

The Pacific worm-eel, *Myrophis vafer*, in Nicaragua

by

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(Received for publication October 17, 1973)

ABSTRACT: The ophichthid eel *Myrophis vafer* Lütken was found near the mouth of Río La Boquita, Carazo, Nicaragua, apparently living in freshwater, and in brackish situations in other Central American localities. The species is diagnosed; measurements, proportions and illustrations are given for the Nicaraguan specimen.

Eels of the ophichthid genus *Myrophis* Lütken are small, wormlike and secretive, hiding in rock crevices or burrowing in the sand or mud, thus they are seldom seen or collected by means other than ichthyocides. Two species are known from the coasts of Central America: *M. punctatus* Lütken, on the Caribbean, and *M. vafer* Jordan & Gilbert, on the Pacific.

Recently a specimen of *M. vafer* (Figs. 1-4) was collected in Río La Boquita, Depto. de Carazo, Nicaragua. The species may be readily distinguished from all other eels and eel-like fishes on the Pacific coast of Central America (including freshwater forms) by the following combination of characters: the body is small, wormlike, scaleless; the caudal fin is confluent with dorsal and anal fins; the dorsal fin begins well in advance of the anal opening; all median fins are low; a gill slit is present on both sides of the head, preceding a small pectoral fin; the posterior nostril is labial, opening into the mouth at the level of the eye (Fig. 2); the teeth are conical (not in patches), somewhat recurved posteriorly, in 1 or 2 rows; there is no discrete color pattern, but small punctations, that are more dense dorsally, give it a dusky-brown appearance.

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Myrophis vafer differs from its similar congener *M. punctatus* (3) in that the former species has teeth in 2 series on the anterior part of the jaws and vomer (it is often difficult to determine if there are 1 or 2 rows); the snout is approximately as broad as the level of the anterior nostrils, its length being 5.9 to 7.0 in head; the back and the sides have small and rather few punctations. Both species are difficult to distinguish (J.E. McCosker, personal communication), perhaps being sibling forms. Pertinent measurements and proportions are given in Table 1.

The Nicaraguan specimen was collected August 18, 1970 in the Río La Boquita, about 1 km from its mouth in a region not subject to apparent tidal influence. The stream was shallow (0.6 m) and rather sluggish. Its waters tasted fresh and its bottom was muddy due to recent rains. Actual salinity was not measured, but the species composition of the collections indicates fresh water with strong brackish influence; only one primary fish, *Astyanax fasciatus*, was collected at the same site, the others being secondary or peripheral species (of *Achirus*, *Agonostomus*, *Awaous*, *Centropomus*, *Citharichthys*, *Eleotris*, *Mugil* and *Poecilia*; a species of *Poeciliopsis*, which occurs in the brackish water further downstream in the same area, was not found in that locality). The muddy bottom, where the specimen presumably lived, may have had a higher salinity than the surface water. *M. vafer* is known from rocky tidepools (2, 3), near breakwaters (6) and most often in sand flats (J. E. McCosker, personal communication). Apparently it has not been recorded from fresh or brackish water. In Panama Bay *M. vafer* may be found in waters with a salinity as low as 10 o/oo, but not in the nearly-freshwater Panama Canal locks (J. E. McCosker, personal communication).

The species ranges from Baja California to Perú, but had not been effectively recorded from Nicaragua prior to this report (8). It has been considered common in Panamá (2, 3), whereas in California it is rare (4). In the Gulf of California (as far north as San Felipe) it can be very abundant, and fair numbers have been taken in brackish situations in Costa Rica (W. A. Bus-sing, personal communication). *Hesperomys fryi* Myers & Storey, described from San Pedro, California (6), is considered a synonym of *M. vafer* (7).

The presence of a *Myrophis* in fresh water, or nearly fresh water, is not new. MILLER (5) lists *M. punctatus* as entering tidal streams, on the basis of a record for Costa Rica (1). Further collections may verify the presence of *M. vafer* in similar habitats. At any rate, it should be considered among the peripheral freshwater fishes of Nicaragua.

RESUMEN

Myrophis vafer, una anguila de la familia Ophichthidae, se ha encontrado aparentemente viviendo en agua dulce cerca de la boca del Río La Boquita, Carazo, Nicaragua, y en aguas salobres en otras localidades de Costa Rica y Panamá. Se presentan diagnosis, medidas, proporciones morfométricas e ilustraciones del ejemplar nicaraguense.

TABLE 1

Measurements and proportions of the Nicaraguan specimen of Myrophis vafer. Measurements are given as thousandths of Total Length (TL) and Snout-Vent Length (SVL), and also compared to the Panamanian specimens reported by MEEK & HILDEBRAND (3).

Character	Measurement (mm)	o/oo of TL	o/oo of SVL	Nicaraguan specimen	Panamanian specimen
Total Length (TL)	229.5	1000.0	—		
Snout-Vent L (SVL)	86.5	376.9	1000.0	(In Total Length): 2.6	2.5-3.0
Tail Length	133.0	579.5	1537.5	(In Total Length): 1.72	1.45-1.95
Predorsal L.	52.6	229.1	608.0	—	—
Body Depth	6.5	28.3	75.1	(In Head Length): 3.86	3.7-4.1
Head Length	25.1	109.3	290.1	(In SVL): 3.44	3.5-3.8
Snout Length	4.2	18.3	48.5	(In Head Length): 5.97	6.1
Interorbital L.	3.9	16.9	45.1	—	—
Mouth L. (Gape)	5.9	25.7	68.2	(In Head Length): 4.25	3.3-4.2

ACKNOWLEDGMENTS

Amanda López, of the Biology Department of the Universidad Nacional Autónoma de Nicaragua at Managua, collected the *M. vafer*. The latter is now in the Cornell University fish collection (No. 64703). John E. McCosker and William A. Bussing read this note critically and provided much information incorporated herein. Partial support for this research, provided by Ichthyological Associates, Inc., of Ithaca, New York, is gratefully acknowledged.

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Fig. 1. *Myrophis vafer*, general outline of body, showing position of gill slits (GS), origin of dorsal fin (D) and anal opening (A).

Fig. 2. Anterior portion of body.

Fig. 3. Posterior end of body.

Fig. 4. Upper (left) and lower (right) jaws, showing anterior narial tubule (AN), posterior narial opening (PN), and tooth arrangement. Somewhat schematic.

