

(Notes)

First record of *Snyderina yamanokami* (Pisces: Scorpaeniformes) from Korea

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This is the first report of *Snyderina yamanokami*, from the subfamily Tetraroginae of the family Scorpaenidae, collected in Korea. The specimen (175.3 mm long) was caught in the coastal waters of Jeju Island on a commercial longline hook on 9 September 2009. This species is characterized by the following morphological traits: 9-11 dorsal fin rays, 5-6 anal fin rays, 13-15 pectoral fin rays, 5 ventral fin rays, pectoral fin tip reaching or extending past the origin of the anal fin, palatines toothless, and four dark spots on the middle of the body. We suggest a new Korean name, "Keun-mi-yeok-chi," for *S. yamanokami*.

Key words: First record, Jeju Island, Scorpaenidae, *Snyderina yamanokami*

Introduction

Scorpionfishes (family Scorpaenidae), which comprise 8 subfamilies and 56 genera with about 418 species, are widely distributed in tropical and temperate seas worldwide (Nelson, 2006). Characters of this family include a head usually with ridges and spines, one or two opercular spines (usually two divergent), three to five preopercular spines (usually five), and the suborbital stay usually securely fastened to the preopercle (Nelson, 2006). In Korea, 43 scorpaenid species in 19 genera have been reported (Kim et al., 2005).

One specimen of *Snyderina yamanokami*, belonging to the scorpaenid subfamily Tetraroginae, was caught on a commercial longline hook in the coastal waters of Jeju Island on 9 September 2009. Here, we describe the morphological characters of *S. yamanokami* as an addition to the list of Korean fishes. Identification procedures followed the method of Nakabo (2002a). The specimen was deposited at the Fish Genetics and Breeding Laboratory of Jeju National University (JNU), Korea.

Snyderina Jordan and Starks, 1901

(New Korean genus name: Keun-mi-yeok-chi-sok)

Snyderina Jordan and Starks, 1901: 381 (type species: *Snyderina yamanokami* Jordan and Starks, 1901).

The genus *Snyderia* comprises two species (On-line Catalog of Fishes: www.calacademy.org), with the following characters. Body compressed and sparsely covered with nonimbricate, thickened or granular scales; preorbital with a long, sharp spine; preopercle with a long, sharp spine; villiform teeth on jaws and vomer, palatines toothless; no slit behind fourth gill; first dorsal spine short and inserted above middle of eye; last dorsal ray adnate to caudal peduncle; caudal fin rounded (Jordan and Starks, 1904).

Snyderina yamanokami Jordan and Starks, 1901

(New Korean name: Keun-mi-yeok-chi)

(Fig. 1; Table 1)

Snyderina yamanokami, 1901: 381 (type locality: Kagoshima, Kiusiu, Japan); Nakabo in Masuda et al. 1984: 319 (Japan); Randall and Lim 2000: 648 (South China Sea); Nakabo in Nakabo 2002b: 600 (Japan).

Materials and Methods

JNU20090909, 175.3 mm standard length (SL), longline, Pyoson-eup, Jeju-do, Korea. 9 September, 2009.

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Fig. 1. *Snyderina yamanokami* Jordan and Starks, 1901, JNU20090909, 175.3 mm SL, longline, Pyoson-eup, Jeju Island, Korea.

Description

Table 1 lists the measurements of the morphological traits of the specimen. Measurements as a percentage of SL are as follows: body depth, 44.9; body width, 20.6; head length, 37.6; upper jaw, 16.4; snout length, 10.6; eye diameter, 6.5; interorbital length, 15.1; predorsal fin, 13.2; prepectoral fin, 28.9; preanal fin, 69.1; length of longest dorsal fin ray, 23.6; length of longest pectoral fin ray, 33.2; length of longest anal fin ray, 24.3; caudal peduncle depth, 8.4; caudal peduncle length, 11.6; caudal peduncle width, 4.4; length of dorsal fin base, 90.3; length of pectoral fin base, 10.0; length of anal fin base, 22.7.

Body elongated, compressed, sparsely covered with thickened or granular scales; dorsal profile of head sloping suddenly; head small, with many spines and ridges, the ridges smooth and covered with thin skin; profile very steep from first dorsal spine to snout; mouth very oblique; upper jaw slightly projecting and extending behind middle of eyes; teeth in fine villiform bands on jaws and vomer; palatines toothless; eyes large and almost round; interorbital space somewhat narrow and slightly convex; two strong spines on preorbital part: anterior spine small, directed downward; posterior spine long and sharp, directed backward, extending posteriorly nearly to end of maxillary; three pairs of small sensory pores on chin and one pair of small sensory pores on lower

lip; suborbital edge strong and smooth, extending backward; preopercle with a long, sharp spine directed backward; origin of dorsal fin starts above middle of eye, without notch between spine and soft part; first dorsal fin spine short; third spine longest; soft dorsal fin extending beyond caudal fin base, sixth ray is longest dorsal soft fin; pectoral fin large and beyond anal fin base; ventral fin not reaching base of anal; origin of anal fin starts below last dorsal spine; caudal fin round and elongate.

Color when fresh - Whole body pinkish with many red spots; four irregular dark-brown blotches on the side, first is largest and most distinct; dark-brown stripe running from mandible upward through eye and extending to base of first to third dorsal spines; numerous pinkish spots and several small black spots on all fins.

Color in alcohol - Dorsal part of body dark brownish, ventral part pale white; four irregular dark-brownish blotches on the side, first is largest and most distinct; black stripe running from mandible upward through eye and extending to base of first to third dorsal spines; all fins dark gray with black posterior margin; clouded dark-brownish spots on all fins.

Distribution

Korea (Jeju Island, present study); Fujita and Kamei, 1980 (Japan); Randall and Lim, 2000 (South China Sea).

Results and Discussions

Wasp fishes (subfamily Tetraroginae), belonging to the family Scorpaenidae, comprise 11 genera and 38 species (Nelson, 2006). The family Scorpaenidae is variously defined. Ishida's (1994) upgrade of the subfamily Tetraroginae to the family Tetrarogidae was widely accepted (Imamura and Shinohara, 1997; Nakabo, 2002b; Prokofiev, 2008). However, Nelson (2006) pointed out that Ishida (1994) did not include

Table 1. Morphological traits compared between present and previous studies on *Snyderina yamanokami*

Morphological characters	Present study	Jordan and Starks (1901)	Fujita and Kamei (1980)
Standard length (SL, mm)	175.3 (n=1)	160.0 (n=1)	133.0-180.2 (n=2)
Counts			
Dorsal fins	XIII, 10	XIII, 10	XIII, 9-10
Pectoral fin rays (left, right)	14, 14	14, 14	14, 14
Ventral fin rays (left, right)	I, 5, I, 5	-	I, 5
Anal fin rays	III, 5	III, 5	III, 6
Branched caudal fin rays	12	-	10
Lateral line pores (left, right)	24, 23	24, 23	25, 25
Gill rakers (right)	14(3+1+10)	14	14

A number in the parenthesis denotes the number of examined specimens.

all of the scorpaenid groups. Thus, additional studies were necessary to understand their relationships and resolve remaining problems in scorpaenid classification. In this study, we placed the wasp fishes taxonomically in the family Scorpaenidae, based on the opinion of Nelson (2006).

The present specimen was characterized by having four irregular, dark-brown blotches on the side, the tip of pectoral fin reaching or extending past the origin of the anal fin, the jaw and vomer with villiform teeth, and palatines without teeth. Thus, the morphological characteristics of the specimen agreed well with previous reports of *Snyderina yamanokami* (Nakabo, 2002b; Table 1).

Snyderina yamanokami is morphologically similar to *Hypodytes rubripinnis* (Temminck and Schlegel, 1843), which inhabits the coastal waters of Jeju Island, Korea. The former is easily distinguished from the latter in having a dorsal fin with 9-11 soft rays (vs. *H. rubripinnis* 6-7), anal fin with 5-6 soft rays (vs. 3-4), pectoral fin with 13-15 soft rays (vs. 11), ventral fin with 5 soft rays (vs. 4), the tip of pectoral fin reaching or extending past the origin of the anal fin (vs. not reaching anal fin origin), anterior part of dorsal fin not elevated (vs. elevated), palatines toothless (vs. toothed palatines), large dark spots on the middle of the body (vs. unspotted; Nakabo, 2002b). We suggest the new Korean name “Keun-mi-yeok-chi” for *S. yamanokami*.

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References

- Fujita K and Kamei M. 1980. Record of *Snyderina yamanokami* (Family Congiopodidae) from Central Japan. Japanese J Ichthyol 27, 259-260.
- Imamura H and Shinohara G. 1997. Phylogenetic studies of the order Scorpaeniformes (Pisces: Acanthopterygii): progress, present condition and problems. Japan J Ichthyol 44, 77-95.
- Ishida M. 1994. Phylogeny of the suborder Scorpaenoidei (Pisces: Scorpaeniformes). Bull Nansei Nat Fish Res Inst 27, 1-112.
- Jordan DS and Starks EC. 1901. Description of three new species of fishes from Japan. Proc California Acad Sci (Series 3) 2, 381-386, pls. 20-21.
- Jordan DS and Starks EC. 1904. A review of the scorpaenoid fishes of Japan. Pro US Nat Mus 27, 91-175.
- Kim IS, Choi Y, Lee CL, Lee YJ, Kim BJ and Kim JH. 2005. Illustrated book of Korean fishes. KyoHak Publishing Co Ltd Seoul, 1-615.
- Nakabo T. 2002a. Introduction of Ichthyology. In: Fishes of Japan with pictorial keys to the species. English edition, Nakabo T, ed. Tokai Univ Press Tokyo, xxi-xlii.
- Nakabo T. 2002b. Tetrarogidae. In: Fishes of Japan with pictorial keys to the species. English edition, Nakabo T, ed. Tokai Univ Press Tokyo, 1522-1523.
- Nakabo T. 1984. Family Congiopodidae. In: The fishes of the Japanese archipelago, Masuda H, Amaoka K, Araga C, Uyeno U and Yoshino T, eds. Tokai Univ Press Tokyo, 319.
- Nelson JS. 2006. Fishes of the world. 4th ed. John Wiley & Sons, New York., i-xix+1-601.
- Prokofiev AM. 2008. Scorpionfishes of families Apistidae, Terarogidae, and Aploactinidae of Nha Trang Bay (South China Sea, Central Vietman). J Ichthyol 48, 301-312.
- Randall JE and Lim KKP. 2002. A checklist of the fishes of the South China Sea. Raffles Bull Zool Suppl 8, 569-667.
- Temminck CJ and Schlegel H. 1843. Pisces. In: Fauna Japonica, sive descriptio animalium quae in itinere per Japoniam suscepto annis 1823-30 collegit, notis observationibus et adumbrationibus illustravit P.F. de Siebold. Pisces, Fauna Japonica Part 2-4, 21-72.

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