

The genus *Perinereis* (Polychaeta: Nereididae) from Mexican littoral waters, including the description of three new species and the redescriptions of *P. anderssoni* and *P. elenacasoae*

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Abstract.—Eight species of the genus *Perinereis* were found in Mexican waters (Gulf of Mexico, Caribbean Sea and Pacific Ocean). Of these, three species are newly described: one for the Caribbean (*P. cariboea*) and two for the Mexican Pacific (*P. bajacalifornica* and *P. osoriotafalli*). *Perinereis anderssoni* is redescribed based on type material collected in Rio de Janeiro, Brazil. The previous records of this species from Mexico are referred to *P. elenacasoae*. A neotype is designated for *P. elenacasoae*, since the type material is lost, and the species is redescribed based on the neotype.

The genus *Perinereis* is characterized by the presence of conical paragnaths on both pharyngeal rings of the proboscis, except in Area VI, where either transverse long ribbon-shaped, short transverse bars, or a row of small bars occur. Bars may be so short as to appear cone-like on some species (Hutchings et al. 1991). Notopodia can be enlarged posteriorly or not modified. Only compound homogomph spinigers present in notopodia. Homogomph and heterogomph spinigers and heterogomph falcigers are present in neuropodia. The terminology of parapodial structures was taken from Fig. 1 of Hutchings & Reid (1990).

Previously, four species in this genus have been reported from littoral waters of Mexico: *P. anderssoni* Kinberg, 1866, *P. elenacasoae* Rioja, 1947, *P. monterea* (Chamberlin, 1918) and *P. villalobosi* Rioja, 1947. However, the specimens so far recorded as *P. anderssoni* from Mexican shores actually belong to *P. elenacasoae*. This confusion arose from a description and illustrations by Rioja (1960: 296) of specimens from the Mexican region of the Gulf of Mexico incorrectly reported as *P. an-*

derssoni. For this reason, a redescription of *P. anderssoni* is undertaken, based on type material reported by Kinberg (1866) from Rio de Janeiro, Brazil. *Perinereis elenacasoae* is redescribed based on material from the type locality: Mazatlán, Sinaloa, and *P. villalobosi* is additionally described based on specimens from La Paz, Baja California Sur. *Perinereis obfusca* Grube, 1878 was referred to *P. elenacasoae* by Salazar Vallejo (1989), based on specimens collected in western Mexico. This synonymy was found to be correct when the material deposited by Berkeley & Berkeley (1960) in the Smithsonian Institution collections (USNM) from Zihuatanejo coasts was examined by one of us (J.A.L.G.).

For this study, specimens in the collections of the Natural History Museum of Los Angeles County (LACM-AHF), U.S. National Museum of Natural History, Smithsonian Institution (USNM), Naturhistoriska Riksmuseet Stockholm (NRS), the Instituto de Ciencias del Mar y Limnología, UNAM (CPICML) and the Universidad Autónoma de Nuevo León (UANL) were examined.

Genus *Perinereis* Kinberg, 1866

Perinereis anderssoni Kinberg, 1866

Fig. 1A–G

Perinereis anderssoni Kinberg, 1866: 175.—Hartman, 1951:47, pl. 13, Fig. 6.—Fauchald, 1977:31, Fig. 8a–b.

Material examined.—Type series consisting of 13 poorly preserved specimens collected in Rio de Janeiro, Brazil (NRS-156); other material: Punta da Cruz, Ilha de Sao Francisco, Santa Catharina, Brazil, 28 Oct 1925 (1 specimen) (USNM 24229); Juan Fernández, Chile, 8 Dec 1926 (7 specimens) (USNM 24252). Campeche: Puerto Real, Ciudad del Carmen, Mexico, M. E. Caso, coll., 31 Jul 1972 (1 specimen).

Redescription.—Best preserved specimen of type series complete with 85 setigers; 63 mm long, 4 mm wide, including parapodia, with no evident pigmentation.

Prostomium longer than wide, two pairs of eyes in trapezoidal arrangement. Frontal antennae short. Biarticulate palps large with conical palpostyle. Peristomium with four pairs of short tentacular cirri, longest pair extending posteriorly past first setiger (Fig. 1A).

Paragnaths of the pharyngeal areas arranged as follows: I, 4 cones in triangle; II, 13 cones in a triangle; III, 19 cones in 3 rows; IV, curved group of 27 cones; V, 3 cones in triangle; VI, short transverse bar; VII–VIII, 45 cones in 2 rows. Jaws with 5 teeth (Fig. 1B).

First two parapodia uniramous, dorsal and ventral cirri subequal (Fig. 1C). Following anterior parapodia biramous with dorsal and median notopodial ligules anteriorly rounded; neuropodial postsetal lobes truncate, superior lobe conical, inferior one rounded; ventral neuropodial ligule slender. Dorsal cirri proximally inserted. Median parapodia with dorsal and median notopodial lobes conical (Fig. 1D), neuropodial structures similar to those in anterior parapodia; dorsal cirri medially inserted. Posterior parapodia with dorsal cirri inserted medially and anteriorly, notopodial ligule

enlarged; median notopodial ligule subulate; postsetal neuropodial lobes mamilliform, ventral neuropodial ligules rounded anteriorly; ventral cirri digitiform and inserted proximally (Fig. 1E).

Uniramous parapodia with supracicular homogomph spinigers, and infracicular heterogomph falcigers. Biramous parapodia with setation similar throughout body. Notopodial supracicular setae homogomph spinigers. Neuropodial supracicular setae homogomph spinigers and heterogomph falcigers; infracicular neurosetae heterogomph spinigers and falcigers. Infracicular neuropodial falcigers in anterior parapodia with distally blunt appendage (Fig. 1F); appendage in posterior parapodia slender and distally pointed (Fig. 1G).

Pygidium with terminal anus, with pair of short ventrally inserted anal cirri.

Distribution.—Amphi-American. Originally described from Rio de Janeiro, Brazil. The species is distributed in the Atlantic and Gulf of Mexico (Ciudad del Carmen, Campeche, Mexico), eastern Gulf of Mexico (Hartman, 1951) and in the Pacific, in Juan Fernandez Island (Chile).

Habitat.—Not defined in records.

Perinereis bajacalifornica, new species
Fig. 2A–F

Material examined.—Baja California Sur: Falsa Bay, La Paz, W. H. Shepherd, coll., 22 Sep 1971, (1 specimen) (USNM 48858); Balandra mangrove, La Paz, E. Amador coll., 24 Sep 1985, (1 specimen, Holotype) (USNM 180693); Zacatecas mangrove, La Paz, same collector, 12 Feb 1986 (8 specimens).

Description.—Holotype complete with 93 setigers, 40 mm long and 2.5 mm wide including parapodia. Body pale yellow, with no evident pigmentation pattern.

Prostomium pentagonal, with two pairs of eyes, anterior ones oval and slightly more separated from each other, posterior ones rounded. Pair of short cirriform antennae. Biarticulate palps with conical palpo-



Fig. 1. *Perinereis anderssoni*. A. Anterior region dorsal view; B. Everted pharynx, dorsal view from a specimen in the type group; C. 1st parapodium; D. Parapodium 39th; E. Parapodium 71th; F. Heterogomph neuropodial falciger in infracicular position from setiger 10; G. Same of setiger 65. (Scale: A, B = 1 mm; C, D, E = 100 μ m; F, G = 15 μ m).

styles. Peristomium with longest pair of tentacular cirri extending to setiger 3 (Fig. 2A).

Paragnaths arranged on pharyngeal areas as follows: I, a clump of 7 conical parag-

naths; II, 11 conical paragnaths arranged in triangle; III, 15 cones in trapezoidal group; IV, curved group of 21 cones; V, single cone; VI, transverse, slender, ribbon-shaped bar; VII-VIII, row of 7 small cones. (Fig. 2B, C).

Anterior parapodia with notopodial and neuropodial lobes and ligules conical, subequal; dorsal cirri stout not longer than dorsal ligules (Fig. 2D). Median parapodia with notopodial dorsal ligules slightly longer than other lobes; dorsal cirri similar to those of anterior parapodia and proximally inserted. Posterior parapodia with notopodial dorsal ligules conspicuously longer, distally conical and dorsally pigmented; dorsal cirri slender, medially inserted, not longer than the dorsal ligules. Notopodial median ligules conical. Neuropodial postsetal lobes rounded, ventral ligules digitiform, slightly longer than neuropodial postsetal lobes. Ventral cirri slender (Fig. 2E).

Supracicular homogomph spinigers in notopodia. Supracicular homogomph spinigers and heterogomph falcigers in neuropodia, but only homogomph spinigers in anterior parapodia. Neuropodial infracicular setae consisting of single homogomph spiniger and some heterogomph falcigers; latter with 9–10 teeth on margin (Fig. 2F).

Pygidium with two short slender anal cirri; anus terminal.

Discussion.—*Perinereis bajacalifornica*, n. sp., belongs to the group of species in which a ribbon-shaped transverse bar is present in Area VI of the proboscis and notopodial lobes are enlarged on posterior setigers. In their revision, Hutchings et al. (1991) included 16 species in this group: *P. amblyodonta* (Schmarda 1861) and *P. barbara* (Monro 1926) from Australia, *P. anderssoni* Kinberg, 1866 and *P. pontoni* Kinberg, 1866 from Brazil, *P. elenacasoae* Rioja, 1947, from western Mexico, *P. falklandica* Ramsay, 1914, for the Falkland islands, *P. longidonta* Rozbaczyllo & Castilla, 1973 from Chile, *P. macropus* (Claparède 1870) from the Mediterranean Sea, *P. malayana* (Horst 1889), *P. nigropunctata* (Horst 1889) and *P. tobeloana* (Augener 1933) from the Malay Archipelago, *P. obfuscata* (Grube 1878) and *P. sululana* (Horst 1924) from the Philippines, and *P. pseudocavifrons* Fauvel, 1930 from New

Caledonia. *Perinereis bajacalifornica*, n. sp., differs from the other species in this group by having a single row of seven small cones on pharyngeal areas VII–VIII. In the other species of the group, a variable number of conical paragnaths, arranged in 2–4 rows and varying in numbers from 18 to 101, is present.

Perinereis elenacasoae, described from western Mexico, is biogeographically the most closely related species to *P. bajacalifornica*, n. sp. These species can be differentiated from each other and from other species in the group mainly by the arrangement of their paragnaths.

Etymology.—The specific name is derived from the name of the State of Baja California Sur, Mexico.

Distribution.—This species is only known from the mangrove areas in La Paz, Baja California Sur, Mexico.

Habitat.—In sediment trapped among mangroves.

Perinereis cariboea, new species

Fig. 3A–E

Material examined.—Quintana Roo: Ascención Bay, Punta Pajaros, V. Solís-Weiss, coll. 6 Oct 1983 (Holotype, USNM 180694). Yucatan: Cerritos Island, S. I. Salazar Vallejo, coll. 18 Jan 1991 (6 specimens).

Description.—Holotype complete with 53 setigers, 35 mm long, 1.5 mm wide, green with strongly pigmented prostomium.

Pharynx not everted in specimens. Analysis performed by dissection.

Prostomium pentagonal, with dorsal groove, with two pairs of rounded eyes in quadrate arrangement. Pair of short digitiform frontal antennae. Biarticulate palps globose, with small, conical palpostyles. Peristomium with four pairs of tentacular cirri, anterior pair extending posteriorly to setiger 4 (Fig. 3A).

Paragnaths arranged on pharyngeal areas as follows: I, 2 cones; II, 8 cones in 2 rows; III, oval group of 7 cones; IV, triangular

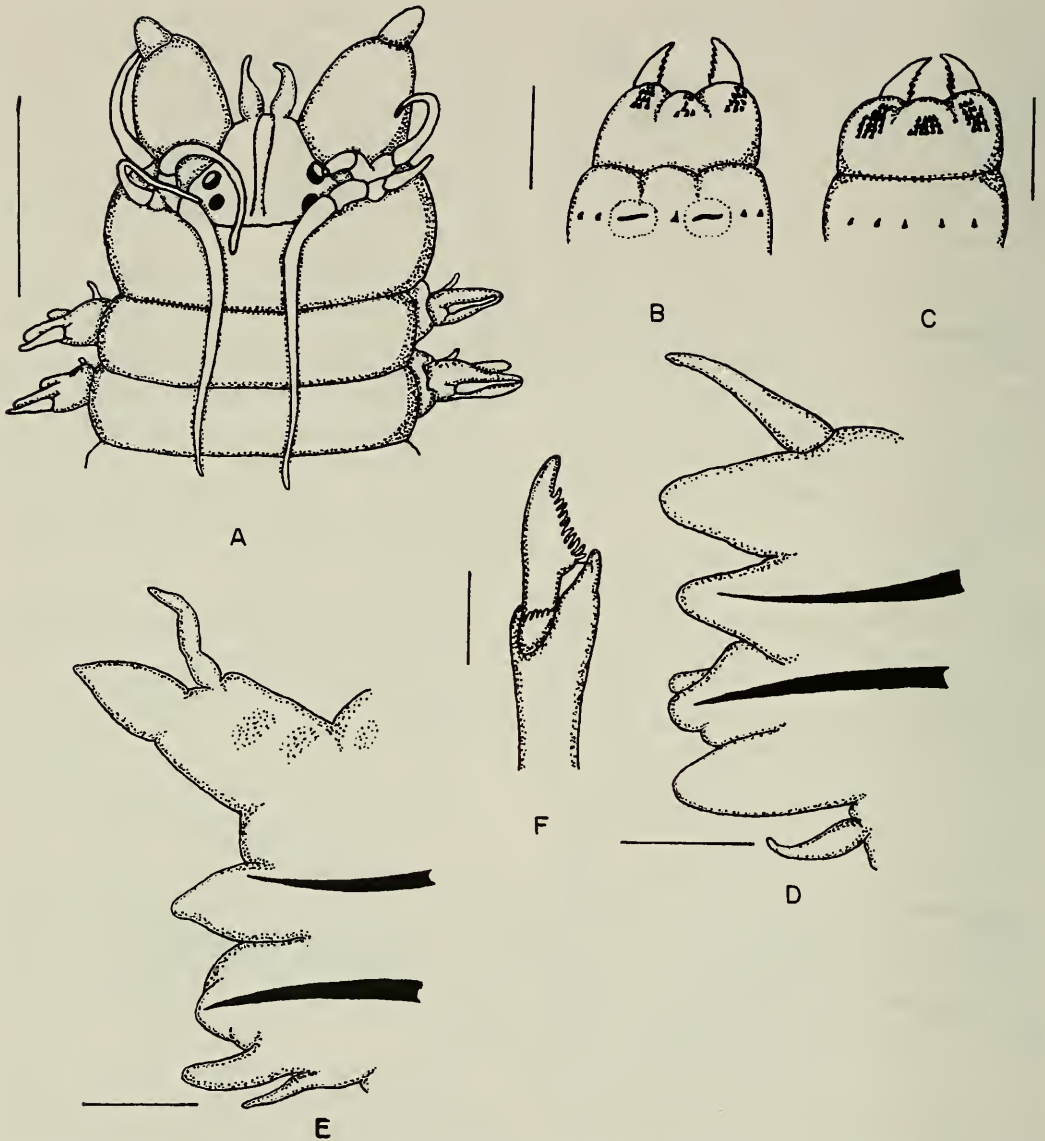


Fig. 2. *Perinereis bajacaliformica*, n. sp. A. Anterior end, dorsal view; B. Pharynx in dorsal view; C. Pharynx in ventral view; D. Parapodium 10th; E. Parapodium 80th; F. Heterogomph neuropodial falciger in supracicular position from setiger 80. (Scale: A, B, C = 0.5 mm; D, E = 150 μ m; F = 10 μ m).

group of 12 cones; V, no paragnaths; VI, 2 transverse flattened bars, VII–VIII, 11 cones in 2 rows.

Anterior notopodia with dorsal and ventral ligules conical, neuropodial postsetal lobes rounded, ventral ligules enlarged; dorsal cirri inserted proximally, stouter than the ventral cirri (Fig. 3B). Median parapodia

with notopodial dorsal ligules proximally enlarged, median ligules, neuropodial postsetal lobes and ventral ligules rounded; dorsal cirri inserted medially (Fig. 3C). Posterior parapodia with notopodial dorsal ligules enlarged; median ligules, neuropodial postsetal lobes and ventral ligules similar to those of median parapodia. Dorsal

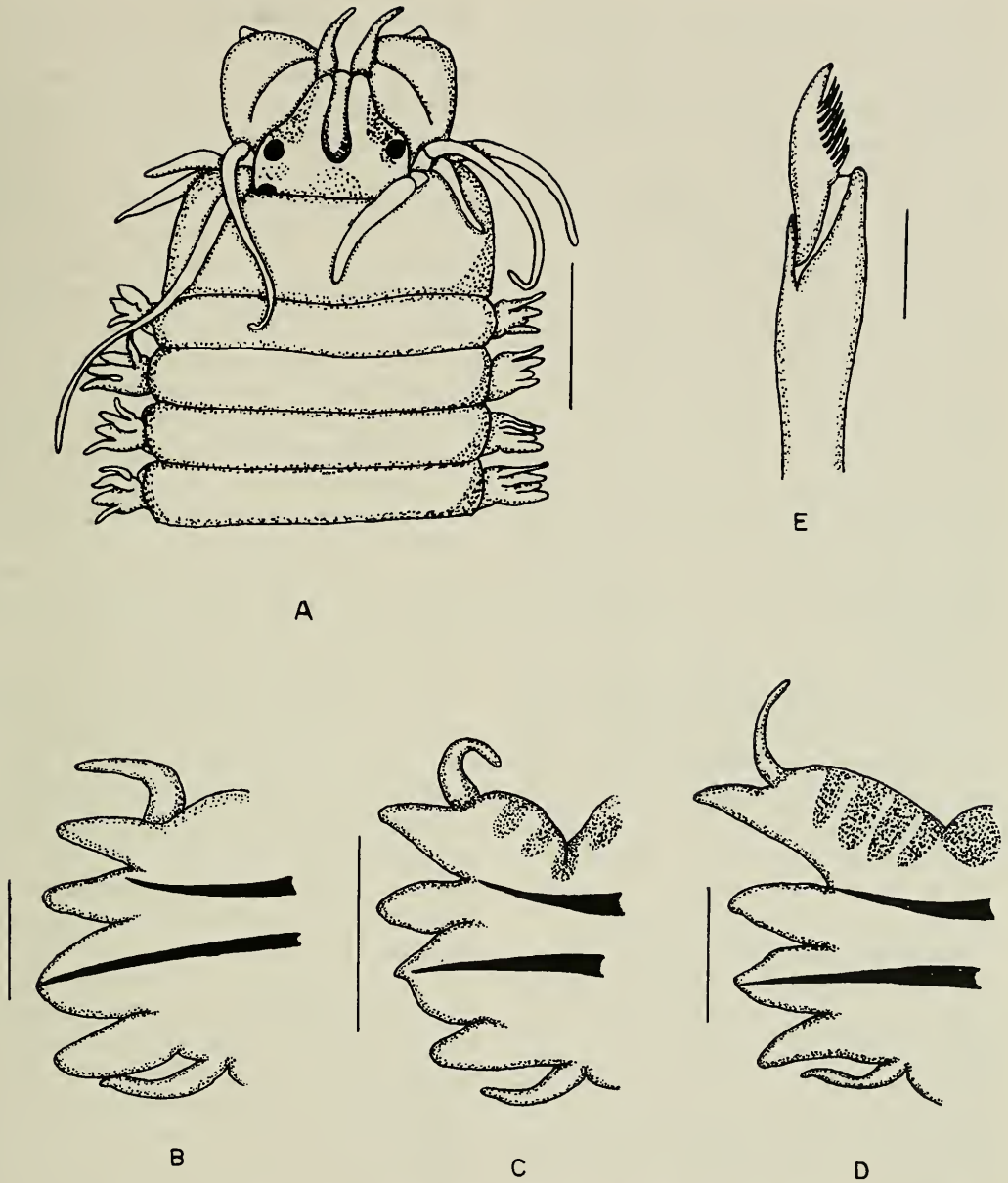


Fig. 3. *Perinereis cariboea*, n. sp. A. Anterior end, dorsal view; B. Parapodium 10th; C. Parapodium 30th; D. Parapodium 50th; E. Heterogomph neuropodial falciger in supracicular position from setiger 30. (Scale: A = 0.5 mm; B, C, D = 100 μ m; E = 8 μ m).

cirri inserted near distal margin of dorsal ligules (Fig. 3D).

Setation similar throughout body as follows: notosetae all homogomph spinigers; supracicular neurosetae homogomph spinigers and heterogomph falcigers; infracicu-

lar neurosetae heterogomph, represented by single spiniger and 4 falcigers (Fig. 3E).

Pygidium with a pair of short anal cirri; anus termino-dorsal.

Discussion.—*Perinereis cariboea*, n. sp., belongs to the group of species in which

two transverse flattened bars are present in area VI of the proboscis and notopodial dorsal ligules are enlarged posteriorly. Only two other species are known in this group: *P. mochimaensis* Liñero-Arana, 1983 described from Venezuela, and *P. osoriotafalli*, n. sp., herein described. These species can be differentiated from each other by the ornamentation of pharyngeal areas I, V and VII–VIII. In *P. cariboea*, n. sp., two small cones in a row are present on area I, area V lacks paragnaths, and 11 cones in two rows are present on areas VII–VIII. In *P. mochimaensis*, 11 cones in a triangle are present on area I, two cones are present on area V and 32 cones in two rows are present on areas VII–VIII. In *P. osoriotafalli*, n. sp., four cones are present on area I in trapezoidal arrangement, one cone is present on area V, and eight cones in a row are present on areas VII–VIII.

Etymology.—The specific name is derived from the name of the Caribbean Sea.

Distribution.—Mexican Caribbean; only known from two localities: Concepción Bay, Quintana Roo State and Cerritos Island, Yucatan.

Habitat.—Among algae attached to rocks in the intertidal zone.

Perinereis elenacasoae Rioja, 1947

Figs. 4A–E, 5A–D

Perinereis elenacaso Rioja, 1947: 531, Figs. 8–17.

Perinereis elenacasoae Salazar Vallejo, 1989:50

Perinereis obfusca Berkeley & Berkeley, 1960:359

Perinereis anderssoni Rioja, 1960:295. Figs. 12–15.

Material examined.—Baja California Sur: La Paz Bay, W. M. Shepherd, coll., Aug 1976 (10 specimens); Caimancito beach, La Paz Bay, J. A. de León-González, coll., 12 Oct 1987 (2 specimens). Sonora: Peñasco Harbor, in front of shrimp farm, 5 May 1981, same collector (2 specimens); same locality, M. Silva, coll., 7 Jan 1985 (1

specimen); same locality, Norse beach, V. A. Gallardo, coll. no date (6 specimens). Sinaloa: Mazatlán, Est. 14309, Reef of southern lighthouse island, E. Y. Dawson, coll., 12 Jul 1946 (1 specimen); same locality and collector, Est. 14308, north Olas Atlas lighthouse, 12 Dec 1946 (3 specimens); same locality and collector, Est. 14311, 2 miles north of Mazatlán, 6 Jul 1952 (1 specimen); same locality, Cerritos beach, J. A. de León-González, coll., 15 May 1981 (Neotype, USNM 180695) and 6 specimens; Mazatlán area, collector unknown, 1986 (8 specimens); same locality, Casa del Marino, collector unknown, 1986 (16 specimens); same locality, Chivos Island, collector unknown, 1986 (10 specimens). Nayarit: Larga Island, Marietas Islands, C. López Rivas, coll., 17 Dec 1994 (1); same, 13 Feb 1995 (5 specimens). Jalisco: Barra de Navidad, Est. 14310, E. Y. Dawson, coll., 25 Dec 1946 (3 specimens). Guerrero: Acapulco Harbor, San Lorenzo reef, Est. 1552-46, E. Y. Dawson, coll., 9 Apr 1946, (4 specimens). Oaxaca: Salina Cruz, collector unknown, 27 May 1951 (1 specimen). Veracruz: Veracruz Harbor, Playa Norte reef, E. Rioja, coll., Jan 1960 (12 specimens); Boca del Rio, north jetty, M. L. Jones, coll., 8 Aug 1962 (60 specimens); Tuxpam, north rocky area, H. González, coll., 25 May 1978 (3 specimens); same locality, G. Góngora-Garza, coll., 05 Jun 1984 (3 specimens); Barra de Cazones, Pulpo point, J. A. de León-González, coll., 1 Jun 1985 (9 specimens); same, 15 Jun 1985 (37 specimens); same, 31 Oct 1991 (93 specimens); Barra of Tamiahua, north rocky area, J. A. de León-González, coll., 5 May 1985 (1 specimen); same locality, G. Guajardo, coll., 25 May 1991 (3 specimens); same, 8 Jun 1991 (4 specimens). Campeche: Puerto Real, Ciudad del Carmen, M. E. Caso, coll., 31 Jul 1972 (1 specimen). Quintana Roo: Smithsonian-Bredin Expedition IV: Mujeres Island, stn. 29-60, 31 Mar 1960 (1 specimen); Espiritu Santo Bay, stn. 41-60, 6 Apr 1960 (3 specimens); Allen Point, Ascención Bay, stn. 45-60, 07

Apr 1960 (2 specimens), Nicchehabin reef, Ascención Bay, stn. 67-60, 13 Apr 1960 (3 specimens); same, stn. 72-60, 14 Apr 1960 (1 specimen); same, stn. 91-60, 18 Apr 1960 (1 specimen); Ascención Bay, V. Solís-Weiss, coll., 6 Oct 1983 (1 specimen); Cozumel Island, same collector, 10 Oct 1983 (2 specimens).

Epitokous material examined.—Guerreiro: Zihuatanejo, W. L. Klawe, coll., 6 Sep 1958 (1 female), (USNM 33496).

Description of the Neotype.—Specimen complete with 72 setigers, 34 mm long and 2 mm wide including parapodia; color pale yellow, vestigial dark pigmentation in anterior region.

Prostomium pentagonal, two pairs of eyes in quadrate arrangement. Frontal antennae stout, digitiform. Biarticulate palps slender with globose palpostyles. Peristomium with four pairs of relatively short tentacular cirri, longest pair extending posteriorly to second setiger (Fig. 4A).

Pharynx not everted in specimens. Analysis performed by dissection.

Pharynx with paragnaths arranged on pharyngeal areas as follows: I, group of 11 cones; II, 25 cones in trapezoidal arrangement; III, oval group of 25; IV, curved group of 16–17 cones in 4 rows; V, single cone; VI, transverse flattened, ribbon-shaped bar; VII–VIII, 37 cones in 2 rows.

Anterior parapodia with notopodial dorsal and median ligules distally rounded, neuropodial postsetal lobes less developed; dorsal and ventral cirri subequal (Fig. 4B). Median parapodia with notopodial and neuropodial lobes and ligules conical, neuropodial dorsal ligules longer (Fig. 4C); dorsal and ventral cirri similar to those of anterior segments. Posterior parapodia notopodial dorsal ligules enlarged, dorsal cirri medially inserted; median ligule and neuropodial postsetal lobes distally conical, ventral ligule digitiform; ventral cirri inserted proximally, with posterior protusion (Fig. 4D).

Setation similar throughout body. Notopodia with homogomph spinigers. Supracircular neurosetae homogomph spinigers

and stout heterogomph falcigers with anterior slender tooth directed downward (Fig. 4E); infracircular neurosetae heterogomph spinigers and slender heterogomph falcigers.

Pygidium with a pair of short anal cirri inserted ventrally. Anus terminal.

Epitokous female.—Best preserved specimen with 43 setigers, 14 mm long and 2.5 mm wide without parapodia.

Prostomium longer than wide with a frontal median dorsal groove. Pair of small digitiform antennae, 2 pairs of large eyes in quadrate arrangement. Peristomium with 4 pairs of tentacular cirri, longer ones extending posteriorly to setiger 3 (Fig. 5A).

Body divided into moderately modified anterior region and heteronereidid region; anterior region with modified, proximally stout dorsal cirri in first 5 setigers (Fig. 5B); parapodia similar to those of atokous specimens from setiger 6 to 17. Parapodia of heteronereidid region compressed, flattened antero-posteriorly; dorsal cirri without evident crenulation. Natatory lamellae associated with parapodial lobes and ligules and with proximal region of dorsal and ventral cirri (Fig. 5C, D). Normal setae replaced by natatory setae with broad, paddle-shaped appendages.

Discussion.—*Perinereis elenacasoae* Rioja, 1947, was originally described from Mazatlán, (Sinaloa State) shores; unfortunately the type material, as well as all the other types described by Enrique Rioja, have been lost. Based on Article 75 of the International Code of Zoological Nomenclature, in this paper a Neotype for this species, collected in the type locality: Mazatlán, Sinaloa, is designated.

Distribution.—Amphi-American. Mexican Pacific from Puerto Peñasco, Sonora (Gulf of California), to Salina Cruz (Oaxaca); Atlantic Ocean from Gulf of Mexico and Caribbean Sea south to Brazil. This is the first record for the species from the western Atlantic.

Habitat.—On rocky substrates, among rhizoids of algae attached to rocks, and coral substrates.

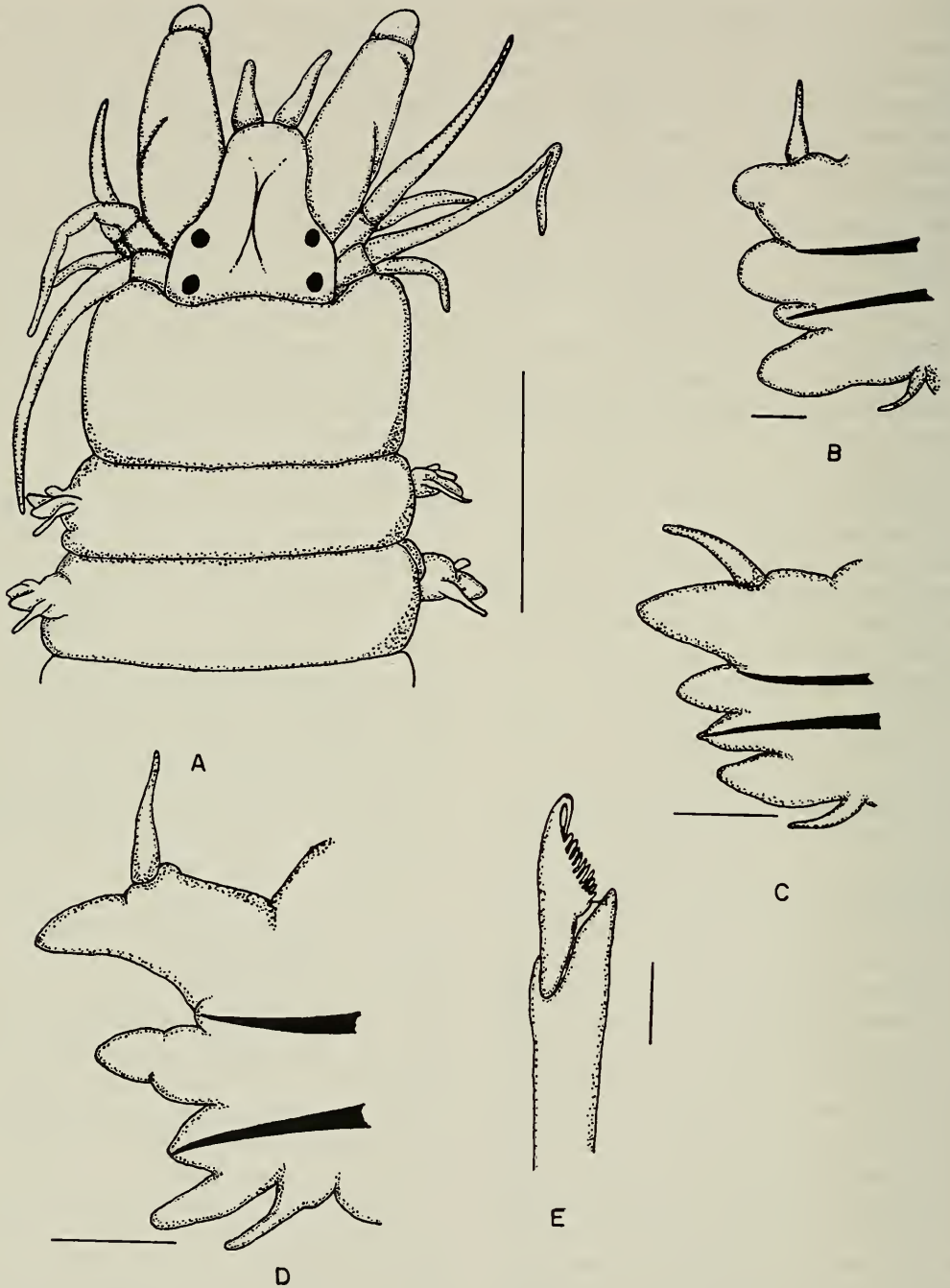


Fig. 4. *Perinereis elenacsoae*. A. Anterior end, dorsal view; B. Parapodium 10th; C. Parapodium 31th; D. Parapodium 50th; E. Heterogomph neuropodial falciger in supracicular position from setiger 50. (Scale: A = 1 mm; B, C, D = 150 μ m; E = 10 μ m).

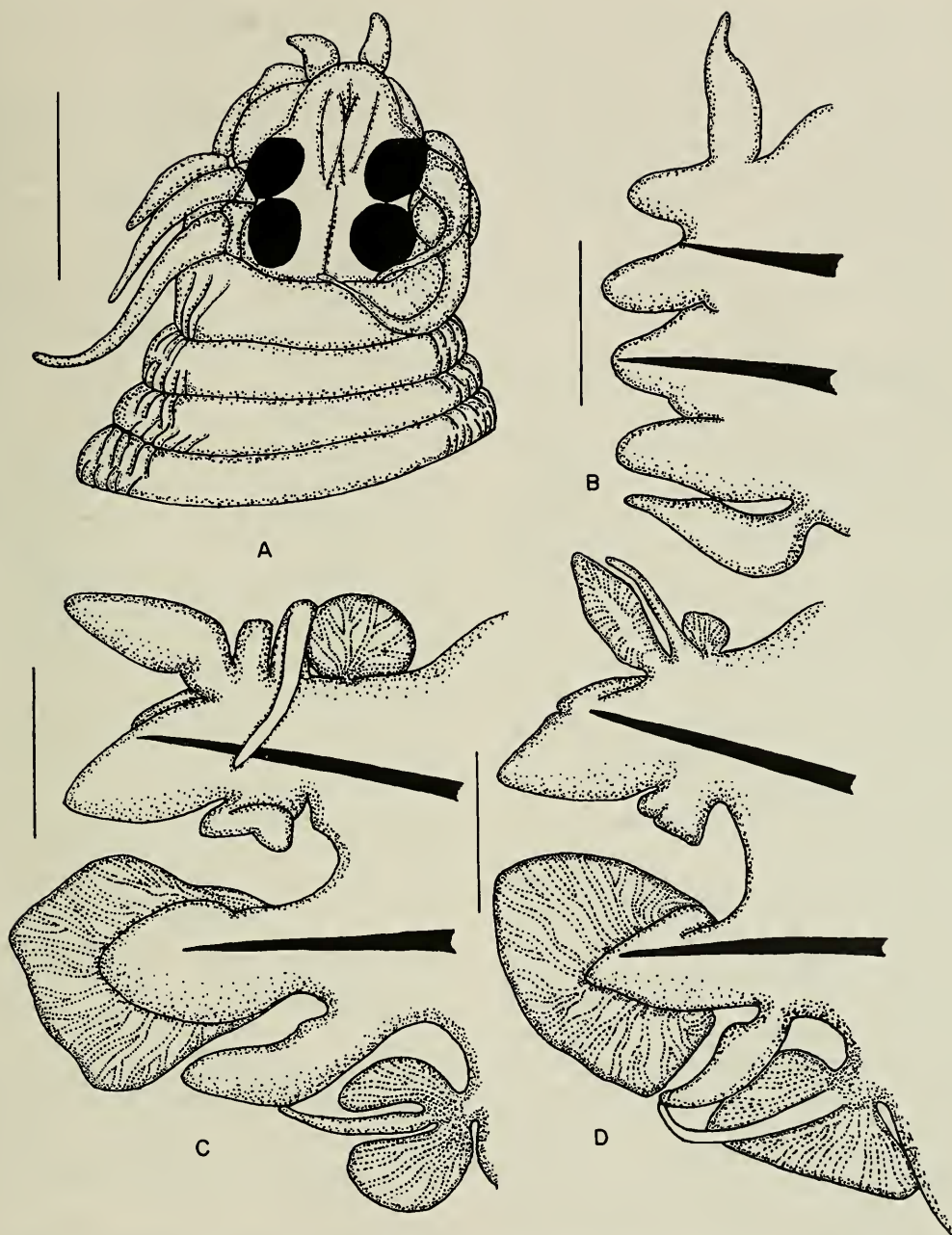


Fig. 5. *Perinereis elenacasoae* (epitoke). A. Anterior end, dorsal view (parapodia omitted); B. Parapodium 4th; C. Parapodium 30th; D. Parapodium 40th. (Scale: A = 1 mm; B, C, D = 100 μ m).

Perinereis floridana Ehlers, 1868

Figs. 6A–E, 7A–E

Perinereis floridana Ehlers, 1868: 503.—
Salazar Vallejo & Jimenez-Cueto, 1996–
1997: 367.

Material examined.—Campeche: Alacranes reef East, V. Solís-Weiss, coll., 28 Oct 1990 (7 specimens); same, 23 Mar 1991 (45 specimens); Alacranes reef West, same collector, 23 Mar 1991 (3 specimens); Arenas

Cay, Southwest, same collector, 21 Mar 1991 (8 specimens); Arenas Cay North, same collector 17 Mar 1991 (4 specimens). Quintana Roo: Mujeres Island, stn. 21-60, Smithsonian-Bredin Expedition IV, 30 Mar 1960 (1 specimen); Ascención Bay, stn. 67-60, same expedition, 13 Apr 1960 (2 specimens).

Epitokous material.—Key Largo, Florida, USA, J. Ross, coll., 20 Dec 1950, (1 female).

Diagnosis.—Best preserved specimen incomplete, 50 mm long, 3 mm wide including parapodia, with 73 setigers.

Prostomium longer than wide, two pairs of small eyes in quadrate arrangement. Frontal antennae cirriform. Palps biarticulate, palpostyles conical. Peristomium with longest pair of tentacular cirri extending posteriorly to setiger 4 (Fig. 6A).

Pharynx not everted in specimens. Analysis performed by dissection.

Pharynx with paragnaths arranged on pharyngeal areas as follows: I, 2 cones; II, 9 cones in 2 rows; III, oval group of 16 cones; IV, long curved group of 18; V, single cone; VI, short transverse bar; VII–VIII, 24 cones in 2 rows.

First two parapodia uniramous, following ones biramous. Anterior biramous parapodia with notopodial dorsal ligules slender distally; notopodial median ligules distally truncate; neuropodial postsetal lobes rounded, ventral ligules subulate. Dorsal and ventral cirri subequal (Fig. 6B). Median and posterior parapodia with notopodial ligules, neuropodial postsetal lobes and neuropodial ventral ligules all triangular. Notopodial dorsal ligules not enlarged; dorsal cirri inserted medially, ventral cirri inserted proximally (Fig. 6C, D).

Setation similar throughout body: notopodial supracicular setae homogomph spinigers; neuropodial supracicular setae homogomph spinigers and heterogomph falcigers, infracicular neurosetae heterogomph spinigers and falcigers; latter with slender appendage (Fig. 6E).

Epitokous female.—Specimen light yel-

low, 32 mm long and 4 mm wide, with 97 setigers.

Prostomium as long as wide, with pair of slender cirriform antennae and two pairs of large, highly modified eyes; biarticulate palps with rounded palpostyles. Peristomium with longest pair of tentacular cirri extending to setiger 5 (Fig. 7A).

Body divided into moderately modified anterior region and highly modified heteronereidid region; first five setigers of anterior region with modified dorsal and ventral cirri (Fig. 7B); parapodia similar to those of atokous specimens from setigers 6 to 18 (Fig. 7C). Parapodia of heteronereidid region highly modified with lamellae associated with parapodial lobes, as well as with ventral and dorsal cirri; lamellae trilobed and associated with ventral cirri in median parapodia (Fig. 7D), appearing bilobed in posterior region (Fig. 7E); normal setae replaced by natatory setae with broad paddle-shaped appendages.

Distribution.—Western Atlantic: Gulf of Mexico and Caribbean Sea. Reported in Mexico from Quintana Roo.

Habitat.—Associated with coral rubble.

Perinereis monterea (Chamberlin, 1918)

Fig. 8A–F

Nereis (Neanthes) monterea Chamberlin, 1918: 474.

Nereis spinifera Treadwell, 1929: 5, figs. 15–20.

Perinereis monterea Berkeley & Berkeley, 1958: 403.—Hartman, 1968: 557.—Banse & Hobson, 1974: 71, Fig. 18n.—Kudenov, 1979: 118.—Salazar Vallejo, 1985: 108, Fig. 33 a–e.

Material examined.—Baja California: Ensenada Harbor, Todos Santos Bay, S. I. Salazar Vallejo, coll., 15 Apr 1983 (6 specimens). Baja California Sur: Isla Margarita, stn. 159, M. Cárdenas, coll., 12. Jun 1948, (3 specimens) (USNM 24727). Sonora: Puerto Peñasco, La Cholla bay, R. Dougherty, coll., Oct 1976 (2 specimens).

Diagnosis.—Best preserved specimen

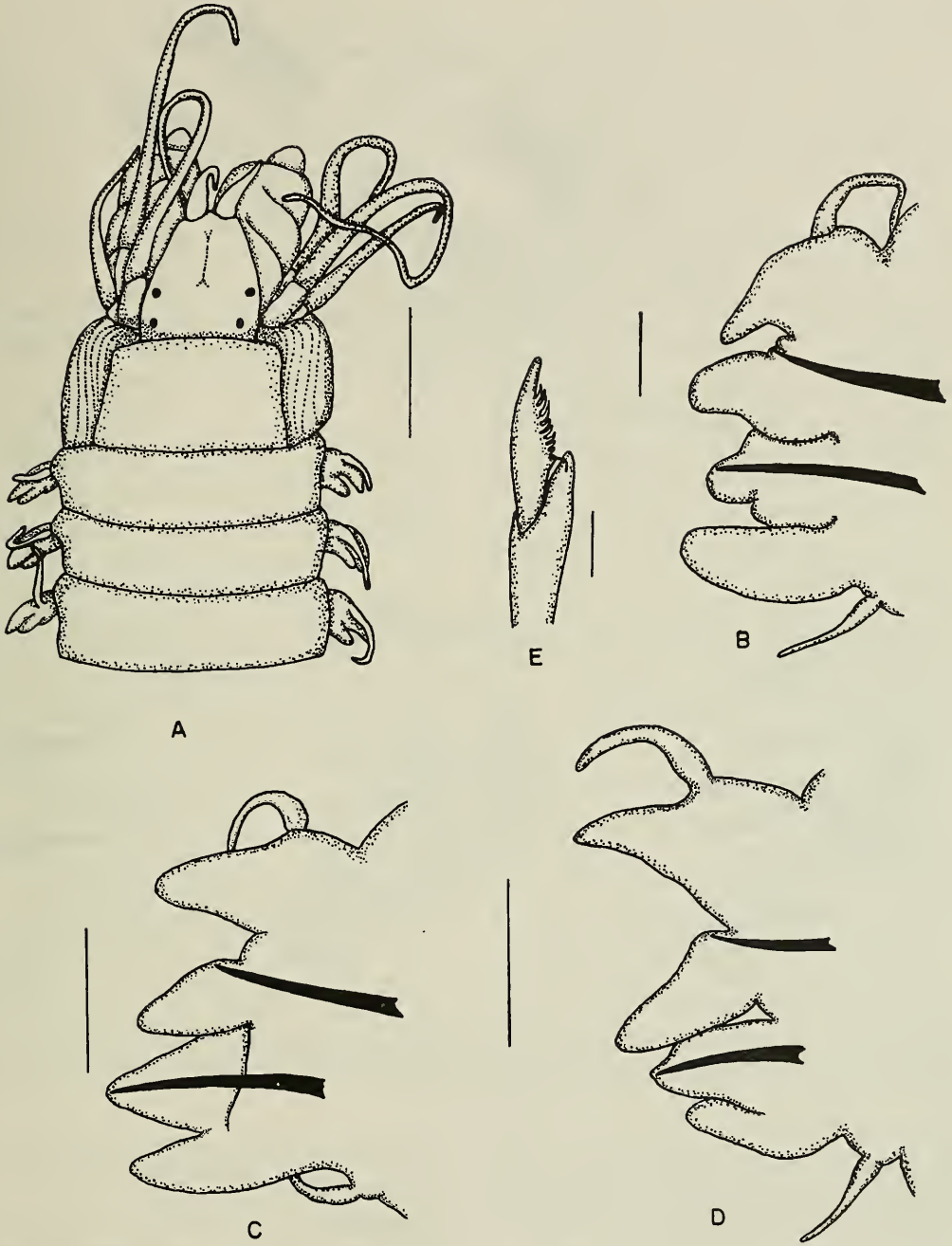


Fig. 6. *Perinereis floridana*. A. Anterior end, dorsal view; B. Parapodium 10; C. Parapodium 30; D. Parapodium 70; E. Heterogomph neuropodial falciger in supracicular position from setiger 30. (Scale: A: 1 mm; B, C, D = 100 μ m; E = 10 μ m).

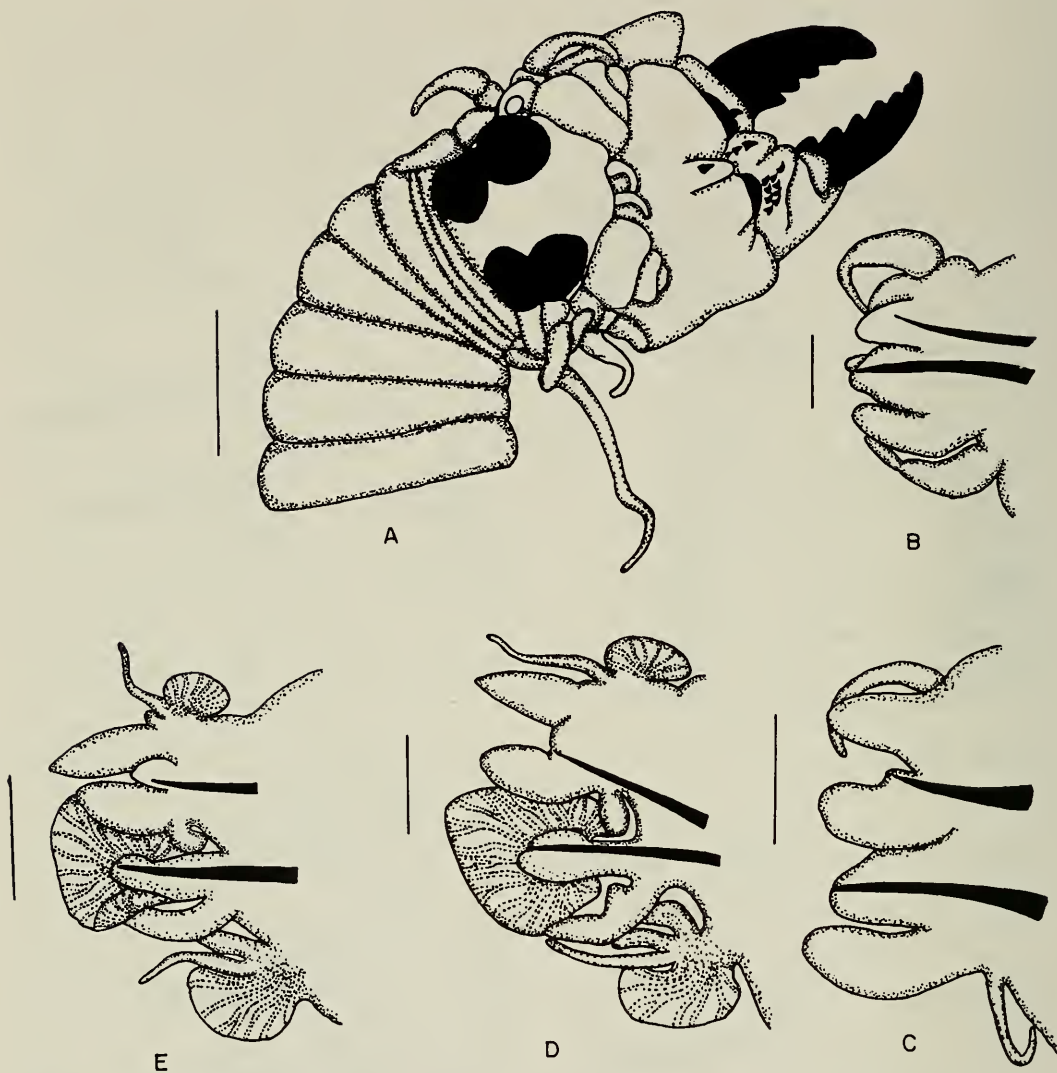


Fig. 7. *Perinereis floridana* (epitoke). A. Anterior end, dorsal view (parapodia omitted); B. Parapodium 3th; C. Parapodium 10th; D. Parapodium 30th; E. Parapodium 60 th. (Scale: A = 1 mm; B, C, D, E = 150 μ m).

complete, 65 mm long and 2.5 mm wide including parapodia, with 116 setigers, reddish with densely pigmented dorsal region.

Prostomium pentagonal, longer than wide, with two pairs of eyes in rectangular arrangement. Frontal antennae digitiform. Biarticulate palps with globose palpostyles (Fig. 8A). Peristomium with short tentacular cirri, longest pair extending posteriorly to first setiger, lower pair short and stout.

Pharynx not everted in specimens. Analysis performed by dissection.

Paragnaths arranged on pharyngeal areas as follows: I, single large cone; II, oval group of 19 cones; III, oval group of 51 cones in 5 rows; IV, long curved group of 60 cones, and 2 small proximal bars; V, single large cone; VI, single short, cone-shaped bar; VII-VIII, 40 cones in 4 rows, additional row of 5 cones in midventral region.

Anterior parapodia with dorsal and ventral notopodial ligules distally rounded, superior lobes short, digitiform; neuropodia with postsetal lobe truncate, superior lobe short, inferior lobe quadrate, ventral ligule similar in length to notopodial dorsal ligule; dorsal cirri medially inserted, ventral cirri proximally inserted (Fig. 8B). Notopodial dorsal ligules enlarged on median and posterior parapodia, dorsal cirri inserted anteriorly and medially. Neuropodial ventral ligules reduced to rounded lobes on middle segments, even more reduced posteriorly (Fig. 8C, D).

Notosetae homogomph spinigers on all parapodia. Anterior neuropodia with supracicular neurosetae homogomph spinigers and heterogomph falcigers, latter with slender, distally pointed appendage (Fig. 8E); infracicular neurosetae including only heterogomph falcigers. Median and posterior parapodia with supracicular homogomph spinigers and heterogomph falcigers; latter with anteriorly rounded appendage (Fig. 8F); infracicular neurosetae heterogomph spinigers and falcigers.

Pygidium with terminal anus, pair of slender anal cirri inserted lateral to anal opening.

Distribution.—Temperate to tropical waters of northeastern Pacific Ocean: Canada through State of Guerrero, Mexico.

Habitat.—Reported herein from under tests of barnacle *Tetraclita squamosa* Darwin, 1854 in Puerto Peñasco, La Cholla Bay, Sonora; not defined in other records.

Perinereis osoriotafalli, new species

Fig. 9 A–F

Material examined.—Sonora: Guaymas, San Francisco Inlet, E. Y. Dawson and F. Durham, colls., 18 Mar 1946 (1 specimen); Guaymas, las playas road, in front of Las Palmas, B. Burch, coll., 13 Feb 1953 (2 specimens); Puerto Peñasco, La Cholla Bay, stn. V-1, V. A. Gallardo, coll., (1 specimen). Sinaloa: Topolobampo, Los Patos Island, B. F. Osorio-Tafall, coll., 15 May

1961 (Holotype, USNSM 180696) and 3 specimens; same, J. Reddell, coll., 24 Nov 1968 (6 specimens).

Description.—Holotype 42 mm long, 5 mm wide including setae, complete with 86 setigers; color pale yellow, no evident pigmentation pattern.

Prostomium subpentagonal, longer than wide; two pairs of black rounded eyes in quadrate arrangement, anterior ones more widely separated. Pair of short digitiform antennae; palps biarticulate, palpostyles small, not everted. Peristomium with anterior pair of tentacular cirri, extending posteriorly to setiger 4, posterior pair appearing segmented proximally. (Fig. 9A).

Pharynx not everted in specimens. Analysis performed by dissection.

Pharynx with brown, calcified jaws, with three stout teeth present on the interior margin. Paragnaths arranged on pharyngeal areas as follows: I, 4 cones in diamond-shaped group; II, small group of 12 cones; III, oval group of 17 cones; IV, elongate group of 23 cones; V, single cone; VI, 2 transverse, ribbon-shaped bars; VII–VIII, 8 cones in single row.

Notopodial and neuropodial ligules rounded to conical on anterior parapodia; dorsal cirri digitiform, proximally enlarged, inserted on the median posterior region of notopodial dorsal ligules; ventral cirri cirriform, proximally inserted on neuropodial ventral ligule (Fig. 9B). Notopodial dorsal ligules enlarged on median and posterior parapodia, dorsal cirri inserted on middle distal part of dorsal ligules, relatively smaller than on anterior parapodia; ventral cirri increasing considerably in size towards posterior end (Fig. 9C, D).

Setation of anterior setigers as follows: supracicular notosetae homogomph spinigers, with finely serrated appendages; supracicular neurosetae homogomph spinigers similar to those in notopodia, and heterogomph falcigers; latter with distally rounded appendage denticulate on inner margin; infracicular neurosetae hetero-

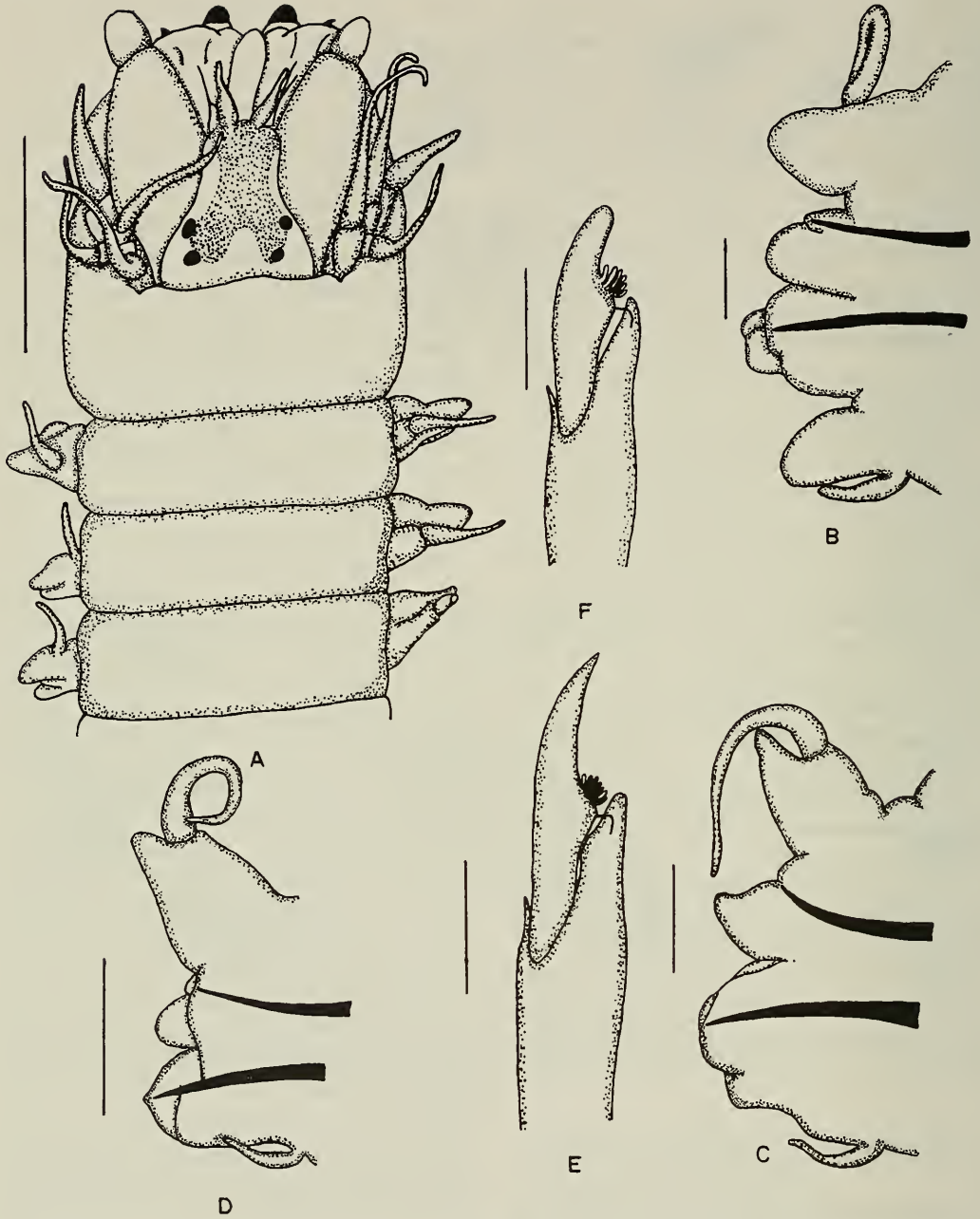


Fig. 8. *Perinereis monterea*. A. Anterior end, dorsal view; B. Parapodium 9th; C. Parapodium 40th; D. Parapodium 99th; E. Heterogomph neuropodial falciger in supracicular position from setiger 9; F. Same from setiger 99. (Scale: A = 1 mm; B, C, D = 150 μ m; E, F = 15 μ m).

gomph falcigers, similar to supracicular falcigers, but smaller (Fig. 9F). Median and posterior parapodia with setation similar to that of anterior parapodia, with

similar spinigers and falcigers (Fig. 9E), except for the presence of one pair of infracicular heterogomph neuropodial spinigers with finely serrated appendage.

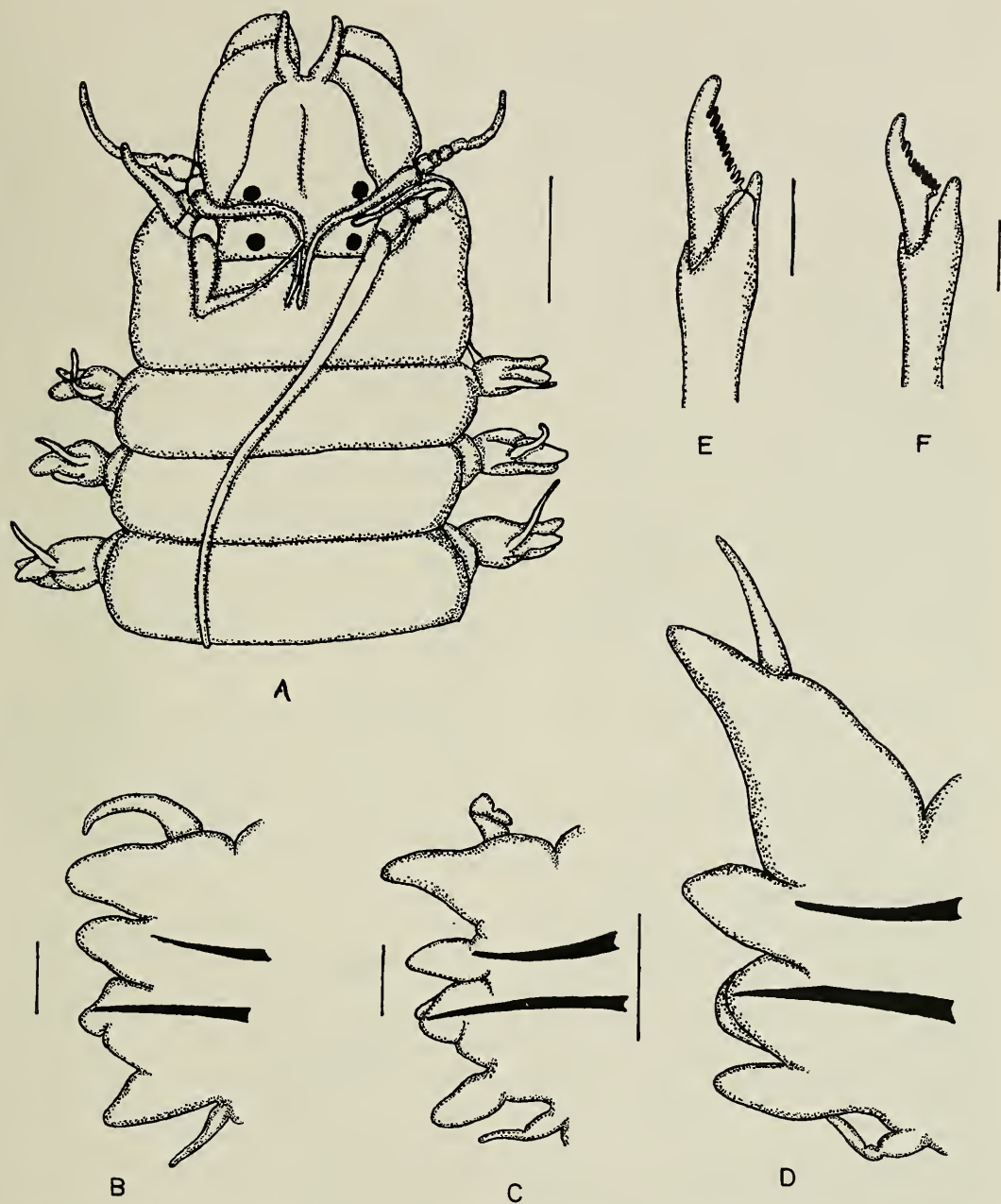


Fig. 9. *Perinereis osoriotaffali*, n. sp. A. Anterior end, dorsal view; B. Parapodium 10th; C. Parapodium 40th; D. Parapodium 80th; E. Heterogomph neuropodial falciger in infracicular position from setiger 10; F. Same from setiger 80. (Scale: A = 1 mm; B, C, D = 150 μ m; E, F = 8 μ m).

Pygidium with terminal anus, with pair of short anal cirri.

Discussion.—The new species is included along with *P. cariboea*, n. sp., in

a group that previously included only *P. mochimaensis* Liñero-Arana 1983. This species group is characterized by having two transverse bars on Area VI and en-

larged notopodial dorsal ligules on posterior parapodia. *Perinereis osoriotafalli*, n. sp., can be differentiated from *P. cariboea*, n. sp. and *P. mochimaensis* by its pharynx ornamentation, especially on area VII–VIII. *Perinereis osoriotafalli* has eight cones present in one row on area VII–VIII, whereas in the other two species, the cones on area VII–VIII are arranged in two rows. *Perinereis mochimaensis* has 32 cones on area VII–VIII, whereas in *P. cariboea* only 11 cones are present in this region of the proboscis.

Etymology.—This species is named in honor of B. F. Osorio Tafall, a close aide of Dr. E. Rioja, who collected the material upon which this species is described.

Distribution.—Gulf of California: From Puerto Peñasco to Los Patos Island, Ohuira Bay, in front of Topolobampo Harbor.

Habitat.—Among algae on rocky substrate.

Perinereis villalobosi Rioja, 1947

Fig. 10 A–E

Perinereis villalobosi Rioja, 1947: 532, figs. 18–22.—Salazar Vallejo, 1989: 50.

Material examined.—Baja California: Ensenada, Punta Banda, S. I. Salazar Vallejo, coll., 7 Mar 1982 (1 specimen); Rincon de Ballenas, V. Díaz Castañeda, coll., 20 Mar 1996 (4 specimens). Baja California Sur: La Paz, “El Comitán” beach, 1 km north of Centro de Investigaciones Biológicas del Noroeste building, J. A. de León-González, coll., 1 Dec 1986 (12 specimens).

Description.—Best preserved specimen 100 mm long and 4 mm wide including parapodia, incomplete with 120 setigers. Anterior region with diffuse dark pigmentaton with no evident pattern.

Prostomium as long as wide, with two pairs of eyes in trapezial arrangement, anterior ones lensed; frontal antennae measuring half length of prostomium; palps globose, with conical palpostyles. Peristomium as long as first two setigers; with longer

tentacular cirri extending posteriorly to setiger 3 (Fig. 10A).

Pharynx not everted in specimens. Analysis performed by dissection.

Paragnaths arranged on pharyngeal areas as follows: I, single cone; II, right side with 33 cones, left side with 24, both groups in triangular arrangement; III, 63 cones in 5 rows; IV, curved group of 74 cones; V, single large cone; VI, single short, transverse bar; VII–VIII, 42 cones in 2 rows, but 1 row with 3 cones on each side.

First two parapodia uniramous. Other anterior parapodia with rounded ligules; dorsal and ventral cirri well developed, dorsal ones better developed (Fig. 10B). On median and posterior parapodia notopodial dorsal ligules enlarged and median ligules conical. Neuropodial postsetal lobes mamilliform, neuropodial ventral ligules capitate; dorsal cirri subdistally inserted, ventral cirri proximally inserted (Fig. 10C, D).

All notosetae homogomph spinigers with slender, finely serrated appendage. Supracircular neurosetae homogomph spinigers and heterogomph falcigers (Fig. 10E). Infracircular heterogomph spinigers and falcigers.

Discussion.—*Perinereis villalobosi* was described from Mazatlán, Sinaloa state, shores, from a single epitokous specimen. Hutchings et al. (1991), placed this species in their group “1A,” characterized by the presence of a transverse bar on Area VI and the notopodial dorsal ligule not greatly enlarged on middle and posterior segments. However, the transformation of posterior parapodia during the epitokous phase is such that it does not allow for the correct determination of the degree of enlargement of that ligule. The specimens reported in this study are referred to *P. villalobosi* due to their having the pharyngeal ornamentation typical of the species. Since the notopodial dorsal ligules are greatly enlarged, the species would belong to group “1B” of Hutchings et al. (1991).

Distribution.—Eastern Pacific Ocean. Re-

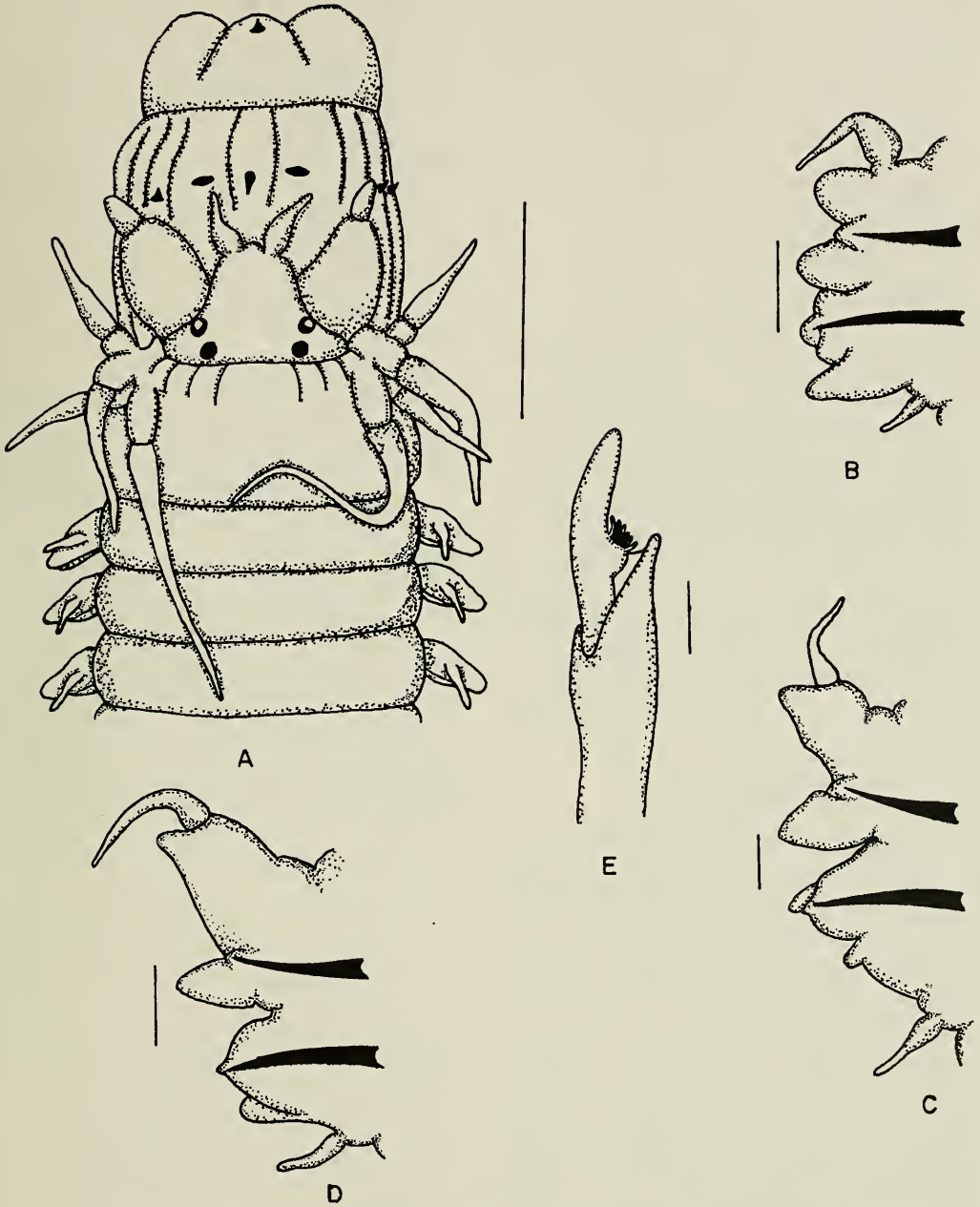


Fig. 10. *Perinereis villalobosi*. A. Anterior end, dorsal view; B. Parapodium 10th; C. Parapodium 49th; D. Parapodium 100th; E. Heterogomph neuropodial falciger in supracicular position from setiger 49. (Scale: A = 0.5 mm; B, C, D = 150 μ m; E = 10 μ m).

ported from the western coast of Baja California south to Mazatlán, Sinaloa, Mexico.

Habitat.—In galleries in sandy rocks in supralittoral zone (found after fragmentation of rocks).

Key to the Species of *Perinereis* from Mexican Shores

- 1. Notopodial dorsal ligules enlarged 2
- Notopodial dorsal ligules not enlarged.

- Two cones in a row present on area I, short bar on Area VI *P. floridana*
2. No bars on area IV 3
 – Two small basal bars on area IV in addition to cones, short cone-shaped bar on area VI *P. monterea*
3. Single bar on area VI 4
 – Two bars on area VI 7
4. Bar of area VI short 5
 – Bar of area VI long and slender, ribbon-shaped 6
5. Areas I and V each with single cone. *P. villalobosi*
 – Area I with 4 cones; area V with 3 cones *P. anderssoni*
6. Area I with 7 cones; area VII–VIII with single row of 7 cones *P. bajacalifornica*
 – Area I with 11 cones; area VII–VIII with 37 cones in two rows *P. elenaocasoae*
7. Two cones on area I, no paragnaths on areas V; 11 cones in 2 rows on areas VII–VIII *P. cariboea*
 – Four cones in a diamond-shaped arrangement on area I; single cone on area V; eight cones in single row on area VII–VIII *P. osoriotafalli*

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