

**FIRST RECORD OF THE SAWSPINE DRAGONET, *DIPLOGRAMMUS INFULATUS* SMITH, 1963 (ACTINOPTERYGII: PERCIFORMES: CALLIONYMIDAE), FROM LA RÉUNION, SOUTH-WESTERN INDIAN OCEAN**

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**Abstract.** The sawspine dragonet, *Diplogrammus infulatus* Smith, 1963, is recorded for the first time from La Réunion, south-western Indian Ocean; based on a specimen photographed at L'Ermitage les Bains, Saint Gilles les Bains on 12 February 2008. The specimen is described and compared with its congeners reported from the western Indian Ocean.

**Keywords:** marine fish, new record, distribution, range extension, morphology, systematics

Dragonets (family Callionymidae) are a group of benthic living fishes occurring in the upper 900 metres of all temperate, subtropical, and tropical oceans of the world, and a few species are found in estuarine and freshwater habitats (Fricke 1983a). They are characterised by a depressed body, a triangular head when seen from above, the large eyes, situated dorsally on the head, the presence of a preopercular spine which is bearing additional spinules and/or serrae, the gill opening reduced to a small pore, absent swim bladder, two dorsal fins (the first with thin, flexible spines, the second with soft rays), and jugular pelvic fins which are separated from each other, but each connected with the pectoral-fin base by a membrane. The Indo-Pacific species of the family were revised by Fricke (1983a), who distinguished 126 valid species from the area, including twelve species from the Red Sea. Fricke (2002), in a checklist of the callionymid fishes of the world, listed a total of 182 valid species in 10 genera. Subsequently, several additional species were described, including *Diplogrammus paucispinis* Fricke et Bogorodsky, 2014 from the eastern Red Sea by Fricke et al. (2014), who also reviewed the distribution of the sawspine dragonet, *Diplogrammus infulatus* Smith, 1963, but have not reported it from La Réunion.

Checklists of the fishes of La Réunion were published by Fricke (1999), Letourneur et al. (2004) and Fricke et al. (2009); the latter checklist reported a to-

tal of 984 species from the island, but did not include *Diplogrammus infulatus*. Subsequently, new records of several species from La Réunion were published, including *Symphysanodon pitondelafournaisei* Quéro, Spitz et Vayne, 2009 (family Symphysanodontidae; see Quéro et al. 2009b), *Argyripnus hulleyi* Quéro, Spitz et Vayne, 2009 (family Sternoptychidae; see Quéro et al. 2009a), *Chromis durvillei* Quéro, Spitz et Vayne, 2010 (family Pomacentridae; see Quéro et al. 2009), *Neocentropogon profundus* (Smith, 1958) (family Tetrarogidae; see Quéro et al. 2011), *Kuhlia sauvagii* Regan, 1913 (family Kuhliidae; see Feutry et al. 2012), *Epigonus exodon* Okamoto et Motomura, 2012 (family Epigonidae; see Okamoto and Motomura 2012), *Aulotrachichthys sajademalensis* (Kotlyar, 1979) (family Trachichthyidae; see Quéro and Spitz 2012), and *Scorpaenopsis rubrimarginata* Fricke, Durville et Mulochau, 2013 (family Scorpaenidae; see Fricke et al. 2013b).

During a survey of fishes of the coral-reef lagoon at La Réunion, south-western Indian Ocean, the second author observed two callionymid fish specimens at L'Étang-Salés-Bains (ca. 21°16'16"S, 55°19'58"E) on the southwest coast of the island, in shallow water on sand bottom, in 2008; later found a specimen of the same species in a net of a fisherman at L'Ermitage-les-Bains on the west coast, that represented the first record of *Diplogrammus infulatus* Smith, 1963 from the island. The specimen was photo-

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graphed after collection; it is described in the present paper, compared with allied species, and its distribution discussed.

On 12 February 2008 a large specimen of *Diplogrammus infulatus* Smith, 1963 with ca. 12 cm total length was found in the net of a fisherman at L'Ermitage-les-Bains, Saint-Gilles-les-Bains, La Réunion (ca. 21°04'48"S, 5°13'18"E); the net had been previously set in the lagoon near the shore, at a depth of less than 1 m depth. The specimen was photographed immediately after collection, but was not preserved. Counts and measurements followed Hubbs and Lagler (1947), fin-ray counts follow Fricke (1983a); the classification follows Eschmeyer and Fricke (2015), references according to Fricke (2015), collection acronyms follow Fricke and Eschmeyer (2015). Comparative materials of *D. infulatus* and other species of the genus were listed by Fricke et al. (2014).

No specimens of *Diplogrammus infulatus* from La Réunion are preserved in collections. Comparative materials of *D. infulatus* examined from Mauritius and Rodrigues are deposited in BMNH, NHMI, and SMNS; they are listed in Fricke (1999: 493–494).

Family CALLIONYMIDAE

*Diplogrammus* Gill, 1865

*Diplogrammus infulatus* Smith, 1963

**Description.** (Based on Fig. 1) Dorsal-fin spines IV, rays vii,1; anal-fin rays vi,1. Head slightly depressed, 4.4 in SL. Eye 3.3 in head length. Branchial opening pore-like, dorsal in position. Free opercular flap of skin and branches of lateral line present; preopercular spine with a small, upcurved main tip, formula  $1 \frac{2}{1}$ . First dorsal fin with a long filament, first spine significantly longer than first ray of second dorsal fin; caudal fin rounded, caudal-fin length 3.5 in SL.

Colour of fresh, male specimen (Fig. 1): body above lateral line golden brown, with silvery mottlings and dark-edged greyish spots (some of these double). From lateral fold to lateral line scattered light blue spots along flank. Ventrolateral fold of skin alternatingly marked with groups of two white spots and one dark brown streak. Cheek yellowish, olive spots and blue lines on cheeks, opercles, and snout. Dorsal fins pale to golden green, the soft fin orange in front, with dark edged blue lines and spots. Pectoral fins pink with red-brown spots. Pelvic fins green gold with green blotches and lines, especially basally, apex pink. Caudal fin pale golden brown, with many dark edged light blue spots and four vertical olive bars fading above; also with blue streaks and a submarginal blue line.

**Remarks.** This species was first described by Smith (1963: 550, pl. 83 E–I) from Inhaca Island, Mozambique. It was treated as a valid species in a revision of Fricke (1983b: 509), and distinguished from other species of the genus. Fricke (1999: 493) recorded the species from the Seychelles, Fricke et al. (2013a: 269) from Europa Island, southern Mozambique Channel. Previously available information of the distribution of the species was summarised in a checklist of callionymid fishes by Fricke (2002: 47).

For the Mascarene Islands, Fricke (1983b: 510) recorded *Diplogrammus infulatus* from Mauritius (but not from La Réunion), and Fricke (1999: 493) from Rodrigues; the Rodrigues record was subsequently verified by Heemstra et al. (2004: 328). In their checklist of the fishes of La Réunion, Fricke et al. (2009) reported a total of 984 species from the island, but failed to find *D. infulatus*. The species was neither reported in an earlier checklist by Letourneur et al. (2004).

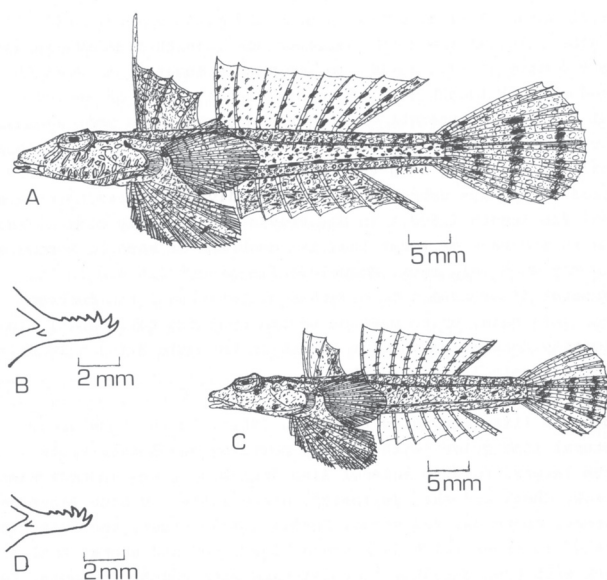
The specimen agrees with the generic characters of the genus *Diplogrammus* as defined by Fricke et al. (2014: 2423), including an elongate and depressed body shape, the absence of a supraorbital tentacle, the presence of free flap of skin posteriorly on the opercle, and the presence of a continuous ventrolateral fold of skin along the sides of the body. The characters of the specimen of *D. infulatus* from La Réunion well agree with those defined by Fricke et al. (2014: 2430), including the dorsal fin with IV spines and 8 soft rays, the free opercular flap and branches of the lateral line present, the first dorsal fin with a very long filament in males, and bluish lines on the head in males. The colouration agrees with that of specimens from other regions including the Red Sea (see Fricke et al. 2014: Fig. 5). For comparison, a lateral view of a male and a female specimen from the southern Red Sea demonstrates the colour pattern and proportions including the anal fin (Fig. 2).

*Diplogrammus infulatus* is distinguished from other species of the genus in the Western Indian Ocean/Red Sea region by the presence of a free flap of skin on the opercle (absent in *D. gruvelli*), more than 5 curved spinules on the dorsal margin of the preopercular spine additional to the main tip (3–4 spinules in *D. pygmaeus*), and the first spine of the first dorsal fin with a relatively long filament in males (barely bearing a filament or not filamentous in the other species), the main point of the preopercular spine upcurved (straight in *D. randalli*), and the male's head and body with numerous blue spots and streaks; for species accounts and illustrations see Fricke et al. (2014).

*Diplogrammus infulatus* inhabits shallow waters, including coral gravel bottom near coral reefs, and tidal pools. The shallow coral-reef lagoon near Saint Gilles les Bains is a typical habitat for the species. During former survey of this area in 1995 and 1998, the first author failed to find this species in spite of an extensive search (Fricke 1999: 493). However, the suitable habitat at La Réunion is small; the area is only 9 km long and has a maximum width of 270 m at La Saline les Bains, and 140 m at L'Ermitage les Bains. Species of *Diplogrammus* live in small harem groups in a home range of a few square metres, with vast uninhabited stretches of sand bottom in between two harem groups. *Diplogrammus infulatus* is therefore considered to be very rare, native species at La Réunion. The finding of this species provides additional insight in the biodiversity of La Réunion; it suggests that the usually co-occurring lagoon species *Callionymus delicatulus* Smith, 1963 and *Synchiropus postulus* Smith, 1963 may be expected to occur at La Réunion as well, though they were not yet recorded from the Mascarenes.



**Fig. 1.** *Diplogrammus infulatus*, L'Ermitage-les-Bains, Saint-Gilles-les-Bains, La Réunion; Photograph by C. Cadet



**Fig. 2.** *Diplogrammus infulatus*, HUI 10459, Eritrea, Dahlak Archipelago, Nocra (from Fricke 1983a: Fig. 152); Male, 53.3 mm SL: (A) lateral view; (B) left preopercular spine; Female, 39.2 mm SL: (C) lateral view; (D) left preopercular spine

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