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## **FOWLERIA ABOCELLATA, A NEW CARDINAL FISH FROM THE GULF OF ELAT — RED SEA (PISCES, APOGONIDAE)**

by

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With 1 text-figure and 1 plate

### INTRODUCTION

The genus *Fowleria* Jordan & Evermann, 1903 is represented in the Red Sea by four species: *F. aurita* (Valenciennes, 1831) (the type species); *F. variegata* (Cuvier & Valenciennes, 1832); *F. isostigma* (Jordan & Seale, 1905) and *F. marmorata* (Alley & Meeley, 1876). All of them are very similar to each other in their meristic counts and body proportions, but differ from each other in specific colour patterns.

In the course of research of animals living within branched corals in the Red Sea, a new species of *Fowleria* was found.

The new species, *F. abocellata*, was compared with the other congeneric species (Red Sea material) and found to have a unique colour pattern which enabled this species to be easily distinguished from all the rest. Until now this species was collected from the corals *Acropora humilis* Dana and *Acropora scandens* (Klunzinger) at a depth of 3-10 meters. Several specimens of the new species were kept for several months in aquaria with other small fishes and provided with flowerpots and two *Acropora scandens* corals. The cardinal fish remained constantly among the coral branches, coming out only during feeding times, when they broke out for a second or two towards the prey (*Artemia salinae* (Linnaeus) and very small fishes).

Abbreviations used: HUI = Fish collection of Hebrew University Jerusalem; TAU = Fish collection of Tel Aviv University; RMNH = Fish

collection of the Rijksmuseum van Natuurlijke Historie, Leiden; SL = Standard length (in mm); TL = Total length (in mm).

#### MATERIAL EXAMINED

*Fowleria abocellata* n. sp. — Holotype: TAU 7377, Elat (Gulf of Elat - Sinai peninsula), 15.xii.1978. Paratypes: TAU 7378, 4 spec., Elat, 15.xii.1978 (two of these specimens have now been deposited in the RMNH, fish collection no. 28022).

*Fowleria aurita* (Valenciennes). — TAU 7376, 8 spec. (TL 32.5-51.3, SL 27.0-41.1), Ras Muhamad (Sinai peninsula), 7.iv.79; viii.1969.

*Fowleria isostigma* (Jordan & Seale). — TAU 4417, 4 spec. (TL 49.7-67.0, SL 41.5-56.9), Museri (Ethiopia), 14.x.1965. HUI 6219, 1 spec. (TL 31.6, SL 26.8), Massawa (Ethiopia), 12.viii.1969.

*Fowleria marmorata* (Alleyn & Meeley). — HUI 6228, 1 spec. (TL 52.2, SL 42.7), Muqabeila (Gulf of Elat - Sinai peninsula), 1969.

*Fowleria variegata* (Cuvier & Valenciennes). — HUI 6222, 2 spec. (TL 45.7-55.0, SL 32.5-45.2), El Hamira (Gulf of Elat - Sinai peninsula), 16.viii.1969. HUI 6233, 2 spec. (TL 50.1-66.3, SL 40.9-54.4), A-Tur (Gulf of Suez - Sinai peninsula), 27.ix.1969.

#### ***Fowleria abocellata*** new species (fig. 1, pl. 1)

Diagnosis. — Longest secondary caudal rays bilateral and segmented. Lateral line incomplete, preopercle smooth. Palatine teeth absent. Five developed gillrakers. No black blotch on opercle.

Description. — Body and head compressed. Maxilla extends to a vertical from posterior third of eye. Villiform teeth in jaws and vomer. No palatine teeth. Tongue rounded. Developed gillrakers 0 + 1 + 4, additional rudimentary rakers (shaped like papillated ridges) 3 + 0 + 5. Total 13 gillrakers.

Vertebrates 24, including urostyle.

Body and head covered with ctenoid scales, 20-21 scales in lateral series, 1½-6½ scales in transverse series.

Lateral line incomplete, reaching to below the first soft ray of the second dorsal fin, 9-10 tubular scales.

Spinous dorsal fin with 7 spines. The first one is short, its length being one third of the second spine, which is about one half (= 0.478) of the third spine, which is the longest (= 18% of SL) and the thickest. Second dorsal fin with one spine and nine soft rays. The pectoral fin, with 14 rays, is elongate and rounded, reaching to above the anus. Pelvic fins reach to anus in males and are a little shorter in females. Anal fin with two spines and eight soft rays. Its height is equal to that of the second dorsal fin. Caudal fin slightly rounded.

Body reddish-brown with 6-8 lighter vertical bands. The dorsal part of the body and head are a little darker than the sides. A darker stripe runs from eye posteriorly to above operculum and ends with a small black hori-

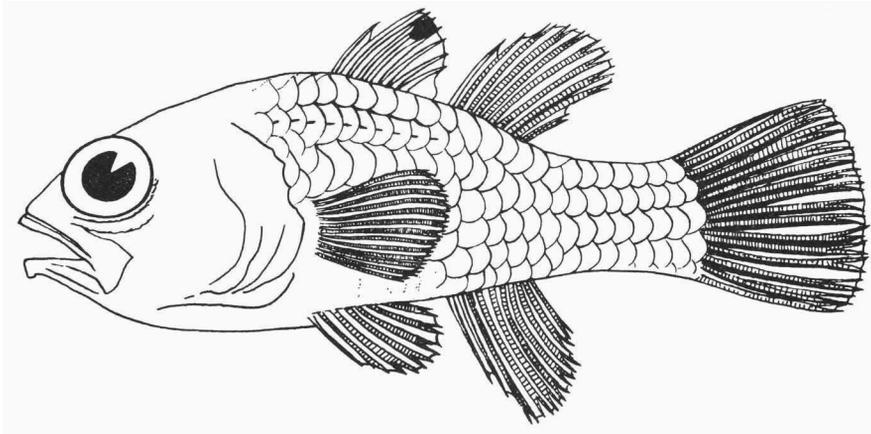


Fig. 1. *Fowleria abocellata* n. sp., lateral view of the holotype.

zontal and elongate spot. Additional 3-4 radial dark-reddish bands run from the eye towards upper, lower and posterior margins of the head. A large black spot is located on the tips of the third to fifth spines of the spinous dorsal fin. On all fins red spots form 4-5 lines (on each fin) which are perpendicular to the spines and rays.

#### Measurements (in mm) and body proportions

	Holotype		Paratypes		
Total length	45.0	43.3	39.5	34.5	31.7
Standard length	37.1	36.3	32.7	27.8	26.8
Head length	13.8	13.8	12.9	10.6	10.0
Body depth	12.1	12.2	11.2	9.4	8.9
Least depth of caudal peduncle	5.0	5.3	4.4	4.3	3.9
Distance between snout tip and first dorsal fin	16.5	17.0	14.9	12.3	11.8
Distance between snout tip and second dorsal fin	23.2	23.1	20.7	17.2	17.1
Distance between snout tip and anal fin	23.5	23.3	20.9	17.3	17.3
Eye diameter	5.0	5.1	4.5	3.7	4.0

Standard length is 81-85% of the total length; head length is 37-39% of SL; body depth is 33-34% of SL; least depth of caudal peduncle is 13-15% of SL. The distance between snout tip and insertion of the first dorsal fin is 44-47% of SL, that between snout tip and insertion of the second dorsal fin is 62-64% of SL and that between snout tip and insertion of anal fin is 62-64% of SL. Eye diameter is 35-40% of the head length.

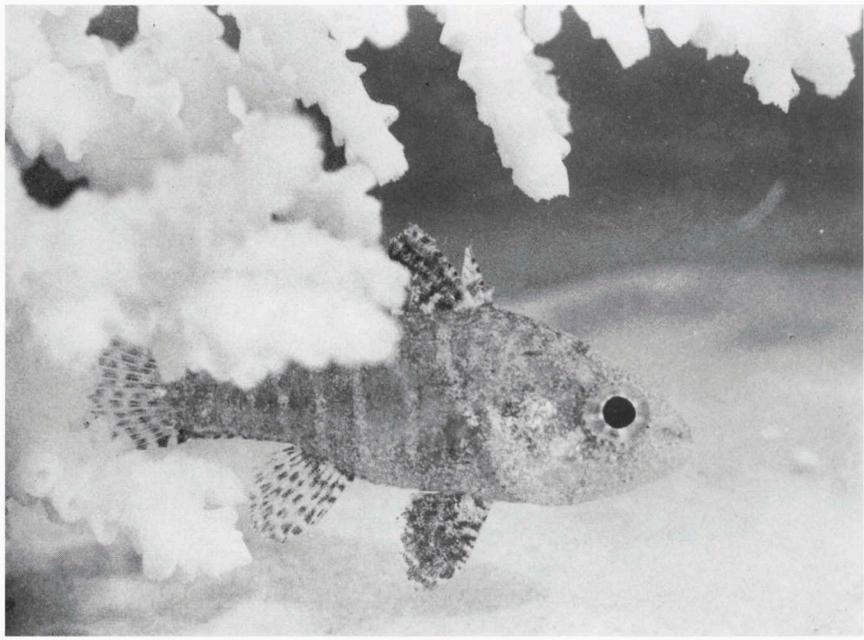
Remarks. — *Fowleria abocellata*, as described above, agrees completely with the diagnostic characteristics of the genus *Fowleria* as summarized by Fraser (1972). The combination of the bilateral and segmented rays of the caudal fin, the incomplete lateral line, smooth preopercle and the absence of palatine teeth are typical of this genus. While the colour patterns of the other species of *Fowleria* are varied and sometimes cause problems in identifying them (Lachner, 1953; Smith, 1961), the new species can easily be distinguished by the complete absence of the large black spot (or ocellus) on the operculum, which is typical of all other *Fowleria* species. *F. abocellata* also differs by having 4-5 dark radial bands running from the eyes towards the upper, lower and posterior margins of the head, and by having a black spot on the upper tip of the first dorsal fin. An additional difference is the length of the lateral line. In *abocellata* the lateral line ends below the first dorsal soft ray while in the others it ends below the middle of the second dorsal fin and it often reaches the caudal peduncle.

#### ACKNOWLEDGEMENTS

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#### LITERATURE

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*Fowleria abocellata* among the coral branches (Photograph: Ms. L. Maman).