

The northernmost record of the Banana fusilier *Pterocaesio pisang* (Perciformes: Caesionidae)

Keita Koeda^{1*} and Hsuan-Ching Ho^{1,2}

¹National Museum of Marine Biology & Aquarium, 2 Houwan Road, Checheng, Pingtung, 94450, Taiwan

²Institute of Marine Biology, National Dong-Hwa University, Pingtung, Taiwan

*Corresponding author E-mail: hatampo@gmail.com

Abstract

Three specimens (88.9-155.2 mm standard length) of the Banana fusilier *Pterocaesio pisang* (Caesionidae) were recently collected from waters around southern Taiwan. Although evident in some previous underwater photographs, this western Pacific Ocean species had not conclusively documented north of the Philippines. Therefore, the present samples represent the first specimen-based record from Taiwan, as well as the northernmost record of this species to date. Their morphology and (fresh) coloration are described herein.

Key words: taxonomy, distribution, coral reef, *Pterocaesio capricornis*, *Pterocaesio chrysozona*

Introduction

The species of family Caesionidae were formerly included in Lutjanidae, but Johnson (1980) recognized them as a distinct family. They are midwater zooplankton feeders that usually occur in schools, and are most commonly encountered on the edge of outer reef drop-offs. At night the fish retire to in-reef to sleep, and their colorations generally

fade with the white ventral portions becoming red or pink. They are one of the most important groups of coral reef fisheries, and many netting or angling fishery targeting them are done abundantly in the tropical coral reef area. The genus *Pterocaesio* Bleeker, 1876, belongs to the family Caesionidae (fusiliers) and consists of 12 valid species (Fricke et al., 2018), half of which have

been recorded from Taiwanese waters (Shen and Wu, 2011). Three specimens of *Pterocaesio pisang* Bleeker, 1853 were recently collected off the coasts of southwestern Taiwan. Although this species was reported in Shen and Wu (2011) and Chen et al. (2010), which featured monochrome drawings and an underwater photograph, respectively, the northernmost record on the basis of voucher specimens was previously from the Philippines (Carpenter, 1987). Therefore, the present specimens described herein represent the first specimen-based record of *P. pisang* from Taiwan and the northernmost record of this species.

Methods and materials

Counts and measurements follow Carpenter (1987). Measurements of the three southern Taiwanese specimens were made to the nearest 0.1 mm with needle-point calipers (Mitsutoyo Corp., Super Caliper CD67-S20PS) under a dissecting microscope. Standard and head lengths are abbreviated as SL and HL, respectively. The morphological description is based on the specimens collected from Taiwan. The specimens of *P. pisang* examined in this study is deposited at National Museum of Marine Biology & Aquarium (NMMB-P).

Results

Family Caesionidae

Pterocaesio Bleeker, 1876

Pterocaesio pisang Bleeker, 1853

斑尾鱗鰭烏尾鮨

Pterocaesio pisang Bleeker, 1853: 113 (type locality: Ambon Island, Indonesia); Shen and Wu, 2011:459 (drawing only, no voucher provided; Taiwan); Chen et al., 2010: 223, Figure D (Kenting).

Specimens examined. NMMB-P14033, 142.9 mm SL, collected near Kenting, Taiwan, probably by angling (purchased at Hengchun market), 19 Aug. 2011, coll. H.-C. Ho; NMMB-P26622, 155.2 mm SL, off Jia-le-shui, Kenting, Taiwan, by angling (purchased at Hengchun market), 27 July 2017, coll. K. Koeda, A. Koeda, and H.-C. Ho; NMMB-P26433, 88.9 mm SL, off Ke-tze-liao, Taiwan, probably by trawling (obtained at Ke-tze-liao fish market), 18 June 2017, coll. H.-C. Ho.

Description of Taiwanese specimens. Counts and measurements of the present specimens are given in Table 1. Body moderately elongate and fusiform, with depth of caudal peduncle almost 1/3 of body depth. Head pointed, with dorsal profile of head equally sloping. Interorbital space convex. Anterior nostril with low membranous rim, closer to orbit than snout; posterior nostril without rim or flap. Margin of opercle with dorsoposterior flap. Lateral line nearly

straight from upper end of opercle to middle of caudal-fin base.

Mouth oblique, forming an angle of about 40° to the horizontal, with lower jaw projecting slightly; maxilla extending posteriorly to vertical at anterior edge of orbit. Jaws with minute conical teeth; premaxilla with a single row of teeth restricted to anteriormost portion; lower jaw with a single row of teeth laterally, becoming a patch anteriorly; teeth in lateral row distinctly less numerous just posterior to apex of jaw; vomer and palatines edentate.

Origin of dorsal fin slightly posterior to vertical above pelvic-fin origin; first dorsal-fin spine short, its base close to base of second spine; fourth spine of dorsal fin longest, with remaining dorsal-fin spines and soft rays gradually shorter; last soft ray longer than penultimate. Origin of anal fin below base of fourth soft ray of dorsal fin; first spine of anal fin shorter than second and third spines; first soft ray of anal fin longest. Dorsal and anal fins scaled, with former with 0.3-0.5 of its greatest spinous height covered with scales. Pectoral fins pointed (fourth ray longest), reaching vertical drawn through base of eighth dorsal-fin spine. Origin of pelvic fin slightly posterior to lower base of pectoral fin. Caudal fin deeply forked.

Coloration—When fresh, body and head pink, dark red dorsally; lateral line darker than background coloration; no

stripes or bands on side; center of scales above lateral line yellowish; snout and anterior regions of lips yellowish. Dorsal fin faint orange; anal fin and pelvic fin pink; pectoral fin translucent pink, axil black; caudal fin faint orange with dark-red blotches on tips of upper and lower lobes. When preserved, body and head pale; dark blotch on tip of caudal-fin lobes.

Distribution. *Pterocaesio pisang* has currently been observed only in the Indo-West Pacific; it is found in neither the Red Sea nor the Persian Gulf (Carpenter, 2001). Specimens have been collected as far west as the Seychelles and Maldives, as far east as Fiji, and, until this study, as far north as Panay Island in the Philippines (Carpenter, 1987; Tatsukawa, 2017), and now from southwestern Taiwan (present study). Underwater photographs of *P. pisang* have been taken in Thailand's Andaman Sea (Iwatsuki and Stapoomin, 2009), as well as in Cenderawasih Bay, Indonesia (Allen and Erdmann, 2012), Kenting, Taiwan (Chen et al., 2010), and Iriomote Island, Japan (KPM-NR0024106).

Remarks. Most morphological characteristics of the present specimens are agreed well with the diagnosis of *P. pisang* given by Carpenter (1987; 2001): dorsal fin with 10 spines and 15 soft rays; pectoral fin with 19-20 rays; 66-73 scales

in lateral line; 11-12 upper peduncular scales; dorsal and anal fins scaled; no stripes or bands on side of body; dark blotch on tips of caudal-fin lobes. Although all counts, and most of the measurements, were similar across the three Taiwanese specimens, NMMB-P14033 (142.9 mm SL) was generally characterized by longer dorsal fin-ray lengths than those of other two specimens (NMMB-P26622, 155.2 mm SL; NMMB-P26433, 88.9 mm SL; Table 1). Variability in fin-ray lengths was also shown in the congeners (Carpenter, 1987); thus, fin-ray lengths in this group clearly demonstrate a high degree of intraspecific variation. In addition, NMMB-P14033 has redder coloration than the other two specimens from southwestern Taiwan (Fig. 1). The color of this group is generally known to become red or pink when they sleep at nighttime (Allen and Erdmann, 2012) or agitated (e.g., when they hooked), and the difference of color between the present specimens may reflect this.

Among its congeners, *P. pisang* is comparatively similar to *P. capricornis* Smith and Smith, 1963 and *P. chrysozona* (Cuvier, 1830), sharing 11 dorsal peduncular scales (usually), 62-75 lateral line scales, 17-20 pectoral fin rays, 8-9 scales between the lateral line and the dorsal-fin origin, and 13-17 scales between the lateral line and the anal-fin origin (Carpenter, 1987). *Pterocaesio pisang* is clearly distinguishable from the

other two species in its lacking of stripes on the side of its body (*vs.* a single, thin, yellow stripe covering the lateral line in *P. capricornis*; two yellow stripes on the body side in *P. chrysozona*).

Although *P. pisang* has been recorded from Pingtung, Taiwan, and Iriomote Island, Japan on the basis of underwater photographs, the northernmost record of the species based on a collected specimen was hitherto from the Philippines (Tatsukawa, 2017). Therefore, the specimens collected from southern Taiwan represent the first record of *P. pisang* from Taiwan based on collected voucher specimens. In addition the specimen which collected from off Ke-tze-liao, southwestern Taiwan (NMMB-P26433) represents the northernmost specimen-based record of this species.

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Figure 1. Fresh specimens of *Pterocaesio pisang* from southern Taiwan. Upper: NMMB-P14033, 142.9 mm SL; middle: NMMB-P26622, 155.2 mm SL; lower: NMMB-P26433, 88.9 mm SL.

Table 1. Counts and measurements of *Pterocaesio pisang* from Taiwan.

	NMMB-P14033	NMMB-P26622	NMMB-P26433
Standard length (mm; SL)	142.91	155.17	88.9
Measurements (% of SL)			
Body depth	27.8	28.1	27.8
Body width	17.4	15.4	16.5
Head length	28.9	30.1	28.8
Snout length	7.4	7.8	7.5
Eye diameter	8.1	7.8	9.3
Bony interorbital width	7.7	7.6	8.6
Caudal peduncle depth	8.5	8.0	9.1
Caudal peduncle length	13.3	12.8	14.0
Predorsal-fin length	37.4	38.4	36.8
Preanal-fin length	66.3	68.3	66.5
Prepelvic-fin length	35.3	36.5	36.2
Length of 1st dorsal-fin spine	2.3	2.0	2.1
Length of 2nd dorsal-fin spine	13.7	9.0	12.8
Length of 3rd dorsal-fin spine	18.9	15.3	15.9
Length of 4th dorsal-fin spine	19.0	16.1	15.2
Length of last dorsal-fin spine	9.3	6.9	8.4
Length of 1st dorsal-fin soft ray	8.3	6.2	8.2
Length of 1st anal-fin spine	1.8	1.4	2.0
Length of 2nd anal-fin spine	11.0	8.2	10.5
Length of 3rd anal-fin spine	10.3	8.0	10.7
Length of 1st anal-fin soft ray	9.1	7.9	10.1
Longest caudal-fin ray length	25.7	24.1	24.9
Counts			
Dorsal-fin rays	X, 15	X, 15	X, 15
Anal-fin rays	III, 12	III, 12	III, 12
Pectoral-fin rays	19	20	19
Pelvic-fin rays	I, 5	I, 5	I, 5
Lateral-line scales	66	71	73
Circumpeduncular scales	11+14	11+15	12+14
Scales above lateral line to origin of dorsal fin	8	8	8
Scales below lateral line to origin of anal fin	14	15	14
Scales on cheek	4	4	4
Pre-dorsal-fin scales	24	28	25

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