

## Second Specimen of the Costa Rican scorpionfish, *Scorpaena cocosensis* (Scorpaenidae): the First Record from the Galápagos Islands, with Fresh Color Notes on the Species

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**Abstract.** A single specimen (90.9 mm standard length) of a scorpionfish, *Scorpaena cocosensis* Motomura, previously known only from the holotype from the Cocos Islands, Costa Rica, was collected by the manned submersible *Johnson Sea-Link* off Darwin Island, Galápagos Islands, Ecuador. The Galápagos specimen represents the second specimen of the species and an approximate 800 km southwestward range extension from the previously known locality. A color photograph of *S. cocosensis* when fresh is provided here for the first time.

**Key words:** Scorpaenidae; *Scorpaena cocosensis*; distribution; Galápagos Islands; fresh coloration.

### Introduction

*Scorpaena cocosensis* was originally described by Motomura (2004) on the basis of a single specimen collected from off the Cocos Islands, Costa Rica, eastern Pacific Ocean, at a depth of ca. 57–92 m. Subsequently a single specimen was collected by the manned submersible *Johnson Sea-Link* off Darwin Island, Galápagos, at a depth of 72 m. The specimen is herein identified as *S. cocosensis* and represents the second specimen of the species and a considerable extension of its range. Motomura's (2004) description was based on the long-preserved specimen and the fresh coloration of the species has until now been unknown. The first color description of *S. cocosensis* is provided here, based on a photograph of the Galápagos specimen taken before preservation.

Counts and measurements followed Motomura (2004). The last two soft rays of the dorsal and anal fins were counted as single rays, each pair being

associated with a single pterygiophore. Pectoral-fin ray counts begin with the uppermost element. Standard length is expressed as SL. The specimen is deposited at the California Academy of Sciences, San Francisco (CAS), and data for which is as follows: CAS 86522, 90.9 mm SL, off Darwin Island, Galápagos Islands, Ecuador, 01°40'N, 92°00'W, 72 m depth, sand patch bottom, collected by J. E. McCosker *et al.*, 22 November 1995.

### Results and Discussion

The Galápagos specimen (CAS 86522, 90.9 mm SL) is identified here as *Scorpaena cocosensis* on the basis of the following combination of characters: dorsal-fin soft rays 8; well-exposed scales covering anteroventral body surface; interorbital ridges moderately developed, beginning just behind nasal spines, diverging anteriorly and posteriorly in dorsal view; lateral margins of frontals diverging posteriorly in dorsal view; occipital pit shallow with distinct transverse ridge in front of pit; posterior lacrimal spine directed ventroanteriorly; suborbital ridge with a

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Fig. 1. *Scorpaena cocosensis* from Galápagos Islands (CAS 86552, 90.9 mm SL). a) specimen photographed soon after capture (J. E. McCosker); b) preserved specimen (H. Motomura).

small spine below eye; lateral lacrimal spine absent; supplemental preopercular spine absent; second preopercular spine reduced; upper posttemporal spine directed upward; and posterior margin of maxilla just reaching level of posterior margin of pupil. These characters of the present specimen agreed with all diagnostic characters of *S. cocosensis* given by Motomura (2004), with the exception of 21 pectoral-fin rays on both side of the body in the Galápagos specimen (vs. 22 in the holotype of *S. cocosensis*) and the posterior tip of pectoral fin reaching a vertical through the origin of the second dorsal-fin soft ray (vs. third soft ray). These small differences may simply reflect the limited number of specimens available. Detailed comparisons of the species with other congeners were given in Motomura (2004: 821–823).

Other minor differences between the Galápagos

specimen and holotype of *S. cocosensis* include: 23 pored lateral-line scales in the Galápagos specimen (vs. scales lost on the caudal peduncle and estimated as *ca.* 25 in the holotype); third pelvic-fin soft ray longest (vs. second); the suborbital ridge with two spines, the first spine below the eye and second spine at the end of the ridge (vs. lacking a spine at the end of the ridge); and the posterior tip of the depressed pelvic fin just reaching anus (vs. extending slightly beyond anus). The last two characters seem to be growth-related differences because the holotype and Galápagos specimen are 62.0 and 90.9 mm SL, respectively, and head spines generally develop with growth and fin rays become relatively shorter with growth in scorpionfishes.

Meristics and morphometrics (expressed as percentage of SL) of the Galápagos specimen are given as follows: Dorsal fin XII, 8; anal fin III, 5; pectoral

fin rays 22, upper 2 rays and lower 14 rays unbranched, remaining rays branched; pelvic fin I, 5; longitudinal scale rows 46; pored lateral-line scales 23; scale rows between origin of sixth dorsal spine and lateral line 5; scale rows between origin of last dorsal spine and lateral line 5; scales above lateral line 2; scales below lateral line 15; gill rakers on upper limb 4, lower limb (including a raker at angle) 7, no rakers on hypobranchial; branchiostegal rays 7; body depth 30.9; body width 21.9; head length 45.0; snout length 10.6; orbit diameter 16.6; interorbital width 5.1; interorbital width between supraocular spine bases 5.3; upper-jaw length 26.1; maxillary depth 6.4; postorbital length 20.4; predorsal length 39.2; preanal length 68.4; prepelvic length 40.2; first dorsal-fin spine length 6.1; second dorsal-fin spine length 9.0; third dorsal-fin spine length 12.7; eleventh dorsal-fin spine length 8.8; twelfth dorsal-fin spine length 12.3; longest dorsal-fin soft ray (second) length 19.6; first and third anal-fin spines damaged; second anal-fin spine length 12.0; longest anal-fin soft ray (second) length 18.6; longest pectoral-fin ray (seventh) length 34.1; pelvic-fin spine length 13.5; longest pelvic-fin soft ray (third) length 21.0; caudal-fin length 29.2; caudal-peduncle length 18.9; caudal-peduncle depth 9.9.

A color photograph of the fresh Galápagos specimen is provided here as Fig. 1a. The specimen has a reddish body, mottled with whitish blotches, without distinct black stripes, bands, or blotches; dark reddish spots scattered on opercle; pectoral-fin tip blackish; two dense red broad bands obliquely cross soft-rayed portions of dorsal fin; two red bands vertically cross on caudal fin. Motomura (2004) said “the soft rayed portion of the dorsal fin in *S. cocosensis* is white, lacking melanophores. However, I could not determine whether spots or blotches had initially been present on the fin of *S. cocosensis* and had subsequently faded because of long-term preservation (specimen collected in 1938)”, but the species is now revealed to have two red bands on the soft-rayed portion of the dorsal fin. Accordingly, *S. cocosensis* and two closely related species, *S. russula* Jordan and Bollman, 1890 and *S. sonorae* Jenkins and Evermann,

1889 (see Motomura, 2004), can be distinguished from each other by the color pattern of the soft-rayed portion of the dorsal fin (irregular rows of small spots on the fin in *S. russula* and a large blotch, approximately equal to the pupil diameter, in *S. sonorae*; Allen and Robertson, 1994; Poss, 1995).

*Scorpaena cocosensis* was known only from the holotype from off the Cocos Islands, eastern Pacific Ocean (Motomura, 2004). The present specimen from the Galápagos Islands represents the second and largest specimen of the species and an approximate 800 km southwestward range extension from its type locality.

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