

A NEW GENUS AND 12 NEW SPECIES OF EUNICIDAE (POLYCHAETA) FROM THE CARIBBEAN SEA

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A new genus is established in Eunicidae: *Fauchaldius* gen. nov., a symbiont of hexactinellid sponges that has only subacicular hooks, with *F. cyrtauloni* sp. nov. as its type species. Nine new species are described in *Eunice*: *E. hernandezii* sp. nov., *E. ibarzalae* sp. nov., *E. mikeli* sp. nov. and *E. nonatoi* sp. nov. all belonging to the fuscus-bidentate group; *E. edwinlinkae* sp. nov., *E. hartmanae* sp. nov., *E. lanai* sp. nov., and *E. miurai* sp. nov. all belonging to the flavus-tridentate group; and *E. donathi* sp. nov. that belongs to the fuscus-unidentate group. Further, two new species are described in *Marphysa*: *M. angeli* sp. nov. that is grouped with species having only composite falcigers, and *M. orensanzi* sp. nov. that belongs to the group with composite falcigers and composite spinigers. A key to identify genera in Eunicidae is included. A key to identify species of *Eunice* is appended.

INTRODUCTION

In the family Eunicidae, the current 'eight' genera are differentiated using the number of antennae, and the presence of peristomial cirri, subacicular hooks (compound, flabelliform setae) and branchiae (Fauchald, 1977, 1987). There might be one, three or five antennae; the remaining features could be missing and regarding branchiae, their development and placement along the body, are also useful. This approach is practical and has been employed widely though there are some interesting inconsistencies.

During the development of *Eunice harassii* Audouin & Milne-Edwards, 1833, from, postlarva to juvenile, there are discontinuous states in the development of the prostomial features and they have been named accordingly to the genus they resemble (Herpin, 1925). Thus, Nematonereis state (one antenna; 5–12 setigers; 14–90 d), is followed by Lysidice state (three antennae; 13 setigers; lacking branchiae), and then comes the Amphiro state (three antennae; 20–27 setigers; 100–300 d; branchiae are simple filaments). In *Marphysa borradailei* Pillai, 1958, these states are similar though they differ in duration: Nematonereis (one antenna; 11 setigers, 5 d); branchiate Nematonereis (one antenna; 15–16 setigers; branchiae start in setiger 7); Lysidice (three antennae, 18 setigers). Pillai (1958) also noticed that early states had larval ocelli, even in Lysidice state, and that adult shape is reached in 90 d (80 setigers; increase in branchial filaments).

Because of these variations and resemblances, there have been some doubts in the past concerning the validity of some genera in the family, especially *Nematonereis* Schmarda, 1861 and *Lysidice* Savigny, 1820, because they might be early development stages of some species-rich genera (*Eunice* Cuvier, 1817 or *Marphysa* de Quatrefages, 1865). Nevertheless, in most species of the suspected genera, body size is much larger than what would be expected in a postlarva; further, some reproductive forms have been already recorded. In fact, Day (1967) found some specimens of *Nematonereis* having some 20 cm in length and others with up to 15 cm of *Lysidice*; in Puerto Rico, Allen (1957) collected some specimens of an unidentified species of *Lysidice* during December nights and noticed that they shed gametes when coming to the light.

There are other conflicting features. The presence of branchiae separates *Marphysa* from *Paramarphysa* Ehlers, 1887, since the latter lacks them, but this is a weak difference; Fauchald (1977) kept them separated in his keys but remarked that such a distinction was provisional. Other examples illustrate the use of branchiae to separate eunicids by using the presence of branchiae; some taxonomists used to separate *Eunice cariboea* Grube, 1856 because it lacks branchiae. Hartman (1944, 1948) remarked that this and allied species could be placed in the subgenus *Nicidion* Kinberg, that was regarded as completely lacking branchiae (although there might be some branchial filaments in posterior setigers). Recently, Fauchald (1992) has regarded the lack of branchiae as an inadequate feature to separate subgenera; by doing this, he recognized the morphologic variability in the group (*Gustus*, 1972; Miura, 1986; Parapar et al., 1993). A more general conclusion, rejecting the use of branchiae to separate related eunicid (and onuphid) genera was made by Orensanz (1990). In this scenario, *Paramarphysa* is not recognized as a valid genus.

The use of setae, in sorting out similar genera is far less disputed. For example, the key by Fauchald (1977) separates *Eunice* from *Euniphysa* Wesenberg-Lund, 1949 because the latter has compound spinigers. But this genus, as currently defined, might have compound falcigers and compound spinigers and *Euniphysa* can be sorted out because of its maxillary structure since it has few large teeth in maxillae III, IV and V, what seems to be an autoapomorphy (Wesenberg-Lund, 1949; Miura, 1986). In fact, maxillar dentition is a robust feature widely employed to separate similar genera in lumbrinerids, a close relative of eunicids (Orensanz, 1973). Therefore *Euniphysa* can be differentiated on this same ground, especially since the number of teeth in maxillae seem to be independent of body size (Fauchald, 1992).

The lack of subacicular hooks, together with other features, has been employed to distinguish *Palola* Gray (Stair, 1847) from other eunicid genera. Subacicular hooks are present in apparently any known onuphid (Paxton, 1986) and in eunicids its absence or its reduction are regarded as the only kind of setae present as useful to separate similar genera. Thus, we think that their absence is a secondary loss, as is the case in *Palola*, and if subacicular hooks are the only kind of setae present, it is thought to be an extreme specialization, as is the case in *Fauchaldius*, gen. nov.

Other genera and even a new family have been proposed recently. Wu & He (1988) proposed *Pareuniphysa* to include some species closely allied to *Euniphysa* and to *Eunice* but having compound setae similar to *Marphysa*. Then, Shen & Wu (1991) proposed Euniphysidae and *Heterophysa*; the new family was defined by: (a) antennae

irregularly spaced; (b) maxillae with moderately developed teeth; (c) body regionated with different setae; and (d) dorsal cirri conical. However, these features cannot separate a group of species as an independent family within Eunicida. *Euniphysa*-like species seem to conform to a homogenous grouping, but at the same taxonomic level i.e. they belong in the same genus. Further, in the key to genera in such a new family, Shen & Wu (1991) employ patterns of setation and presence/absence of compound spinigers or falcigers to separate genera, but such features are enough to sort out species in *Marphysa*. Therefore although they might be useful to separate species in *Euniphysa*, do not seem to work to separate independent genera and the status as a different family is questionable.

In this contribution, a new genus is proposed, with a new species, nine species are described in *Eunice* and two other new species are described in *Marphysa*. The materials for this work were mainly collected in sublittoral waters in the northwestern Caribbean, in the Mexican state of Quintana Roo, and some other specimens were collected in shallow water in several localities. Further, a new key to identify genera in Eunicidae is also included.

MATERIALS AND METHODS

Most general methods employed in this series of papers on polychaetes from the Mexican Caribbean coasts are detailed elsewhere (Salazar-Vallejo, 1996). The presentation of the information follows Fauchald (1992) though some minor modifications are introduced; for example, pectinate setae are designated in three basic forms according to the growth of the lateral teeth as *isodont* if both teeth are larger than inner ones, *heterodont* if only one tooth is long, and *anodont* if lateral teeth are of the same size than inner ones. Some of the species described herein are based on only one specimen; this might seem unsound. However, the combined features found are unique and so different from all known species, that the description of each as new species are timely and valid.

The institutions and museums where material has been deposited (or examined) are indicated by its acronym as follows: BM(NH), The British Museum (Natural History) London; MNHN, Museum National d'Histoire Naturelle, Paris; USNM, United States National Museum, Smithsonian Institution, Washington; and ZMUC, Zoological Museum, University of Copenhagen.

RESULTS AND DISCUSSION

Family EUNICIDAE Berthold, 1827

Fauchaldius gen. nov.*Diagnosis*

Prostomium slightly bilobed, with five occipital antennae; peristomium provided with peristomial cirri; only kind of seta: subacicular hooks; without branchiae; symmetrical maxillae, provided with small denticles; gametes restricted to few median setigers; nephridiopores developed only on one side of body; living associated with hexactinellid sponges.

Discussion

Fauchaldius gen. nov. is close to *Euniphysa* and to *Eunice* in having five antennae, peristomial cirri and subacicular hooks. *Fauchaldius* is separated from the latter in having only subacicular hooks and in lacking any other type of seta. It seems to be more close to *Eunice* because maxillae III and IV have many teeth, and both differ from *Euniphysa* since it has few large teeth. Further, the very reduced variation in the types of setae present, as well as the reduced number of reproductive segments indicate an extreme specialization for living with the sponge. In fact, the oeonids (*olim* Arabellidae) which are endoparasitic polychaetes do not have any marked reduction in the setae but their jaw apparatus might be reduced (Pettibone, 1957). Other species, having a very old relation with their associate, like some lumbrinerids living commensally with stony corals (Zibrowius et al., 1975), lack any marked modification. Exceptions to these morphologic patterns have been regarded as sufficient as to establish independent genera and the modifications, because of their unicity, have been particularly employed (Dean, 1992).

Etymology

The genus name is dedicated to Kristian Fauchald in recognition of his dedication to the study of polychaetes and especially to his publications on eunicids; his recent monograph on *Eunice* was particularly useful for this contribution. The composition of the name is a free declination.

Gender

Masculine.

Type species

Fauchaldius cyrtauloni sp. nov.

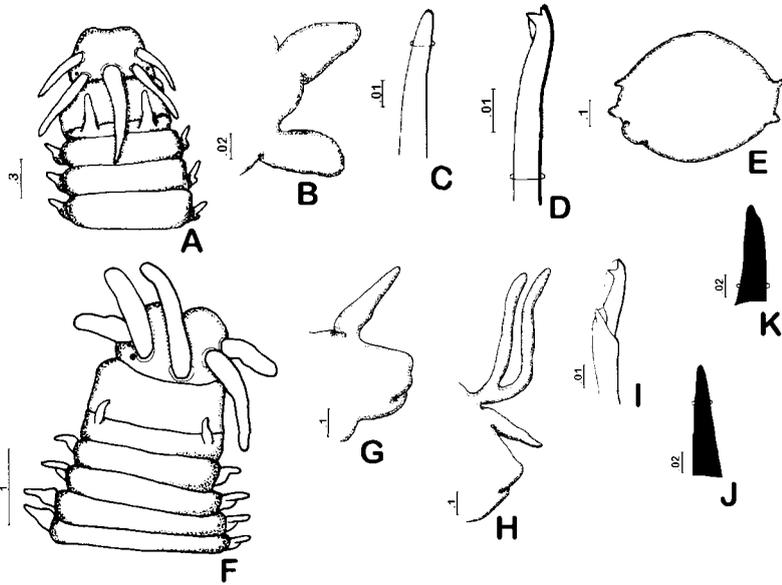


Figure 1. *Fauchaldius cyrtauloni* sp. nov.: (A) anterior end in dorsal view; (B) parapodium; (C) acicula; (D) subacicular hook; (E) cross-section of setiger 17, the nephridopore is the tubercle under the left ventral cirri. *Eunice donathi* sp. nov.: (F) anterior end in dorsal view; (G) anterior parapodium; (H) posterior parapodium; (I) falciger; (J) acicula; (K) subacicular hook. Scale bars in mm.

Fauchaldius cyrtauloni sp. nov.
(Figure 1A–E)

Material examined

Holotype (USMN-177943), 96 paratypes (USNM, BM(NH), MNHN, ZMUC, ECOSUR), off Punta Mosquitero, Quintana Roo, Mexico, 151 m, RV 'Edwin Link', station 2789, 19°13-09'N 87°30-10'W, 27 August, 1990.

Description

Holotype ovigerous, female, complete, 6 mm long, 1 mm wide, with 31 setigers. Prostomium larger than peristomium, with shallow median furrow. Antennae tapering, in semicircle, with smooth ceratostyle and short ceratophores, AI to setiger 1, AII to setiger 2, AIII to setiger 4, isolated (Figure 1A). Eyes very small, posterior to AI. Peristomium with thick muscular lower lip, separation between peristomial rings visible from anywhere, first peristomial ring slightly longer than second; peristomial cirri smooth, to anterior margin of peristomium. Maxillary formula 1+1, 4+4, 5+5, 8+9, 1+1. Branchiae absent. Dorsal cirri digitated, smooth, slightly larger in anterior parapodia; ventral cirri globose (Figure 1B). Aciculae translucent, distally blunt (Figure

1C); subacicular hooks yellow, bidentated, starting in setiger 2, with up to four hooks per parapodium (Figure 1D). Nephridiopores present only in the left ventral side of setigers 17–20 (Figure 1E). Coelomic eggs restricted in setigers 16–20.

Variation

In some paratypes, ova were restricted in setigers 14–18. Some paratypes have nephridiopores only on the right side.

Etymology

The specific name indicates its association with the hexactinellid sponge species *Cyrtaulon sigsbeii* (Schmidt, 1880).

Gender

Masculine.

Distribution

Fauchaldius cyrtauloni is known from the type locality, living associated with hexactinellid sponges at a depth of ~151 m.

Remarks

This sponge is a small cup or vase-shaped hexactinellid, up to 4.5 cm in height, with many holes of 13 mm in diameter, some of the specimens were fixed while moving through the sponge's wall and have notorious constrictions. The sponge inhabits rocky bottoms of 100 m, particularly deeper than 144 m. Formally recorded only from Bermudas. Our specimens were collected at 150 m depth off Punta Mosquitero, Quintana Roo, Mexico (19°13.09'N 87°30.10'W), in the northwestern Caribbean Sea.

Genus *Eunice* Cuvier, 1817

Eunice donathi sp. nov.
(Figure 1F–K)

Material examined

Holotype (USNM-177945), Puerto Morelos, Quintana Roo, Mexico, 20°36.53'N 87°04.31'W, in *Thalassia testudinum*, 1 October. 1986, E. Donath.

Description

Holotype incomplete posteriorly, 20 mm long, 3 mm wide, with 69 setigers. Prostomium as long as the peristomium, with shallow middorsal furrow. Antennae in semicircle with smooth ceratostyle and short ceratophores, AI to half of peristomium, AII to setiger 1, AIII to setiger 4, isolated (Figure 1F). Eyes placed behind AI. Peristomium with notorious muscular lower lip, separation between peristomial rings visible dorsally and ventrally, first peristomial ring twice as long as second; peristomial cirri smooth, shorter than peristomium. Maxillae exposed, maxillary formula 1+1, 4+4, 5+0, 3+8, 1+1. Branchiae palmate, longer than dorsal cirri, starting

in setiger 22 and reaching the last setiger in the specimen; with up to two branchial filaments. Dorsal cirri pointed, smooth, longer in anterior setigers; ventral cirri globose, smaller posteriorly (Figure 1G,H). Setae of three kinds: limbate, heterodont pectinate, and bidentate compound falcigers (Figure 1I). Aciculae obscure, two in anterior setigers, only one posteriorly (Figure 1J). Subacicular hooks black, unidentate (Figure 1K), starting in setiger 23, one per parapodium.

Discussion

Eunice donathi sp. nov. belongs to the fuscus-unidentate group; it is close to *E. marenzelleri* Gravier, 1900, *E. unidentata* Rioja, 1962 and *E. sonora* Fauchald, 1970 by the posterior start of branchiae. *Eunice sonora* differs in having articulated ceratostyles. *Eunice unidentata* differs from *E. marenzelleri* and *E. donathi* in having long articulated ceratophores while the other species have short smooth ceratophores. *Eunice donathi* differs from *Eunice marenzelleri* by having palmate branchiae (instead of single filaments), an earlier start of subacicular hooks, by having heterodont pectinate setae (not isodont ones), and the relative size of antennae which tend to be longer from AI to AIII while in *E. marenzelleri* AII and AIII are of the same size and AI is shorter.

Distribution

Eunice donathi is known only from the type locality, Puerto Morelos, Quintana Roo, in the north-western Caribbean Sea, associated with sea grass *Thalassia*.

Etymology

This species is dedicated to Eduardo Donath-Hernández, a taxonomist of cumaceans, to recognize his collecting efforts to establish a Reference Collection for polychaetes, crustaceans and other invertebrates in CIQRO. His materials are now in ECOSUR.

Gender

Masculine.

Eunice edwinlinkae sp. nov.
(Figure 2A–F)

Material examined

Holotype (USNM-177946), Off Punta Chacom or Punta Xocox, some 9 km off the coast, Quintana Roo, Mexico, 111 m, RV 'Edwin Link', station 2784, 18°46'42"N 87°34'05"W, 24 August 1990.

Description

Holotype incomplete posteriorly, 63 mm long, 2 mm wide, with 138 setigers. Prostomium as long as peristomium, with shallow middorsal furrow. Antennae equidistant in semicircle, AI to setiger 4, AII to setiger 21, AIII to setiger 34 (Figure 2A). Ceratostyle with cylindrical articulations. Ceratophores short. Eyes large, behind

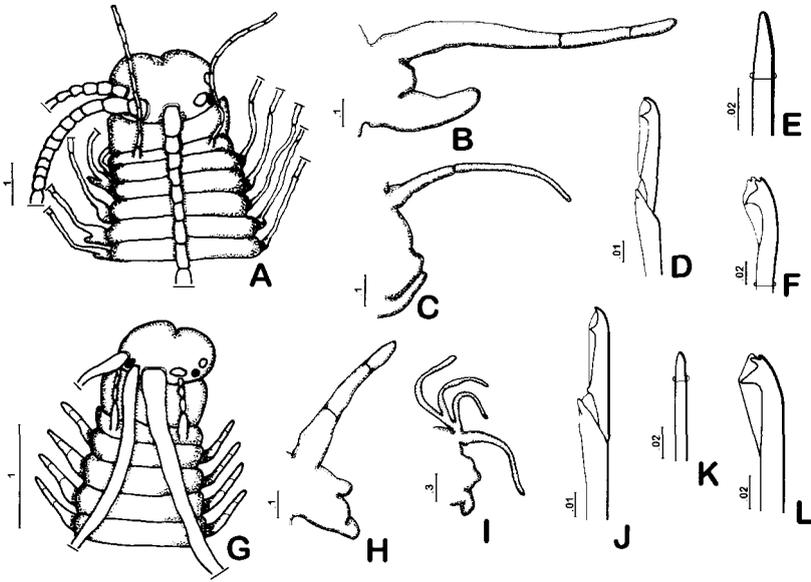


Figure 2. *Eunice edwinlinkae* sp. nov.: (A) anterior end in dorsal view; (B) anterior parapodium; (C) posterior parapodium; (D) falciger; (E) acicula; (F) subacicular hook. *Eunice hartmanae* sp. nov.: (G) anterior end in dorsal view; (H) anterior parapodium; (I) posterior parapodium; (J) falciger; (K) acicula; (L) subacicular hook. Scale bars in mm.

AI. Peristomium cylindrical, with slightly lower lip muscular, separation between peristomial rings visible dorsally and ventrally, first peristomial ring twice as long as second; peristomial cirri articulated (seven articles) longer than prostomium. Maxillary formula 1+1, 7+7, 7+0, 8+11, 1+1. Branchiae pectinate, smaller than dorsal cirri, in setigers 3–112, with up to three branchial filaments. Dorsal cirri very long, articulated; first ones thick and long, others become longer but are thinner, posteriorly they become shorter. Anterior ventral cirri digitated, posterior ones pointed (Figure 2B,C). Setae of three kinds: limbate, heterodont pectinate and bidentate compound falcigers (Figure 2D). Acicula pointed, yellow (Figure 2E). Subacicular hooks yellow, tridentate (Figure 2F), start in setiger 28, one per parapodium.

Discussion

Eunice edwinlinkae sp. nov., belongs to the flavus-tridentate group; it is close to species with all dorsal cirri articulated. In this grouping, the only other species having ceratostyles with cylindrical articulations is *E. martensi* Grube, 1878; however, *E. edwinlinkae* differs because it has very long antennae, bidentate compound falcigers (instead of tridentate), dorsal cirri much longer than branchiae (instead of being shorter), and because it has up to three branchial filaments (instead of having up to 16).

Distribution.

Eunice edwinlinkae is known from the type locality, in rocky bottoms at a depth of ~111 m.

Etymology

The specific name is a free combination, declined in feminine, as a recognition to scientists and crew of the RV 'Edwin Link', from the Harbor Branch Oceanographic Institution, Florida, USA. Most materials included in this contribution were collected during a cruise in Mexican Caribbean waters.

Gender

Feminine.

Eunice hartmanae sp. nov.
(Figure 2G–L)

Material examined

Holotype (USNM-177947), three paratypes (BM(NH), MNHN, ZMUC), east of Cayo Centro, Chinchorro Bank, Quintana Roo, Mexico, RV 'Edwin Link', station 2782, 18°34'41"N 87°26'80"W, 23 August 1990.

Description

Holotype complete, 42 mm long, 3 mm wide, with 122 setigers. Prostomium shorter than peristomium, with shallow middorsal furrow. Antennae equidistant in semicircle, AI to second peristomial ring, AII (incomplete) to setiger 10, and AIII (incomplete) to setiger 22 (Figure 2G). Ceratostyle smooth. Ceratophores short. Eyes behind AI. Peristomium with muscular lower lip; separation between peristomial rings visible from anywhere, first peristomial ring twice as long as second; peristomial cirri articulated, reaching anterior portion of prostomium. Maxillary formula 1+1, 7+9, 8+0, 8+12, 1+1. Branchiae pectinate, longer than dorsal cirri, in setigers 380, with up to six branchial filaments. Dorsal cirri articulated in anterior setigers (three articles), posteriorly smooth; ventral cirri basally swollen, with small digitated tip in anterior setigers, digitiform in posterior setigers (Figure 2H,I). Setae of three kinds: limbate, heterodont pectinate, and bidentate compound falcigers (Figure 2J). Aciculae yellow with blunt tip (Figure 2K), dorsal aciculae much recurved distally. Subacicular hooks yellow, tridentate (Figure 2L), starting in setiger 27, one per parapodium.

Variation

There can be three to six branchial filaments; subacicular hooks might start in setigers 23–27.

Discussion

Eunice hartmanae sp. nov. belongs to the flavus-tridentate group; it is close to *E. congesta* Marenzeller, 1879, *E. eugeniae* Fauchald, 1992, *E. marovoi* Gibbs, 1971, and *E. mucronata* Moore, 1903 by having smooth ceratostyles. However, *E. hartmanae* differs because it is the only species in the group with articulated peristomial cirri, with articulated dorsal cirri in first parapodia, and by lacking a distal mucron in compound falcigers.

Distribution

Eunice hartmanae is known from the type locality, in rocky bottoms at ~60 m in depth.

Etymology

This species is dedicated to the memory of the late Dr Olga Hartman, who among many important publications, set the basis for taxonomy in eunicids.

Gender

Feminine.

Eunice hernandezi sp. nov.
(Figure 3A–E)

Material examined

Holotype (USNM-177948), nine paratypes, east of Cayo Centro, Chinchorro Bank, Quintana Roo, Mexico, RV 'Edwin Link', station 2782, 18°34'41"N 87°26'80"W, 23 August 1990. Three paratypes, east of Isla Mujeres, some 13 km off the island, Quintana Roo, Mexico, 131 m, RV 'Edwin Link', station 2792, 21°14'N 86°36'W, 28 August 1990. Paratypes in USNM, BM(NH), MNHN, ZMUC, ECOSUR.

Description

Holotype complete, 50 mm long, 3 mm wide, with 122 setigers. Prostomium shorter than peristomium, with deep middorsal furrow. Antennae in semicircle, AI to first peristomial ring, AII to setiger 2, AIII to setiger 7, isolated (Figure 3A). Ceratostyle smooth. Ceratophores short. Eyes behind AI. Peristomium cylindrical, with muscular lower lip, separation between peristomial rings visible dorsally and ventrally, first peristomial ring four times longer than second; peristomial cirri smooth, longer than peristomium. Maxillary formula 1+1, 4+4, 6+0, 2+7, 1+1. Branchiae palmate, longer than dorsal cirri, starting in setiger 25–117, with up to three branchial filaments. Dorsal cirri smooth (Figure 3B). Setae of three kinds: limbate, heterodont pectinate, and bidentate compound falcigers (Figure 3C). Aciculae black, much recurved distally (Figure 3D). Subacicular hooks black, bidentate (Figure 3E), starting in setiger 30, only one per setiger.

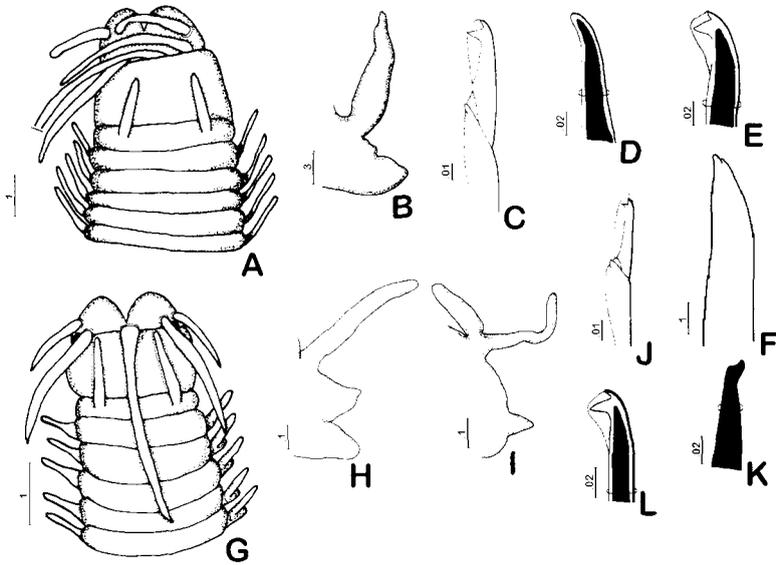


Figure 3. *Eunice hernandesi* sp. nov.: (A) anterior end in dorsal view; (B) parapodium; (C) falciger; (D) acicula; (E) subacicular hook. *Eunice mutabilis*; (F) Subacicular hook (after Fauchald, 1992, p. 231). *Eunice ibarzabalae* sp. nov.: (G) anterior end in dorsal view; (H) anterior parapodium; (I) posterior parapodium; (J) falciger; (K) acicular; (L) subacicular hook. Scale bars in mm.

Variation

Branchiae start between setigers 23 and 26; subacicular hooks begin between setigers 26 and 32.

Discussion

Eunice hernandesi sp. nov. belongs to the fuscus-bidentate group; it is especially akin to those species that have branchiae, smooth ceratostyles and AIII longer than the rest. In this grouping only *E. lita* (Chamberlin, 1919) and *E. mutabilis* Gravier, 1900 have peristomial cirri exceeding the peristomium anteriorly, just as is the case in *E. hernandesi*. However, *E. hernandesi* differs from *E. lita* by having branchiae starting later and present in a much higher proportion of the body (100 branchifers/122 setigers against 105 branchifers/240 setigers in *E. lita*). This new species differs from *E. mutabilis* by having a longer AIII that reaches setiger 7 (instead of setiger 2), less branchial filaments (2–3 against 3–25 in *E. mutabilis*), by the dentition of subacicular hooks since in *E. hernandesi* the proximal tooth is lateral while in *E. mutabilis* both teeth are directed distally (Figure 3F). Further, *E. hernandesi* is the only species in the group that has distally curved aciculae.

Distribution

Eunice hernandesi is known from the two localities in the coast of Quintana Roo, Mexico. It was collected from rocky bottoms in some 131 m depth.

Etymology

This species name is to recognize the efforts of Pablo Hernández-Alcántara, from the Instituto de Ciencias del Mar, UNAM, who has made some extensive studies on polychaetes from Mexican waters.

Gender

Masculine.

Eunice ibarzabala sp. nov.
(Figure 3G–L)

Material examined

Holotype (USNM-177950), a paratype [BM(NH)], south of Chinchorro, Quintana Roo, Mexico, 116 m, RV 'Edwin Link', station 2779, 18°25'91"N 87°18'93"W, 22 August, 1990.

Description

Holotype ovigerous, female, incomplete, 97 mm long, 3 mm wide, with 183 setigers. Prostomium shorter than peristomium, with deep middorsal furrow. Antennae in semicircle, AI to the second peristomial ring, AII to setiger 2, AIII to setiger 4, isolated (Figure 3G). Ceratostyle smooth. Ceratophores short. Eyes behind AI. Peristomium cylindrical, with notorious muscular lower lip, separation between peristomial rings visible dorsally and ventrally; first peristomial ring three times as long as second; peristomial cirri smooth, reaching anterior edge of peristomium. Maxillary formula 1+1, 3+3, 6+0, 3+7, 1+1. Branchiae with a single filament, shorter than dorsal cirri, starting in setiger 29 to last segment. Dorsal cirri smooth; ventral cirri in anterior setigers with swollen base and digitated tip, in posterior setigers cirri digitated (Figs. 3H,I). Setae of three kinds: limbated, heterodont pectinate, and compound falcigers bidentate (Figure 3J). Aciculae black, distally very curved (Figure 3K). Subacicular hooks black, bidentate (Figure 3L), starting in setiger 47, only one per setiger.

Variation

The paratype is also incomplete, it has 97 setigers, with 75 mm in length and 4 mm in width; branchiae might start in setigers 29–39 (paratype), and subacicular hooks might begin in setigers 47–59 (paratype).

Discussion

Eunice ibarzabala sp. nov. belongs to the fuscus-bidentate group, and it is linked with *E. collini* Augener, 1906, *E. crassitentaculata* (Treadwell, 1922), and *E. lita* (Chamberlin, 1919) in having smooth ceratostyles and few branchial filaments. *E. crassitentaculata* is the only species in the group having long ceratophores and isodont pectinate setae; *E. ibarzabala* differs from *E. collini* and *E. lita* by having branchiae with a single filament and a later start of subacicular hooks (setigers 26–27 in *E. collini* and setiger 23 in *E. lita*).

Distribution

Eunice ibarzalae is known from the type locality, on rocky bottoms of 116 m depth.

Etymology

The specific name is to recognize Diana Ibarzábal, a Cuban polychaetologist, who has studied several groups of polychaetes.

Gender

Feminine.

Eunice lanai sp. nov.
(Figure 4A–G)

Material examined

Holotype (USNM-177951), east-northeast of Isla Mujeres, Quintana Roo, Mexico, 74 m, RV 'Edwin Link', station 2793, 21°16.6'N 86°38.5'W, 28 August 1990.

Description

Holotype incomplete, 35 mm long, 4 mm wide, with 55 setigers. Prostomium shorter than peristomium, with shallow middorsal furrow. Antennae equidistant in semicircle, AI to setiger 2, AII to setiger 5, AIII (incomplete) to setiger 3 (Figure 4A). Ceratostyle basally with cylindrical joints, distally moniliform. Ceratophores short. Eyes large, behind AI. Peristomium cylindrical with notorious lower lip, separation between peristomial rings visible dorsally and ventrally, first peristomial ring three times as long as second; peristomial cirri articulated (four joints), reaching posterior end of prostomium. Maxillary formula 1+1, 6+7, 7+0, 8+7, 1+1. Branchiae pectinate, longer than dorsal cirri (Figure 4B), starting in setiger 6 and ending in setiger 27, with up to eight branchial filaments. Dorsal cirri articulated anteriorly, with up to four joints; smooth, shorter and thinner posteriorly; ventral cirri globose anteriorly: base swollen, with digitate small tip; digitated posteriorly (Figure 4C,D). Setae of three kinds: limbate, heterodont pectinate, and bidentate compound falcigers (Figure 4E). Aciculae yellow, apparently bifid (Figure 4F). Subacicular hooks yellow, tridentate (Figure 4G), starting in setiger 25, one per setiger.

Discussion

Eunice lanai sp. nov., belongs to the flavus-tridentate group; it is especially close to those species having ceratostyles with mixed articulations. In this grouping, there are only two species having peristomial cirri longer than peristomium and dorsal cirri articulated in anterior setigers: *E. lanai* and *E. vittatopsis* Fauchald, 1970. They differ because *E. lanai* has all antennae with mixed articulation (not only AI), branchiae in a shorter region (21 branchial segments against 82 in *E. vittatopsis*), and subacicular hooks starting more anteriorly (setiger 25 against setiger 39).

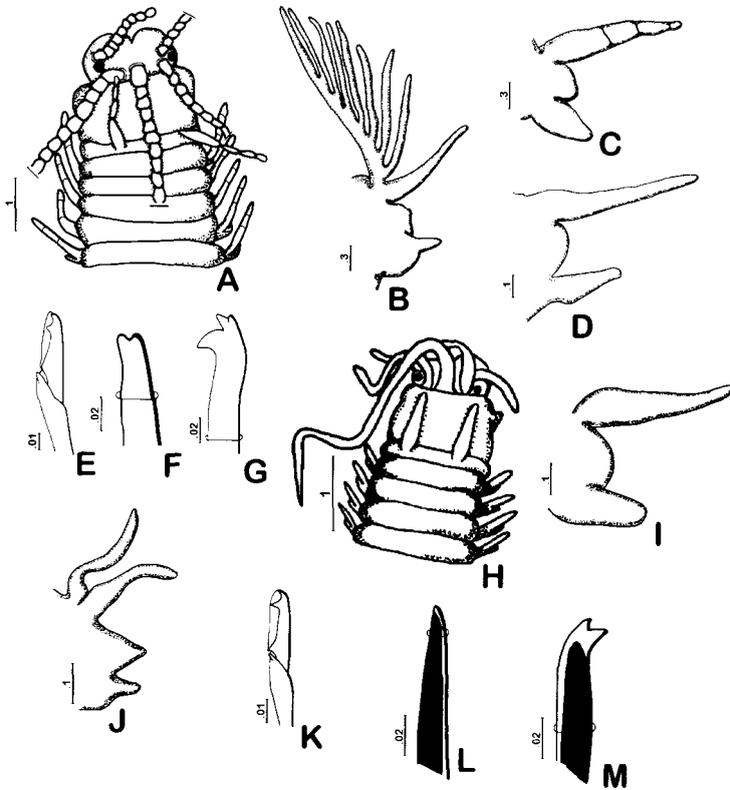


Figure 4. *Eunice lanai* sp. nov.: (A) anterior end in dorsal view; (B) branchiae; (C) anterior parapodium; (D) posterior parapodium; (E) falciger; (F) acicula; (G) subacicular hook. *Eunice mikeli* sp. nov.: (H) anterior end in dorsal view; (I) anterior parapodium; (J) posterior parapodium; (K) falciger; (L) acicula; (M) subacicular hook. Scale bars in mm.

Distribution

Eunice lanai is known from the type locality, on rocky bottoms of ~74 m depth.

Etymology

This name is to recognize the interest and publications of Paulo da Cunha Lana, particularly on the taxonomy and ecology of polychaetes from Brazil.

Gender

Masculine.

Eunice mikeli sp. nov.

(Figure 4H-M)

Material examined

Holotype (USNM-177952), Cayo Norte Chinchorro, Quintana Roo, Mexico, 60 m, RV 'Edwin Link', station 2774a, 18°45-63'N 87°15-84'W 20 August 1990.

Description

Holotype incomplete, 15 mm long, 2 mm wide, with 43 setigers. Prostomium shorter than peristomium, with deep middorsal furrow. Antennae in semicircle, AI to second peristomial ring, AII to setiger 5, AIII to setiger 13, isolated (Figure 4H). Ceratostyle smooth. Ceratophores long. Eyes behind AI. Peristomium cylindrical, with marked muscular lower lip, separation between peristomial rings visible dorsally and ventrally, first peristomial ring twice as long as second; peristomial cirri of the same length as peristomium. Mandibles and maxillae whitish, soft; maxillary formula 1+1, 4+4, 5+0, 3+8, 1+1. Branchiae with a single filament, longer than dorsal cirri, from setiger 32 to last segment. Dorsal cirri smooth; ventral cirri in anterior setigers globose, base swollen with digitated tip posteriorly (Figure 4I,J). Setae of three kinds: limbate, heterodont pectinate, and compound falcigers bidentate (Figure 4K). Aciculae black, with rounded tip (Figure 4L). Subacicular hooks black, bidentate (Figure 4M), starting in setiger 23, only one per setiger.

Discussion

Eunice mikeli sp. nov. belongs to the fuscus-bidentate group, and it is especially akin to those species provided with branchiae, smooth ceratostyles and long AIII. Further, because of their reduced branchial development, *E. mikeli* is related with *E. collini* Augener, 1906, *E. crassitentaculata* (Treadwell, 1922), *E. lita* (Chamberlin, 1919), *E. notata* (Treadwell, 1921) and *E. ibarzabalae* sp. nov.; however, *E. mikeli*, *E. ibarzabalae* and *E. crassitentaculata* can be separated because of a more posterior commencement of branchiae. Thus, *Eunice mikeli* differs from *E. ibarzabalae* by having long ceratophores on all antennae and from *E. crassitentaculata* by having: (1) peristomial cirri as long as the peristomium (not shorter); (2) heterodont pectinate setae (not isodont pectinate setae); (3) proximal tooth larger than the distal one in compound bidentate falcigers (not of the same size), and an earlier start of subacicular hooks (setiger 23 instead of 32).

Distribution

Eunice mikeli is known from the type locality, on rocky bottoms at 60 m depth.

Etymology

This name is to recognize Ildefonso (Mikel) Liñero-Arana, a Venezuelan polychaetologist, who has made many publications on several families of polychaetes from Venezuela.

Gender

Masculine.

Eunice miurai sp. nov.

(Figure 5A–G)

Material examined

Holotype (USMN-177953), Off Punta Chacom (or Punta Xocox), Quintana Roo, Mexico, 111 m, RV 'Edwin Link', station 2784, 18°46'42"N 87°34'5"W, 24 August 1990, two paratypes, Cayo Norte, Chinchorro, Quintana Roo, Mexico, 52 m and 60 m, RV 'Edwin Link', station 2774b, 18°45'63"N 87°15'84"W, 20 August 1990. one paratype, south of Chinchorro, Quintana Roo, Mexico, 66 m, RV 'Edwin Link', station 2777, 18°26'02"N 87°18'82"W), 21 August 1990. One paratype, north of Blackford Cay, Chinchorro, Quintana Roo, Mexico, 61 m, RV 'Edwin Link', station 2780, 18°30'94"N 87°26'61"W, 22 August 1990. One paratype, Off Punta Changuay, between Rio Indio and Ubero, Quintana Roo, Mexico, 113 m, RV 'Edwin Link', station 2788, 18°51'74"N 87°37'38"W, 26 August 1990. One paratype, Punta Allen, Bahía Ascensión, Quintana Roo, Mexico, 19°46'46"N and 87°28'33"W, 10 June 1986, E. Donath. Paratypes in BM(NH), MNHN, ZMUC, ECOSUR.

Description

Holotype complete, 30 mm long, 3 mm wide, with 87 setigers. Prostomium shorter than peristomium, with shallow middorsal furrow. Antennae equidistant in semicircle, AI to setiger 1, AII to setiger 10, AIII to setiger 14 (Figure 5A). Ceratostyle basally with cylinders, distally moniliform. Ceratophores short. Eyes posterior to AI. Peristomium cylindrical, with notorious lower lip, separation between peristomial rings visible dorsally and ventrally, first peristomial ring three times as long as second; peristomial cirri articulated, to middle of prostomium. Maxillary formula 1+1, 6+7, 7+0, 7+11, 1+1. Branchiae pectinate, longer than dorsal cirri, starting in setiger 6 to setiger 24, with up to three branchial filaments. Dorsal cirri articulated; ventral cirri basally swollen, with a digitated tip in anterior setigers, pointed posterior setigers (Figure. 5B,C). Setae of three kinds: limbate, heterodont pectinate, and compound falcigers. Falcigers bidentate in anterior setigers, tridentate in posterior setigers (Figure. 5D,E). Aciculae distally expanded, apparently bifid (Figure 5F). Subacicular hooks yellow, tridentate (Figure 5G), starting in setiger 23, only one per setiger.

Variation

Branchiae start from setigers 5 or 6, with up to 3–5 branchial filaments. Subacicular hooks start between setigers 18 and 23.

Postlarva

Specimen from Off Punta Mosquitero, Quintana Roo, Mexico, 151 m, RV 'Edwin Link', station 2789, 19°13'09"N 87°30'10"W, 27 August 1990. Associated with the hexactinellid sponge *Cyrtaulon sigsbeeii* (Schmidt, 1880), and to the eunicid *Fauchaldius cyrtauloni* sp. nov. stage Lysidice, complete, 4 mm long, with 22 setigers. Prostomium entire, shorter than peristomium. Lateral antennae (AII) with two articulations, median antenna (AIII) with five articulations, all longer than prostomium. Ceratostyle with subespheric articles. Eyes laterally to lateral antennae. Without peristomial cirri.

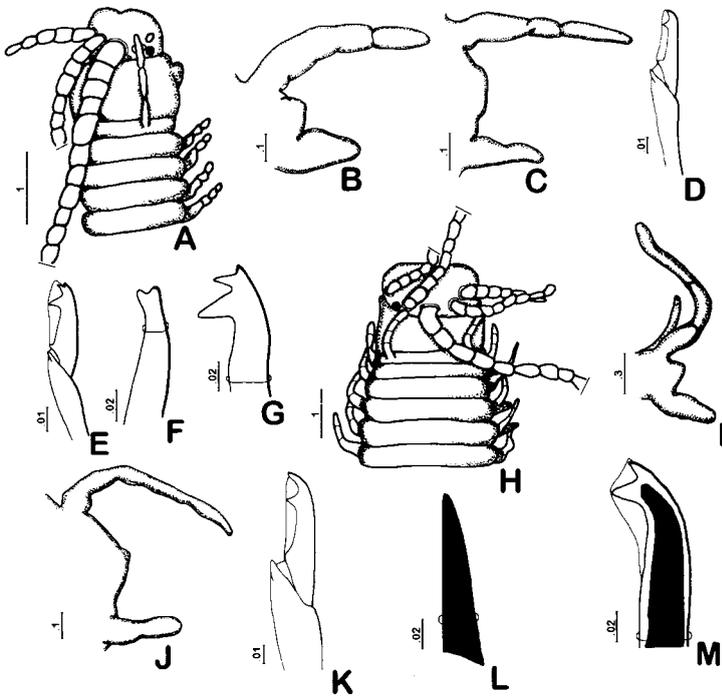


Figure 5. *Eunice miurai* sp. nov.: (A) anterior end in dorsal view; (B) anterior parapodium; (C) posterior parapodium; (D) bidentate falciger; (E) tridentate falciger; (F) acicula; (G) subacicular hook. *Eunice nonatoi* sp. nov.: (H) anterior end in dorsal view; (I) anterior parapodium; (J) posterior parapodium; (K) falciger; (L) acicula; (M) subacicular hook. Scale bars in mm.

Without branchiae. Maxillary formula 1+1, 5+7, 8+0, 7+10, 1+1. Setae of two kinds: limbate and compound falcigers. Falciger bidentate up to setiger 9, tridentate posteriorly. Aciculae yellow, distally expanded. Subacicular hooks yellow tridentate, starting in setiger 7.

Discussion

Eunice miurai sp. nov. belongs to the flavus-tridentate group, and because of having ceratostyle with mixed articulation, it is more closely allied to *E. australis* Quatrefages, 1866, *E. kerguelensis* Averincev, 1974, *E. limosa* Ehlers, 1901, and *E. vittatopsis* Fauchald, 1970. By the presence of smooth peristomial cirri and smooth anterior dorsal cirri *E. kerguelensis* and *E. limosa* are clearly sorted out. Because *E. miurai* has < 20 branchial segments, it differs from *E. vittatopsis* which has about 80, and *E. miurai* differs from *E. australis* because it has AIII much longer, peristomial cirri exceeding the prostomium, heterodont pectinate setae, and aciculae distally expanded, apparently bifid. Further, *E. miurai* sp. nov., is the only species in the group that has bidentate compound falcigers in anterior setigers, and tridentate compound falcigers in posterior setigers.

Distribution

Eunice miurai is known from seven localities in the Mexican Caribbean coasts, from Punta Allen in Sian Ka'an Biosphere Reserve, south to Bancho Chinchorro, including some southern localities in it. It was found on rocky bottoms from the intertidal and to depths of some 115 m.

Etymology

This species is named to recognize the work of Tomoyuki Miura, who has published several important works on eunicids, and has made some useful insights on morphological variability in species from Japan. He has also made important contributions in other families of deep-water and unusual polychaetes.

Gender

Masculine.

Eunice nonatoi sp. nov.
(Figure 5H–M)

Material examined

Holotype (USNM-177954), Off Punta Chacom (Punta Xocox), Quintana Roo, Mexico, 111 m, RV 'Edwin Link', station 2784, 18°46'42"N 87°34'5"W, 24 August 1990. One paratype [in BM(NH)], Off Punta Changuay, between Rio Indio and Ubero, Quintana Roo, Mexico, 113 m, RV 'Edwin Link', station 2788, 18°51'74"N 87°37'38"W, 26 August 1990.

Description

Holotype complete, 55 mm long, 3 mm wide, with 104 setigers. Prostomium shorter than peristomium, with shallow middorsal furrow. Antennae equidistant in semicircle, AI to setiger 2, AII to setiger 6, AIII to setiger 11 (Figure 5H). Ceratostyle basally with cylinders, distally moniliform. Ceratophores short. Eyes large, behind AI. Peristomium cylindrical, with notorious muscular lower lip, separation between peristomial rings visible dorsally and ventrally, first peristomial ring three times as long as second; peristomial cirri articulated, slightly exceeding peristomium. Maxillary formula 1+1, 6+6, 7+0, 5+11, 1+1. Branchiae with a single filament, smaller than dorsal cirri, starting in setiger 356. Dorsal cirri articulated in anterior setigers, smooth in posterior segments; ventral cirri globose in anterior setigers, pointed in posterior segments (Figure 5I,J). Setae of three kinds: limbate, heterodont pectinate, and bidentate compound falcigers (Figure 5K). Aciculae black, distally pointed (Figure 5L). Subacicular hooks black, bidentate (Figure 5M), starting in setiger 27, one per setiger.

Variation

Paratype has subacicular hooks starting in setiger 25 but other features are invariable.

Discussion

Eunice nonatoi sp. nov. belongs to the fuscus-bidentate group, and it is close to *E. nicidioformis* Treadwell, 1906 and *E. rosaurae* Monro, 1939 by the presence of ceratostyles with mixed articulation and branchiae as single filaments. The last species, differs from others in having smooth peristomial cirri and tridentate subacicular hooks in some setigers. *Eunice nonatoi* differs from *E. nicidioformis* because it has branchiae with a similar development throughout the body, without any expansions while *E. nicidioformis* has posterior branchia reduced to a small spur in the posterior part of the dorsal cirri, and it seems that the dorsal cirri rises from a much reduced, socket-like branchia, and such a structure is unique in the genus.

Distribution

Eunice nonatoi is known from two localities in the Southern coast of Quintana Roo, Mexico. It was found on rocky bottoms at depth of about 113 m.

Etymology

This specific name is to recognize the work and efforts of Edmundo F. Nonato, dean of the polychaetologists in Latin America, and factual leader of many Brazilian taxonomists and invertebrate ecologists.

Gender

Masculine.

Marphysa de Quatrefages, 1865

Marphysa angeli sp. nov.

(Figure 6A–F)

Material examined

Holotype (USNM-177955), Xamach, Quintana Roo, Mexico, 8 February 1986, collected by L. Aguilar and J. Fernández.

Description

Holotype complete, 12 mm long, 1 mm wide, with 88 setigers. Prostomium rounded, slightly shorter and narrower than peristomium. Antennae in semicircle, AI to middle of first peristomial ring, AII to second peristomial ring, AIII to setiger 1, isolated (Figure 6A). Ceratostyles digitate, smooth. Ceratophores short. Eyes behind AI. Peristomium cylindrical, with slightly marked muscular lower lip; separation between peristomial rings visible from anywhere; first peristomial ring three times as long as second. Branchiae with a single filament, longer than dorsal cirri, on setigers 1784. Dorsal cirri digitate in anterior setigers, ventral cirri globose (Figure 6B), both cirri become smaller posteriorly (Figure 6C). Setae in anterior setigers include limbate and bidentate compound falcigers (Figure 6D); in posterior setigers, setae include

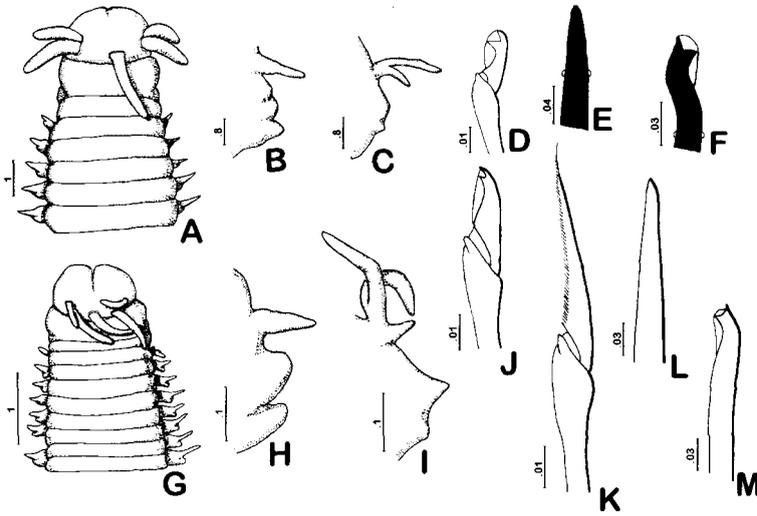


Figure 6. *Marphysa angeli* sp. nov.: (A) anterior end in dorsal view; (B) anterior parapodium; (C) posterior parapodium; (D) falciger; (E) acicula; (F) subacicular hook. *Marphysa orensanzi* sp. nov.: (G) anterior end in dorsal view; (H) anterior parapodium; (I) posterior parapodium; (J) falciger; (K) spiniger; (L) acicula; (M) subacicular hook. Scale bars in mm.

heterodont pectinate and bidentate compound falcigers. Aciculae black, distally entire, one per setiger (Figure 6E). Subacicular hooks black, bidentate, starting in setiger 21, one per setiger (Figure 6F).

Discussion

Marphysa angeli sp. nov. belongs to the group provided only with composite falcigers, and it is close to *M. posterobranchia* Day, 1962 and *M. stylobranchiata* Moore, 1909 in having branchiae with a single filament. *M. posterobranchia* is clearly separated from the other species because branchiae are restricted posterior to setiger 55. *M. stylobranchiata* has 35 aciculae per setiger while *M. angeli* has only one. Another difference is the shape of the prostomium, *M. angeli* has a rounded prostomium, while the two other species have a bilobed prostomium.

Distribution

Marphysa angeli is known from the type locality. In shallow mixed bottoms, in algae living on rocks.

Etymology

The specific name is dedicated to J. Angel de León-González; who has made several publications on Eunicidae from Mexico, and on other families of polychaetes as well.

Gender

Masculine.

Marphysa orensanzi sp. nov.
(Figure 6G–M)

Material examined

Holotype (USNM-177956), Cayo Valencia, Bahía Ascención, Quintana Roo, Mexico, 10 June 1986, M. Aguilar.

Description

Holotype complete, 12 mm long, 2 mm wide, with 76 setigers. Prostomium bilobed slightly, as long as peristomium (Figure 6G). Antennae in semicircle, AI to posterior margin of first peristomial ring, AII to setiger 1, AIII to setiger 2. Ceratostyle smooth. Ceratophores short. Eyes behind AI. Peristomium cylindrical, separation between peristomial rings visible from anywhere; first peristomial ring twice as long as second. Branchiae with up to two filaments, longer than dorsal cirri, progressively longer posteriorly, on setigers 13–66; a single filament in setiger 13, two filaments from setiger 24 to setiger 60, one of the filaments reduced on setigers 48–60, a single filament on setigers 61–66. Dorsal cirri digitate in anterior setigers, ventral cirri conical (Figure 6H); both progressively smaller in posterior setigers (Figure 6I). Setae in anterior setiger include limbate, bidentate compound falcigers (Figure 6J) and compound spinigers (Figure 6K). Setae in posterior setigers include limbate, isodont pectinate, and compound spinigers. Aciculae transparent, 23 in anterior setigers, only one posteriorly (Figure 6L). Subacicular hooks yellow, bidentate, starting in setiger 17, one per setiger (Figure 6M).

Discussion

Marphysa orensanzi sp. nov. belongs to the group provided with composite falcigers and composite spinigers. Besides *M. orensanzi*, there is only one species provided with both compound falcigers and compound spinigers in anterior setigers, and only compound spinigers in posterior setigers: *M. digitibranchia* Hoagland, 1920. These two species differ because *M. digitibranchia* has branchiae with up to five filaments, starting in setiger 20, and two subacicular hooks per setiger, while *M. orensanzi* has branchia with up to two filaments, starting in setiger 13, and only one subacicular hook per setiger.

Distribution

Marphysa orensanzi is known from the type locality. It was found in shallow rocky bottoms, between algae.

Etymology

This specific name is dedicated to José María Orensanz, an Argentinian polychaetologist who has published interesting work on eunicids and on some other families of polychaetes, from Argentina or from Antarctic or Subantarctic localities.

Gender

Masculine.

KEY TO GENERA OF EUNICIDAE OF THE WORLD

1. With five antennae 2
 — With 1–3 antennae 7
2. With peristomial cirri 3
 — Without peristomial cirri 6
3. Without subacicular hooks *Palola*
 — With subacicular hooks 4
4. With additional setae, simple and composite 5
 — Without additional setae *Fauchaldius* gen. nov.
5. Maxillae III and IV with one or few large denticles *Euniphysa*
 — Maxillae multidentate, small denticles *Eunice*
6. Without compound setae; with flabelliform setae in posterior
 setigers *Nauphanta*
 — With compound setae; without flabelliform setae *Marphysa*
7. With three antennae *Lysidice*
 — With one antenna *Nematonereis*

This paper is part of a series on taxonomy of polychaetes from Mexican Caribbean coasts, and this project has been funded mainly by CIQRO (now replaced by ECOSUR). This contribution could be finished thanks to funds from CONABIO (P-105). Most specimens from sublittoral depths were donated by Luis Soto and Elba Escobar (Mexico). Rob van Soest (Amsterdam), kindly identified the hexactinellid sponge. Some specimens were provided for comparison by Peter Garwood (Newcastle), Patrick Gillet (Angers), and Harry ten Hove (Amsterdam). Our colleagues K. Fauchald, T. Miura, J.M. Orensanz, J.A. de León, and T. Britayev made interesting comments and mailed copies of some important publications. Tadashi Shimizu translated a publication in Chinese.

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Submitted 22 July 1996. Accepted 19 March 1997.

Note added in proof

Enice insolita Amoureux (1978) was described from materials collected off Androka, southern Madagascar in 255 m; it has subacicular hooks as the only kind of setae. Thus this species should be placed in *Fauchaldius*, as *Fauchaldius insolitus* (Amoureux, 1978) comb. nov. This species can be separated from *F. cyrtanloni* sp. nov. by three features: a much longer median antenna (antenna III), presence of branchiae (short, single filaments) from setiger 10, and very long dorsal cirrus.

APPENDIX 1. KEYS TO SPECIES OF EUNICE (POLYCHAETA: EUNICIDAE)
OF THE WORLD, BASED UPON ANTERIOR FRAGMENTS

Eunicids tend to break off quite easily and thus it is difficult to gather complete specimens even in careful handy samplings. Fauchald (1991) in preparing a morphometric study of eunicids from Belize, collected about 300 specimens but only 156 were complete (roughly 52% of total). Further, we have had some troubles trying to identify incomplete specimens because the keys available, contained in what seems to be the most comprehensive work up to now, Fauchald (1992) review, often requires complete specimens. At least for us, such keys have been impractical and as part of a series of papers on the group, we decided to change that key and base its using on anterior ends.

In preparing this key, we have followed the classical distinction based on colour and dentition of subacicular hooks; we are not following other minor groupings because they are based on the region of the body carrying branchiae and because they make no distinction on the kind of branchiae present, combining species provided with pectinate or palmate branchiae. However, we are following Fauchald (1992) monograph as much as possible: descriptions and illustrations. In some conflicting cases we have also reviewed the original descriptions.

This is a tool to identify species based on anterior ends; we have to stress an obvious advice: Do not introduce any species in a faunal list by employing solely this key. We strongly recommend to check Fauchald (1992) monograph and, eventually, original descriptions.

There are some species which have an incomplete or inadequate description, and therefore they are not included in this key. These species are *E. amphiheliae* Marin in Filhol, 1885, *E. bassensis* McIntosh, 1885, *E. bipapillata* Grube, 1866, *E. complanata* Grube, 1877, *E. flavopicta* Izuka, 1912, *E. langi* (Treadwell, 1943), *E. leucosticta* Grube, 1878, *E. macrobranchia* Schmarda, 1861, *E. magnifica* Grube, 1866, *E. ovalifera* Fauvel, 1936, *E. paupera* Grube, 1878, *E. prayensis* Kinberg, 1865, *E. savignyi* Grube, 1878, and *E. suviensis* (Treadwell, 1922). They might be found in the same region than its type locality, and thus anyone working with these supposed species, should look for additional information.

Some other species, mostly recently described or overlooked in recent reviews, have been incorporated: *E. alata* Miura, 1977, *E. annulicirrata* Miura, 1986, *E. brevibranchiata* (Miura, 1986), *E. donathi* Carrera-Parra & Salazar-Vallejo, 1998, *E. edwinlinkae* Carrera-Parra & Salazar-Vallejo, 1998, *E. fauchaldi* Miura, 1986, *E. hartmanae* Carrera-Parra & Salazar-Vallejo, 1998, *E. hernandezi* Carrera-Parra & Salazar-Vallejo, 1998, *E. ibarzabalae* Carrera-Parra & Salazar-Vallejo, 1998, *E. lanai* Carrera-Parra & Salazar-Vallejo, 1998, *E. mikeli* Carrera-Parra & Salazar-Vallejo, 1998, *E. masudai* Miura, 1986, *E. metatropos* Hanley, 1986, *E. misakiensis* (Miura, 1987), *E. miurai* Carrera-Parra & Salazar-Vallejo, 1998, *E. neocaledoniensis* Lechapt, 1992, *E. nonatoi* Carrera-Parra & Salazar-Vallejo, 1998, *E. profunda* Miura, 1987, *E. riojai* de León-González, 1988, *E. tanseiae* Miura, 1986, and *E. yamamotoi* Miura, 1986.

The key is essentially dichotomic; some multiple options were inserted whenever needed and when more than one species key out in the same dilemma, we think they are very close or there are subtle differences between them. For the sake of clarity, we designate pectinate setae according to the relative development of the lateral teeth into three basic forms: *isodont* if both lateral teeth are longer than the rest, *heterodont* if only one tooth is longer than the rest, and *anodont* if lateral teeth are of the same size than remaining teeth. Further, we have introduced some abbreviations to reduce the text but instead of defining them separately, they are defined as follow: SH, subacicular hook; PC, peristomial cirri, Br, branchiae.

Key to Groups

- Subacicular hooks (SH) yellow bidentate Key 1
- SH yellow tridentate Key 2
- SH black unidentate Key 3
- SH black bidentate Key 4
- SH black tridentate Key 5

Key 1. Subacicular hooks yellow bidentate

- 1. Peristomial cirri (PC) and antennae articulated; branchiae (Br) pectinate 2
- PC smooth, antennae and Br variable 14
- 2. Antennae with cylindrical articles 3
- Antennae with mixed (cylindrical and subspherical) articles 9
- 3. PC short, not exceeding the peristomium anteriorly 4
- PC long, reaching or exceeding the peristomium anteriorly 5
- 4. Prostomium with shallow middorsal furrow; SH from setiger 43, both teeth directed distally *E. valens*
- Prostomium with deep middorsal furrow; SH from setiger 30, proximal tooth directed laterally *E. kubiensis*
- 5. Prostomium with deep middorsal furrow 6
- Prostomium with shallow middorsal furrow 7
- 6. With up to 24 branchial filaments; SH from setiger 42; PC with 7 short articles *E. caeca*
- With up to 7 branchial filaments; SH from setiger 63; PC with 3–4 long articles *E. gracilicirrata*
- 7. Br smaller than dorsal cirri; isodont pectinate setae *E. antillensis*
- Br longer or of about the same size than dorsal cirri; heterodont pectinate setae 8

8. Dorsal cirri with up to 13 articulations; Br with up to 5 filaments *E. stigmatura (partim)*
 — Dorsal cirri with up to 5 articulations; Br with up to 15 filaments *E. segregata*
9. PC short, not reaching the peristomium anteriorly 10
 — PC long, reaching or exceeding the peristomium anteriorly 11
10. Ceratostyle completely articulated *E. pectinata*
 — Ceratostyle distally articulated *E. biannulata*
11. Eyes placed between A I and A II *E. japonica*
 — Eyes placed laterally to A I. 12
 — Eyes placed behind A I 13
12. Prostomium with deep middorsal furrow; with up to 6 branchial filaments *E. articulata*
 — Prostomium with shallow middorsal furrow; with up to 12 branchial filaments *E. pennata*
13. With 3 or more SH, distally curved; antennae pointed; isodont pectinate setae. *E. mexicana*
 — SH in pairs, distally straight; antennae digitated; heterodont pectinate setae *E. websteri*
14. Br palmate 15
 — Br pectinate 17
15. PC short, not reaching the peristomium anteriorly; heterodont pectinate setae 16
 — PC long, exceeding the peristomium anteriorly. 18
16. Maxilla III asymmetrical *E. narconi*
 — Maxilla III symmetrical *E. metatropos*
17. Eyes absent; parapodia with up to 6 aciculae; isodont pectinate setae *E. manihine*
 — Eyes present; parapodia with up to 3 aciculae; heterodont pectinate setae *E. neocaledoniensis*
18. PC short, not reaching the peristomium anteriorly 19
 — PC long, reaching or exceeding the peristomium anteriorly 21
19. Antennae smooth. *E. schizobranchia*
 — Antennae with ceratostyle moniliform *E. armillata*
 — Antennae with cylindrical articulations 20

20. SH from setiger 22; heterodont pectinate setae; Br with up to 7 filaments *E. heterochaeta*
 — SH from setiger 31; isodont pectinate setae; Br with up to 10 filaments *E. johnsoni*
 — SH from setigers 51–55; Br with up to 38 filaments *E. semisegregata*
21. Antennae smooth 22
 — Antennae with cylindrical articulations 28
 — Antennae with mixed articulations 29
22. A III long, reaches setiger 7(–12). 23
 — A III short, reaching up to setiger 4 27
23. SH with both teeth directed distally *E. megabranhia* (partim)
 — SH with proximal tooth directed laterally 24
24. Br shorter than dorsal cirri, with up to 6 filaments *E. leptocirris*
 — Br longer than dorsal cirri, with up to 10 filaments 25
25. Prostomium with deep middorsal furrow 26
 — Prostomium with shallow middorsal furrow *E. arcturi*
26. Compound falciger mucronated *E. hawaiiensis* and *E. profunda**
 — Compound falciger not mucronated *E. validobranchiata*
27. Hood of falcigers without mucron; isodont pectinate setae *E. rubrocincta*
 — Hood of falcigers mucronated; heterodont pectinate setae *E. benedicti*
28. Dorsal cirri smooth; Br of similar size than dorsal cirri. *E. edwardsi*
 — Dorsal cirri articulated; Br smaller than dorsal cirri *E. antarctica*
29. Antennae in semicircle *E. parasegregata*
 — Antennae in a straight line *E. tridentata*

*. Apparently they are synonyms; if so, *E. hawaiiensis* has priority.

Key 2. Subacicular hooks yellow tridentate

1. Antennae smooth 2
 — Antennae with cylindrical articles 6
 — Antennae with subespheric articles 25
 — Antennae with mixed (cylindrical and subespheric) articles 44
2. Br with up to 6 filaments. 3
 — Br with 15 or more filaments 5
3. PC articulated *E. hartmanae*
 — PC smooth 4

4. Br of the same size than dorsal cirri; a SH per setiger;
without eyes. *E. eugeniae*
— Br longer than dorsal cirri; 3 SH per setiger; with eyes. *E. marovoi*
5. A III short, reaches setiger 2; Br starting in setiger 7. *E. congesta*
— A III long, reaches setiger 13; Br starting in setiger 3 *E. mucronata*
6. Br pectinate 7
— Br palmate *E. aucklandica*
7. PC smooth, not reaching the peristomium anteriorly *E. flavocuprea*
— PC smooth or articulated, reaching or exceeding the
peristomium anteriorly 8
8. PC articulated 9
— PC smooth 23
9. PC with up to 5 articles 10
— PC with 7 or more articles 21
10. Compound falcigers bidentate 11
— Compound falcigers tridentate 20
11. Hood of falcigers mucronated. 12
— Hood of falcigers without mucron 15
12. Antennae pointed. 13
— Antennae digitated 14
13. Accesory denticles of SH set off from the main one, distal
denticle directed upwards *E. atlantica*
— Accesory denticles of SH close to main one, distal
denticle oblique *E. indica*
14. Prostomium shorter than peristomium; main denticle of
'SH in right angle with the setal axis *E. medicina*
— Prostomium as long as peristomium; main denticle of SH
incurved *E. arenosa*
15. One SH per setiger 16
— More than one SH per setiger 19
16. Falcigers bidentate; Br with 3-4 filaments 17
— Falcigers tridentate; Br with up to 16 filaments. *E. martensi (partim)*
17. Antennae short, A III reaches setigers 1-2. 18
— Antennae long, A III reaches setigers 8-9 *E. fauchaldi*
18. Dorsal cirri smooth; isodont pectinate setae *E. multicylindri*
— Dorsal cirri articulated; heterodont pectinate setae *E. unifrons*

19. Heterodont pectinate setae; compound falcigers only
 bidentate *E. vittata*
 — Anodont pectinate setae; compound falcigers bidentate
 and some tridentate *E. tentaculata*
20. Heterodont pectinate setae; aciculae entire. *E. martensi (partim)*
 — Isodont pectinate setae; aciculae bifid. *E. aequabilis*
21. Dorsal cirri smooth; A III short, not exceeding setiger 1 *E. rubrivittata*
 — Dorsal cirri articulated; A III long, exceeding setiger 9 22
22. Dorsal cirri much longer than Br; A III reaches setiger 34 *E. edwinlinkae*
 — Dorsal cirri as long as Br; A III reaches setiger 10 *E. stigmatura (partim)*
23. Dorsal cirri articulated; one SH per setiger 24
 — Dorsal cirri smooth; with 3–4 SH per setiger *E. woodwardi*
24. Antennae in straight line; two pairs of eyes *E. americana*
 — Antennae in semicircle; one pair of eyes *E. cedroensis*
25. Br pectinate 26
 — Br palmate 42
 — Br simple filaments *E. makemoana*
26. PC not reaching the peristomium anteriorly 27
 — PC reaching or exceeding the peristomium anteriorly 32
27. Dorsal cirri smooth *E. flaccida*
 — Dorsal cirri articulated. 28
28. Prostomium with deep middorsal furrow *E. antennata*
 — Prostomium with shallow middorsal furrow 29
29. PC with 2–4 articles; prostomium directed forward 30
 — PC with 6 articles; prostomium directed downwards *E. gracilis*
30. SH starting in setiger 17 *E. murrayi*
 — SH starting in setiger 25 31
31. Acicula mucronated; Br with up to 4 filaments *E. parva*
 — Acicula not mucronated; Br with up to 8 filaments *E. bottae*
32. PC smooth *E. aedificatrix*
 — PC articulated 33
33. PC with 3–7 articles 34
 — PC with 10–11 articles 38
34. Br starting in setigers 4–6 35
 — Br starting in setiger 10 *E. tanseiae*
35. Dorsal cirri smooth *E. pellucida*
 — Dorsal cirri articulated. 36

36. Anodont pectinate setae anteriorly *E. panamena*
 — Isodont pectinate setae anteriorly 37
37. A III with 15 articles, reaching setiger 3; Br with up to 20
 filaments *E. ornata*
 — A III with 30 articles, reaching setiger 7; Br with up to
 5 filaments *E. margariticea*
38. Br shorter than dorsal cirri *E. hirschi*
 — Br of the same size or longer than dorsal cirri 39
39. Compound falcigers bidentate 40
 — Compound falcigers tridentate *E. elseyi*
 — Compound falcigers bi- and tridentate *E. havaica*
40. Ceratophores long *E. torresiensis*
 — Ceratophores short 41
41. Eyes large, placed between A I and A II; Br with up to 21
 filaments; SH starting in setiger 27 *E. rubra*
 — Eyes small, placed laterally to A II; Br with up to 12
 filaments; SH starting in setiger 23 *E. annulicirrata*
42. PC not reaching the peristomium anteriorly *E. interrupta*
 — PC exceeding the peristomium anteriorly 43
43. Br present only in setigers 6 to 30 *E. papeetensis*
 — Br present in setigers 5 to 82 *E. oliga*
44. With 2 pairs of PC *E. bicirrata*
 — With one pair of PC. 45
45. Br pectinate 46
 — Br palmate *E. kerguelensis*
46. PC not reaching the peristomium anteriorly *E. australis*
 — PC reaching or exceeding the peristomium anteriorly 47
47. PC smooth *E. limosa*
 — PC articulated 48
48. Compound falcigers bidentate and tridentate *E. miurai*
 — Compound falcigers bidentate 49
49. Middorsal furrow deep *E. lucei*
 — Middorsal furrow shallow 50
50. SH from setiger 25; Br only present in setigers 6 to 27 *E. lanai*
 — SH starting in setiger 39; Br present in setigers 3 to 85(+) *E. vittatopsis*

Key 3. Subacicular hooks black unidentate

1. Palps divided obliquely, seem to be biarticulated *E. sebastiani (partim)* and *E. riojai**
- Palps not divided 2
2. Br starting in setiger 5 *E. fucata*
- Br starting posteriorly to setiger 21 3
3. Ceratophores long 4
- Ceratophores short 5
4. Br from setiger 23; SH starting in setigers 20–25. *E. unidentata*
- Br from setiger 41; SH starting in setiger 54 *E. sonorae*
5. SH from setiger 23; heterodont pectinate setae *E. donathi*
- SH from setiger 38; isodont pectinate setae *E. marezelleri*

*, They seem to be synonyms; if so, *E. sebastiani* has priority.

Key 4. Subacicular hooks black bidentate

1. Palps divided obliquely, seem to be biarticulated 2
- Palps not divided. 5
2. Antennae smooth. 3
- Antennae articulated *E. kinbergi*
3. Dorsal cirri with a ventral, basal swelling; heterodont pectinatae setae 4
- Dorsal cirri not swollen; anodont pectinate setae *E. aphroditois (partim)*
4. With eyes; A III isolated, antennae not exceeding the peristomium posteriorly *E. sebastiani (partim)*
- Without eyes; antennae equidistant, A II and A III reaching setiger 3. *E. scombrinis* and *E. alata*¹
5. Composite setae falcigers and spinigers. 6
- Composite setae only falcigers 9
6. Antennae articulated *E. impexa (partim)*
- Antennae smooth. 7
7. Br from setiger 4 *E. misakiensis*
- Br starting posteriorly to setiger 16. 8
8. Antennae short, slightly exceeding the prostomium; separation between peristomial rings visible dorsal- and ventrally *E. tubicola*
- Antennae long, exceeding easily the prostomium; separation between peristomial rings visible dorsally *E. tubifex*

9. Antennae and PC smooth	10
— Antennae articulated; PC smooth	46
— Antennae and PC articulated	65
10. Dorsal cirri articulated	11
— Dorsal cirri smooth	12
11. PC short, not exceeding the peristomium anteriorly; Br from setiger 69, palmate	<i>E. levibranchia</i>
— PC long, exceeding the peristomium anteriorly; Br from setiger 3, pectinate	<i>E. megabranchia (partim)</i>
12. PC not reaching the peristomium anteriorly	13
— PC reaching or exceeding the peristomium anteriorly	36
13. Without Br	14
— Br starting in setigers 3–8	20
— Br starting in setigers 13–20	26
— Br starting in setigers 23–28	31
— Br starting posteriorly to setiger 75 35	
14. Isodont pectinate setae	15
— Heterodont or anodont pectinate setae	16
15. SH starting in setiger 21	<i>E. cincta</i>
— SH starting in setiger 50	<i>E. imogena</i>
16. Prostomium with shallow middorsal furrow	17
— Prostomium with deep middorsal furrow	19
17. Heterodont pectinate setae	18
— Anodont pectinate setae; SH starting in setiger 16, sigmoid	<i>E. curticirris</i>
18. Aciculae pointed with mucron; SH from setigers 26–32	<i>E. cariboea</i>
— Aciculae pointed without mucron; SH from setiger 23	<i>E. goodei</i>
19. Heterodont pectinate setae; aciculae blunt	<i>E. fuscafasciata</i>
— Anodont pectinate setae; aciculae pointed	<i>E. wasinensis</i>
20. Br with up to 5 filaments	21
— Br with 9–12 filaments	22
— Br with more than 15 filaments	24
21. Br with 1 filament, restricted to setigers 9–24	<i>E. amoureuxi</i>
— Br with up to 2 filaments, present in setigers 8–48; SH from setiger 19; middorsal furrow shallow	<i>E. mutilatoides</i>
— Br with up to 5 filaments, present in setigers 8–95(+); SH starting in setiger 27; middorsal furrow deep	<i>E. pauroneurata</i>
22. Isodont pectinate setae	<i>E. masudai</i>
— Heterodont pectinate setae	23

23. SH from setigers 28–30, proximal tooth large,
perpendicular to the shaft *E. coccineoides*
— SH from setiger 32, proximal tooth large, oblique to the
shaft *E. guttata*
24. Anodont pectinate setae; aciculae blunt *E. aphroditois (partim)*
— Heterodont pectinate setae 25
25. SH from setigers 44–45, one per setiger *E. investigatoris*
— SH from setiger 81, with an accessory denticle, one per
setiger *E. djiboutiensis*
26. Br with 1–3 filaments 27
— Br with 5–6 filaments 29
— Br with 8–10 filaments, starting in setigers 17–18 *E. perimensis* and *E. perrieri*²
27. SH with proximal tooth directed laterally *E. collini*
— SH with both teeth directed distally 28
28. Mandibles with parallel plates *E. bucciensis*
— Mandibles with diverging plates. *E. notata*
29. Isodont pectinate setae; SH from setiger 28 *E. dilatata*
— Heterodont pectinate setae 30
30. SH from setiger 22, both teeth directed distally. *E. aciculata*
— SH from setiger 25, proximal tooth perpendicular to the
shaft *E. flavapunctata*
31. SH from setigers 17–22 32
— SH starting posteriorly to setiger 25 34
32. Aciculae distally expanded 33
— Aciculae blunt *E. parvibranchis*
33. Ceratophores short; aciculae distally symmetrical *E. filamentosa*
— Ceratophores long; aciculae distally asymmetrical *E. denticulata*
34. Antennae long, A III reaches setiger 7; aciculae blunt *E. crassitentaculata*
— Antennae short, A III not exceeding the peristomium
posteriorly; aciculae distally expanded *E. spongicola*
35. Isodont pectinate setae; SH starting before setiger 40 *E. gagzoi*
— Anodont pectinate setae; SH starting posteriorly to
setiger 120. *E. tenuis*
36. Br starting in setigers 4–8 37
— Br starting posteriorly to setiger 14. 42
37. Br with 3–5 filaments 38
— Br with up to 19 filaments *E. contingens*
— Br with over 35 filaments *E. rousseai*

38. Heterodont pectinate setae 39
 — Isodont pectinate setae. 40
39. SH from setigers 24–36, one per setiger; Br with up to
 5 filaments *E. polybranchia*
 — SH from setigers 19–22, with up to 2 per setiger; Br with
 up to 3 filaments *E. palauensis*
40. Antennae thin 41
 — Antennae thick, A II and A III of the same size, not
 exceeding the peristomium posteriorly *E. rullieri*
41. PC reaching the peristomium anteriorly. *E. baroicensis*
 — PC exceeding the peristomium anteriorly *E. brevibranchiata status novo*³
42. Br with 1–3 filaments 43
 — Br with up to 12 filaments *E. mutabilis*
43. Aciculae distally much recurved. 44
 — Aciculae straight 45
44. Br with a single filament, smaller than dorsal cirri; SH
 from setigers 47–59 *E. ibarزابالae*
 — Br palmate with up to 3 filaments, longer than dorsal
 cirri; SH from setigers 26–32 *E. hernandezii*
45. Br from setiger 15, with up to 2 filaments; ceratophores
 short *E. lita*
 — Br from setiger 32, with a single filament; ceratophores
 long *E. mikeli*
46. Dorsal cirri smooth 47
 — Dorsal cirri articulated. 60
47. PC not reaching the peristomium anteriorly 48
 — PC reaching or exceeding the peristomium anteriorly 58
48. Without Br; SH from setiger 27 *E. brevis*
 — Br from setigers 3–6. 49
 — Br from setigers 10–19 53
 — Br start posteriorly to setiger 22 57
49. Br with 1–3 filaments 50
 — Br with 6–10 filaments. 51
50. Antennae completely articulated, with cylindrical
 articles; anodont pectinate setae *E. eimeorum*
 — Antennae distally articulated, with subspheric articles;
 heterodont pectinate setae *E. rosaurae (partim)*
51. Aciculae blunt; SH from setigers 30–35 *E. borneensis*
 — Aciculae pointed; SH from setigers 26–28 52

52. SH with proximal tooth perpendicular to the shaft *E. harassii*
 — SH with both teeth directed distally *E. samoae*
53. Br with 1 filament *E. modesta*
 — Br with up to 3 filaments. 54
 — Br with 5–6 filaments; isodont pectinate setae 56
 — Br with 10–12 filaments; heterodont pectinate setae *E. collaris*
54. Antennae of similar size, not exceeding the peristomium posteriorly; SH from setiger 19; middorsal furrow deep *E. pruvoti*
 — Antennae II–III longer; SH from setigers 35–36; middorsal furrow shallow 55
55. Br from setiger 19; isodont pectinate setae. *E. guanica*
 — Br from setiger 10; heterodont pectinate setae *E. prognatha*
56. Antennae equidistant; middorsal furrow deep; aciculae blunt *E. afra*
 — Antennae III isolated; middorsal furrow shallow; aciculae pointed *E. pacifica*
57. Antennae in a semicircle; middorsal furrow shallow *E. cirrobranchiata (partim)*
 — Antennae in a straight line; middorsal furrow deep *E. conglomerans*
58. Br from setigers 5–7. 59
 — Br starting posteriorly to setiger 13. *E. ehlersi*
59. Br with up to 11 filaments; aciculae blunt *E. guildingi*
 — Br with up to 4 filaments; aciculae pointed *E. mutilata*
60. PC not reaching the peristomium anteriorly 61
 — PC reaching or exceeding the peristomium anteriorly; Br from setiger 7, with up to 18 filaments; aciculae with 3 distal denticles *E. bilobata*
61. Br from setigers 3–8. 62
 — Br starting posteriorly to setiger 17. 64
62. SH with proximal tooth larger, directed laterally 63
 — SH with teeth of similar size, both directed distally *E. plicata*
63. Isodont pectinate setae. *E. magellanica*
 — Heterodont pectinate setae *E. northioidea*
64. Br with up to 2 filaments; isodont pectinate setae; SH starting posteriorly to setiger 75 *E. excariboea*
 — Br with up to 14 filaments; heterodont pectinate setae; SH from setiger 40. *E. fauveli*
65. Dorsal cirri smooth 66
 — Dorsal cirri articulated (at least in prebranchifer setigers) 71

66. PC not reaching the peristomium anteriorly; anodont pectinate setae *E. rubella*
 — PC reaching or exceeding the peristomium anteriorly 67
67. Br with 5–10 filaments 68
 — Br with 14 or more filaments 69
68. With up to 2 SH per setiger; heterodont pectinate setae *E. quinquefida*
 — With 4–5 SH per setiger; anodont pectinate setae *E. tibiana*
69. Anodont pectinate setae; SH from setiger 34 *E. franklini*
 — Heterodont pectinate setae 70
70. Middorsal furrow shallow; SH from setiger 31 *E. nesiotēs*
 — Middorsal furrow deep; SH from setiger 68 *E. pulvinopalpata*
71. PC not reaching the peristomium anteriorly 72
 — PC reaching or exceeding the peristomium anteriorly 83
72. Br with up to 5 filaments 73
 — Br with 6–10 filaments 76
 — Br with more than 13 filaments 77
73. Antennae short, not exceeding setiger 1. *E. fimbriata*
 — Antennae long, exceeding setiger 1. 74
74. Middorsal furrow shallow; heterodont pectinate setae 75
 — Middorsal furrow deep; isodont pectinate setae *E. pycnobranchiata*
75. First dorsal cirri long, with 4 cylindrical articles, reaching the middle of the peristomium *E. frauenfeldi*
 — First dorsal cirri short, with 2 globose articles, slightly exceeding the posterior ring of peristomium *E. yamamotoi*
76. Antennae with subspheric articles *E. biformicirrata*
 — Antennae with cylindrical articles 77
77. Heterodont pectinate setae 78
 — Anodont pectinate setae; aciculae pointed *E. tribranchiata*
78. Middorsal furrow deep *E. coccinea*
 — Middorsal furrow shallow 79
79. Br longer than dorsal cirri *E. grubei*
 — Br smaller than dorsal cirri *E. longisetis*
80. Anodont pectinate setae *E. bowerbanki*
 — Heterodont pectinate setae 81
81. Middorsal furrow deep 82
 — Middorsal furrow shallow; aciculae pointed *E. reducta*

82. Antennae short, not exceeding the peristomium posteriorly; SH from setiger 38 *E. laticeps*
 — Antennae long, A III reaches setiger 2; SH from setiger 19 *E. purpura*
83. Br starting in setigers 3–10 84
 — Br starting posteriorly to setiger 12. 102
84. Br with 1–4 filaments 85
 — Br with 6–12 filaments. 92
 — Br with 17–22 filaments 101
85. Middorsal furrow shallow 86
 — Middorsal furrow deep 90
86. One SH per setiger 87
 — Two or three SH per setiger 89
87. Peristomium without annulations; Br with 1 filament *E. gravieri*
 — Peristomium with two rings; Br with up to 4 filaments 88
88. Br with up to 2 filaments; SH from setigers 25–32; A III reaches setiger 11. *E. nonatoi*
 — Br with up to 4 filaments; SH from setigers 35–38; A III reaches setigers 3–5 *E. dubitata*
89. Antennae in a straight line, A III reaches setiger 2; SH from setiger 34. *E. philocorallia*
 — Antennae in a semicircle, A III reaches setiger 6; SH from setiger 22. *E. thomasiana*
90. Isodont pectinate setae. *E. mindanavensis*
 — Heterodont pectinate setae 91
91. A III reaches setiger 13 *E. nicidioformis*
 — A III reaches setiger 6 *E. stanleyi*
92. Middorsal furrow deep 93
 — Middorsal furrow shallow 98
93. Heterodont pectinate setae 94
 — Isodont pectinate setae. 97
94. SH from setigers 19–22 *E. argentinensis*
 — SH starting posteriorly to setiger 31 95
95. A III short, reaches setiger 2 96
 — A III long, reaches setiger 8. *E. laurillardii*
96. PC exceeding the peristomium anteriorly; SH with teeth of similar size *E. annulicornis*
 — PC reaching the peristomium anteriorly; SH with teeth of different size, the proximal larger *E. torquata*

97. PC exceeding the peristomium anteriorly; 2–3 SH per setiger *E. microprion*
 — PC reaching the peristomium anteriorly; occasionally 2 SH per setiger *E. norvegica*
98. Two or three SH per setiger 99
 — With only one SH per setiger 100
99. Anterior aciculae (setiger 7) distally expanded; Br from setiger 3 *E. elegans*
 — Anterior and posterior aciculae pointed; Br from setigers 8–10 *E. floridana*
100. Br from setiger 3, always pectinate, with up to 7 filaments *E. longicirris*
 — Br from setigers 7–8, first 10 with one filament, with up to 12 filaments *E. multipectinata*
101. Isodont pectinate setae in median setigers; SH from setiger 30 *E. nigricans*
 — Heterodont pectinate setae in median setigers (anodont pectinate setae in anterior setigers); SH from setigers 25–39. *E. violaceomaculata*
102. A III long, reaches setiger 12; Br with up to 8 filaments *E. jagori*
 — A III short, reaches setiger 3; Br with up to 4 filaments *E. petersi*

¹, They seem to be synonyms; if so, *E. scombrinis* has priority. ², They seem to be synonyms; if so, *E. perrieri* has priority by one page. ³, This species was described as *E. northioidea brevibranchiata* by Miura (1986). It differs from the supposed parental form in sufficient details as to guarantee its independent specific range).

Key 5. Subacicular hooks black tridentate

1. Composite setae falcigers and spinigers *E. impexa (partim)*
 — Only compound falcigers 2
2. Br from setigers 22–30, with up to 2 filaments; antennae short, not exceeding the peristomium posteriorly; aciculae distally expanded; SH from setigers 17–24, curved, proximal tooth large and curved, accessory teeth paired. *E. cirrobranchiata (partim)*
 — Br from setiger 3, with a single filament; antennae long, exceeding setiger 2; aciculae pointed; SH from setigers 32–38 with all teeth directed upwards. *E. rosaurae (partim)*