

SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 91, NUMBER 31

REPORTS ON THE COLLECTIONS OBTAINED BY THE FIRST
JOHNSON-SMITHSONIAN DEEP-SEA EXPEDITION
TO THE PUERTO RICAN DEEP

A NEW GENUS AND SPECIES OF EEL
FROM THE PUERTO RICAN DEEP

BY

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Further study of the fishes obtained by the First Johnson-Smithsonian Deep-Sea Expedition to the Puerto Rican Deep has revealed an interesting form of deep-sea eel. The specimens are very close to *Xenomystax trucidans* Alcock, from the Arabian Sea, but differ notably in the more posterior insertion of the dorsal fin, in the position of the vent, in the broader isthmus, and in color. From *X. atrarius* Gilbert, from off the coast of Ecuador, our specimens are distinguished by the position of the posterior nostrils, by the proportionally longer body, and by the reduced number of branchiostegal rays. Our material differs from *X. rictus* Garman, in addition to the above-mentioned characters, in having the origin of the dorsal fin above the first third of the pectoral length.

Since the position of the posterior nostrils and the reduced number of branchiostegal rays are considered of generic rank, it becomes necessary to propose a new genus for the accommodation of *Xenomystax trucidans* Alcock and my new species.

Family MURAENESOCIDAE

PARAXENOMYSTAX, n. gen.

Genotype.—*Paraxenomystax bidentatus*, n. sp.

Body scaleless, long, tapering, the caudal strongly attenuated posteriorly. Vertical fins well developed, continuous with the lanceolate caudal fin. Pectoral fins well developed, narrow, long, and pointed. Origin of dorsal above or slightly behind base of pectorals. Gill openings wide, crescentic, fold of upper membrane descending in front of pectoral base. Branchiostegal rays 8, long, and recurved upward around angle of opercle. Mouth with wide lateral cleft to behind eye. Maxillary little expanded posteriorly. Teeth all slender and sharp, conical, those on the outer margin of jaws in bands and depressible. Maxillary and mandible with a longitudinal edentulous groove extending the entire length of the bone and dividing the bands of teeth into two portions. Posterior nostrils slitlike before eye. Lower jaw

much shorter than the upper, which projects considerably in advance of the tip of the mandible. Tongue largely adnate to the floor of the mouth, though the tip and lateral margins are free. Lips undeveloped, the lateral teeth fully exposed when the mouth is closed. Pores of head slitlike, a laterolateral series on both jaws.

The only other genus in the family Muraenesocidae that this new genus closely resembles may be distinguished from it by the following key:

- 1a. Teeth in the jaws in bands which are divided by a longitudinal edentulous groove extending the entire length of the bone.
- 2a. Posterior nostrils subcircular, situated in the midlength of the snout. Branchiostegal rays 10 or more.....*Xenomystax*.
- 2b. Posterior nostrils slitlike, situated about one diameter of the eye in advance of the orbit, or at about the beginning of the posterior third of the snout length. Branchiostegal rays 8 or fewer...*Paraxenomystax*.

To this new genus I would refer *Xenomystax trucidans* Alcock, which is separated from the new species in the following key:

- 1a. Posterior nostrils slitlike, situated about the diameter of eye in advance of orbit.
- 2a. Gill openings about midway between tip of snout and vent; origin of dorsal fin well in advance of pectoral fin base.....*trucidans*.
- 2b. Gill openings about half length of head nearer tip of snout than vent; origin of dorsal fin above or behind base of pectoral fin....*bidentatus*.

PARAXENOMYSTAX BIDENTATUS, n. sp.

Holotype.—U.S.N.M. No. 108444 (field No. 545); 458 mm. standard length; from *Caroline* station 96, latitude 18°36'00" N., longitude 65°05'30" W., to latitude 18°37'15" N., longitude 65°03'00" W., March 3, 1933, otter trawl, 270 to 330 fathoms.

Paratype.—U.S.N.M. No. 108445 (field No. 15); 354 mm. standard length; from *Caroline* station 1, about 5 miles off Punta Boca Juana, latitude 18°33'45" N., longitude 66°15'00" W., January 30, 1933, otter trawl, 360 to 600 fathoms.

Body scaleless, covered with very thin delicate skin; subcylindrical, the caudal portion strongly attenuated posteriorly. Vertical fins well developed and continuous with the caudal fin, which is lanceolate and composed of 6 rays. Pectorals long, narrow, about one-third length of snout, with 9 rays. Snout long, evenly tapering forward, sides of snout flat and straight, its width at anterior nostrils equal to its length in front of the tubes.

Tip of snout strongly projecting beyond symphysis of mandible, the preoral length about equal to vertical diameter of eye. Head of vomer entirely preoral and bearing a U-shaped patch of sharp conical

cal teeth, followed by an edentate notch in the upper jaw, which receives the expanded tip of the lower jaw, bearing teeth similar to those on the head of vomer. Shaft of the vomer with 6 or 7 slightly enlarged conical teeth on the midline with smaller teeth on either side continuing backward on the shaft in an irregular double series to below the posterior nostril and thence in a single series to below middle or posterior edge of eye. Maxillary band of teeth divided by a longitudinal naked groove, on the inner side of which is a single series of conical teeth so closely set as to form almost a cutting edge. These teeth lean strongly inward and extend from opposite the rictus of the jaws forward to opposite the middle of the larger teeth on the shaft of the vomer, where they terminate abruptly. The outer band

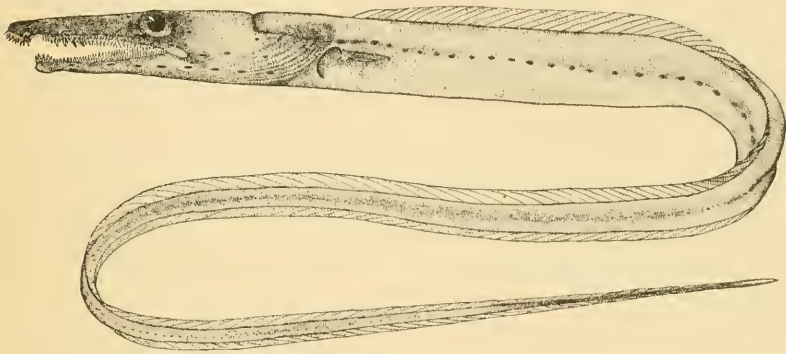


FIG. 1.—*Paraxenomystax bidentatus*, n. sp.

of maxillary teeth are in 5 or 6 irregular series, becoming progressively smaller externally where they are directed obliquely outward. This band is strongly convex in cross-section, the dentigerous surface evenly curved from the horizontal to vertical plane. Mandibular teeth similarly divided, though the edentulous groove is notably narrower. Tip of the mandible with a cluster of slightly enlarged conical teeth about equal to those on the head of the vomer. Lips wholly absent; all the lateral teeth as well as those on the head of the vomer are fully exposed when the mouth is closed. Anterior nostrils tubular, situated laterally and well behind tip of snout. Posterior nostrils slitlike, before middle of eye and situated entirely in the posterior fourth of the snout length. Origin of the dorsal fin above anterior third of the pectoral length, the fin rather high, rays progressively longer and less erectile posteriorly, length of the rays above vent about half the depth of body at this point. Anal similar, but much lower, both confluent with caudal fin, which is lanceolate. Branchial openings wide,

about two-thirds length of pectoral fin or slightly more than width of isthmus. Branchiostegal rays 8, long, and recurved above and before gill openings. Eye elliptical, notably longer than deep, slightly greater than preoral length of snout, the superior rim slightly invading the dorsal profile. Orbit covered by thin transparent skin, without free margin. Tongue long and narrow, only the tip and margin free. Maxillary long, narrow, slightly bent downward below eye, the posterior portion little expanded, reaching to vertical a little behind posterior edge of eye. Head somewhat cavernous, the pores large, slitlike, a small pair just behind extremity of snout, a large linear pair above base of anterior nostril tubes, followed immediately by a similar pair above toothless interspace, a pair above anterior end of inner series of maxillary teeth, a pair below front end of posterior nostrils and a pair below front rim of eye; a series of 8 small round ones across occiput from ends of the maxillaries; a series of 11 pores along lower jaw from its symphysis to below the nape and 3 in a vertical row joining the series of the straight portion of the lateral line. There is a pair of small round pores on the snout just in front of the superior rim of the eye and a larger pair midway between the posterior nostrils and the extremity of the snout. The anus is situated below the thirty-fourth pore of the lateral line and the fifty-first ray of the dorsal fin.

Head 6.3 to 6.8 in standard length; predorsal 5.7 to 6; preanal 2.5 to 2.7; pectoral fin 6.2 to 6.7 in head; caudal fin 3.2 to 6; preoral portion of upper jaw 4.3 in snout; tip of snout to posterior nostril 3.2 to 3.3 in head; length of snout 2.8 to 3.3; mandible 2; maxillary 1.7 to 1.9; gape 2 to 2.2; longitudinal diameter of eye 8.2 to 9; width of body at vent 4.2; depth at same point 4; depth of head at occiput 4.2 to 4.5; width at same point 4 to 4.2; interorbital 5.5 to 5.8 in snout; branchiostegal rays 8.

Color brownish above, lighter on sides and below, the belly with a silvery sheen; top of snout and interorbital much darker. Lower jaw and throat light straw-colored; iris golden, with some dark pigment. Pectoral and vertical fins light, with the dark marginal shading of the latter becoming black posteriorly; the middle caudal rays light brown; peritoneum silvery white.

The type is a female, with eggs about nine-tenths of a millimeter in diameter.

Measurements of Paraxenomystax bidentatus

	Type (mm.)	Paratype (mm.)
Standard length	458	354
Head to upper end of gill opening.....	67	56
Predorsal	76	62
Preanal	170	142
Length of pectoral fin.....	10	9
Length of caudal fin.....	11	18 ^a
Preoral length of snout.....	6.5	5
Tip of snout to posterior nostril.....	20	17.5
Length of snout.....	28	22
Length of maxillary.....	39	32
Diameter of eye (horizontal).....	7.5	6.5
Diameter of eye (vertical).....	6	4
Width of body at vent.....	16	10
Depth of body at vent.....	17	13
Greatest depth of head.....	15	13
Greatest width of head.....	16	14
Interorbital	4.8	4

^a Probably the caudal region has been damaged and regenerated.

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