on segment 3	absent	present
Branchiae	from segment 9	from segment 15
Tubular segmental papillae	from segment 9	from segment 25

Remarks. In *Leanira vulturis* Horst, 1917 (from the Siboga Expedition), which is synonymized with *E. incisa*, branchiae and ctenidial pads began on segment 13.

ble those of *Ehlersileanira incisa*, as described and figured by Pettibone (1970b) based on specimens up to 12 mm wide, including chaetae. The arrangement of neurochaetae in the present specimens is also similar to that in *E. incisa* (Pettibone 1970b: fig. 11c).

Pettibone (1970b) stated that in *E. incisa* the ceratophore of the median antenna has either lateral auricles or ctenidia and that the worms lack dorsal tubercles on segment 3 (Table 1). However, an auricle is an ear-shaped lobe (Fauchald 1977) whereas a ctenidium is a comb-like structure (Lawrence 1989). The appendages on the ceratophore of the median antenna in *E. incisa* are lateral auricles, not ctenidia (Pettibone 1970b: fig. 10a, c; Aungtonya 2005; therefore, the present specimens are recorded here as a new species.

In the present specimens the branchiae distinct from *E. incisa* begin at about segment 15 or 17, whereas in *E. incisa* they are present from about segment 30 posteriorly, with smaller rudimentary ones more anteriorly according to Pettibone (1970b); this difference also applies to the occurrence of ctenidial pads between the notopodia and elyptrophores, beginning in the same region as the branchiae. Furthermore, the specimens studied clearly demonstrate the presence of both auricles and paired ctenidia on the ceratophore of the median antenna as well as dorsal tubercles on segment 3.

The validity of the diagnostic features of the new species is supported by examination of specimens of *E. incisa* from the west coast of Africa that are stored in the Natural History Museum in London, U.K. One lot (BMNH 1930.10.8.1172 from Cape Lopez) consists of one specimen and two large fragments (about 4 mm wide including chaetae). The ceratophore of the median antenna possesses only the right lateral auricles and there are no dorsal tubercles on segment 3. Branchiae begin at segment 9 and tubular segmental papillae begin at segment 11. On the only specimen in the other lot (BMNH 1930.10.8.1175 from St. Paul de Loanda), which is about 2.3 mm wide including chaetae, the ceratophore of the median antenna possesses only the left and lateral auricles and lacks dorsal tubercles on segment 3. Branchiae begin at segment 9 and tubular segmental papillae begin at segment 9.

## Discussion

In consideration of these morphological differences, the present specimens are recorded here as a new species, *Ehlersileanira andamanensis*. In terms of biogeography *E. incisa* is reported to be trans-oceanic ranging from the North and South Atlantic to the Indo-Pacific, whereas *E. andamanensis* n. sp. is known only from a very restricted area in the Andaman Sea. Material of *Ehlersileanira* from the Indian and Pacific Oceans should be re-examined to confirm the ranges of both species as Pettibone (1970b) reported *E. incisa* from the Malay Peninsula. This appears to be based on her study of the type material of *Leanira vulturis* Horst, 1917 (from the Siboga Expedition), which she synonymized with *E. incisa*. Horst stated that branchiae and ctenidial pads of *L. vul-*

*turis* began on segment 13; this is much closer to conditions in *E. andamanensis* n. sp. However, the request on loan of specimen, *L. vulturis*, from Zoölogisch Museum, University of Amsterdam was not responded. On the other hand, the species, *L. vulturis*, is accepted by World Polychaeta Database as *Sthenolepis vulturis* (Horst, 1917). It might actually turn out that *E. vulturis* (Horst, 1917) is a valid species and that it is the one that was collected during the BIOSHELF Expedition.

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