

CIRRIPECTES IMITATOR, A NEW SPECIES OF WESTERN PACIFIC BLENNIID FISH

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Abstract.—*Cirripectes imitator* is described from Taiwan, Japan, and the Ogasawara Islands. *Cirripectes imitator*, *C. castaneus* and *C. polyzona* frequently have been confused because all have similar color patterns. *Cirripectes imitator* is distinct among *Cirripectes* species in having the following combination of characters: a broad, expanded flap bearing cirri on each side of the nape; numerous pores at most cephalic sensory pore positions; dorsal-fin rays XII, 14; anal-fin rays II, 15; 7-14 lateral line tubes; lateral line tubes extending posteriorly to or almost to caudal-fin base; adult color pattern consisting of pale spots or bars on a dark background; nuchal cirri 43 or more; and total vertebrae 30.

While revising the Indo-Pacific blenniid genus *Cirripectes* Swainson, I discovered an undescribed species from Taiwan, Japan, and the Ogasawara Islands. The similarity of the color pattern of this species to that of two other *Cirripectes* species has caused workers to make numerous misidentifications. To solve this problem, I have decided to publish the new species description prior to completion of the revision.

Counts follow Smith-Vaniz and Springer (1971) as modified by Williams and Maugé (1983) except as follows: number of distinct nuchal cirri bases were counted instead of the free tips; nasal and supraorbital cirri counts include free tips on both left and right sides; gill rakers refer to the total number of rakers on the first arch; nuchal flap is a broadly expanded flap bearing the ventralmost group of cirri on each side of nape; mid-snout pores (Fig. 1, MSP) refer to two pore positions (one each in left and right supraorbital series) in the middle of the snout between the left and right posterior nostrils; extra interorbital pore position (EIP) refers to a pore position (Fig. 1) in both left and right supraorbital series that lies immediately behind and to each side of the supraorbital commissural pore position; pore positions behind nuchal flap (PBN) are those behind the lower part of the nuchal flap (Fig. 1).

The following institutional abbreviations are used: BPBM, Bernice P. Bishop Museum, Hawaii; FAKU, Department of Fisheries, Faculty of Agriculture, Kyoto University, Japan; NTUM, National Taiwan University Museum; UF, Florida State Museum, University of Florida; USNM, National Museum of Natural History, Smithsonian Institution, Washington, D.C. Other abbreviations used are: SL, standard length and LL, lateral line.

Cirripectes imitator, new species

Fig. 2

Holotype.—FAKU 48203 (male: 65.6 mm SL), Ogasawara Islands, Chichi Jima Island (approximately 27°30'N, 142°30'E), Sakiaura; 0.5-5 m; 8 Apr 1974.

Paratypes.—TAIWAN: BPBM 23228 (12 specimens: 34.0-81.6 mm SL), east

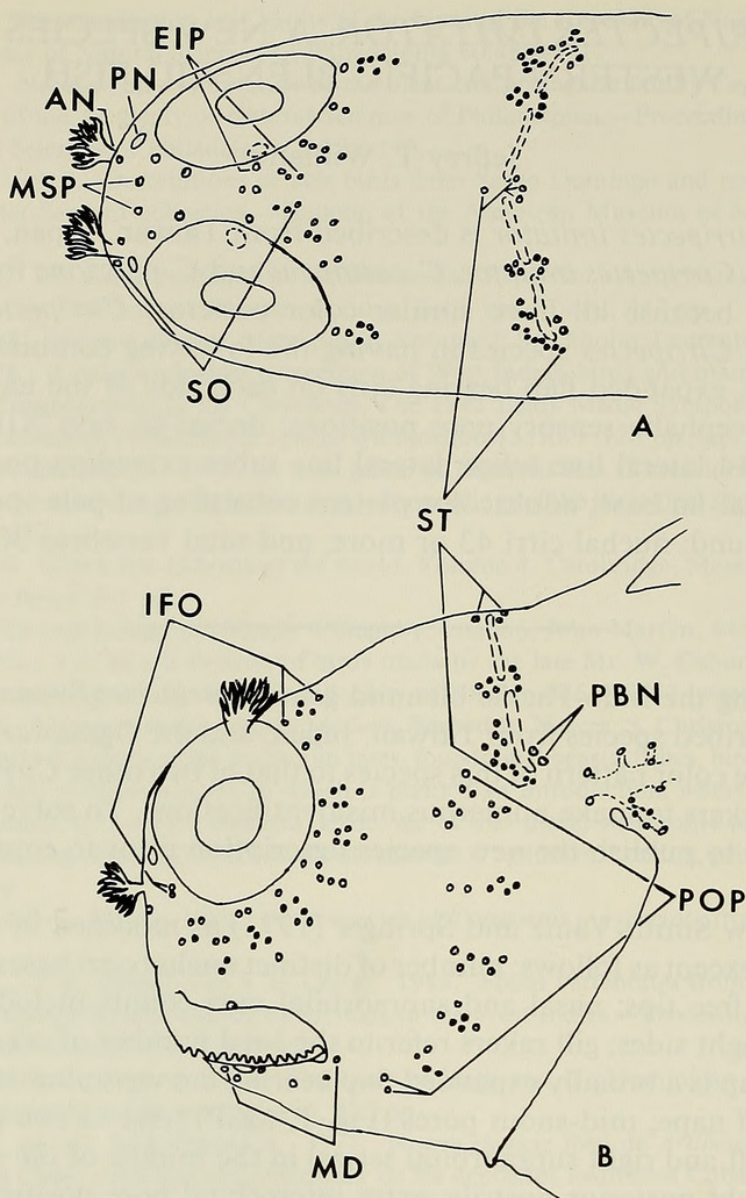


Fig. 1. Diagrammatic illustration of cephalic sensory pore system of *Cirripectes imitator* based on a 50 mm SL male (USNM 258316). A, Dorsal view of head; B, Left-lateral view of head. Abbreviations: AN, anterior nostril; EIP, extra interorbital pore position (position on right side indicated); IFO, infraorbital series; MD, mandibular series; MSP, mid-snout pores; PBN, pore positions behind nuchal flap; PN, posterior nostril; POP, preopercular series; SO, supraorbital series; ST, supratemporal series. First and last pore positions indicated for each series. Dashed lines above eyes and across nape indicate bases of cirri not illustrated.

coast off San Shien Tai, 0–2 m; NTUM 5777-1 and 2 (2: 78.1–79.1), Su-ao Harbor; NTUM 5780 (1: 42.1), Yeh-jen-chuen (Lan-yu); UF 41606 (1: 41.4), 22°40'N, 121°29'E, Green Island, tidepool; USNM 227979 (2: 80.6–92.9), rocky headland NW of Sha Tao, 1–6 m; USNM 227980 (6: 73.0–90.8), Ch'uan-fan-shih, 4–6 m; USNM 258315 (8: 46.1–57.2) and USNM 258316 (2: 47.7–50.3), 22°40'N, 121°29'E, Green Island, tidepool. RYUKYU ISLANDS: FAKU 48109 (1: 52.0), Okinawa Island, Hedomisaki; FAKU 50400 (1: 71.6) and FAKU 50402 (1: 34.7), Okinawa Island; FAKU 47989 (1: 56.8), Okinawa, Sesoko Jima, 0.5–5 m; FAKU

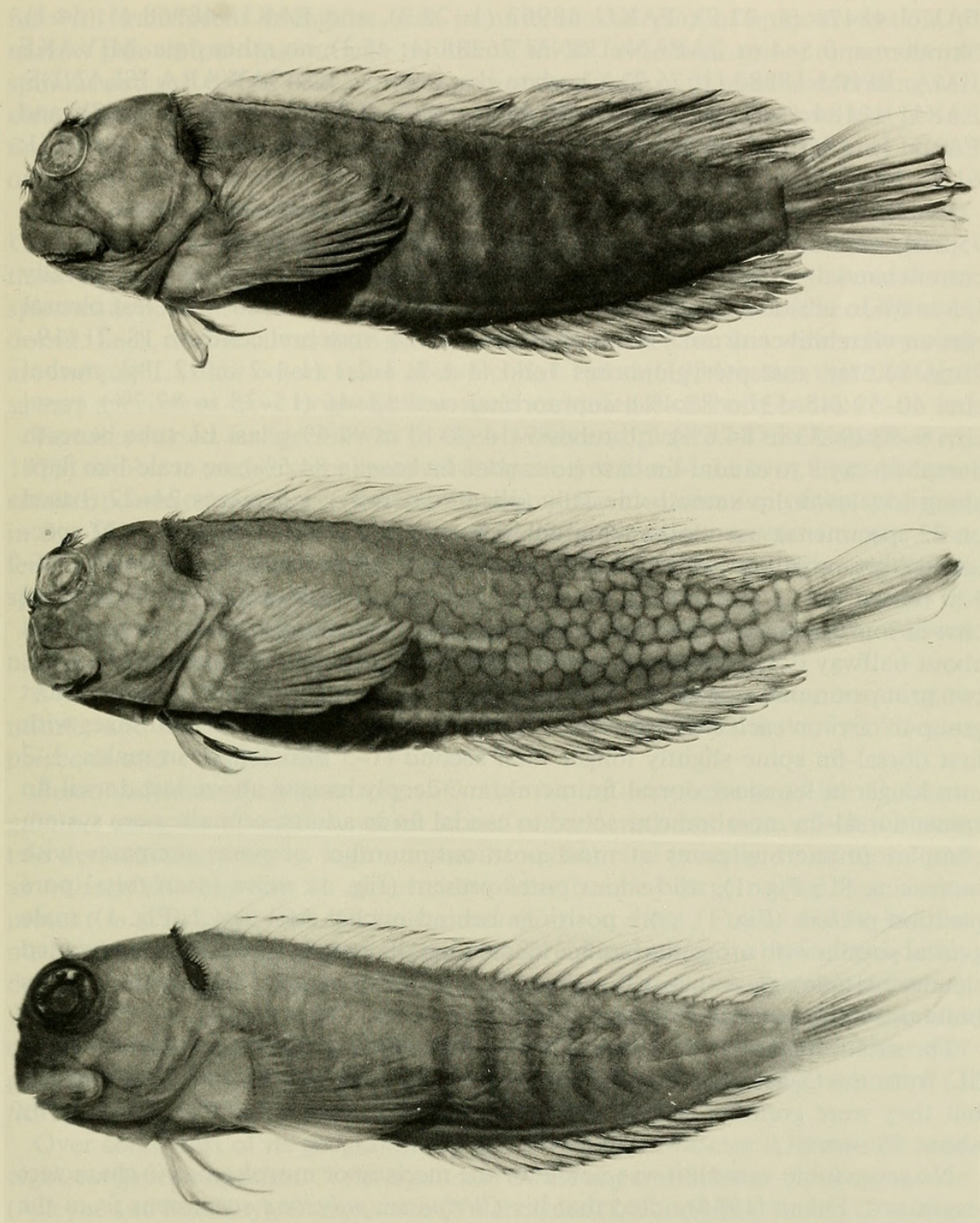


Fig. 2. Typical color patterns of *Cirripectes imitator* new species. Top, male holotype, FAKU 48203 (65.6 mm SL); middle, female, FAKU 48187 (61.9 mm SL); bottom, young male, FAKU 48478 (31.2 mm SL).

[111459] (1: 74.9) and FAKU [111460] (1: 76.2), Yoron Jima, Kanebo; FAKU [111461] (1: 101.4), Okino Erabu Shima. HONSHU, JAPAN: FAKU [111458] (1: 56.8), FAKU 48268 (1: 45.9), FAKU 48269 (1: 51.7), FAKU 48272 (1: 46.0), FAKU 48398 (1: 42.7), FAKU 48399 (1: 38.5), FAKU 48400 (3: 39.5–53.6),

FAKU 48478 (1: 31.2), FAKU 48963 (1: 28.3), and FAKU 48968 (1: 34.1), Shirahama, 0.5–4 m. JAPAN: USNM 76288 (1: 45.1), no other data. MIYAKE JIMA: BPBM 18983 (1: 75.2), Chodara-ika, 0–2 m. OGASAWARA ISLANDS: FAKU 48184 (1: 52.4), FAKU 48185 (1: 58.6), FAKU 48186 (1: 54.7), and FAKU [111455] (6: 50.6–62.4), Chichi Jima Island, 0.5–5 m; FAKU 48187 (1: 61.9), Nishi Jima Island, 0.5–5 m.

Description.—Dorsal fin XI–XIII (XII in 95.2% of specimens), 13–15 (14 in 95.2%); total dorsal-fin elements 26; anal fin II, 14–16 (15 in 95.2%); total procurrent caudal-fin rays 11–14; pelvic fin I, 3–4 (bilaterally I, 4 in 88%, bilaterally I, 3 in 6%, one side I, 3 and other I, 4 in 6%); vertebrae 10 + 20 = 30; last pleural ribs on vertebral centrum 11; last epipleural rib on vertebral centrum 18–21 (19–20 in 85.5%); anal pterygiophores 1-1-1, 1-1-2, 1-2-1 (1-1-2 in 92.1%); nuchal cirri 40–59 (45–53 in 82.4%); supraorbital cirri 13–46 (15–35 in 82.7%); nasal cirri 9–93 (9–33 in 84.6%); LL tubes 5–14 (8–13 in 94.6%); last LL tube beneath dorsal-fin ray 9 to caudal-fin base (to caudal-fin base in 84.5%); no scale-like flaps along LL; lower lip smooth mesially (plicate laterally); gill rakers 24–27 (based on 22 specimens); pseudobranchial filaments on one side 7–9 (based on 22 specimens); premaxillary teeth 192–230 (based on 11 specimens); dentary teeth 84–120 (based on 11 specimens); upper lip crenulae approximately 34–50; nuchal cirri in four groups (two on each side) separated at dorsalmost point on nape and about halfway down length of row on each side (gaps less than about 0.5 mm), two groups on one side rarely connected by a low basal membrane, ventralmost group of cirri on each side borne on a broad nuchal flap; adults of both sexes with first dorsal-fin spine slightly longer than second (1–5 mm longer in males, 1–2 mm longer in females); dorsal-fin membrane deeply incised above last dorsal-fin spine; dorsal-fin membrane attached to caudal fin in adults; cephalic pore system complex (numerous pores at most positions; number of pores increases with increasing SL; Fig. 1); mid-snout pores present (Fig. 1); extra interorbital pore position present (Fig. 1); pore positions behind nuchal cirri flap 2 (Fig. 1); male genital papilla with urogenital orifice located basally between two widely separated slender filaments (less than 1.0 mm long) on a fleshy swelling behind anus; testes bulbous, width equals length; maximum size about 100 mm SL.

The smallest gravid female (ova about 0.5 mm diameter) examined was 55 mm SL, from the Ogasawara Islands. Some 40–50 mm SL females had large ovaries, but they were granular in appearance and had no large ova. Males mature by about 50 mm SL.

No geographic variation was noted for the meristic or morphometric characters examined. Fukao (1984) noted that his *Cirripectes polyzona* specimens from the Ogasawara Islands (= *C. imitator* at that locality) had bright yellow spots or blotches in life. I attribute this color variant to populational variation within the species.

Color in alcohol.—Color pattern is highly variable, ranging from alternating dark- and pale-brown bars to dark-brown reticulations around pale-brown pupil-sized spots on the body. Adult males tend to be darker overall, with spots coalescing to form pale bars on body. Females generally exhibit the reticulated pattern, but both sexes can exhibit either pattern. Pupil-sized spots on cheeks, snout, upper lip, and underside of head. These spots are pale brown on darker background or the reverse in either sex. In some specimens, spots on underside of head fuse to form 2 or 3 alternating dark and pale bars across the throat. Dorsal

fin with translucent triangular area in anterodorsal part of spinous section, a narrow pale stripe runs through middle of fin to last dorsal spine, remainder of spinous and soft dorsal brown; upper part of caudal fin with translucent triangular area, remainder of fin brown; anal fin brown, tips of rays paler; pectoral and pelvic fins dusky. Rugosities on anal-fin spines of males pale-brown. Nuchal cirri black, other cirri brown.

Color in life.—Male (based on fig. 39–27a in Shen 1984, which he referred to as *Cirripectes sebae*) with alternating brown and bluish-white bars on head and body; those on head broken into irregular pupil-sized spots. Pale section in caudal and spinous-dorsal fins with orange rays; red stripe runs through middle of spinous dorsal. Each nuchal cirrus with pale-yellow band near base. Iris with yellow ring around pupil. Other colors same as in alcohol. Fukao (1984) states that the Ogasawara specimens have bright yellow spots or blotches on body in life.

Females (based on fig. 392–7b in Shen 1984; and plate 87-D in Masuda et al. 1975) similar to male except spots on body are not fused into bars; spots become smaller posteriorly. There is some doubt about the identification of the specimen in fig. 392–7b (Shen 1984). I tentatively identify it as *Cirripectes imitator*, but females of *C. castaneus* have a very similar color pattern and this could be a specimen of the latter species.

Geographic distribution.—*Cirripectes imitator* is known to occur from Taiwan northward to Shirahama, Japan, and in the Ogasawara Islands.

Etymology.—The specific epithet is derived from the Latin *imitor*, meaning to mimic, and refers to the similarity of the color pattern to that of *Cirripectes polyzona* and *C. castaneus*.

Relationships and comparisons.—*Cirripectes imitator* belongs to the *C. fuscoguttatus* complex of species, which is not yet resolved, but with which it shares two derived characters: a high number of nuchal cirri (usually 45 or more) and an enlarged nuchal flap on either side of the head. A large nuchal flap is also present in *C. auritus* and *C. kuwamurai* (Carlson 1981; Fukao 1984), but the nuchal flaps in these species appear quite different and are probably independently derived. *Cirripectes imitator* differs from the *C. fuscoguttatus* complex in having 7–14 (in 98.2% of specimens; 1 of 56 with 5) LL tubes, whereas the other members of the *C. fuscoguttatus* complex have 0–4 (in 98.5%; 2 of 69 with 5). The color pattern of *C. imitator*, with pale spots on a dark background, is the reverse of *C. fuscoguttatus*, which has dark spots on a pale background.

Over some part of its geographic range, *Cirripectes imitator* is sympatric with eight congeneric species: *C. fuscoguttatus* Strasburg and Schultz, *C. filamentosus* (Alleyne and Macleay), *C. castaneus* (Valenciennes), *C. perustus* Smith, *C. quagga* (Fowler and Ball), *C. polyzona* (Bleeker), *C. kuwamurai* Fukao, and *C. variolosus* (Valenciennes). The only species of *Cirripectes* known to occur in the Ogasawara Islands are *C. imitator* and *C. variolosus*, and this is the only locality where their geographic ranges overlap. The reticulated color pattern of *C. imitator* easily distinguishes it from *C. variolosus*, which has a brown body and small pale spots (red in life) covering head. In Japan and Taiwan, *C. imitator* is most frequently confused with *C. castaneus* and *C. polyzona*. *Cirripectes polyzona* (plate 87-C in Masuda et al. 1975; and fig. 392-6 in Shen 1984) differs from *C. imitator* in having 1 pore position (versus 2) behind lower part of ventralmost group of cirri on each side, 32–42 (in 94.7%; range 32–44) nuchal cirri (versus 43–59 in 96.1%; range

40–59), ventralmost nuchal cirri not borne on a large flap (versus large nuchal flap present), and I, 3 pelvic-fin rays (versus I, 3–I, 4 or I, 4–I, 4 in 94%). Both sexes of *C. polyzona* have the barred color pattern, only *C. castaneus* males are barred, and male *C. imitator* may have either bars or spots. *Cirripectes castaneus* differs from both of these species in having relatively few (1–2) pores (versus 3 or more) at most cephalic sensory pore positions. The similarity of these three species is evidenced by the recent treatment of the Japanese *Cirripectes* species by Fukao (1984). Mr. Fukao made available the specimens used in his analysis and a list of catalog numbers corresponding to his "*C. polyzona*" color pattern types A, B, and C. I found that his type A pattern included female *C. castaneus* and both sexes of *C. imitator*; his type B pattern consisted of male *C. imitator* and one female *C. castaneus*; and his type C pattern comprised male and female *C. polyzona*, male and female *C. castaneus*, and one male *C. imitator*. In addition to the spotted and barred color patterns, *C. castaneus* specimens sometimes have a uniform brown head and body (see Fukao 1984, fig. 3-C). This pattern usually is seen after a specimen has been preserved and may be an artifact of the preservation process.

Cirripectes imitator differs from the other sympatric species in having the following combination of characters: large expanded nuchal flap bearing ventralmost group of nuchal cirri, dorsal-fin segmented rays 14, anal-fin segmented rays 15, numerous pores at most cephalic sensory pore positions, LL tubes present to or almost to caudal-fin base, 43 or more nuchal cirri, and 30 total vertebrae.

Acknowledgments

For the loan of specimens, I thank J. E. Randall, S. C. Shen, J.-J. Lin, R. Fukao, and H. K. Mok. Mr. R. Fukao kindly provided information on the specimens used in his revision of Japanese *Cirripectes*. V. G. Springer read and provided helpful comments on an earlier draft of the manuscript. This project was supported in part by National Science Foundation Grant DEB 8207313.

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Williams, Jeffrey T. 1985. "Cirripectes imitator, a new species of western Pacific blennioid fish." *Proceedings of the Biological Society of Washington* 98, 533–538.

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