

First Specimen-based Records of *Pristipomoides flavipinnis* (Perciformes: Lutjanidae) from the Tokara and Amami Islands, Japan

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Abstract

Four specimens (290.0-363.0 mm standard length) of *Pristipomoides flavipinnis* Shinohara, 1963, previously recorded in Japanese waters only from the southern Ryukyu Islands (Okinawa Islands and southward) and Ogasawara Islands, were collected from the northern Ryukyu Islands (Tokara and Amami islands), thereby representing a ca. 270 km northward distributional range extension for the species, the Tokara Islands specimens being the northernmost record. The four specimens are described in detail.

Key words: distribution, fish fauna, morphology, new record, snappers, taxonomy

Introduction

The lutjanid fish genus *Pristipomoides* Bleeker, 1852 is characterized by the dorsal fin with 10 spines and 11 soft rays, flattened interorbital space, produced dorsal and anal fin posteriormost ray, groove absent on snout, roof of mouth with villiform teeth on vomer and palatines, pectoral fin much longer than snout, dorsal fin not deeply notched, and dorsal and anal fins without scales (ALLEN 1985, ANDERSON and ALLEN 2001). It is currently represented in Japanese waters by eight species, viz., *P. argyrogrammicus* (Valenciennes, 1832), *P. auricilla* (Jordan, Evermann and Tanaka, 1927), *P. filamentosus* (Valenciennes, 1830), *P. flavipinnis* Shinohara, 1963, *P. multidentis* (Day, 1871), *P. sieboldii* (Bleeker, 1854), *P. typus* Bleeker, 1852, and

P. zonatus (Valenciennes, 1830) (SHIMADA 2013). *Pristipomoides flavipinnis* has previously been recorded from the Ogasawara Islands and southern Ryukyu Islands (Okinawa Islands and southward) (SHIMADA 2013).

Four new specimens recently collected from the Tokara and Amami islands represent the first confirmed records of the species from those localities and are described herein.

Materials and Methods

Methods for counts and proportional measurements, shown in Table 1, followed SHINOHARA (1963). Standard and head lengths are abbreviated as SL and HL, respectively. All measurements, except for SL which was measured to the nearest 1 mm, were made with digital calipers to the nearest 0.1 mm. Curatorial procedures for newly collected specimens followed MOTOMURA and ISHIKAWA (2013). Kagoshima University Museum, Kagoshima is abbreviated as KAUM.

Results and Discussion

Pristipomoides flavipinnis Shinohara, 1963

Standard Japanese name: Kimme-himedai

Figs. 1-2; Table 1

Material examined. 4 specimens (290.0-363.0 mm SL) from the Ryukyu Islands, Japan - **TOKARA ISLANDS:** KAUM—I. 45510, 363.0 mm SL, off Tokara Islands, long line (purchased at Kagoshima City Central Fish Market), 12 Mar. 2012, M. MATSUNUMA; KAUM—I. 77538, 290.0 mm SL, KAUM—I. 77539, 326.0 mm SL, off Kodakara-jima island, about 100 m depth, line fishing (purchased at Kagoshima City Central Fish Market), 7 Aug. 2012, H. HATA. **AMAMI ISLANDS:** KAUM—I. 55853, 342.0 mm SL, off Amami-Oshima island, line fishing (purchased at Kagoshima City Central Fish Market), 30 July 2012, M. MEGURO and Y. SAKURAI.

Description. Body oblong, rather compressed, deepest between origins of 2nd and 5th dorsal-fin spines. Dorsal profile of body convex from snout tip to caudal-fin base. Ventral profile of head and body convex from lower-jaw tip to caudal-fin base. Snout rounded. Mouth terminal, large, posterior tip of maxilla extending beyond vertical line through anterior margin of eye. Eye and iris elliptical. Interorbital space flat, scaleless. Nostrils paired, positioned close together, anterior to orbit. Anterior nostril round with dermal flap. Posterior nostril triangular. Uppermost point of pectoral-fin insertion anterior to vertical line through posteriormost point of opercle. Lowermost point of pectoral-fin insertion on vertical line through posteriormost point of opercle. Posterior tip of pectoral fin pointed, reaching to anus. Origin of pelvic fin located slightly anterior to origin dorsal fin. Posterior end of pelvic-fin base just below base

of 3rd dorsal-fin spine. Posterior end of depressed pelvic fin reaching to vertical line through midpoint between origins of 10th dorsal-fin spine and 1st dorsal-fin soft ray, not reaching to anus. Dorsal-fin contour moderately notched, origin slightly posterior to pelvic-fin origin, insertion just above posterior end of anal-fin base, 5th dorsal-fin spine longest. Fin membrane between spinous and soft-rayed portions of dorsal fin not deeply notched. Last rays of dorsal and anal fins produced. Anal-fin origin just below bases of 1st to 3rd dorsal-fin rays, 3rd anal-fin spine longest. Caudal fin forked. Anus just anterior to anal-fin origin, posterior to midpoint of body. Scales ctenoid. All fins, jaws, snout, pectoral-fin axillary region and posterior part of preopercle without scales. Posterior edge of preopercle serrated. Upper jaw with single outer row of conical teeth and inner band of fine teeth. Triangular patch of villiform teeth on vomer, fairly broad band of villiform teeth on palatines. Lower jaw with single row of conical teeth. Teeth near anterior part of lower jaw greatly enlarged. Tongue edentate. Gill rakers long, slender. Pseudobranchial filaments present.

Color when fresh (Figs. 1-2): Head and body pink laterally, whitish-silver ventrally. Poorly-defined yellowish blotches dorsally on body. Dorsal-fin membrane whitish to yellowish with transparent blotches on posterior portion of dorsal fin; blotches forming 2-3 bands. Pectoral fin semi-transparent, yellowish centrally. Pelvic fin whitish to pinkish. Anal fin semi-transparent, a pearl-yellow band centrally. Caudal fin reddish with yellow margin. Pupil bluish-black, iris bright yellow. Dorsal surface of head with yellow vermicular markings (Fig. 2B).

Color in alcohol: Body dark pink dorsally, elsewhere pale yellow.

Remarks. The four specimens were identified as *P. flavipinnis* on the basis of the following combination of characters, which closely match the diagnostic features of *P. flavipinnis* given by SHINOHARA (1963, 1966), ALLEN (1985), ANDERSON and ALLEN (2001) and SHIMADA (2013): pored lateral-line scales 60-61; 15 lower gill rakers;



Fig. 1. Fresh specimen of *Pristipomoides flavipinnis* (KAUM-I. 55853, 342.0 mm SL, Amami-Oshima island, Amami Islands, Kagoshima Prefecture, Japan).

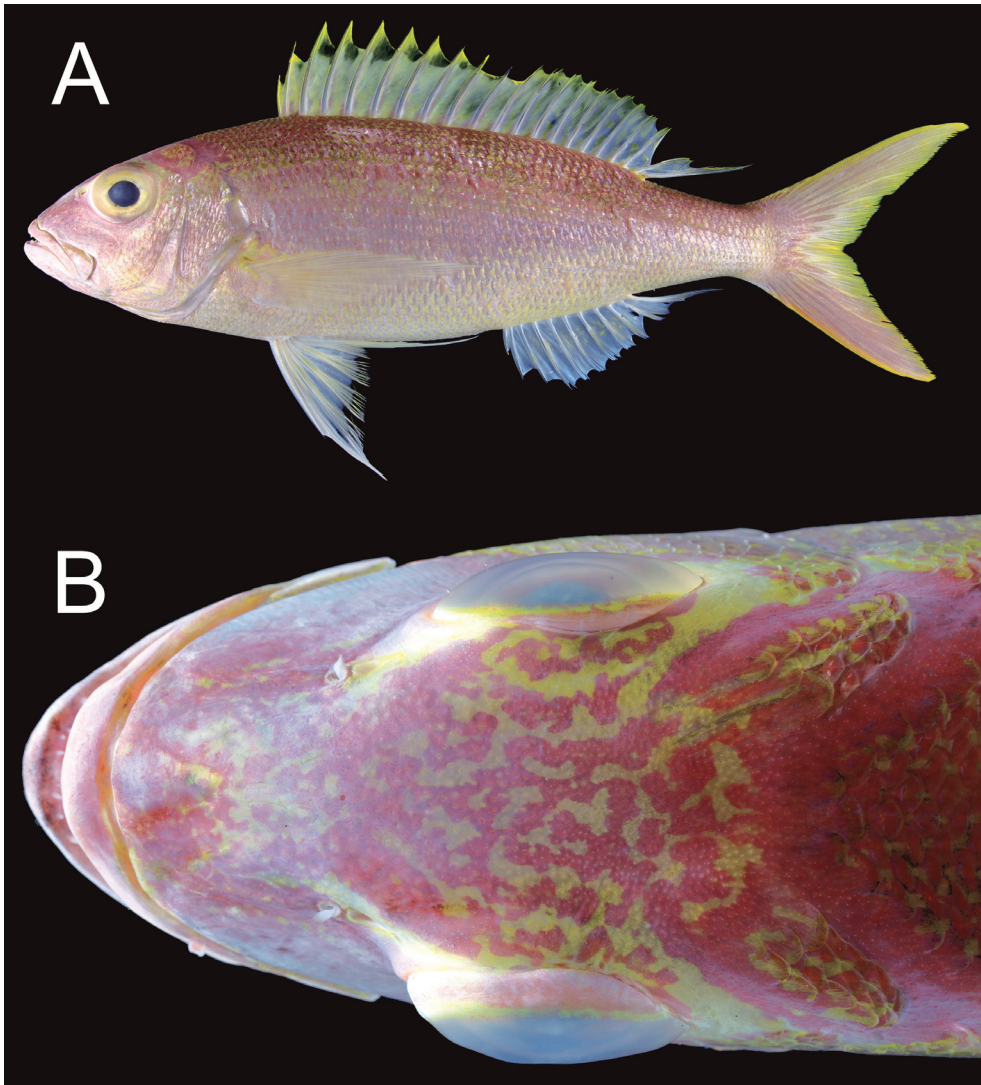


Fig. 2. (A) Lateral view of body and (B) dorsal view of head of fresh specimen of *Pristipomoides flavipinnis* (KAUM-I. 77539, 326.0 mm SL, Kodakara-jima island, Tokara Islands, Kagoshima Prefecture, Japan).

upper-jaw length 2.3-2.4 times in HL; interorbital space 4.5 times in HL; suborbital width 6.4-6.8 times in HL; body depth 3.3-3.5 times in SL; teeth on anterior part of lower jaw greatly enlarged; no teeth on tongue; villiform teeth on vomer; body color uniform without bars; dorsal surface of head with vermicular yellow markings; caudal fin with yellow margin.

The genus *Pristipomoides* contains 11 valid species (ALLEN 1985). Although *P. flavipinnis* is most similar to *P. filamentosus* in sharing a slender body (body depth 3.3-3.6 times in SL), similar counts of pored lateral-line scales and gill rakers, and a uniform body color without bars (SHINOHARA 1963, 1966, ALLEN 1985, ANDERSON and

ALLEN 2001, SHIMADA 2013), the former is characterized by a longer upper jaw (2.1-2.4 times in HL vs. 2.4-2.6 times in *P. filamentosus*), narrower interorbital space (4.5-4.7 times in HL vs. 3.7-4.2), broader suborbital width (6.2-6.8 times in HL vs. 7.6-9.0), the dorsal surface of the head with vermicular yellow markings (vs. yellow reticulated markings with blue spots; Fig. 3B) and the caudal fin with a yellow margin (vs. red; Fig. 3A; SHINOHARA 1963, 1966, ALLEN 1985, ANDERSON and ALLEN 2001, MIURA 2012, SHIMADA 2013).

Table 1. Counts and measurements, expressed as percentages of standard (SL) or head (HL) lengths, of *Pristipomoides flavipinnis*.

	Tokara Islands	Tokara Islands	Amami-Oshima island	Tokara Islands	
	KAUM-I. 77358	KAUM-I. 77359	KAUM-I. 55853	KAUM-I. 45510	
Standard length (mm)	290.0	326.0	342.0	363.0	
Counts					Modes
Dorsal-fin spines	10	10	10	10	10
Dorsal-fin soft rays	11	11	11	11	11
Anal-fin spines	3	3	3	3	3
Anal-fin soft rays	8	8	8	8	8
Pectoral-fin rays	16	15	16	16	16
Pored lateral-line scales	60	61	60	60	60
Gill rakers	7+15	7+15	7+15	7+15	7+15
Scale rows on preopercle	6	6	6	6	6
Predorsal scale rows	14	14	14	14	14
Scale rows above lateral line	7	7	7	7	7
Scale rows below lateral line	14	14	14	14	14
Measurements (% SL)					Means
Body depth	28.2	29.6	30.3	29.7	29.4
Head length	32.1	33.3	33.0	33.1	32.9
Snout length	10.9	12.1	12.2	12.0	11.8
Eye diameter	8.4	8.7	8.8	8.7	8.7
Caudal-peduncle height	9.3	9.8	9.9	9.7	9.7
Pectoral-fin length	29.9	32.1	30.6	32.0	31.1
Pelvic-fin length	25.2	25.8	24.6	25.3	25.2
4th dorsal-fin spine length	13.9	13.3	14.8	12.7	13.7
Last dorsal-fin soft ray length	18.1	17.7	17.1	18.0	17.7
3rd anal-fin spine length	8.3	8.6	8.7	9.7	8.8
Last anal-fin soft ray length	15.2	16.0	14.7	16.5	15.6
Measurements (% HL)					Means
Upper-jaw length	41.6	42.5	43.6	42.5	42.6
Interorbital width	22.1	22.2	22.1	22.0	22.1
Suborbital width	15.0	14.8	15.7	14.7	15.0

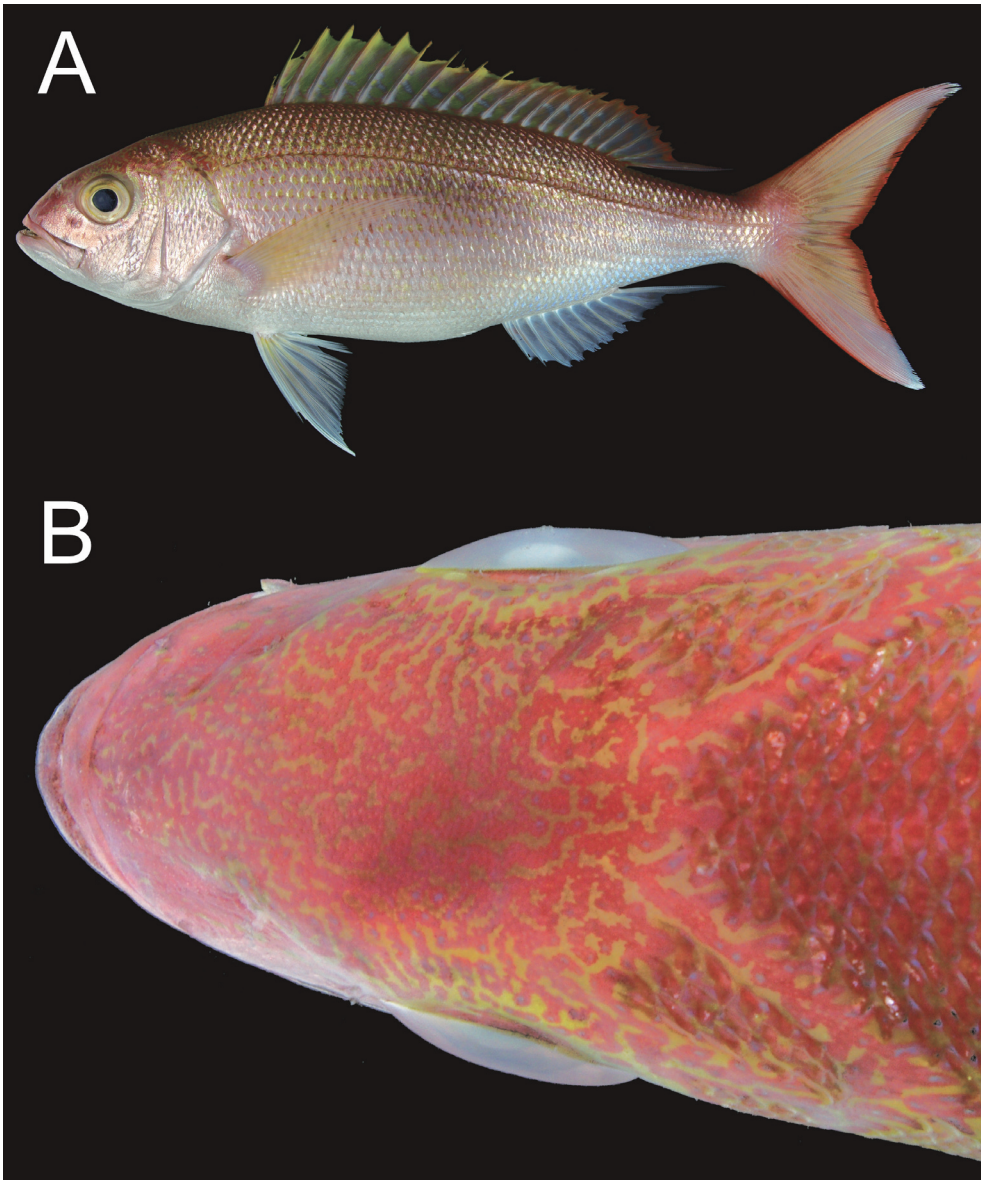


Fig. 3. (A) Lateral view of body and (B) dorsal view of head of fresh specimen of *Pristipomoides filamentosus* (KAUM-I. 66886, 301.6 mm SL, Amami-Oshima island, Amami Islands, Kagoshima Prefecture, Japan).

SHINOHARA (1963) described *P. flavipinnis* as a new species based on specimens collected from Okinawa-jima island, proposing the Japanese name “Kimme-himedai” for the species. Subsequently, AOKI (1984, 1989a, b) reported *P. flavipinnis* from the Ogasawara Islands.

Although GUSHIKEN (1972) showed a color photograph of *P. flavipinnis* collected from Okinawa Prefecture, it was re-identified here as *P. multidentis*, due to having two

blue stripes on the snout to cheek. Although FUJIYAMA (2004) reported *P. flavipinnis* from Amami-Oshima island, also based on a photograph, re-examination of the photograph revealed it to be *P. filamentosus* due to the red margin on the caudal fin. Accordingly, the present specimens from the Tokara and Amami islands represent a northward extension of the distributional range for the species, the Tokara specimens representing the northernmost record.

Comparative material examined. *Pristipomoides filamentosus*, KAUM—I. 66886, 301.6 mm SL, off Amami-Oshima island, 21 Nov. 2014, long line (purchased at Naze Landing Port), K. KOEDA.

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References

- ALLEN, G. R. 1985. FAO Species Catalogue. Vol. 6. Snappers of the World. An Annotated and Illustrated Catalogue of Lutjanid Species Known to Date. FAO Fisheries Synopsis, 6 (125): i-vi + 1-303.
- ANDERSON, W. D. and ALLEN, G. R. 2001. Lutjanidae Snappers (Jobfishes). In: FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific. Vol. 5. Bony Fishes Part 3 (Menidae to Pomacentridae) (Eds. CARPENTER, K. E. and NIEM, V. H.), 2840-2918, FAO, Rome, Italy.
- AOKI, Y. 1984. Fish Caught by Single Hook Fishing for Demersal Fishes. In:

- Works on Resources of Demersal Fishes in the Ogasawara Islands (Ed. TOKYO METROPOLITAN FISHERIES EXPERIMENT STATION), 1-22, Tokyo Metropolitan Fisheries Experiment Station, Tokyo, Japan (In Japanese).
- AOKI, Y. 1989a. Fish Fauna of the Underwater Shelf and Slope in the Ogasawara Islands, Japan. *Bulletin of the Biogeographical Society of Japan*, 44: 17-25 (In Japanese).
- AOKI, Y. 1989b. Faunal Zonation of the Ogasawara Islands Underwater Shelf and Slope Fishes. *Bulletin of the Biogeographical Society of Japan*, 44: 27-34 (In Japanese).
- FUJIYAMA, M. 2004. Anglers Fishes in the Amami-Oshima Island. Manta Fujiyama, Naze, 179 (In Japanese).
- GUSHIKEN, S. 1972. Fishes of the Okinawa Islands. Tiger Printing Co., Naha, 251 (In Japanese).
- MIURA, N. 2012. Fishes in Chinen Market, Okinawa. Wave Kikaku, Yonabaru, 140 (In Japanese).
- MOTOMURA, H. and ISHIKAWA, S. 2013. Fish Collection Building and Procedures Manual. English Edition. The Kagoshima University Museum, Kagoshima and the Research Institute for Humanity and Nature, Kyoto, 70.
- SHIMADA, K. 2013. Lutjanidae. In: Fishes of Japan with pictorial keys to the species third edition (Ed. NAKABO, T.), 913-930, 2001-2004, Tokai University Press, Hadano, Japan (In Japanese).
- SHINOHARA, S. 1963. Description of the New Lutjanid fish of the Genus *Pristipomoides* from the Ryukyu Islands. *Bulletin of Science and Engineering Division, University of Ryukyus. Mathematics and Natural Sciences*, 6: 49-53.
- SHINOHARA, S. 1966. Studies on the Lutjanid Fishes of the Ryukyu Islands, Anatomy, Taxonomy and Distribution. *Bulletin of Science and Engineering Division, University of Ryukyus. Mathematics and Natural Sciences*, 9: 179-301 (In Japanese).