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The Second Record of a Remarkable Triggerfish, *Xenobalistes tumidipectoris* Matsuura, 1981, from Japan (Actinopterygii, Tetraodontiformes, Balistidae)

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Abstract A remarkable triggerfish, *Xenobalistes tumidipectoris* Matsuura, 1981, has been known only from the holotype (60.5 mm SL), having being found in poor condition among stomach contents of an Indo-Pacific blue marlin, *Makaira mazara*, collected off the Mariana Islands. The holotype was lacking the entire second dorsal fin, most of the anal fin, the dorsal one-third of the caudal fin, and any trace of color pattern. A 39.1 mm SL specimen of *X. tumidipectoris* was recently captured with other fishes by a light trap on the west coast of the Motobu Peninsula in Okinawa-jima Island, Ryukyu Islands. The Okinawa specimen was collected intact with fresh color. It is described to provide details on morphological characters of this rare and remarkable triggerfish.

Key words: *Xenobalistes tumidipectoris*, triggerfish, second record, Ryukyu Islands.

Introduction

Xenobalistes tumidipectoris was described as a new genus and species of the Balistidae by Matsuura (1981). Because it possesed unusual characters including a large bony protuberance on each side below the pectoral fins, there was no question that it represented a distinctive genus. The only known specimen was found in the stomach of an Indo-Pacific blue marlin, *Makaira mazara*, collected off the Mariana Islands. The specimen lacked the entire second dorsal fin, most of the anal fin, the dorsal one-third of the caudal fin, and had no color. Consequently, many of the specific characters of this unique triggerfish were unknown.

Subsequently, Heemstra and Smith (1983) described a second species of *Xenobalistes* from an intact juvenile washed up on the beach at the mouth of the Van Stadens River, eastern Cape Province, South Africa. *Xenobalistes punctatus* is characterized by a distinctive color pattern of small white spots on a dark brown background. It was distinguished from *X. tumidipectoris* in having 14 pectoral-fin rays (vs. 13 in *X. tumidipectoris*), 46 body-scale rows (vs. 45), eye diameter distinctively less than the caudal peduncle depth (vs. distinctly more than the caudal peduncle depth), the anterior surface of the first dorsal spine more spiny, and the tubercles on the body scales much greater and closer together.

Staff members of the Ocean Expo Research Center collected fishes by a light trap on the west coast of the Motobu Peninsula in Okinawa-jima Island and found an unusual triggerfish among the collected fishes on 23 August 2011. This trig-

gerfish was transferred to the Animal Research Department of the Ocean Expo Research Center for further examination. The second author of this paper, Minoru Toda, recognized this triggerfish as very unusual and sent it to the first author for detailed study. Careful examinations on the Okinawa specimen revealed that it is *X. tumidipectoris*. We herein provide the full description of this remarkable triggerfish below.

Methods

Methods for counts and measurements follow Matsuura (1980) and Matsuura (1981). Standard length (SL) is used throughout. The Okinawa specimen is deposited at the Ocean Expo Research Center, Ocean Exposition Commemorative Park Management Foundation (OCA), Motobu. Although the fish collection of the National Museum of Nature and Science has recently been moved from Shinjuku, Tokyo to Tsukuba in Ibaraki Prefecture, the abbreviation of the fish collection, NSMT, is still used as the institutional acronym.

Xenobalisites tumidipectoris Matsuura, 1981

[Japanese name: Tsubasa-mongara]

(Fig. 1)

Material examined. OCA-P20110823-5, 39.1 mm SL. 26°44′00″N, 127°53′23″E, Ryukyu Islands, Okinawa-jima Island, west coast of Motobu Peninsula, Bise, surface over 200–300 m water depth, 23 August 2011, collected by Shinichiro Oka and Kei Miyamoto with light trap.

Description. Dorsal-fin rays II + 27; anal-fin rays 24; pectoral-fin rays 13 (both sides); head-scale rows 20; body-scale rows 45. Body relatively elongate, rather deep and compressed; a prominent lateral protuberance on each side below pectoral fins. Dorsal profile of head ascending from mouth to just before eye, continuing gentle incline to first dorsal spine. Eye large, located posteriorly on head. Supraorbital ridge well developed and expanded dorsolaterally. A short shallow groove before eye, below nares. Nares close together just in front of eye. Gill opening almost vertical, no enlarged osseous scales behind dorsal end of gill opening. First dorsal spine long and stout, originating over gill opening; its anterior surface covered with two rows of downward directed small barbs (Fig. 2); proximal part of the dorsal spine with several rows of smaller barbs. Second dorsal spine slender, much less than the first in length; third dorsal spine short, extending slightly above dorsal contour of body. Second dorsal and anal fins almost oppositely placed, origin of anal fin slightly posterior to that of second dorsal fin; both fins slightly rounded. Pectoral and caudal fins rounded. Body scales with numerous, erect, rough, flat-topped tubercles.

Proportional measurements (% SL). Greatest body depth 59.9, body depth 36.1, greatest width of body 11.9, body width 24.5, head length 42.3, snout length 25.4, snout to origin of first dorsal fin 48.6, snout to origin of second dorsal fin 72.4, snout to origin of anal fin 75.9, interdorsal space 24.8, base of second dorsal fin 25.4, base of anal fin 24.5, eye diameter 12.9, interorbital width 22.3, least interorbital width 17.2, postorbital length 11.9, length of gill opening 6.3, longest dorsal spine 27.3, longest dorsal-fin ray 13.8, longest anal-fin ray 12.2, longest pectoral-fin ray 15.4, caudal-fin length 20.7, caudal peduncle depth 12.2, caudal peduncle length 10.3.

Color in fresh. Ground color of body white covered with many dark brownish spots and irregular marks; spots on ventral half of head and body yellowish brown; distal part of membrane of first dorsal fin black, proximal part of the membrane light gray; pectoral, second dorsal, and anal fins pale; posterior half of caudal fin light red and proximal half pale.

Remarks. The Okinawa specimen is easily distinguished from *Xenobalistes punctatus* by color pattern and pectoral-fin ray counts (13 in the Okinawa specimen vs. 14 in *X. punctatus*. Although the holotype of *X. tumidipectoris* is in poor condition (Fig. 3), we identified the Okinawa specimen as *X. tumidipectoris* based on the

Fig. 1. *Xenobalistes tumidipectoris*, OCA-P20110823-5, 39.1 mm SL, Okinawa-jima Island, Ryukyu Islands. Left top: lateral view; right top: dorsolateral view; left bottom: dorsal view: right bottom: front view. Photographed by M. Toda.

Fig. 2. First dorsal spine of *Xenobalistes tumidipectoris*, OCA-P20110823-5, 39.1 mm SL. Photographed by M. Nakae.

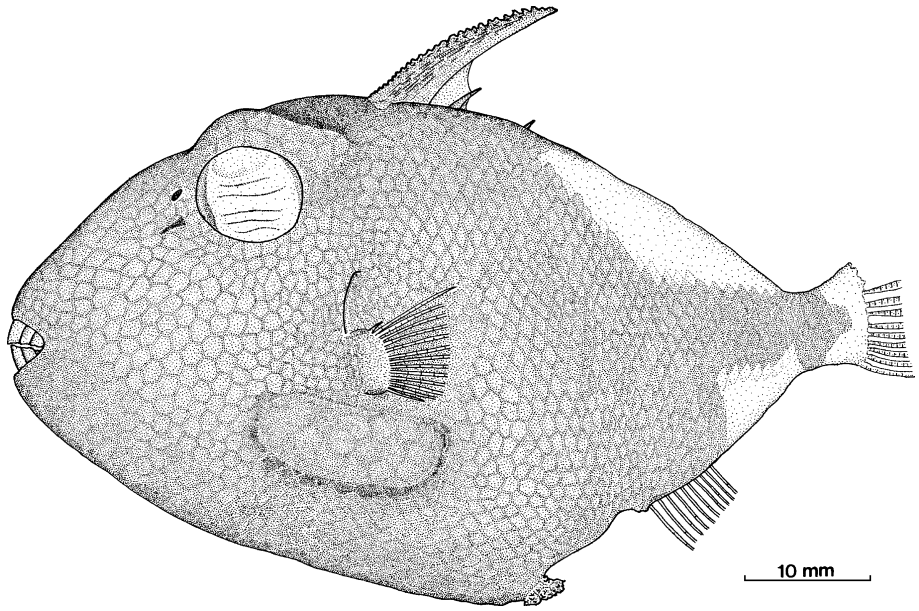

Fig. 3. Holotype of *Xenobalistes tumidipectoris*, NSMT-P 18666, 60.5 mm SL, Mariana Islands. Drawn by K. Matsuura.

Table 1. Comparison of fin rays and proportional measurements for *Xenobalistes tumidipectoris* and *X. puntatus*. Data for *X. punctatus* from Heemstra and Smith (1983).

	X. tumidipectoris		*X. punctatus*
	Present specimen 31.9 mm SL	Holotype 60.5 mm SL	Holotype 83 mm SL
Second dorsal-fin rays	27	missing	27
Anal-fin rays	24	missing	25
Pectoral-fin rays	13	13	14
Head-scale rows	20	21	21
Body-scale rows	45	35	46
In standard length:			
Greatest body depth	1.7	1.7	1.8
Body depth at anal-fin origin	2.8	2.6	2.3
Greatest body width	2.7	2.0	2.2
Body width at pectoral-fin base	4.1	4.2	4.7
Head length	2.4	2.3	2.5
Snout length	3.9	3.8	3.6
Snout to 1st dorsal-fin origin	2.1	2.0	2.1
Snout to 2nd dorsal-fin origin	1.4	1.4	1.5
Snout to anal-fin origin	1.3	1.3	1.4
Base of 2nd dorsal fin	3.9	3.4	3.8
Base of anal fin	4.1	3.8	4.0
In head length:			
Eye diameter	3.2	3.3	4.5
Interorbital width	1.9	1.4	1.5
Least interorbital width	2.4	2.3	2.2
Length of gill opening	6.7	5.2	6.2
Caudal peduncle length	3.4	5.0	4.4
Caudal peduncle depth	4.0	4.8	3.8
Length of 1st dorsal-fin spine	1.5	1.8	1.7

pectoral-fin ray count and the eye diameter being larger than the caudal peduncle. Although Heemstra and Smith (1983) stated that the anterior surface of the first dorsal spine was more spiny and the tubercles of body scales much larger and closer together in *X. punctatus*, these differences were derived from the poor condition of the holotype of *X. tumidipectoris*. Judging from the collection localities of *X. tumidipectoris*, this species is believed to be widely distributed in the tropical and subtropical regions of the West Pacific.

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