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Research note

First record and geographic distribution of *Ophiambix devaneyi* (Echinodermata: Ophiuroidea) in the Gulf of Mexico

Primer registro y distribución geográfica de *Ophiambix devaneyi* (Echinodermata: Ophiuroidea) en el golfo de México

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Abstract. The geographic distribution of *Ophiambix devaneyi* Paterson, 1985 is extended to a new locality within the Gulf of Mexico. This species is an extremely rare ophiuroid, not only because of its morphology, which makes it unique, but also because there are only 2 other specimens that have been collected around the world. New habitat information of the species is provided.

Key words: new record.

Resumen. La distribución geográfica *Ophiambix devaneyi* Paterson, 1985 se extiende hacia una nueva localidad dentro del golfo de México. Esta especie de ofiuroideo es extremadamente rara, no sólo por su morfología, que la hace única, sino además porque sólo existen 2 ejemplares recolectados en todo el mundo. Se aporta nueva información sobre el hábitat de esta especie.

Palabras clave: nuevo registro.

Ophiambix devaneyi Paterson, 1985 is one of the 4 species that comprise the genus *Ophiambix* Lyman, 1880 (family Ophiuridae Müller and Troschel, 1840, subfamily Ophiurinae Lyman, 1865). *O. aculeatus* Lyman, 1880 is distributed in Japan, Fiji Islands, Hawaii and New Zealand (430-4 634 m); *O. epicopus* Paterson and Baker, 1988 is distributed also in Japan and the Kermadec Islands (530-606 m) and *O. meteoris* Bartsch, 1983 is distributed in the mid North Atlantic (306-5 315 m). *O. devaneyi* has been only reported in the Caribbean Sea, from its type locality. This is the first time that *O. devaneyi* has been found as part of the brittle star species of the Gulf of Mexico (Bank of Campeche), at 418-427 m depths and living on sinking wood.

Although recent and detailed checklists of the Gulf of Mexico echinoderms have been published (Pawson et al., 2009), other studies (Laguarda-Figueras et al., 2009) support the idea that a critical analysis on taxonomy and environmental factors related to the distribution of the ophiuroids is still needed for many species. Such kind of studies are necessary because many of these species are small, cryptic and taxonomically problematic (e.g., *Ophiambix*); with peculiar or restricted habitats; and other fairly common species have never been properly studied from a taxonomic viewpoint (e.g., *Amphiura*).

The specimen collected was compared with the diagnosis by Paterson (1985) and deposited in the Colección Nacional de Equinodermos de México, Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México (ICML-UNAM).

Order Ophiurida Müller and Troschel, 1840
Family Amphiuridae Müller and Troschel, 1840
Subfamily Ophiurinae Lyman, 1865
Genus *Ophiambix* Lyman, 1880
Ophiambix devaneyi Paterson, 1985
Ophiambix devaneyi Paterson, 1985: 142-144, figs. 54

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and 57a-d; Paterson and Baker, 1988: 1588-1589, figs. 1a-f, 2e, 4; Benavides-Serrato, 2011: 277.

Diagnosis (from Paterson, 1985): disk round, covered with thin imbricating plates amongst which neither the primary plates nor the radial shields are distinct: diameter up to 3 mm. The plates carry small but very elaborate pyramidal spinelets. The ventral interradial area is covered with thin plates without spinelets. There are 2 spine-like apical papillae flanked on each side by 2 spaced spine-like oral papillae. The second oral tentacle pore is large and opens

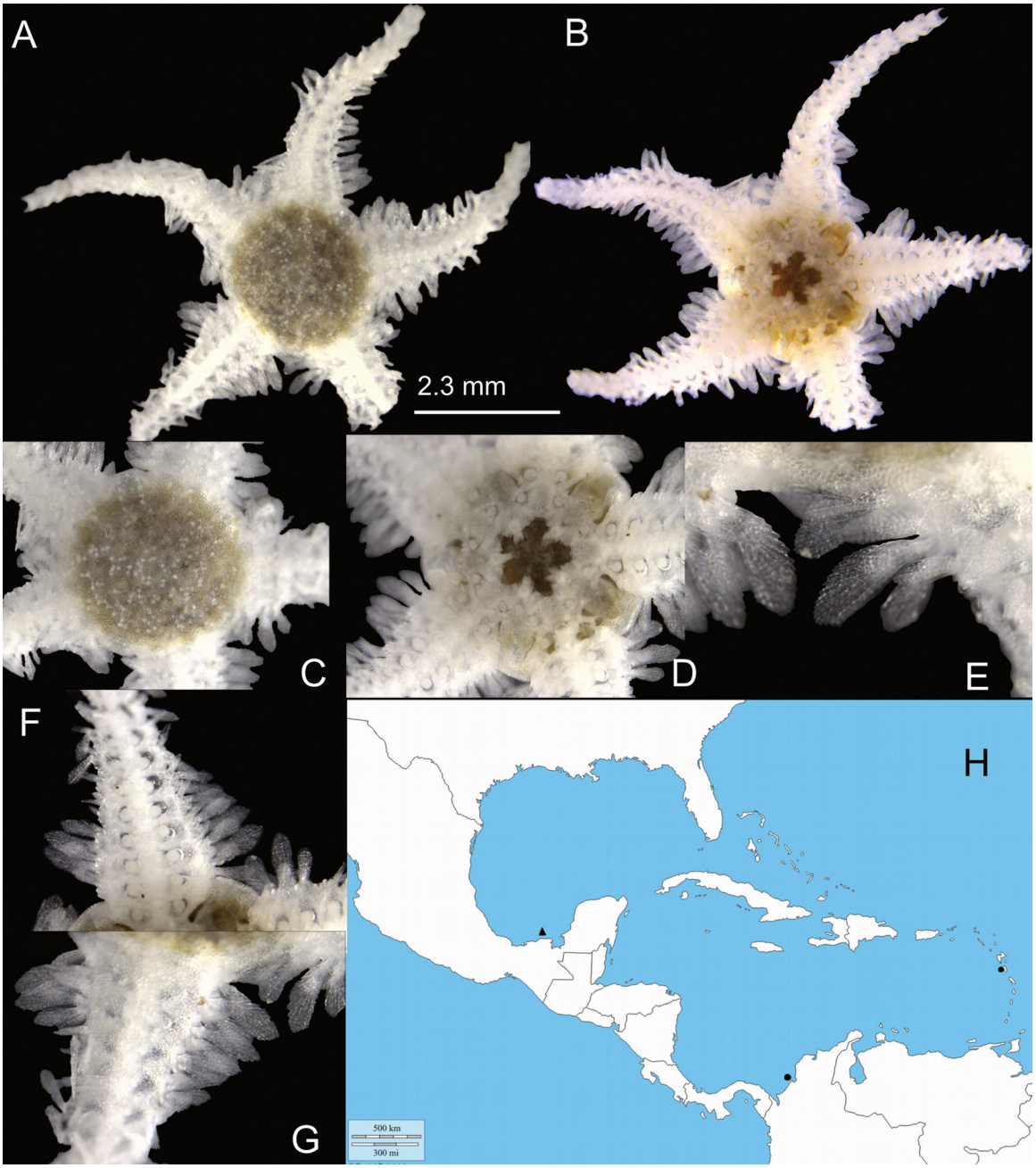

Figure 1. *Ophiambix devaneyi*: A, aboral side; B, oral side; C, detail of the aboral side of the disk; D, detail of the oral side showing the mouth and jaws; E, detail of the fan shaped arm spines at the base of one arm; F, ventral side of an arm showing the tentacle pores; G, dorsal side of an arm showing the dorsal arm plates and some spines; H, distribution map of the species in the Gulf of Mexico (new record site marked with a triangle).

outside the mouth slit; it is armed with 4 pointed, spine-like tentacle scales, 2 on the first ventral arm plate and 2 on the adoral shield. The adoral shields are narrow, longer than broad. The oral shield is irregular in shape, sometimes triangular. The genital slits are adjacent to the first lateral arm plate. The arms are short, about equal to the disk diameter in length. They are not clearly distinguished from the disk and spinelets extend onto the arm. Dorsal arm plates are only distinct distally and appear to be fan shaped and contiguous; proximally triangular shaped accessory plates flank them but spinelets obscure the plate boundaries. The ventral arm plates are rectangular, longer than broad, slightly indented laterally adjacent to the tentacle pores, and contiguous along most of the arm. The lateral arm plates are enlarged and flared at their distal ends. The second lateral arm plate is particularly enlarged and nearly reaches the edge of the disk. The tentacle pores are large and open; each one is armed with 2 simple spine-like tentacle scales, 1 on the ventral arm plate and 1 on the lateral arm plate. There are 3-4 arm spines proximally; the ventral most one is hooked and the others become progressively fan shaped toward the dorsal side; the dorsal most or second dorsal most spines are the largest.

Description: disk small (diameter 2.3 mm), rounded, covered with thin translucent plates. The plates carry very small pyramidal spinelets that are arranged around the larger plates following the margin. Ventral interradial area covered with thin plates without spinelets. Two spine-like apical papillae flanked on each side by 2 spine-like oral papillae. Adoral shields very narrow. Oral shields triangular with rounded tips. Genital slits small, narrow, adjacent to the first lateral arm plate. The longest arm is 11 mm, and are not clearly distinguished from the disk. Dorsal arm plates are only distinct distally. The ventral arm plates are rectangular and difficult to observe. The lateral arm plates are enlarged and flared at their distal ends; the second lateral arm plate is particularly enlarged and nearly reaches the edge of the disk. The tentacle pores are large and widely open; each one is armed with 2 small spine-like tentacle scales. Three or 4 arm spines proximally, the dorsal most or second dorsal most spines are the largest (0.38 mm), distally there are 2 or 3 spines, the terminal part of the arms are without arm spines, probably lost during mechanical manipulation.

Distribution: off Dominican Leeward Island (15°32' N, 61°13' W); off Tolu, Colombia (Borrero-Pérez et al., 2008; Benavides-Serrato et al., 2011). This record expands its geographic distribution to the northwest, to the Campeche Bank, Gulf of Mexico (from 19º16.272' N, 93º06.691' W to 19º16.045' N, 93º04.613' W).

Bathymetric distribution: 146-494 m (Paterson, 1985).

Material examined: ICML-UNAM 9920, one specimen, RV Justo Sierra, COBERPES V, Sta. A15, Campeche Bank, Gulf of Mexico (from 19º16.272' N, 93º06.691' W to 19º16.045' N, 93º04.613' W), May 25th, 2013; 418-427 m depth.

The systematic position of the genus *Ophiambix* has confused echinoderm researchers for many years, resulting in it being placed at various times in 3 different families. Meissner (1901) placed it in the family Amphiuridae. H. L. Clark (1911) followed this classification scheme but with reservations. Matsumoto (1915, 1917) transferred it to the family Ophiacanthidae, mainly because of the spinelet covering of the disk and its lack of infradental papillae. Since then, it has been regarded as an anomalous genus in this heterogeneous family. Paterson and Baker (1988) confirmed its placement in the subbfamily Ophiurinae, by examining the shapes and morphology of arm vertebrate, the shape of the articulation surface, the disk spinelets and the arm spines using the scanning electron microscope.

All 4 species of *Ophiambix* have a low body profile, with flat wide arms and flattish arm spines. *O. aculeatus* were found inside borings or vesicles in pumice trawled from deep water (Lyman, 1880). Bartsch (1983) noted that *O. meteoris* had wood fragments in the gut; Paterson and Baker (1988) also found wood fragments of wood in *O. aculeatus* suggesting that they may feed on microbes associated with decaying wood. The present record supports such theory since the specimen found was living on sinking wood together with other echinoderms such as *Asterina* sp. and *Ophiacantha* sp.

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