

A new species of eastern Pacific moray eel (Pisces: Muraenidae)*

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Abstract: A new species of eastern Pacific muraenid eel is described. *Uropterygius versutus* n. sp. was taken at several mainland localities from México to Panamá as well as at Isla del Coco, Costa Rica and the Islas Galápagos and is recognized on the basis of two branchial pores, a uniform coloration and a Mean Vertebral Formula of 118-122-134. It was captured at depths up to 40 m, although the species is most abundant in shallow, rocky habitats and in tide pools.

Key words: New species, eastern Pacific, Pisces: Muraenidae

A number of specimens of an undescribed muraenid eel from the Pacific coast of Costa Rica and Isla del Coco have accumulated in the collections of the Museo de Zoología, Universidad de Costa Rica (UCR). Additional material provided by the Natural History Museum of Los Angeles County (LACM), U. S. A. revealed that the same species also occurs at other eastern Pacific localities. This same species, which has two branchial head pores, apparently has been known to ichthyologists for a number of years (Böhlke 1967, McCosker & Rosenblatt 1975, Thomson *et al.* 1979; Böhlke *et al.* 1989), but had not been formally described.

The status of eastern Pacific *Uropterygius* based on the earlier literature (Myers & Wade 1941, Schultz *et al.* 1953 and Gosline 1958) was uncertain. McCosker *et al.* 1984 determined that *Uropterygius necturus* (Jordan & Gilbert) and two other species are synonyms of the trans-Pacific *Uropterygius macrocephalus* (Bleeker). Another western Pacific species, *Uropterygius tigrinus* (Lesson), recorded from several scattered eastern Pacific localities

(Rosenblatt *et al.* 1972), was referred to the genus *Scuticaria* by Böhlke *et al.* 1989. Thus, at present three species of *Uropterygius* are recognized from the eastern Pacific: *U. polystictus*, occurring at the Galápagos and known from one mainland record, *U. macrocephalus*, a trans-Pacific species and *U. versutus*, n. sp.; the latter two occurring at the Galápagos, Isla del Coco and tropical eastern Pacific mainland.

Uropterygius versutus, new species (Figs. 1-3)

Uropterygius sp., López & Bussing 1982 (distribution from Costa Rica to Panamá).

Holotype: LACM 32517-52, an adult of 432 mm total length (TL), mainland Pacific Costa Rica, E side of islet, 1 km E of Isla Alcatraz, Islas Tortugas (9°47'02" N; 84°53'32" W). Taken with ichthyocides at 1-4 m depth on 24 Feb. 1972 by W.A. Bussing *et al.* aboard R/V Searcher.

Paratypes: Data is presented as follows: catalog number, number of specimens, length in mm, total length in parentheses, locality, depth in m, and data of collection.

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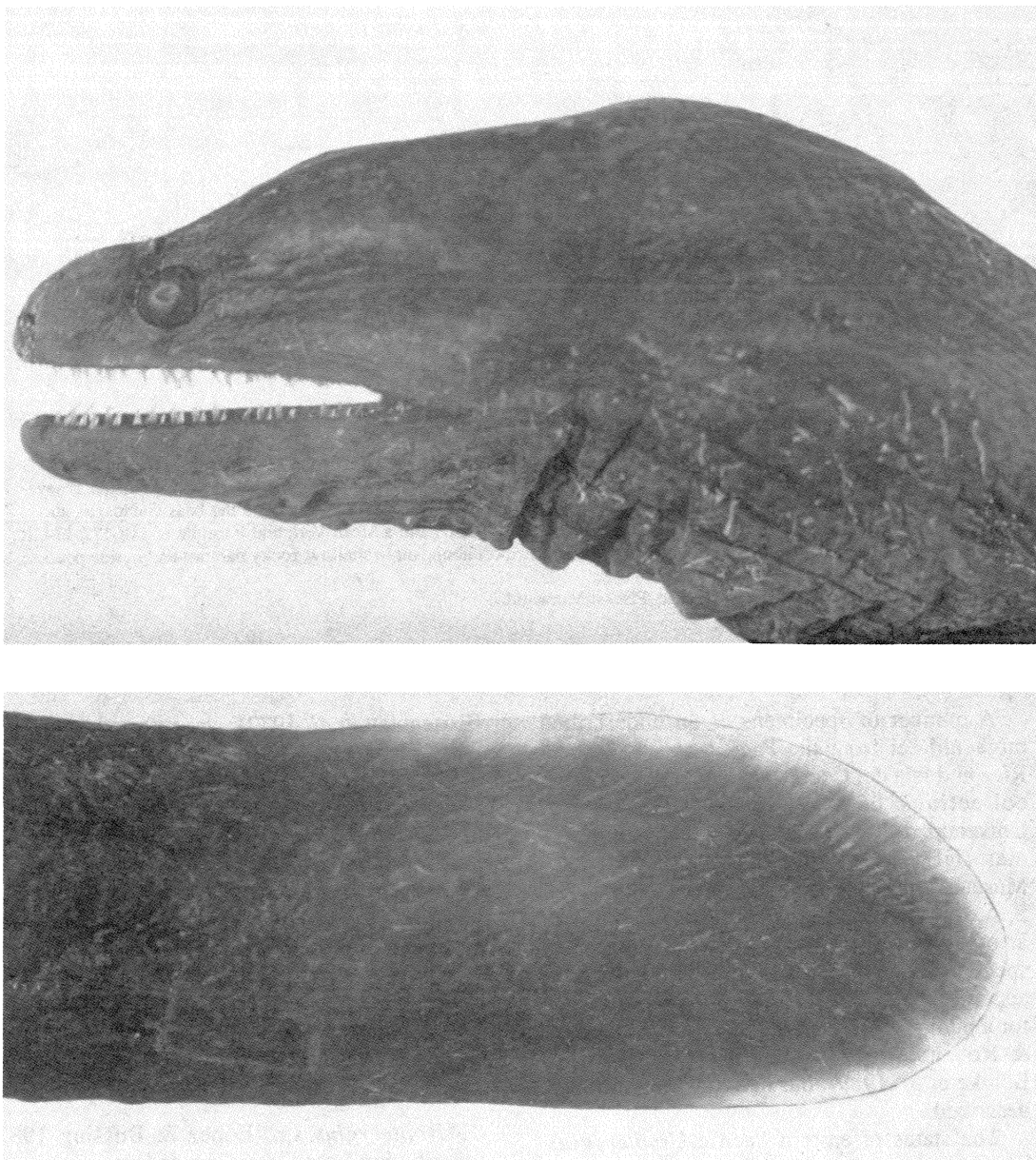


Fig. 1: *Uropterygius versutus*, n. sp., LACM 32539-36, paratype, 343 mm TL, from Quepos, Costa Rica. Above: Closeup of head. Below: Closeup of tail.

Isla del Coco, Costa Rica: LACM 35479-2, 20 (196-359), Bahía Wafer, SE Peninsula Presidio, 0.3 m, 21 Apr. 1975. USNM 308980, 5 (252-334), same data as LACM 35479-2. LACM 44987-1, 3 (100-181), Bahía Iglesias between Isla Rafael and S side island, 7-10 m, 23 Mar. 1978. LACM 32283-27, 5 (124-428), Bahía Wafer, mid-bay, 11 m, 6 Apr. 1972. LACM 32271-23, 2 (100-282), Isla Iglesias, S

of islet, 31 m, 4 Apr. 1972. UCR 2110-8, 1 (67), Bajo Alcyone, S side island, 30-33 m, 29 Mar. 1989. UCR 2158-1, 2 (136-176), Bahía Iglesias, 24-40 m, 28 Apr. 1988. UCR 863-13, 1 (47), N side island near Roca Pan de Azucar, 10 m, 19 Abr. 1975. UCR 1157-48, 3 (274-360), NE side Bahía Wafer, 0.3 m, 27 Mar. 1978.

Mainland Costa Rica: LACM 32539-36, 1 (343), Isla Salera, 0.5 km SW Punta Catedral,

TABLE 1

Proportional measurements in percentage of total length of holotype and 27 paratypes of *Uropterygius* versus from mainland and two insular localities

	Holotype	Mainland	X	Isla Coco	X	I. Galápagos	X
TL in mm	432	143-560		296-359		74-174	
Head length	12.7	11.8-14.2	12.9	11.1-13.3	11.7	10.7-122	11.4
Eye diameter	0.9	0.8-1.1	1.0	0.8-1.1	1.0	0.9-1.1	1.0
Interorbital	1.4	1.3-1.5	1.5	1.2-1.4	1.3		
Snout length	1.8	1.4-2.2	2.0	1.7-1.9	1.8	2.0-2.1	2.0
Jaw length	4.7	4.2-5.3	4.9	2.9-4.3	4.0	4.1-4.8	4.4
Body depth*	5.4	4.3-6.6	5.4	4.2-5.5	4.7	3.8-4.1	3.9
Body depth**	5.2	4.2-6.2	5.2	3.5-4.7	4.4	3.7-4.4	4.1
Trunk length	35.9	31.8-37.4	34.0	30.0-34.7	32.2	31.5-32.2	31.8
Tail length	52.1	50.9-55.0	52.6	54.7-58.4	56.5	53.6-54.9	54.0
n	1	14		10		3	

* at gill opening

** at anus

Quepos, 17 m, 12 Mar. 1972. LACM 32517-53, 2 (176-452), same data as holotype. LACM 32524-48, 1 (141), N side Bahía Herradura, 20 m, 9 Mar. 1972. UCR 1673-38, 3 (316-560), Playa Ocotol, 2 m, 5 May 1985. UCR 628-7, 1 (403), Bahía Los Huevos, 5-6 m, 18 Feb. 1972. UCR 423-119, 7 (144-409), Isla del Caño, shore to 3 m, 13 Mar.-12 Abr. 1970.

Islas Galápagos, Ecuador: LACM 23342, 1 (172), Hood Island, Gardner Bay, 26 Jan. 1933. LACM 23327, 1 (272), Tower Island, Darwin Bay, 24 Feb. 1933. LACM 43682-10, 1 (73), Wenmen Island, 10 m, 15 May 1984.

Mexico: LACM 9595-7, 2 (233-320), Islas Tres Marias, Isla María Cleofas, 16-18 Mar. 1965. *Panamá*: LACM 23318, 1 (142), Secas Islands, 2 Mar. 1938.

Colombia: LACM 23346, 3 (185-264), Port Utria, tidepool, 25 Feb. 1938.

Comparative Material: Paratypes of *Uropterygius diopus* (= *macularius*) from Puerto Rico: LACM 6730-17, 1 (266); LACM 6828-1, 5 (102-168). *U. macularius* from Costa Rica: UCR 285-26, 1 (197); UCR 287-23, 1 (168); UCR 446-1, 1 (233). *Uropterygius macrocephalus* from Costa Rica: UCR 978-3, 4 (176-317); UCR 859-5, 1 (46.5).

Diagnosis: A medium-sized (to 560 mm TL) species of *Uropterygius* conforming to the generic diagnosis of Böhlke *et al.* (1989). It has two minute branchial pores before the gill opening, biserial jaw teeth and uniserial vomerine teeth well separated from the intermaxillary series. Gill opening at mid-sides, a nearly hori-

zontal slit. Posterior nostril over front of orbit. Color typically uniform brown, some specimens with dark mottling, no pale markings on head; a narrow black orbital ring; tail bluntly rounded, margin unpigmented.

Description: Measurements in percentage of TL appear in Table 1. Proportions of the holotype are in parentheses following the range of 27 paratypes. Body slim, depth at gill opening 2.0-3.0 (2.4) in head length (HL), depth at anus 2.0-3.3 (2.4) in HL; tapering gradually and becoming more compressed posteriorly. Tail slightly longer than body (head and trunk), distance from snout to anus 1.7-2.0 (1.9) in TL. Trunk 2.7-3.3 (2.8) in TL.

Head length 7.0-9.4 (7.9) in TL; posterior margin of orbit usually over mid-jaw, sometimes more advanced, 10.9-15.7 (13.7) in HL; fleshy interorbital width 8.5-9.8 (9.0) in HL; snout 5.1-7.9 (7.1) in HL. Anterior nostril tubular, near snout tip; posterior nostril tubular, shorter than anterior nostril and usually with a constricted opening, on a vertical above front half of eye. Gill opening in form of an oblique slit near mid-side.

Head pores most conspicuous on young, not demarked by any contrasting pigmentation. Holotype and four paratypes with following pore series on each side of head: two minute branchial pores; three supraorbital pores (2 on snout and minute ethmoid pore at snout tip below anterior nostril), four infraorbital pores and six mandibular pores (Fig. 2).

Jaws subequal, snout to rictus 2.2-3.1 (2.7) in HL. Teeth are sharp, recurved and biserial in

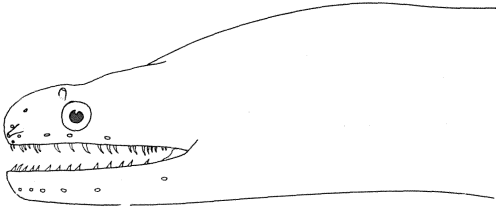


Fig. 2: *Uropterygius versutus*, n. sp., LACM 32517-52, holotype, 432 mm TL, from Islas Tortugas, Costa Rica. Detail of head. Illustration by Omar Achí.

each jaw, but usually with additional rows anteriorly (Fig. 3). Counts are for one side of jaw, based on four paratypes (holotype in parentheses). Upper jaw with an outer row of small, close-set compressed teeth, 11-15 (13) on intermaxillary, continuing as 29-38 (38) on maxillary; an inner patch of 7-10 large, depressible canines that increase in length posteriorly on intermaxillary; an inner row of 9-14 (14) widely spaced depressible canines on maxillary. A single row of 5-10 (5) moderate-sized teeth on vomer well-separated from intermaxillary. Teeth on lower jaw similar to those on upper jaw, an outer row of 42-50 (50) small, compressed, recurved teeth and an inner row of 13 or 14 (13) equally spaced canines.

Vertebral and fin ray counts based on radiographs of 13 specimens (means in parentheses): predorsal vertebrae 114-124 (118.3); preanal vertebrae 119-128 (122.3); total vertebrae 131-138 (134.3). Therefore the Mean Vertebral Formula (MVF) of Böhlke (1982) and Böhlke *et al.* (1989) consisting of the means of predorsal, preanal and total vertebral counts respectively is 118-122-134. Other counts are: vertebrae before anus 50-57 (54.5); dorsal-fin rays 28-49 (38.8) and anal-fin rays 21-32 (26.2). Total vertebral numbers were higher at the Galápagos and Isla del Coco, 134-137 (136.3) vs. 131-134 (132.8) for the mainland specimens. Conversely, dorsal-fin ray counts were higher at mainland localities, 36-48 (42.2) vs. 28-40 (32.6) at insular localities.

Coloration: Color of live and preserved material similar; usually ranging from uniform chocolate brown to blackish brown; always slightly darker above. A few individuals with dark brown markings on a slightly paler brown background. Pattern configuration similar to that of *Uropterygius macularius* (Lesueur) (cf. Böhlke 1967, Böhlke *et al.* 1989), but dark

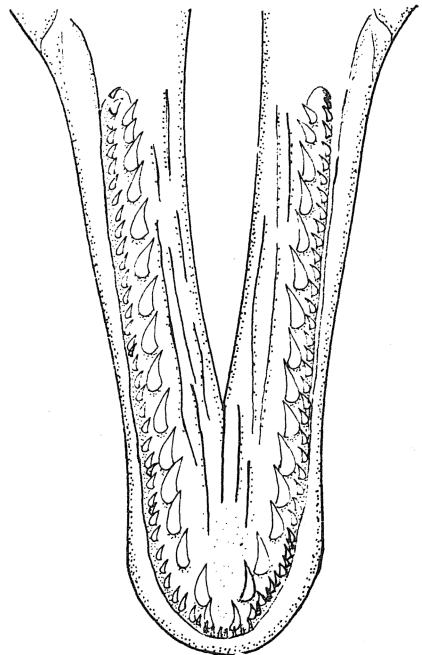
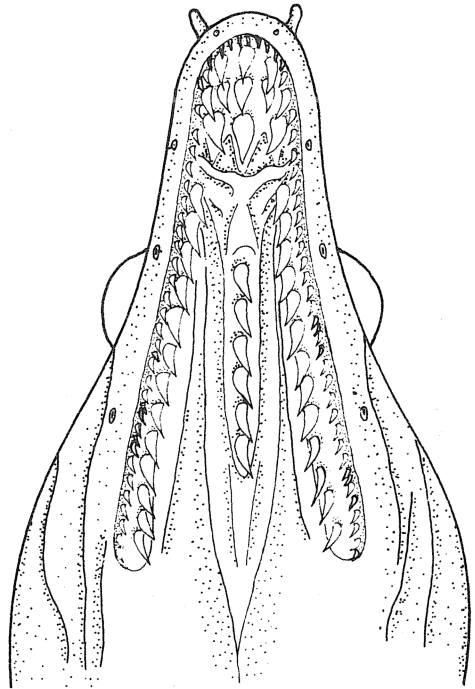


Fig. 3: *Uropterygius versutus*, n. sp., UCR 423-119, paratype, 409 mm TL, from Isla del Caño, Costa Rica. Dentition. Illustration by Omar Achí.

markings on paler background instead of conversely. Pale markings on lower jaw and branchial region never present. Eye ringed in black. Head pores under magnification with dark edges. Confluent dorsal, anal and caudal fins with pale or translucent margins (Fig. 1).

Color of a 47.0 mm TL juvenile (UCR 863-13) is solid tan except for a pale lower half of head between eye and gill slit. A juvenile of *U. macrocephalus* of 46.5 mm TL (UCR 859-5) is solid dark brown, except for the slightly paler undersurface of the head.

Etymology: From the Latin *versutus* meaning crafty, in allusion to the fish's cryptic behavior and inconspicuous coloration; to be treated as an adjective.

Distribution: Known from the Islas Tres Marias, México; Costa Rica; Panama; Colombia; Islas Galápagos and Isla del Coco. Taken in depths from shallow tide pools to 40 m.

REMARKS

Uropterygius versutus is readily distinguished from its eastern Pacific congener *U. macrocephalus* (Bleeker) by its two branchial pores, much slimmer body, typically more uniform coloration and more vertebrae, an MVF of 118-122-134. *U. macrocephalus* is a robust eel with one branchial pore, a variegated color pattern and MVF of 85-89-107. *Scuticaria tigrinus* (Lesson) formerly placed in the genus *Uropterygius*, is distinctive for its color pattern of large round brown spots on a straw-colored background, body proportions and high (163-172) total vertebral count and apparent absence of dorsal and anal fin rays.

Uropterygius macularius, the Western Atlantic counterpart of *U. versutus*, also has two branchial pores, but is distinguished by the pale marks on its lower head, pale-edged head pores, lower vertebral counts, an MVF of 106-110-121 and far lower jaw and palatal tooth counts. Three other species of *Uropterygius* also possess two branchial pores: the Indo-Pacific *U. xanthopterus* Bleeker, *U. kamar* McCosker & Randall and *U. goslinei* McCosker & Randall. *Uropterygius versutus*, with its nondescript color pattern, differs from these three congeners in coloration: all three have white or black markings at least on the head region; the latter two also differ in their triserial jaw dentition.

RESUMEN

Se describe una morena nueva del Pacífico Oriental. *Uropterygius versutus* n. sp. se conoce en varios puntos de la costa del continente entre México y Colombia, además en las Islas Galápagos y en Isla del Coco, Costa Rica. Esta anguila de la familia Muraenidae fue capturada hasta en profundidades de 40 m, aunque es más común en hábitats rocosos y someros, y en las pozas de marea.

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