

# First Record of Two Perciform Fishes, *Pteropsaron evolans* (Percophidae) and *Xyrichtys verrens* (Labridae) from Korea

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**Abstracts:** One specimen of the percophid fish, *Pteropsaron evolans* Jordan and Snyder and two specimens of the labrid fish, *Xyrichtys verrens* (Jordan and Evermann) were newly collected from Jeju Island of Korea. *P. evolans* is characterized by having one pair of spines at snout, cheek without scales, and elongated first dorsal fin in male. *X. verrens* is easily distinguished by having tip of pectoral fin black, many rows of scales on cheek, and an elongated pelvic fin. We describe as new to Korean fish fauna and propose new Korean names, "Sil-nun-tung-i" for the former and "Jang-mi-ok-du-nol-rae-gi" for the latter.

**Key words:** *Pteropsaron evolans*, *Xyrichtys verrens*, Percophidae, Labridae, first record

The duckbills (family Percophidae) are divided into three subfamilies worldwide: Percophinae, Bembropinae, and Hemeroetinae. The genus *Pteropsaron* Jordan and Snyder, 1902, is one of four genera having a spine protruding from the anterior face of the maxilla in the Hemeroetinae (Nelson, 2006).

This genus, living on sandy-muddy bottom in the Indo-Pacific region, was taxonomically reviewed by Smith and Johnson (2007), who recognized seven species, with one new species of *Pteropsaron springeri*. However, in Korea, the genus *Pteropsaron* has not been recorded.

The razorfishes (family Labridae) are characterized by having a compressed body and keen razor-shaped canines and are distributed throughout coral reef to sand or rocky bottom in shallow waters. They are known to dive head-

first into the sand with the approach of danger (Shen and Yeh, 1987; Randall and Cornish, 2000).

The genus *Xyrichtys* Cuvier, 1814, comprises about 22 species in the Indo-Pacific region (Parenti and Randall, 2000). Shen and Yeh (1987) reviewed this genus from Taiwan, in which they recognized 12 species. In Korea, only one species, *X. dea* Temminck and Schlegel, 1845, has been recorded until now (Chyung, 1977; Kim et al., 2005).

In this paper, two species representing the above genera are listed for the first time from Korean waters on the basis of collected specimens. Brief descriptions and comparisons are given, including keys to genera and species.

## MATERIALS AND METHODS

One specimen belonging to the genus *Pteropsaron* was collected during a bottom trawl survey off Jeju Island and two specimens belonging to the genus *Xyrichtys* were caught by an angling at Seogwipo of Jeju Island.

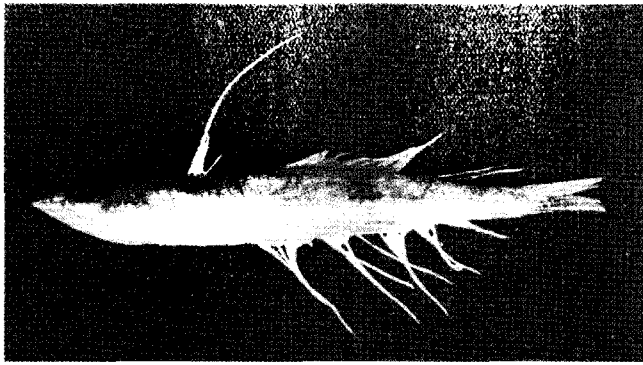
Measurement methods followed those of Hubbs and Lagler (1964) and Nakabo (2002a). The number of vertebrae was counted from radiographs and some fin rays were counted under a stereomicroscope after partial dissection. The examined specimens are deposited in the National Fisheries Research and Development Institute (NFRDI) of Korea.

## SYSTEMATIC ACCOUNTS

### Genus *Pteropsaron* Jordan and Snyder, 1902 (New Korean name: Sil-nun-tung-i-sok)

*Pteropsaron* Jordan and Snyder, 1902: 470 (type species: *Pteropsaron evolans*)

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**Fig. 1.** *Pteropsaron evolans* Jordan and Snyder, male, NFRDI 20070601-03, 61.6 mm SL, 127°43'E, 33°19'N, off Jeju Island, Korea.

Body depressed anteriorly and compressed posteriorly; snout pointed; eyes very large; interorbital space narrow; barbel absent; two dorsal fins separate, the first short but sometimes greatly elongated (Jordan and Snyder, 1902; Smith and Johnson, 2007).

***Pteropsaron evolans* Jordan and Snyder, 1902**

(New Korean name: Sil-nun-tung-i)

(Fig. 1; Table 1)

*Pteropsaron evolans* Jordan and Snyder, 1902: 471, Fig. 2 (type locality: Sagami Bay, Japan); Jordan and Starks, 1904: 599 (Sagami and Owari Bay, Japan); Shen et al., 1993: 484 (Taiwan); Okamura in Masuda et al., 1984: 290, pl. 356-C (Japan); Nakabo in Nakabo, 2002b: 1065 (Japan); Smith and Johnson, 2007: 371, Fig. 6 (Japan); Yamada et al., 2007: 900, pl. 41-3 (Japan).

**Material examined:** NFRDI 20070601-03, 1 specimen, male, 61.6 mm in standard length (SL), 127°43'E, 33°19'N,

off Jeju Island, southern sea of Korea, 130 m depth, 3 May 2007, R/V Tamgu-1, bottom trawl, collected by J. H. Park.

**Description:** Meristic characters are shown in Table 1.

Measurements in percentage of SL: body depth 12.8; body width 16.2; head length 32.6; eye diameter 9.4; snout length 8.9; interorbital width 2.1; postorbital length 15.3; upper jaw length 14.6; predorsal length 31.7; prepectoral length 31.8; preanal length 44.2; preanus length 42.0; pectoral fin length 18.8; pelvic fin length 17.2; length of longest dorsal fin ray 37.3; length of longest anal fin ray 28.2; length of first dorsal fin base 3.7; length of second dorsal fin base 49.7; length of anal fin base 53.6; caudal peduncle depth 5.5.

Body elongated and cylindrical; head depressed; eyes large and located dorsally; interorbital space flat and narrow; snout pointed; one pair of anteriorly-directed spines present at snout; no barbel on snout tip; upper jaw slightly protruding; mouth large and oblique; posterior margin of upper jaw extending to below the middle of eye; teeth small and forming narrow bands on both jaws; two pairs of nostrils, anterior nostril in a short tube, posterior one a single pore; cheek without scale; opercle with five large scales; body covered with cycloid scales; lateral line almost straight; two dorsal fins well separated, first dorsal fin greatly elongated and fourth spine the longest; anal fin insert a little anterior to second dorsal fin; middle anal fin rays longer than others; bases of second dorsal and anal fins long; all rays of dorsal and anal fins unbranched; caudal fin slightly convex; pectoral and pelvic fins pointed.

**Color of fresh specimen:** Body overall pink; each of broad yellow bands present on head and mid-lateral body; five rectangular dark pinkish blotches dorsally; first dorsal fin scarlet; second dorsal and anal fins scarlet with yellow

**Table 1.** Comparison of meristic characters of *Pteropsaron evolans*

	Present study	Jordan and Snyder (1902)	Yamada et al. (2007)
Number of specimens	1	1	4
Total length (mm)	72.5	-	-
Standard length (mm)	61.6	60.5	-
Counts			
Dorsal fin rays	VI-22	VI, I, 21	V-VI-22
Pectoral fin rays	18	-	19
Pelvic fin rays	I, 5	-	I, 5
Anal fin rays	26	27	26-27
Branched caudal fin rays	8	-	-
TRa	2	2	-
TRb	3	-	-
LL	32	32	29-35+1
Gill rakers	0+10	0+9	0+11-13
Vertebrae	36	-	35

strips; pelvic and caudal fins light yellow; caudal fin yellow.

**Color of preserved specimen:** Body overall pale beige; light brown dorsally; anterior part of first dorsal fin light brown; second dorsal and anal fins white.

**Sexual dimorphism:** This species shows remarkable sexual dimorphism, especially in the first dorsal fin (elongated in male). In addition, female has a broad black band on the first dorsal fin (Senou et al., 1998; Nakabo, 2002b).

**Distribution:** Known from the Northwest Pacific: Korea (off Jeju Island, the present study), southern Japan (Nakabo, 2002b), and Taiwan (Shen et al., 1993).

**Ecological notes:** This specimen was collected at about 130 m depth in May. Yamada et al. (2007) reported that this species is mainly found at 17-250 m depths during the cold-temperature period (January to May).

**Remarks:** *Pteropsaron evolans* is unique in having an elongated first dorsal fin and a broad yellow band on pinkish body. Meristic characters of the present specimen from Jeju Island corresponded closely to those given in the previous descriptions of *P. evolans* (Table 1). However, the present specimen differed from those of Yamada et al. (2007) in the number of pectoral fin rays (18 vs. 19), gill rakers (0+10 vs. 0+11-13), and vertebrae (36 vs. 35), showing a possibility of regional variation. Therefore, it is necessary to study more specimens of the species from various areas in order to clarify regional variation.

*P. evolans* most resembles *Acanthaphritis barbata* (Okamura and Kishida, 1963) among Korean percophids, but differs in having the following characters: cheek scales absent (vs. present in the latter), lateral line scales cycloid (vs. ctenoid), elongated and no black blotch first dorsal fin in male (vs. short and with black blotch), and barbel absent in male (vs. present) (Nakabo, 2002b; Kim et al., 2005).

Two genera, *Pteropsaron* and *Osopsaron* Jordan and Starks, 1904, have been confused taxonomically, but *Osopsaron* differs from *Pteropsaron* in having scales on the cheek (Suzuki and Nakabo, 1996; Nakabo, 2002b).

The new Korean name reflects a thin and very long spine on first dorsal fin.

**Key to species of the family Percophidae from Korea**

- 1a. 1 pair of spines present at snout, 25-27 anal fin rays . . . . . 2
- 1b. 1 pair of spines absent at snout, 14-17 anal fin rays . . . . . 3
- 2a. Cheek without scales and lateral line scales cycloid in both sexes; barbel absent and first dorsal fin elongated in male . . . . . *Pteropsaron evolans*

- 2b. Cheek with scales and lateral line scales ctenoid in both sexes; barbel present and first dorsal fin not elongated in male . . . . . *Acanthaphritis barbata*
- 3a. Lateral line sloping abruptly above pectoral fin . . . . . *Bembrops curvatura*
- 3b. Lateral line sloping gradually above pectoral fin . . . . . *Bembrops caudimacula*

***Xyrichtys verrens* (Jordan and Evermann, 1902)**

(New Korean name: Jang-mi-ok-du-nol-rae-gi)

(Fig. 2; Table 2)

*Hemipteronotus verrens* Jordan and Evermann, 1902: 354, Fig. 22 (type locality: Keelung, Taiwan).

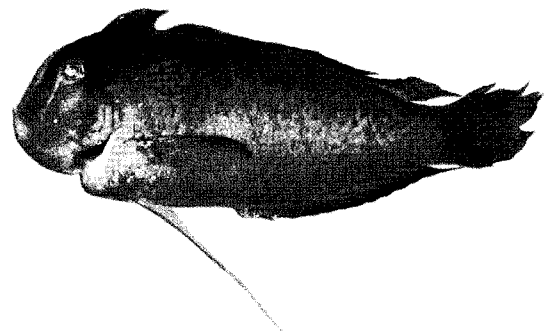
*Xyrichtys verrens*: Yamakawa and Hiramatsu, 1983: 19, Figs. 1, 2 (Tosa Bay, Japan).

*Xyrichtys verrens*: Shen et al., 1993: 470, figs. 156-9, 10 (Taiwan); Yamakawa in Masuda et al., 1984: 211, pl. 207-H (Japan); Shen and Yeh, 1987: 66, figs. 28-32 (Taiwan); Ni and Kwok, 1999: 144 (listed, Hong Kong, China); Parenti and Randall, 2000: 50 (listed, Japan and Taiwan); Randall and Lim, 2000: 630 (listed, South China Sea); Shimada in Nakabo, 2002: 1012 (Key, description, Japan).

**Material examined:** NFRDI 20070917-01~02, 2 specimens, 117.5-119.0 mm SL, Jungmun, Seogwipo-si, southern coast of Jeju Island, Korea, about 8-15 m depth, 23 August 2006, angling, collected by Y. S. Yoon.

**Description:** Meristic characters are shown in Table 2.

Measurements in percentage of SL: body depth 36.3-39.3; body width 10.8-11.1; head length 29.0-30.4; eye diameter 6.0-7.1; snout length 14.1-16.5; interorbital width 6.0-6.1; postorbital length 14.7-15.5; upper jaw length 8.1-8.5; predorsal length 25.0-26.6; prepectoral length 27.0-29.2; preanal length 55.4-56.6; preanus length 50.9-52.8; pectoral fin length 24.5-26.8; pelvic fin length 48.1-51.8;



**Fig. 2.** *Xyrichtys verrens* (Jordan and Evermann), NFRDI 20070917-01, 119.0 mm SL, Jungmun, Seogwipo-si, southern coast of Jeju Island, Korea.

**Table 2.** Comparison of meristic characters of *Xyrichtys verrens*

	Present study	Jordan and Evermann (1902)	Yamakawa and Hiramatsu (1983)
Number of specimens	2	1	6
Total length (mm)	153.5-157.2	-	-
Standard length (mm)	117.5-119.0	114.3	91.4-149.7
<b>Counts</b>			
Dorsal fin rays	IX, 12	II-VIII, 12	IX, 12
Pectoral fin rays	12	-	12
Anal fin rays	III, 12	III, 12	III, 12
Pelvic fin rays	I, 5	-	-
Branched caudal fin rays	11	-	11-12
TRa	3	-	3
TRb	9	-	10
LL	20-21+5-6	-	20-22+5-6
Gill rakers	6-7+11-12	-	6-7+11-12
Vertebrae	9+16	-	9+16

dorsal fin base length 73.7-78.0; anal fin base length 38.8-40.8; length of first dorsal fin spine 18.0-18.6; length of second dorsal fin spine 15.1-15.9; length of the longest dorsal fin ray 18.4-20.3; length of the longest anal fin ray 14.0-17.2; caudal peduncle depth 11.9-12.1; caudal peduncle length 8.6-8.9.

Body deep and extremely compressed; dorsal profile of snout steep; eyes placed high on the head; interorbital space convex; mouth oblique; both jaws projecting equally; upper jaw not reaching to below anterior margin of eye; teeth small, canines forming single row along the side of both jaws, with a pair of large, recurved, and projecting outward canine teeth at the tip of both jaws; nostril small; origin of dorsal fin behind posterior margin of eye; deep notch on membrane between second and third dorsal fin spines; dorsal fin base long; origin of anal fin below the first dorsal fin ray; pectoral fin insert anterior to pelvic fin; pectoral fin rather long, its tip reaching to the first anal fin ray; outermost pelvic fin ray prolonged, its tip reaching to seventh or eighth anal fin ray; lateral line interrupted, upper series running to below the ninth dorsal fin ray, lower series running to caudal fin base; scales large, cycloid and thin, cheek with about 8 rows of small scales below eye; caudal fin rounded.

**Color of fresh specimen:** Body overall reddish and rosy, with a iridescent blue spot on edge of scales; large red blotch below notch of dorsal fin; two bright bluish vertical bands on snout; head light blue anteriorly; opercle with three purple bands; upper part of pectoral fin black; base of pectoral fin jade-green blotch; dorsal fin overall orange, with light blue spots; base of dorsal fin blue anteriorly and white posteriorly; pelvic fin orange with a lot of blue zigzag markings; caudal fin orange with faint blue spots.

**Distribution:** Northwest Pacific: Korea (Jeju Island, the present study), Japan (Yamakawa and Hiramatsu, 1983), Taiwan (Jordan and Evermann, 1902), and China (Ni and Kwok, 1999).

**Ecological notes:** According to our observation, the present species occurs on the coast of Jungmun, southern Jeju Island from March to October, especially from June to August.

**Remarks:** Counts of the present specimens from Jeju Island agreed well with those given in previous descriptions, except for dorsal fin spines (Table 1). Jordan and Evermann (1902) originally reported the number of dorsal fin spines as II-VIII (Table 1). However, as the result of a radiograph examination of the labeled holotype (SU 7134) in Eschmeyer's Catalog of Fishes Online (<http://www.calacademy.org/research/ichthyology/types/index.asp>), we revealed that the number of dorsal fin spines was only IX, indicating Jordan and Evermann (1902)'s miscount.

*Xyrichtys verrens* is similar to *X. dea* in general body appearance and counts. However, it is distinguishable from the latter in having an elongated pelvic fin (vs. short), cheek furrow absent (vs. present), and many rows of scales on cheek (vs. 1-2 rows) (Shimada, 2002).

The new Korean name reflects the rosy body coloration of the present species.

**Key to species of the genus *Xyrichtys* from Korea**

- 1a. Elongated pelvic fin, cheek furrow absent, and many rows of scales on cheek ······ *Xyrichtys verrens*
- 1b. Not elongated pelvic fin, cheek furrow present, and 1-2 rows of scales on cheek ······ *Xyrichtys dea*

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