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FIRST RECORD OF A RARE SCORPIONFISH *SCORPAENOPSIS ORIENTALIS* (ACTINOPTERYGII: SCORPAENIFORMES: SCORPAENIDAE) FROM TAIWAN

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Abstract. Twenty-eight species of the genus *Scorpaenopsis* (Scorpaenidae) have been recognized as valid in the Indo-Pacific Ocean, and 11 species of which having been recorded from Taiwan. *Scorpaenopsis orientalis* Randall et Eschmeyer, 2002 was originally described on the basis of type specimens collected from Miyazaki, and the Ogasawara Islands in Japan, and subsequently reported from Iou-jima Island. A single specimen (189.0 mm standard length) of *Scorpaenopsis orientalis* was collected from southern Taiwan in 2018. The morphology and fresh coloration of the collected specimen are herein described. The majority of the morphological characters of the specimen closely matched the diagnostic features of *Scorpaenopsis orientalis* given by the previous authors. The specimen from southwestern Taiwan is identified as *Scorpaenopsis orientalis*. The presently reported specimen represents the southernmost record for the species as well as the first record for Taiwan. This study suggests that *S. orientalis* may widely distributed in East Asian warm waters.

Keywords: taxonomy, distribution, new record, redescription

INTRODUCTION

The genus *Scorpaenopsis* Heckel, 1839 (family Scorpaenidae) is characterized by having 12 dorsal-fin spines and three or more suborbital spines, lacking palatine teeth, not having black pigment on membranes between the first and third dorsal-fin spines, and featuring a strongly compressed head (Randall and Eschmeyer 2001, Motomura et al. 2004, Motomura and Causse 2011). Twenty-eight species have been recognized as valid in the Indo-Pacific region (Motomura et al. 2004, Motomura and Causse 2011, Allen and Erdmann 2012, Fricke et al. 2013), 11 species of which having been recorded from Taiwan (Shao 2018).

A single specimen of *Scorpaenopsis orientalis* Randall et Eschmeyer, 2002 was recently purchased at a market in Hengchun, Pingtung, southern Taiwan. The fish was captured off the Kenting National Park. This species was originally described on the basis of the holotype and 11 paratypes collected from the Ogasawara Islands and Miyazaki Prefecture (east coast of Kyushu), Japan (Randall and Eschmeyer 2001). Motomura (2013) subsequently reported six specimens and an underwater photograph of the species from Iou-jima Island (30°47′N, 130°18′E) in the Osumi Islands, southern Japan and no additional specimens have never been reported. The specimen captured in the Kenting National Park is described in detail and represents the southernmost record of this species and the first record of its occurrence in Taiwan.

MATERIALS AND METHODS

Counts and measurements follow Randall and Eschmeyer (2001). Measurements were made to the nearest 0.1 mm with needle-point callipers. Standard and head lengths are abbreviated as SL and HL, respectively. The morphological description is based on the Taiwanese specimen. Counts and measurements, observed morphology of presently reported specimen was compared with the data of type series shown by Randall and Eschmeyer (2001). Curatorial procedures for the specimen followed Motomura and Ishikawa (2013). Institutional codes used in this study are: Fish Collection of the National Museum of Marine Biology & Aquarium, Pingtung, Taiwan: NMMB-P; Fish Collection of the National Museum of Nature and Science, Tsukuba, Japan: NSMT-P.

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Specimen examined. NMMB-P29761, 189.0 mm SL, collected from off Kenting, Pingtung, southern Taiwan (purchased by the first author at market in Hengchun on 8 June 2018).

RESULTS

Family Scorpaenidae Risso, 1827
Scorpaenopsis Heckel, 1839
Scorpaenopsis orientalis Randall et Eschmeyer, 2002
東方擬鮋
Figs. 1, 2; Tables 1, 2

Scorpaenopsis orientalis Randall et Eschmeyer, 2002; Randall and Eschmeyer 2001: 41, pl. V (figs. B, C), XI (fig. C) (type locality: Oshima, Meitsu, Nango, Miyazaki, Japan, 31°31′09″N, 131°23′05″E; other locality: Ani and Ototo islands, Ogasawara Islands, Japan); Motomura et al. 2004: 97, figs. 6, 13B (Miyazaki and Ogasawara Islands); Motomura (2013): 54, unnumbered figs. (Iou-jima Island, Osumi Islands, Japan).

Description of NMMB-P29761. Counts and measurements given in Tables 1 and 2. Body oblong, weakly compressed laterally (Fig. 1); body not obviously deep, its depth deepest at origin of dorsal fin, greatly shallower than head length; caudal peduncle moderately deep, its depth more than 1/3 of body depth; body covered by numerous tentacles usually in same size or smaller than body scales. Head large, posterior margin of opercle reaching vertical line drawn through third dorsal-fin spine base; head covered by numerous tentacles variable size and shape; about 1/2 of eye extending above dorsal outline of head; interorbital space V-shaped and deep, its maximum depth about 3.1 times in orbit diameter. Anterior nostril lateral to base of nasal spine; posterior nostril at edge of preocular, slightly below level of lower edge of orbit. Mouth large, posterior end of maxilla extending below posterior edge of orbit; lower jaw pointed, strongly projecting from upper jaw; gape of mouth oblique, forming an angle of about 35° to horizontal axis of head; bands of slender, conical inwardly curved teeth in about 15 and 17 rows at anterior margin of upper and lower jaws, respectively, narrowing posteriorly; vomer with small, close-set, conical teeth in roughly 5 rows, forming V-shaped patch; no palatine teeth. Tongue thick and broadly rounded. Spines of head not serrate; interorbital ridges ending at anterior edge of occipital pit; postocular spines slightly canted laterally; tympanic spines about equal in length to postocular spines, its base joined by low ridge reaching to postocular spines; no extra spine anterior to tympanic spines; median ridge posteriorly on snout, commencing between posterior nostrils and entering anterior third of interorbital space; occipital pit shallow, anterior edge an inward V-shaped extension of interorbital (Fig. 2), sides with low ridge between tympanic and parietal spines, and posterior edge distinct though well rounded transverse ridge; deep suborbital pit, deepest below anterior margin of orbit, and continuing above prominent bony tubercle on lacrimal to posterior nostril; parietal spine simple, its anterior base curving into occipital pit; nuchal spine simple, base connected to parietal spine base; sphenotic with two simple spines; pterotic spine with single point, located below parietal spine; upper posttemporal spine with single point, directed dorsally, smaller in size than lower posttemporal spine; lower posttemporal spine with single point, its base length slightly greater than that of pterotic spine; supracleithral spine with single point, flattened; opercular spines not divided; cleithral spine angling upward at about 45° covered by skin except for tip; lateral lacrimal spine short and more erect than suborbital spines; suborbital ridge with 3 spines; preopercle with 5 spines, ventral 2 only slightly protruding; anterior lacrimal spine facing forward and short, its tip not reaching dorsal edge of upper lip; posterior lacrimal spine slightly longer, broad and blunt, angling ventroposteriorly, not reaching edge of upper lip, associated with long fimbriate flap of tentacle, and linked posteriorly to head with fringed skin. Scales ctenoid on most of body, becoming cycloid on abdomen, chest, and lower pre-pectoral-fin region; cycloid scales small, especially those of pre-pelvic-fin region; ctenoid scales on preopercle behind eye and on opercle between pterotic spine and membrane posterior to spines; no scales between opercular spines; no scale on fins except basally on caudal and pectoral fins; lateral line complete, first 2 scales with bony ridge. Origin of dorsal fin above supracleithral spine; third dorsal-fin spine longest; penultimate dorsal-fin spine half in length of last spine; all of dorsal-fin soft rays branched; third soft ray longest; basal half of last dorsal-fin soft ray connected by membrane to caudal peduncle; origin of anal fin below origin on third soft ray of dorsal fin; second anal fin longer than third; all of anal-fin soft rays branched; first soft ray longest; pectoral fin rounded, eighth ray longest; lower 11 rays unbranched and thicker than upper rays; second soft ray longest in pelvic-fin rays; basal 1/3 of last pelvic-fin soft ray connected by membrane to abdomen; caudal fin rounded; uppermost and lowermost rays unbranched.

Fresh coloration. Body and head mottled dark red to brown with orange ventrally; eye-sized yellowish patches on body and head; numerous blue spots at dorsal, cheek, and below eye; tentacles on head and dorsal on dorsal half of body pink with whitish margin; faint whitish blotches on ventral side of head; tentacles on ventral half of body faint orange; dorsal fin dark red with whitish and yellowish wave pattern; anal, pelvic, and caudal fins reddish orange with white brick-wall patterns; pectoral fin reddish orange with white striped unbranched rays; eye-sized black blotch at upper part of pectoral-fin axil; middle of caudal fin yellowish.

Distribution. *Scorpaenopsis orientalis* is currently known only from eastern Kyushu (Meitsu, Nango, Miyazaki Prefecture), the Osumi Islands (Iou-jima Island), and the Ogasawara Islands (Ani and Ototo islands) in southern Japan (Randall and Eschmeyer 2001, Motomura et al. 2004, Motomura 2013), and Kenting, Pingtung in southern Taiwan (this study).

Remarks. Selected morphological characters of the present specimen from Taiwan are as follows: pectoral-fin rays 18 on each side of body; scale rows in longitudinal

Fig. 1. Fresh specimen of *Scorpaenopsis orientalis* from southern Taiwan (NMMB-P29761, 189.0 mm SL)

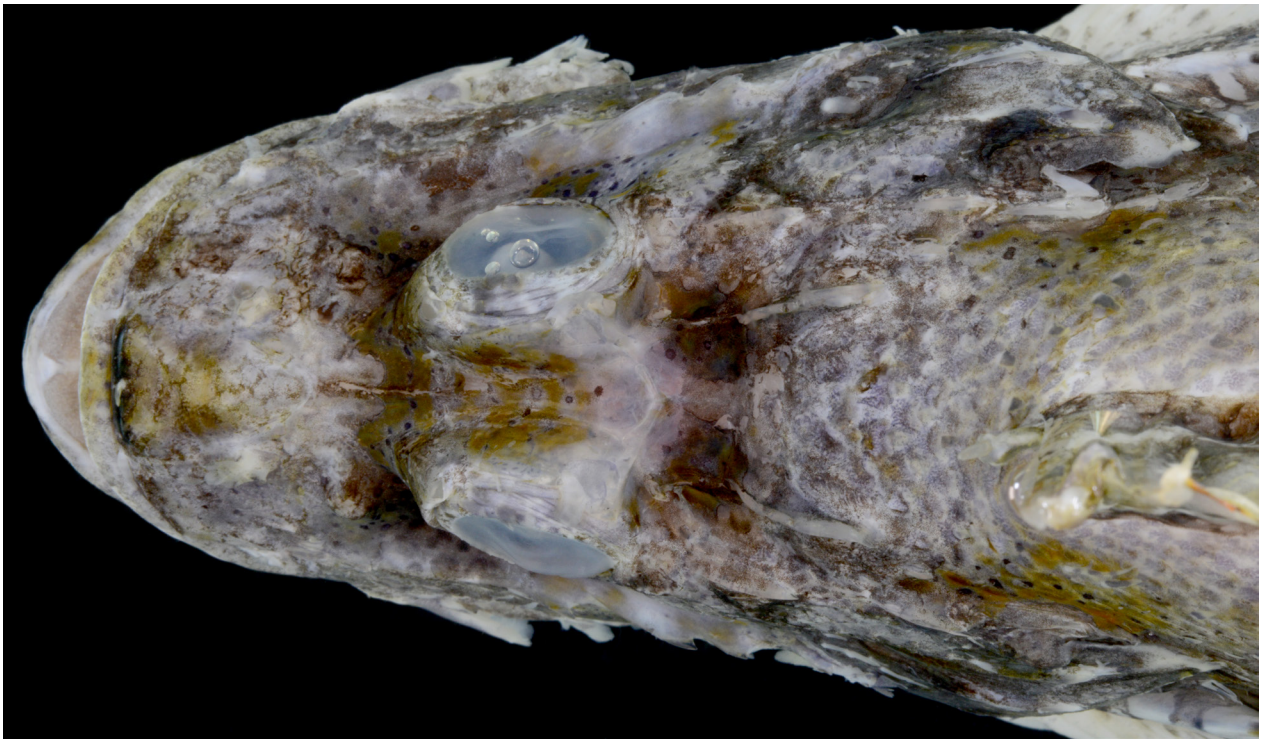

Fig. 2. Dorsal view of head of *Scorpaenopsis orientalis* from southern Taiwan (NMMB-P29761, 189.0 mm SL)

series 57; about one-half of eye projecting above dorsal profile of head; interorbital median ridge well developed; interorbital space V-shaped and deep; interorbital width less than orbit diameter; posterior edge of occipital pit distinct; suborbital ridge with 3 spines; posterior lacrimal spine longer than anterior spine; upper opercular spine with single tip; no scales between opercular spines; third dorsal-fin spine longest; snout relatively long and narrow in dorsal view, its length 35.3% of HL; orbit diameter 19.0% of HL. These characters agree well with the diagnosis of *S. orientalis* given by Randall and Eschmeyer (2001) and Motomura et al. (2004).

Scorpaenopsis orientalis was originally described by Randall and Eschmeyer (2001) on the basis of nine specimens from the east coast of Kyushu and the Ogasawara Islands in Japan. Motomura et al. (2004) re-examined all type specimens of *S. orientalis* and Motomura (2013) recorded six specimens and an underwater

Table 1

Counts of *Scorpaenopsis orientalis*

Counts	This study	Randall and Eschmeyer 2001	
	NMMB-P29761	NSMT-P 60913	*N* = 8
		Holotype	Paratypes
	Taiwan	Japan	Japan
Dorsal-fin rays	XII, 9	XII, 9	XII, 9
Anal-fin rays	III, 5	III, 5	III, 5
Pectoral-fin rays	18 (18 in right side)	17	17–19 usually 18
Pelvic-fin rays	I, 5	I, 5	I, 5
Caudal-fin rays	7 + 6	7 + 6	7 + 6
Lateral-line scales	24	24	23–24 usually 24
Scale rows in longitudinal series	57 (57 in right side)	56	54–60
Scale rows above lateral line	9	9	8–9
Scale rows below lateral line	16	16	15–16
Gill rakers	5 + 10	5 + 11	5 + 9–11
Pseudobranch filaments	37	40	24–43
Branchiostegal rays	7	7	7
Vertebrae	24	24	24

Table 2

Measurements of *Scorpaenopsis orientalis*

Measurement	This study		Randall and Eschmeyer 2001			
	NMMB-P29761 Taiwan		NSMT-P 60913 Holotype Japan		*N* = 8 Paratypes Japan	
	[mm]	[%SL]	[mm]	[%SL]	[mm]	[%SL]
Standard length (SL)	189.0		223.0		74.5–278.0	
Body depth		32.4		38.5		31.0–38.5
Body width		22.9		23.6		20.2–25.6
Head length		42.3		42.5		40.7–42.3
Snout length		14.9		15.0		13.6–14.9
Orbit diameter		8.0		7.1		6.6–8.1
Interorbital width		5.2		5.4		5.1–5.8
Caudal-peduncle depth		11.9		12.6		11.2–12.7
Caudal-peduncle length		14.6		13.9		13.4–15.2
Upper-jaw length		23.3		22.6		21.6–23.3
Pre-dorsal-fin length		37.8		37.4		37.2–39.0
Pre-anal-fin length		73.8		75.1		70.3–74.6
Pre-pelvic-fin length		41.4		41.3		37.2–41.7
First dorsal-fin spine length		5.9		7.0		6.0–7.6
Second dorsal-fin spine length		15.8		16.5		12.9–16.7
Longest dorsal-fin spine length		16.4		17.2		16.0–19.4
Eleventh dorsal-fin spine length		5.4		5.7		6.0–7.0
Twelfth dorsal-fin spine length		11.4		10.4		10.4–14.4
Longest dorsal-fin soft ray length		17.6		16.6		17.2–19.2
First anal-fin spine length		8.3		8.8		7.0–12.1
Second anal-fin spine length		16.3		18.4		17.1–23.4
Third anal-fin spine length		13.9		13.5		13.4–18.8
Longest anal-fin soft ray length		20.7		20.2		19.5–23.6
Caudal-fin length		26.0		25.1		24.4–29.4
Pectoral-fin length		28.7		28.7		28.1–29.9
Pelvic-fin spine length		13.2		12.2		12.2–17.4
Pelvic-fin length		24.3		21.5		20.2–24.9

photograph of the species from Iou-jima Island in the Osumi Islands, Japan. No additional specimens have been reported since Motomura (2013). Therefore, the present specimen represents the first record of *S. orientalis* from Taiwan and the southernmost record for the species. This study suggests that *S. orientalis* may have a widespread distribution in East Asian warm waters.

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