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

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Koeda K., Motomura H., Ho H.-C. 2019. First record of a rare scorpionfish Scorpaenopsis orientalis (Actinopterygii: Scorpaeniformes: Scorpaenidae) from Taiwan. Acta Ichthyol. Piscat. 49 (3): 305–309.

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

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 to horizontal

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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
First record of *Scorpaenopsis orientalis* from Taiwan

**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    |
|                 | 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 | 1, 5       | 1, 5           | 1, 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  |
| Vertebræ        | 24         | 24             | 24       |

Table 2
Measurements of *Scorpaenopsis orientalis*

| Measurement                      | This study | Randall and Eschmeyer 2001 |
|----------------------------------|------------|----------------------------|
|                                  | NMMB-P29761 | NSMT-P 60913   | N = 8    |
|                                  | Taiwan     | Japan          | Japan    |
| 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.

ACKNOWLEDGEMENTS

We are especially grateful to R.-R. Chen, J.-T. Lin, J.-F. Huang, and A. Koeda (National Museum of Marine Biology & Aquarium) for curatorial assistance. The presently reported study was supported in part by a JSPS Overseas Research Fellowships (29-304) to the first author.

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Received: 18 October 2018
Accepted: 11 March 2019
Published electronically: 15 September 2019