

Soft bottom polychaetes
from the western coast
of Baja California sur, Mexico.
4. Onuphidae

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Résumé : Dans cette étude on signale la présence de polychètes Onuphidae sur la côte occidentale de la Basse Californie sud, Mexique. Les spécimens furent récoltés au cours de six campagnes océanographiques en 1987 et 1989. Les douze espèces signalées sont : *Diopatra farallonensis*, *D. mexicana* n. sp., *D. obliqua*, *D. ornata*, *D. splendidissima*, *Kinbergonuphis cedroensis*, *K. pulchra*, *K. vexillaria*, *Mooreonuphis elsiae* n. sp., *M. guadalupensis* ? *M. nebulosa* et *Onuphis eremita parva*.

Abstract : This paper documents the presence of onuphid polychaetes from the western coast of Baja California Sur, Mexico, collected during six oceanographic cruises, between 1987 and 1989. The twelve collected species are : *Diopatra farallonensis*, *D. mexicana* n. sp., *D. obliqua*, *D. ornata*, *D. splendidissima*, *Kinbergonuphis cedroensis*, *K. pulchra*, *K. vexillaria*, *Mooreonuphis elsiae* n. sp., *M. guadalupensis* ? *M. nebulosa* and *Onuphis eremita parva*.

The onuphid polychaetes from Western México have been studied by a number of authors, including Treadwell (1914 ; 1923 ; 1937), Chamberlin (1919), Berkeley and Berkeley (1939), Rioja ((1941 ; 1944 ; 1947b ; 1947c ; 1962), Fauvel (1943), Hartman (1944, 1963), Reish (1963, 1968), Fauchald (1968, 1972), Kudenov (1973 ; 1975 ; 1980), de León-González (1988), and Hernández-Alcántara and Solís-Weiss (1991). About 55 species are currently recognized from Western México, 30 of them are known from Baja California Sur waters (Salazar-Vallejo et al., 1989).

In this paper, the onuphid fauna from the Continental shelf of the western coast of Baja California Sur, México is described. The specimens were collected during six oceanographic cruises, in July and October of 1987 and 1988, and February and July 1989, on board the B/O "El Puma", using a Smith-McIntyre dredge (0,1 m2). Table I shows the localities and sedimentological data of the 32 sample stations. The type material is deposited in the National Museum of Natural History (USNM), and non-type specimens are in the polychaetological collection of the Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León, México (FCB-ONUP).

Diopatra Audouin and Milne-Edwards, 1833

Diopatra farallonensis Fauchald, 1968

D. farallonensis Fauchald, 1968 : 7, Pl. 1, figs h-n

Material examined : A-3 (16), A-7 (1), A-8 (3), B-10 (1), C-15 (1), D-5 (9), D-16 (1), D-18 (1), D-28 (10), E-8 (3), E-15 (2). (FCB-ONUP 7).

Distribution. Tropical Eastern Pacific. Gulf of California, and Pacific side of Baja California Sur. It occurs in depths between 30 and 90 m.

Diopatra mexicana n. sp.

(Fig. 1 A-E)

Material examined : A-8 (1), D-18 (1), D-28 (1), F-26 (Holotype, USNM 168053). Non-type specimens (FCB-ONUP 16).

Description. The holotype is incomplete with 89 setigers, 55 mm in length and 2,5 mm in width, body coloured green-yellowish.

Peristomium small, subconical. Frontal antennae well developed, subtriangular. Occipital antennae with longer ceratophores, with 10 rings in the middle and outer lateral antennae, and with 12 rings in inner lateral antennae. The middle and inner lateral antennae are the longest, reaching setiger 12 ; the outer lateral antennae reach setiger 7. Peristomial cirri long and thin, exceeding the distal part of the prostomium (Fig. 1A).

First setiger (Fig. 1B) with double presetal lobe, the proximal part as a transverse flap, the distal one rounded, with a ventral groove. Digitiform presetal lobe extended to the end of the fragment, well developed in the first 5 setigers. Dorsal cirri thin and digitiform, the ventral one digitiform on the first 4 setigers.

Branchiae from setiger 4, first 10 pairs longer, with numerous filaments in spiral, diminishing in length posteriorly until setiger 59, then disappearing.

Bidentate pseudocompound hooks on setigers 1-4, with a blunt hood, accessory tooth well developed (Fig. 1C). Bidentate subacicular hooks (Fig. 1D) from setiger 17, two per parapodium. Pectinate setae present in middle and posterior segments, strongly oblique, with 8-9 long and thin teeth (Fig. 1E).

Maxillary apparatus brown in color ; mandibles white, maxillary formula : MxI = 1+1 ; MxII = 8+8 ; MxIII = 8+0 ; MxIV = 6+9.

Tube cylindrical, externally covered with pieces of shell and mud.

Remarks. *D. mexicana* n. sp. is closely related to *D. obliqua* (Hartman, 1944) and *D. farallonensis* (Fauchald, 1968), all three have strongly oblique pectinate setae. *D. mexicana* n. sp. and *D. farallonensis* have the presetal lobe with a proximal transverse flap, and the distal lobe entire ; *D. obliqua* lacks proximal transverse flap, but has an obliquely bilobed presetal lobe, *D. mexicana* n. sp. differs from *D. farallonensis* in some aspects : the branchiae start on the fourth setiger, pseudocompound hooks with a short hood, the occipital

ceratophore numbers are 10-12-10-12-10, and long tentacular cirri ; *D. farallonensis* have the branchiae from the fifth setiger, pseudocompound hooks have a long and pointed hood, the occipital ceratophore numbers are 3-5-6-5-3, and short tentacular cirri.

Type locality. *D. mexicana* n. sp. is reported from the western coast of Baja California Sur, México ($25^{\circ}11.3'N$, $112^{\circ}15.8'W$) at 54 m.

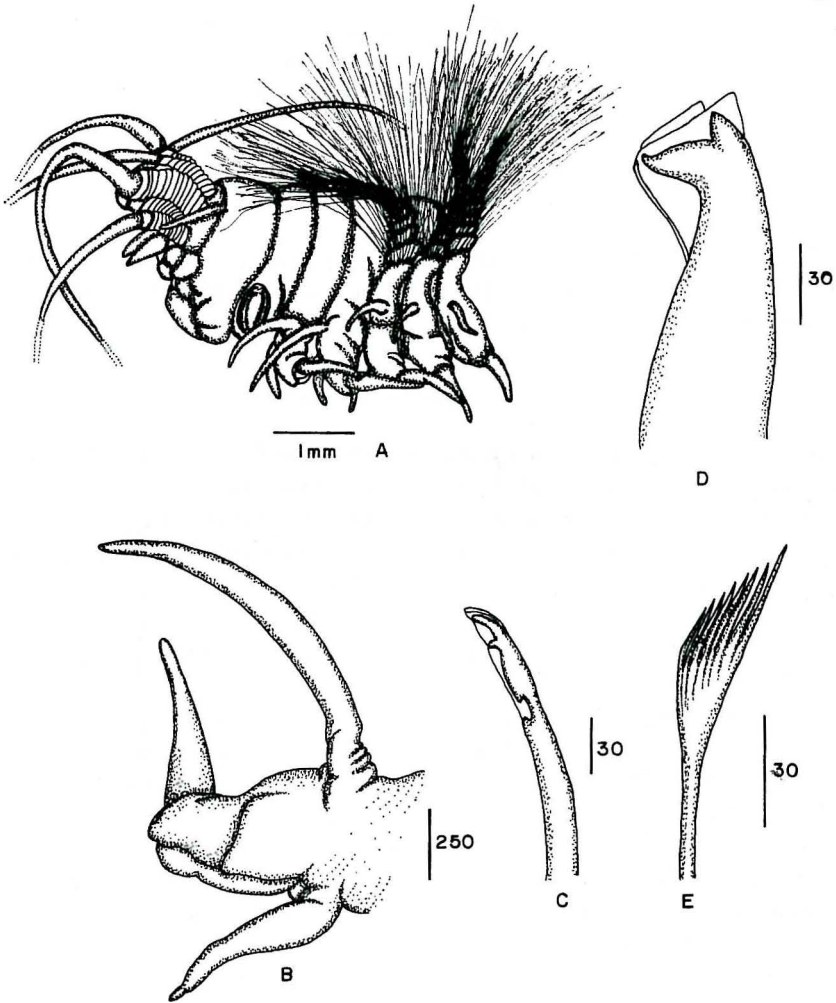


Fig. 1 : *Diopatra mexicana* n. sp. (Holotype). A. Lateral view of anterior end ; B. First parapodium anterior view, C. Pseudocompound hook from first parapodium ; D. Subacicular hook ; E. Pectinate seta. Scale bar in microns.

Distribution. Western coast of Baja California Sur, México. It occurs in depths between 30 and 55 m.

Diopatra obliqua Hartman, 1944

D. obliqua Hartman, 1944 : 57, Pl. 2 figs. 24-36, Pl. 16, Figs. 331-333 ; Fauchald, 1968 : 9, Pl. 2, fig. a.

Material examined : B-4 (5), C-18 (2), D-18 (1), D-27 (2), E-7 (1). (FCB-ONUP 9).

Distribution. Tropical Eastern Pacific. This species is known from the Gulf of California to Perú. In México, it is known from the coasts of Baja California Sur, Sinaloa, Jalisco, Guerrero and Oaxaca. This is the first record for the Pacific coast of the Baja California Peninsula. It occurs in waters shallower than 72 m.

Diopatra ornata Moore, 1911

D. ornata Moore, 1911 : 273, Pl. 18, figs. 77-85 ; Berkeley and Berkeley, 1939 : 338 ; Treadwell, 1941 : 22 ; Rioja, 1941 : 716 ; Hartman, 1944 : 55, Pl. 1, figs. 15-20 ; Fauchald, 1968 : 10, Lam. 2, fig. c.

Material examined : A-9 (1), B-18 (8), D-27 (1). (FCB-ONUP 10).

Remarks. Fauchald (1968) stated that early records of *D. ornata* from Mexican waters may be doubtful, Berkeley and Berkeley (1939), Treadwell (1941) and Rioja (1941) did not describe their specimens and one cannot be sure that they distinguished between the several closely related species of *Diopatra* found in this area, and included in this paper. The organisms reported in this study slightly differ from Moore's (1911) and Hartman's (1940), in the start and ending of the spiraled branchiae, and in the start of the subacicular hooks. In these organisms the start and ending of the spiraled branchiae are 4-31 respectively, and the subacicular hooks start in the 13 setiger. In Moore's specimens are 6-49 in the branchiae, and from the 30 setiger in the subacicular hooks ; and in Hartman's specimens the spiraled branchiae start in setiger 4-5, and ending on 58 to 60 setiger, the subacicular hooks start on the 21 setiger. Thus, this species has a range of variation because branchiæ appear in 4-6 until 31-60 setigers and subacicular hooks appear in setigers 21 to 30.

Distribution. North Eastern Pacific. They are found from western Canada to Western México. In México they are known from the coast of Baja California, Baja California Sur, Sonora, Sinaloa, Jalisco and Oaxaca. In waters shallower than 68 m.

Diopatra splendidissima Kinberg, 1857

D. splendidissima : Hartman, 1944 : 56, Pl. 1, figs. 21-23 ; 1968 : 661, figs. 1-6 ; Rioja, 1947a : 204 ; Fauchald, 1968 : 12, Pl. 2, fig. j ; Kudenov, 1973 : 109 ; 1975 : 89.

D. californica : Treadwell, 1937 : 152 ; Rioja, 1941 : 716.

Material examined : D-18 (1). (FCB-ONUP 6).

Distribution. Tropical Eastern Pacific. It is known from California (USA) to Ecuador. In México it is known from the coast of Baja California, Baja California Sur, Sinaloa and Sonora. Intertidal to 30 m.

Kinbergonuphis Fauchald, 1982
Kinbergonuphis cedroensis (Fauchald, 1968)

O. cedroensis Fauchald, 1968 : 31, Pl. 8 a-g.

K. cedroensis Fauchald, 1982 : 16, fig. 6b.

Material examined : A-10 (1), D-10 (1), E-7 (1). (FCB-ONUP 13).

Remarks. The specimens examined vary in the beginning of the ventral cirri : 1-3 (A-10), 1-5 (D-10), and 1-4 (E-7). Tridentate pseudocompound hooks are on the first 3 setigers in the specimens of station A-10, and on setigers 1-4 in the others specimens.

Distribution. Tropical Eastern Pacific. It is known from California (USA) to Ecuador. In México it is reported from the coast of Baja California, Baja California Sur, Sinaloa and Sonora. In depths between 20 and 90 m.

Kinbergonuphis pulchra (Fauchald, 1980)

O. (Onuphis) pulchra Fauchald, 1980 : 814-819, figs. 5-6

K. pulchra Fauchald, 1982 : 31, fig. 9c : Hernández-Alcántara and Solis-Weiss, 1991 : 256.

Material examined : B-15 (1). (FCB-ONUP 17).

Distribution. Amphiamerican. It is known from Belize, the continental shelf of the Gulf of California, and now from the Pacific side of the Baja California Peninsula. It occurs in intertidal to 55 m depths.

Kinbergonuphis vexillaria (Moore, 1911)

Onuphis vexillaria Moore, 1911 : 266, Pl. 17, figs. 69-76.

Kinbergonuphis vexillaria Paxton, 1986 : 54.

Material examined : E-7 (1), E-15 (1), E-17 (1). (FCB-ONUP 15).

Remarks. The specimens found show differences with the holotype (USNM 19061) previously reported by Fauchald (1982) : in the holotype, branchiae start from setiger 4, cirri-form ventral cirri are present on setigers 1-8, postsetal lobes are distinct in about 30 seti-

gers, subacicular hooded hooks are present from setiger 20, large hooks on setigers 6-8, and tridentate pseudocompound hooks on setigers 1-5. Our specimens have branchiae from setiger 6, cirriform ventral cirri on setigers 1-7, postsetal lobes are distinct in about 68 setigers, subacicular hooks are first present from setiger 15-16, large hooks on setigers 4-7, and tridentate pseudocompound hooks on setigers 1-4.

Distribution. Tropical East Pacific. This species is known from California (USA) to Oaxaca in western México, from shelf depths.

Mooreonuphis elsiae n. sp.

(Figs. 2 A-G ; 3 A-C)

Material examined : A-3 (1), B-15 (2), C-3 (1), D-16 (Holotype, USNM 168054) (1), D-20 (1), E-2 (1), E-7 (2), E-13 (1), E-17 (5). Non-type specimens (FCB-ONUP 18).

Description. The holotype is incomplete, with 90 setigers, 21 mm in length, 1,5 mm wide. Body yellowish in color, with black pigment between middle and posterior parapodia.

Prostomium with two small eyes between the bases of the lateral inner and outer occipital antennae. The occipital ceratophores with 4 rings, 3 short basals, and one longer distal. The styles of the middle and inner lateral antennae, reach the 14th setiger, the outer laterals reach setiger 3. Peristomial cirri thin, exceed the first setiger (Fig. 1A).

First setiger (Fig. 3A) with double presetal lobe, the proximal part as a transverse flap, the distal part is shorter and rounded. Digitiform presetal lobe through setiger 19, diminish in length posteriorly. Dorsal cirri long and thin (Figs. 3B-C), the ventral ones are cirriform on the first 5 setigers.

Branchiae from setiger 6, to the end of the fragment, with up to 3 filaments.

Pseudocompound tridentate hooks present in the first 4 setigers, with two shapes : thin and long (Fig. 2B), and thin and short (Fig. 2C). Tridentate simple hooks (Fig. 2D) appear only on setiger 5. Compound spinigers (Fig. 2F) on setigers 6-16. Hooded bidentated subacicular hooks (Fig. 2E) from setiger 17, two per parapodium. Pectinate setae lightly oblique (Fig. 2 G), with 10-11 short teeth.

Maxillary apparatus yellowish, maxillary formula : MxI = 1+1, MxII = 7+6, MxIII = 7+0, MxIV = 6+9.

Remarks. Some variations are found among the organisms : in four specimens, the cirriform ventral cirri appear on setigers 1-4. In the others, the ventral cirri appear on setiger 1-5. The tridentate pseudocompound hooks appear on setigers 1-5 in 5 organisms ; in the others, they appear on setigers 1-4 ; the compound spinigers appear on setigers 5 and 6. The maxillary formula is as follows : MxII = (7-9) + (6-9) ; MxIII = (7-9) + 0 ; MxIV = (5-6) + (8-10).

Discussion. *Mooreonuphis elsiae* n. sp. is closely related to *M. nebulosa* (Moore, 1911) ; both have pectinate branchiae from setiger 6. *M. elsiae* n. sp. has tridentate simple hooks only on setiger 5, the ventral cirri are digitiform on the first 4-5 setigers, and pseudocompound tridentate hooks appear on the first 4-5 setigers. In *M. nebulosa*, tridentate simple

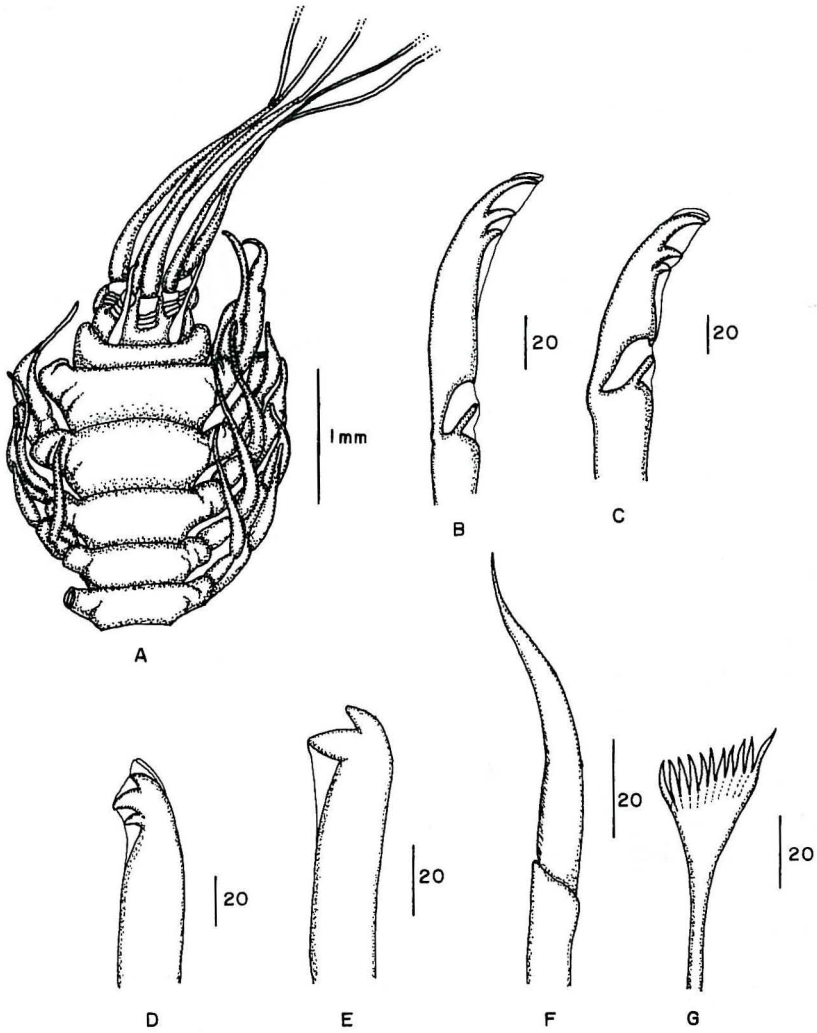


Fig. 2 : *Mooreonuphis elsiae* n. sp. (Hologype). A. Dorsal view of anterior end ; B-C. Pseudocompound hooks from first parapodium ; D. Tridentate simple hook ; E. Subacicular hook ; F. Compound spiniger ; G. Pectinate setae. Scale bar in microns.

hooks appear on setigers 4-15, ventral cirri are digitiform in the first 10 setigers, and tridentate pseudocompound hooks appear on the first 8 setigers. Other species with a short number of setigers with tridentate simple hooks are : *M. stigmatis* (Treadwell, 1922), where these hooks appear on setigers 4 to 5, but differ for *M. elsiae* n. sp. in the start of the branchiae, and the number of the branchial filaments (19 and 1 respectively).

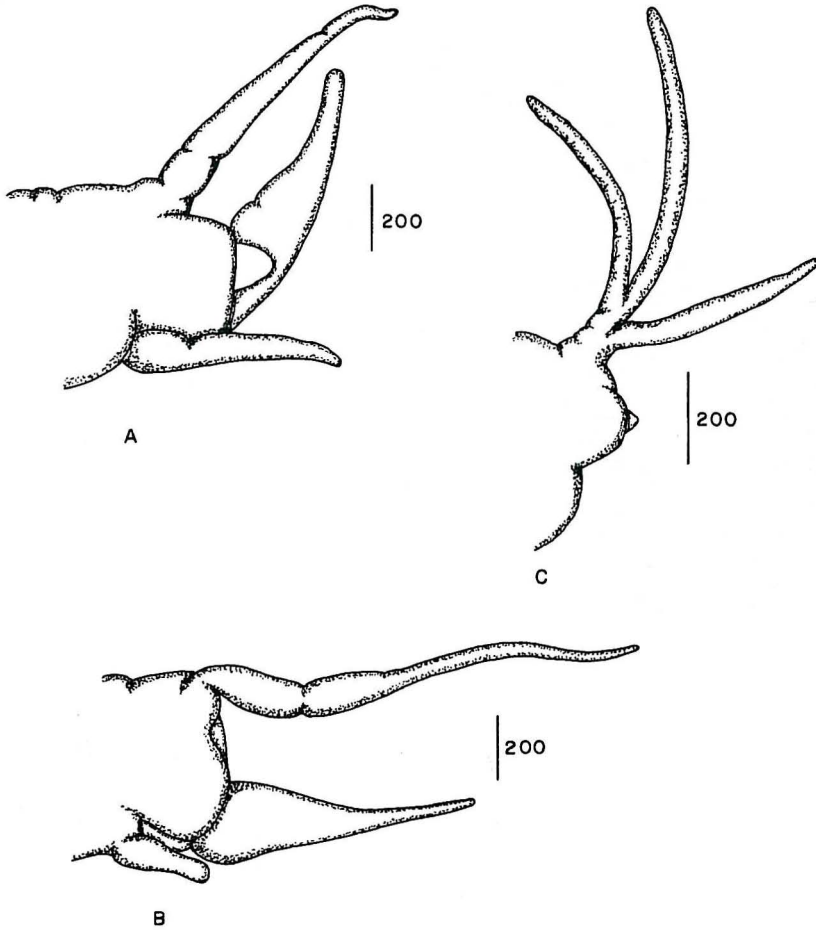


Fig. 3 : *Mooreonuphis elsiae* n. sp. (Holotype). A. First parapodium anterior view ; B. Fifth parapodium anterior view ; C. Posterior parapodium anterior view. Scale bar in microns.

Etymology. The species name refers to the colloquial name of my wife Elsey, who has assisted me during many unfavorable days.

Type locality. The holotype was collected in the station D-16, 25° 07.9'N, 112° 16.5', at 60 m.

Distribution. Western coast of Baja California Sur. It occurs in depths between 46 and 107 m.

Mooreonuphis guadalupensis ? (Fauchald, 1968)

Nothria guadalupensis Fauchald, 1968 : 22, Pl. 6 e-i.

Mooreonuphis guadalupensis Fauchald, 1982 : 59, fig. 18 d.

TABLE I

Sedimentological and location data of sampling stations. a) Station number ; b) Latitude (N) ; c) Longitude (W) ; d) Depth (m) ; e) Sand (%) ; f) Silt (%) ; g) Clay (%) ; h) Organic matter (%) ; i) Temperature (°C) ; j) Date.

a	b	c	d	e	f	g	h	i	j
A-3	24°18.2'	111°32.3'	72	-	-	-	-	-	09/07/87
A-7	26°08.6'	112°44.8'	73	-	-	-	-	-	09/07/87
A-8	26°11.0'	112°54.2'	55	-	-	-	-	-	09/07/87
A-9	26°06.0'	112°34.0'	65	-	-	-	-	-	13/07/87
A-10	24°11.4'	111°23.5'	74	-	-	-	-	-	17/07/87
B-4	24°17.9'	111°33.5'	72	29.7	61.0	9.1	-	-	07/10/87
B-10	26°08.6'	112°44.3'	74	81.1	15.7	3.1	-	-	08/10/87
B-15	25°12.1'	112°16.1'	46	81.7	15.4	2.7	-	-	17/10/87
B-18	26°03.2'	112°33.8'	65	46.3	47.8	5.7	-	-	17/10/87
C-3	24°16.1'	111°35.0'	107	39.1	53.3	7.4	-	15	25/07/88
C-15	26°11.1'	112°34.0'	57	48.5	51.0	3.3	3.34	17	01/08/88
C-18	25°12.1'	112°16.3'	57	56.6	43.3	5.5	-	16	02/08/88
D-5	24°15.7'	111°32.2'	90	42.6	48.9	8.6	2.48	15	04/10/88
D-10	24°16.6'	111°49.6'	90	47.9	38.6	7.1	2.85	15	05/10/88
D-15	25°09.5'	112°24.3'	110	54.0	38.2	7.6	3.59	16	06/10/88
D-16	25°07.9'	112°16.5'	60	44.5	48.4	7.2	2.76	17	06/10/88
D-17	25°14.4'	112°16.5'	52	47.8	45.3	6.5	3.06	18	07/10/88
D-18	25°30.3'	112°11.4'	30	68.6	25.5	4.5	2.94	19	07/10/88
D-20	25°36.6'	112°21.7'	80	10.6	70.2	10.9	4.02	16	07/10/88
D-27	26°08.3'	112°41'5"	68	37.2	56.0	6.6	4.33	17	08/10/88
D-28	26°12.3'	112°36.3'	55	43.0	52.8	4.7	3.33	17	08/10/88
E-2	27°46.7'	115°16.9'	112	63.9	29.8	5.8	1.77	13	26/02/89
E-7	26°19.0'	112°58.5'	59	-	-	-	-	15	27/02/89
E-8	26°12.1'	112°36.5'	60	27.8	72.1	14.8	2.54	14	28/02/89
E-9	26°02.2'	112°51'2"	70	51.1	37.8	5.0	1.25	14	28/02/89
E-15	25°28.9'	112°15'1"	57	23.0	70.9	6.1	2.37	14	01/03/89
E-16	26°28'3"	112°11.2'	27	82.6	12.2	4.5	1.11	16	01/03/89
E-17	25°14.3'	112°15.7'	53	51.6	42.1	5.5	1.57	14	01/03/89
E-18	25°07.8'	112°16.5'	50	56.4	37.8	5.6	1.45	15	01/03/89
F-26	25°11.1'	112°15.8'	54	-	-	-	-	11	10/07/89

Material examined : E-10 (1) (FCB-ONUP 19).

Remarks. The specimen found differs from Fauchald specimens in the start of the branchiaes (setiger 22 in Fauchald specimens, setiger 6 in the present specimen). In other features they are very similar : smooth ceratophores, cirriform ventral cirri on setigers 1-3, bi-tridentate pseudocomposite hooded hooks on setigers 1-3, composite spinigers on setigers 4-12, and subacicular hooks from setiger 11.

Distribution. Eastern North Pacific. This species is known from Isla Guadalupe off Baja California to the western coast of Baja California Sur, eastern México. Intertidal to 82 m.

Mooreonuphis nebulosa (Moore, 1911)

Onuphis nebulosa Moore, 1911 : 269, figs. 58-68.

Mooreonuphis nebulosa : Fauchald, 1982 : 56, Fig. 17a.

Material examined : D-14 (2), D-15 (9), E-2 (1), E-5 (1), E-11 (5), (FCB-ONUP 20).

Distribution. Eastern North Pacific. This species is known from California (USA) to the western coast of Baja California Sur, México in 27 to 129 m.

Onuphis Audouin and Milne-Edwards, 1833

Onuphis eremita parva Berkeley and Berkeley, 1941

Onuphis eremita parva Berkeley and Berkeley, 1941 : 35-36 ; Pettibone, 1967 : 8 ; Fauchald, 1982 : 41, fig. 12c.

Material examined E-11 (1). (FCB-ONUP 21).

Distribution. Eastern North Pacific. This species is known from California (USA) to Sinaloa in western México. It occurs in depths between 22 and 123 m.

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