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First Record of the Blenniid Fish *Istiblennius dussumieri* (Blenniidae, Perciformes) from Japan

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The blenniid fish, *Istiblennius dussumieri* (Valenciennes) was reported on the basis of six specimens collected from rocky shores on the Yokonami Peninsula, Kochi Prefecture, southern Japan. This species was characterized by wavy, dusky stripes on its dorsal fin, 14 pectoral fin rays, 38 to 42 vertebrae, branched supraorbital cirrus, finger-like nasal cirrus, seven to ten vertical, dark bands on the body and canines absent on both jaws. Although the occurrence of this species may be due to larval transport by the Kuroshio Current, this is the first record of I. dussumieri from Japan represents a remarkable northern range extension of the species in the western Pacific Ocean.

Key words : *Istiblennius dussumieri*, Blenniidae, southern Japan, zoogeography

Introduction

A comprehensive study on the blenniid fish genus *Istiblennius* by Springer and Williams (1994) revealed that the genus contained 14 species distributed in the Indo-Pacific Ocean. Although Aizawa (1993) recognized seven *Istiblennius* species occurring in Japan, Springer and Williams (1994) demonstrated one of these fishes (*I. enosimae*) to be a junior synonym of *I. edentulus*.

Recently, Nagatomo and Machida (1999) reported ten species and two subspecies comprising of six genera in the blenniid tribe Salariini from Kochi Prefecture, southern Japan. They referred to six *I. dussumieri* specimens collected form the rocky bottoms less than 1 m deep at Shirano-hana Point on the Yokonami Penninsula, facing Tosa Bay, southern Japan (Fig. 1), but a detailed description for these specimens was not given in their study (Nagatomo and Machida, 1999). Although *I. dussumieri* is widely distributed in the Indo-Pacific Ocean, we herein report these specimens in some detail, because Taiwan is the hitherto known northern-most locality of the species (Springer and Williams, 1994).

Methods for taking measurements were in accordance with those of Hubbs and Lagler (1964). Terminology of the cephalic sensory pores and supraorbital cirri followed that of Yoshino (1984). Vertebrae and vertical fin rays were counted from radiographs.

The specimens examined were deposited in the Department of Biology, Faculty of Science, Kochi University (BSKU).

Istiblennius dussumieri (Valenciennes), 1836

(New Japanese name: kaeruuo-modoki)
(Figs. 2-3)

Salarias dussumieri Valenciennes in Cuvier and Valenciennes, 1836: 229~230 (original description); Fowler, 1972: 1059~1060; Tian, 1987: 398.

Istiblennius dussumieri: Springer, 1986: 748; Shen, 1990: 391; Springer and Williams, 1994: 131~139. [Other synonyms, see Springer and Williams (1994).]

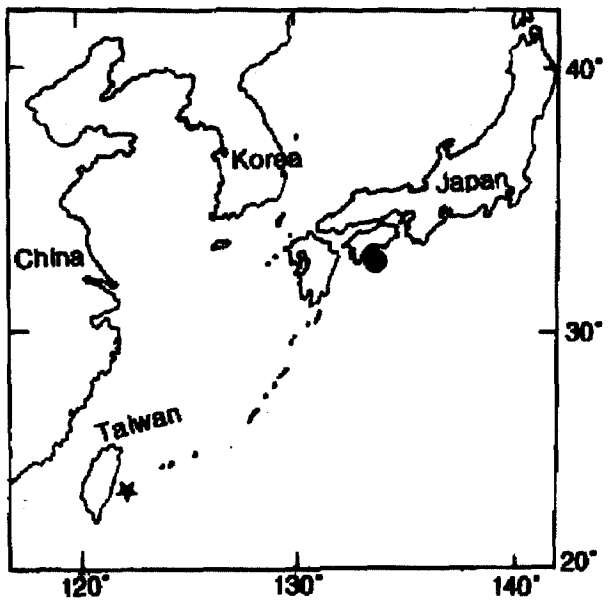

Fig. 1. The map showing collection site of *Istiblennius dussumieri*. Yokonami Peninsula, Tosa Bay, Kochi Prefecture, southern Japan (●), and Taiwan (★) where described by Springer and Williams (1994).

Materials examined: Six BSKU specimens collected at Shirano-hana Point by using quinaldine. BSKU 83118, 51.2 mm standard length (SL), female, Sept. 24, 1996; BSKU 83148, 52.0 mm SL, male, Oct. 11, 1996; BSKU 83149, 42.1 mm SL, female, Oct. 31, 1996; BSKU 87018, 45.6 mm SL, male, Oct. 5, 1998; BSKU 86701, 22.7 mm SL, male, Sep. 26, 1999; BSKU 86790, 20.6 mm SL, male, Sep. 26, 1999.

Description: Dorsal fin rays XIII, 20~21; anal fin rays II, 22~23; pectoral fin rays 14; number of vertebrae 11+27~28=38~39.

Measurements in % of SL (mean and standard deviation in parentheses): head length 20.2~26.2 (23.0±2.35); body depth 17.5~20.9 (18.9±1.62); predorsal length 18.0~22.6 (21.1±1.92); prepectoral length 22.4~26.7 (23.8±1.67); pectoral fin length 20.6~23.3 (22.4±0.93); caudal peduncle length 7.3~9.7 (8.6±1.04); caudal peduncle depth 7.3~9.3 (8.2±0.84); preanal length 42.5~54.4 (47.3±4.03). Measurements in % of head length: head depth 70.6~82.6 (76.3±4.99); head width 62.8~72.8 (68.2±4.17); snout length 30.1~32.4 (31.0±1.02); eye diameter 27.5~30.6 (28.7±1.31); interorbital width 7.8~9.8 (8.9±0.82).

Body slender, compressed, scaleless. Head short, blunt from lateral view. Males with fleshy, blade-like crest on top of head in males (absent in females) (Fig. 2). Nuchal cirrus absent. Number of branches on supraorbital cirrus highly variable. Supraorbital cirri generally longer in males than in females; usually longer than orbital diameter in males, slightly shorter than eye diameter in females. Nasal cirrus short, variable in length, usually irregular palmate with less than 7 finger-like branches. Margins of upper and lower lip entire, smooth, without bosses and furrows. Upper and lower jaws with uniserial, comb-like, pointed teeth. No canines of both jaws. Cephalic sensory pores: 4 to 5 mandibular, 7 preopercular, 9 to 10 supratemporal, 5 lateral temporal, 8 infraorbital and 5 supraorbital pores (Fig. 3).

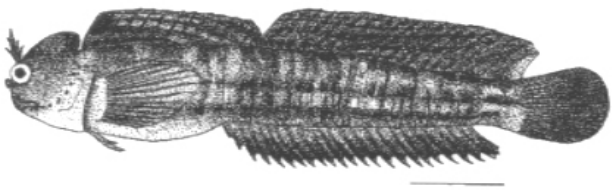

Fig. 2. Lateral view of *Istiblennius dussumieri*. No. 83148, male, SL 52.0 mm. Scale indicates 10 mm.

Doral fin single, fin elements composed of flexible spines and unbranched rays. Lateral line represented by continuous canal anterodorsally with simple pores, extending posteriorly near tip of pectoral fin, below the bases between 8th and 10th dorsal spines. Pelvic fins inserted before pectoral peduncle. Anal fin originating just behind anus.

Color in 65% alcohol: Head dusky, without distinct markings. Body dusky, with 7 to 10 dark, vertical bands, which were somewhat obscure in males, distinct in females. Dorsal fin with several wavy, dusky stripes, becoming broader and more indistinct in males than in females. Dorsal fin membrane much darker in males than in females. Dusky, crescentic marking on dorsal fin often broken into several dark spots, which appear to be continuous, wavy bands in females. Anal fin dusky, margined with black, darker distally, and much darker in males than in females. Caudal fin dusky, without markings in males, with distinct vertical bands each represented by dark spots.

Sexual dimorphism: Males have a fleshy, crescent-like, occipital crest on top of the head, broader and indistinct dusky stripes on the second dorsal fin, a dark-margined anal fin, and

Table 1. Counts and morphological characters of *Istiblennius dussumieri*

Characters	Present study	Springer and Williams (1994)	Fowler (1972)
Number of specimens	6	607	9
Dorsal fin rays	XIII, 20~21	XI~XIV, 19~24	XII~XIII (XIV), 21~23
Anal fin rays	II, 22~23	II, 21~25	II, 23~25
Pectoral fin rays	14	14	14
Number of vertebrae	11+27~28=38~39	10~11+27~32=38~42	-
Head crest in male	present	present	present
Bands on vertical fin in male	broad, indistinct	broad, indistinct	dark, fade
Bands on vertical fin in female	narrow, distinct	narrow, distinct	clear
Branches of supraorbital cirri	variable	variable	bushy[1]
Nuchal cirriabsent	absent	absent	
Vertical bands on body	7~10	6~8	7
Stripes on spinous dorsal fin	wave-like	wave-like	wavy, parallel
Shape of nasal cirri	finger-like	finger-like	broad flap[2]
Canines	absen	present or absent	absent

[1] variable with age
[2] with frayed edge

darker caudal fin without vertical bands. Female lack the occipital crest, but have a second dorsal fin with wavy, narrow, distinct stripes and a caudal fin with four vertical and distinct bands.

Remarks: The present specimens agreed well with previous species descriptions for *I. dissumieri* by Springer (1986) and Springer and Williams (1994). Table 1 compares the present specimens with those reported by Fowler (1972) and Springer and Williams (1994). A slight difference in coloration was seen between our fishes and these two records, i.e., the present specimens had seven to ten vertical bands on its body, whereas those previously described had six to eight bands. We were considered that this appearances may show intraspecific variation of *I. dussumieri*. According to Springer and Williams (1994), seven out of 626 *I. dussumieri* specimens possessed 32 dorsal-fin elements, and which were collected only from the Pacific regions (Java, Sumatra, Gulf of Thailand, Philippines and Flores). None of the present specimens had 32 dorsal-fin elements (XIII-20~21). Springer and Williams (1994) reported *I. dussumieri* specimens having canines, all the specimens examined in the present study, however, were devoid of canine teeth.

Shen (1990) gave a photograph of a female *I. dussumieri*, which had a blade-like occipital

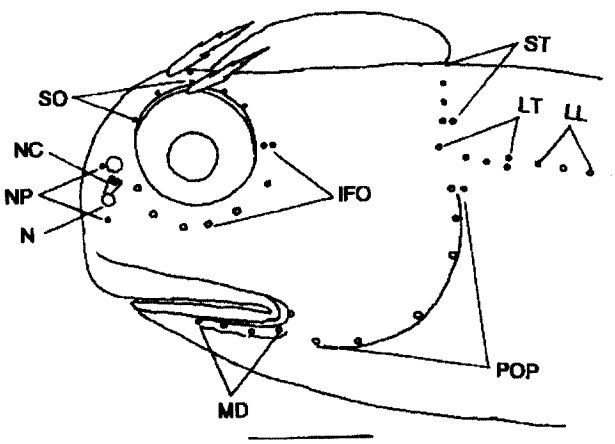

Fig. 3. Lateral view of head of *Istiblennius dussumieri*, showing sensory pores. Scale indicates 3 mm. IFO, infraorbital; LL, lateral line; LT, lateral temporal; MD, mandibular; N, nostril; NC, nasal cirri; NP, nasal pores; POP, preopercular; SO, supraorbital; ST, supratemporal.

crest on the longitudinal midline of the top of the head. However, our female specimens had no crests on their heads. Springer and Williams (1994) stated that the crest was variably present in males as small as 23 mm SL, but usually absent at lengths smaller than 29 mm SL. However, each of the two smallest males, 20.6 mm SL

and 22.7 mm SL, in the present study had a crest on its head.

Judging from Springer and Williams (1994), the hitherto known northern-most locality for this species was the waters near Taiwan. This species attains 109 mm SL in males (commonly larger than 90 mm SL), and 98 mm SL in females (Springer and Williams, 1994). We obtained only six specimens, ranging 20.6~52.0 mm SL, for more than 30 fish collections along the rocky shores of Kochi Prefecture between 1996 and 1999. They were obtained only in autumn (September and October) of 1996 and 1999. Although the present study represents noteworthy northern range extension of the species, the size of fishes, capture frequency and season strongly indicate that recruitment of the species probably does not take place in the present area, and the occurrence of *I. dussumieri* in Japanese waters may be due to the larval transport by the Kuroshio Current.

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일본산 청베도라치과 어류 1미기록종, *Istiblennius dussumieri*

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1996년에서부터 1999년까지 일본 Kochi현의 Shirano-hana에서 채집된 청베도라치과 어류 6개체(체장 20.6~52.0 mm)를 채집하여 동정한 결과, 지금까지 일본에서는 서식이 보고되지 않은 *Istiblennius dussumieri* (Valenciennes, 1836)로 확인되어, 일본산 미기록종으로 보고한다. *I. dussumieri*는 가슴지느러미 연조수가 14개, 척추골수가 38~42개, 안상피돌기는 가지가 나있고, 등지느러미에는 파상형의 무늬가 있으며, 체측에는 7~10개의 어두운 횡대가 있으며, 양턱에는 견치가 없다는 점이 특징적이다. 본 종은 Kuroshio 난류에 의해 이동되어 서식하고 있는 것으로 사료되나, *I. dussumieri*의 지리적 분포에서 서태평양 일대의 최북단 출현 지역으로 나타나고 있어 주목되었다.