Cirrhilabrus adornatus, a new species of labrid fish from Sumatra

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Abstract

A new species of the labrid fish genus *Cirrhilabrus* is described from 12 specimens collected over rubble bottom in 12-14 m off the southwestern coast of Sumatra near Padang and the Mentawai Islands. It is a small species (largest, 63.4 mm SL) characterized as follows: dorsal rays XI,9; anal rays III,9; pectoral rays 14-15 (rarely 14); lateral-line scales 15-16 + 6-7; median predorsal scales 5; rows of scales on cheek 2; gill rakers 15-18; body depth 2.9-3.2 in SL; head length 2.75-3.05 in SL; dorsal profile of head nearly straight; snout length 3.4-3.85 in head; caudal fin varying from slightly rounded or truncate in females to double emarginate or emarginate in males; pelvic fins short, not reaching anus; males whitish to pale pink with two large triangular bright red blotches dorsoanteriorly on body and a broad red border on dorsal fin; females red, shading to white ventrally on head and abdomen, with a black spot posteriorly on upper side of caudal peduncle.

Introduction

The Indo-Pacific labrid genus *Cirrhilabrus* Temminck et Schlegel consists of a group of small colorful fishes that are usually seen in aggregations over coral reefs, rocky bottom, or most often over rubble substrata. They feed on zooplankton, especially small crustaceans such as copepods, well above the substratum, orienting into the current of the passing water mass. They ingest the zooplankters individually, not by straining as is done by anchovies and Indian mackerels. Because of their relatively small size, they are able to hide among the pieces of rubble with the approach of danger, whereas most of the larger predaceous fishes cannot remain undetected on open rubble bottoms. The species of *Cirrhilabrus* are sexually dichromatic, monandric (i.e. only females in the intitial phase), and haremic. Males elevate their fins and often flash bright iridescent colors during courtship.

As noted by **Allen** and **Randall** (1996: Table 1), there are 31 species of *Cirrhilabrus*, making it second only to *Halichoeres* as the largest genus of the family. The thirty-second species of *Cirrhilabrus* is described below from recent collections made in Sumatra and the Mentawai Islands. Type specimens have been deposited in the Australian Museum, Sydney (AMS); Natural History Museum, London (BMNH); Bernice P. Bishop Museum, Honolulu (BPBM); California Academy of Sciences, San Francisco (CAS); National Science Museum, Tokyo (NSMT); J.L.B. Smith Institute of Ichthyology, Grahamstown (RUSI); and the U.S. National Museum of Natural History, Washington, D.C. (USNM).

Lengths of specimens given below are standard length (SL), the straight-line distance from the front of the upper lip in the median plane (or upper canines if more anterior) to the base of the caudal fin (end of hypural plate). Body depth is the maximum depth from the extreme base of the dorsal spines (adjusting for any obvious malformation from preservation). Head length is measured from the front of the upper lip to the most posterior edge of the opercular membrane; snout length from the same anterior point to the fleshy edge of the orbit. Orbit diameter is the maximum fleshy diameter; interorbital width is the least bony width. Upper-jaw length is taken from the front of the upper lip in the median plane to the posterior end of the maxilla (finding the posterior end may be facilitated by pulling out the front of the upper jaw). Caudal-peduncle depth is the least depth, and caudal-peduncle length the horizontal distance between verticals at the rear base of the anal fin and the caudal-fin base. Fin spines and rays are straight-line measurements from their exteme bases to the tips. Caudal concavity is the horizontal distance between verticals at tips of the shortest and longest caudal rays.

The count of pectoral rays includes the upper rudimentary ray. Counts of pored lateral-line scales are recorded in two parts; the first is the dorsoanterior series which ends beneath the rear portion of the dorsal fin, and the second the midlateral peduncular part. The count of the peduncular pored scales does not include the most posterior pored scale which lies on the base of the caudal fin; it does include an anterior scale if it is deeply notched to where a pore might be expected. Gill-raker counts are made on the first gill arch of the left side and include all rudiments; only the total count is given because it is difficult to determine which raker lies at the angle in the fishes of this genus. Suborbital pores are counted from behind the middle of the eye to below the anterior fleshy edge of the orbit.

Data in parentheses in the description refer to paratypes. Twenty-six different measurements were taken of eight type specimens and recorded as percentages of the standard length (Table 2). Proportional measurements in the text relative to SL, body depth, and head length are rounded to the nearest 0.05.

Cirrhilabrus adornatus, new species
Figs 1-4; Tables 1, 2

Holotype. BPBM 37631, male, 52.1 mm, Indonesia, Sumatra, off Padang, Pulau Ular, 1° 7.2'S, 100° 21.35'E, coral rubble, 12-14 m, spear, **J.E. Randall**, 18 April 1997.

Paratypes. AMS I.38115-001, 2: 34.7-55.6 mm; BMNH 1997.8.4.1-2, 2: 40.5-54.5 mm; BPBM 37632, 2: 30.5-40.8 mm; CAS 95378, 56.0 mm; and NSMT-P 52635, 2: 43.2-47.7 mm, all with same data as holotype; RUSI

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55123, 57.7 mm and USNM 345505, 63.4 mm, Indonesia, Mentawai Islands (off Sumatra), Siberut Island, off entrance to Sarabua Bay, 1° 30'S, 99° 10'E, outer reef slope, coral rubble, 12 m, spear, **J.E. Randall**, 24 April 1997.

Diagnosis

Dorsal rays XI,9; anal rays III,9; pectoral rays 14-15 (rarely 14); lateral-line scales 15-16 + 6-7; median predorsal scales 5; horizontal scale rows on cheek below eye 2; gill rakers 15-18; body depth 2.9-3.2 in SL; head length 2.75-3.05 in SL; dorsal profile of head nearly straight; snout length 3.4-3.85 in head; caudal fin varying from slightly rounded or truncate in females to double emarginate or emarginate in males; pelvic fins short, not reaching anus; males whitish to pale pink with two large triangular bright red blotches dorsoanteriorly on body and a broad red border on dorsal fin except posteriorly; some males with a longitudinal row of small black spots near middle of fin; females red, shading to white ventrally on head and abdomen, with a black spot three-fourths orbit diameter posteriorly on side of caudal peduncle above lateral line.

Description

Dorsal rays XI,9; anal rays III,9 (one paratype aberrant with 7 soft rays); all dorsal and anal soft rays branched, the last to base; pectoral rays 15 (one of 11 paratypes with 14), the upper two rays unbranched; pelvic rays I,5; principal caudal rays 13, the upper and lower unbranched; upper and lower procurrent caudal rays 6, the most posterior segmented; lateral line interrupted, the pored scales 15 + 6 (15-16 + 6-7); scales above lateral line to origin of dorsal fin 1.5; scales below lateral line to origin of anal fin 6; median predorsal scales 5; median prepelvic scales 6; circumpeduncular scales 16; horizontal rows of scales on cheek 2; gill rakers 17 (15-18; Table 1); branchiostegal rays 5; vertebra 9 + 16.

Body moderately deep for the genus, the depth 3.0 (2.9-3.2) in SL; body compressed, the width 2.2 (2.1-2.45) in depth; head length 3.05 (2.8-3.0) in SL; dorsal profile of head nearly straight; snout moderately pointed and long, its length 3.4 (3.4-3.85) in head length; orbit diameter 4.4 (3.7-4.6) in head; scleral cornea of eye divided into two sections, as is typical of the genus and allied genera (see Springer and Randall, 1974); interorbital space convex, the least bony width 4.25 (3.95-4.5) in head; caudal-peduncle depth about equal to its length, the least depth 2.0 (2.0-2.35) in head.

Mouth terminal to slightly inferior, and small, the maxilla extending posteriorly to below anterior nostril, the upper-jaw length 4.15 (4.0-4.25) in head; mouth oblique, forming an angle of about 35° to horizontal axis of body; dentition typical of the genus, with three pairs of canines at front of upper jaw; anterior pair strongly forward-projecting, the next two progressively longer, more recurved, and more laterally projecting; side of upper jaw with a close-set series of small slender conical teeth (19 on jaw of holotype); a single pair of forward-projecting stout canines at front of lower jaw that fit between first two pair of canines when mouth closed; side of lower jaw with a close-set series of small slender conical teeth (21 on side of lower jaw of holotype); no tooth at corner of mouth, and no teeth on roof of mouth. Tongue short and rounded, the upper surface with small papillae. Gill rakers short and laterally compressed, the longest on first arch about one-third length of longest gill filaments.

Edge of preopercle free from behind middle of eye to nearly below anterior fleshy edge of orbit; posterior margin of preopercle finely serrate, the serrae on holotype 29 (18-36 on paratypes; more numerous, in general, on larger specimens); rounded corner and lower margin of preopercle membranous. Anterior nostril small and difficult to detect, in a short flaccid membranous tube with a slight posterior flap, located on a line from fleshy edge of orbit above middle of eye about half distance to front of upper lip; posterior nostril slightly larger than sensory pores of head, located dorsoposterior to anterior nostril a distance about one-fourth orbit diameter. Suborbital pores 9 (8-10); no double suborbital pores (i.e. a second pore perpendicular to and away from a pore at edge of orbit); a series of 8 pores along lower free edge of preopercle from level of lower edge of orbit, continuing anteriorly as a series of 4 pores on mandible.

Scales cycloid; head scaled except interorbital, snout, and chin; opercle covered by 7 large scales; two series of scales on preopercle, the naked flange not broad (its greatest width at angle about one-third orbit diameter); a single row of scales on subopercle and interopercle; a basal series of elongate scales extending out onto dorsal fin, one scale per membrane, about three-fourths length of dorsal spines, these scales progressively shorter posteriorly on soft portion of fin; a similar but shorter series on anal fin; last pored scale of lateral line on base of caudal fin slightly enlarged and somewhat pointed, with two scales of about equal size above and two below; three greatly enlarged scales in a vertical series posterior to last pored scale of lateral line extending about three-fifths distance to middle of posterior margin of fin; small scales on base of pectoral fins but not continuing onto rays; pelvic fins with an axillary scale extending about three-fourths length of pelvic spine; two median scales in a midlateral row at base of pelvic fins, the second scale pointed, also about three-fourths length of pelvic spine.

Origin of dorsal fin above second to third lateral-line scales; membranes of spinous portion of dorsal fin not elevated above spine tips; first dorsal spine about three-fourths length of second, 3.6 (3.3-3.55) in head; seventh to tenth dorsal spines the longest and subequal, 2.05 (2.1-2.25) in head; first and second dorsal soft rays longest, 1.9 (1.95-2.15) in head; origin of anal fin below base of tenth dorsal spine; first anal spine 3.75 (3.7-4.15) in head; second anal spine 3.0 (2.7-3.05) in head; third anal spine 2.45 (2.35-2.65) in head; first anal soft ray usually longest, 2.1 (2.1-2.2) in head; caudal fin of females slightly rounded to truncate; caudal fin of male holotype slightly double emarginate; larger males with the caudal lobes more elongate (caudal concavity of 57.7-mm paratype 3.8 in head length); caudal-fin length 3.55 (3.0-3.7) in SL; third pectoral ray longest, 1.55 (1.45-1.7) in head; pelvic fins short, not reaching anus, the second ray longest, 4.0 (4.0-5.05) in SL.

Color of male holotype in alcohol: light yellowish tan, the fins pale yellowish; a small blackish spot on each of last three interspinous membranes and first three soft membranes of dorsal fin (first and last spots faint) almost half way to margin of fin (blackish spots present on 56.0-mm male paratype, faint on 55.6-mm paratype, but not present on two larger male paratypes from the Mentawai Islands; these two paratypes differ also in having white pigment on the scales correspon-

ding to the red of the two large red blotches dorsoanteriorly on the body in life).

Color of female paratypes in alcohol: pale yellowish tan with a nearly round black spot posteriorly on caudal peduncle and extending slightly onto caudal-fin base, the spot centered between lateral line and upper edge of peduncle, its greatest diameter about three-fourths orbit diameter; fins pale yellowish.

Color of holotype when fresh (Fig. 1): body whitish with a vertically elongate light brownish yellow spot on each scale, these spots becoming broader and progressively more red posteriorly on body; two large triangular white blotches anterodorsally on body, the scales of which have a dendritic red spot, the first blotch extending ventrally from nape to base of fifth dorsal spine, the second blotch from base of sixth to tenth dorsal spines; head pale brownish yellow, becoming light red dorsally and reddish over preopercle; dorsal fin of first eight spines white and red basally, red and translucent on outer part; most of rest of fin yellow basally and bright red distally, with four small black spots at the lower edge of the red portion of the fin, one on last two interspinous and first two soft membranes of fin; outer posterior part of dorsal fin translucent yellow; soft portion of dorsal fin with a light blue margin and a narrow red submarginal line in the yellow part of fin; caudal fin red; anal fin light yellow with a pale blue margin and a narrow dark submarginal line; pectoral fins clear with light red edges on rays; pelvic fins light yellow, with a pale blue leading edge on first soft ray.

In life the triangular blotches of males described above are solid bright red except where the lateral line passes through them; on the other hand, the caudal fin and posterior part of the body are not as red (see Figs 2 and 3); iris orange with an inner rim of yellow.

Color in life of females (Fig. 4): bright red, shading to white ventrally on head and abdomen and to yellowish red on snout; a large roundish black spot, faintly and narrowly edged in blue, posteriorly on caudal peduncle above lateral line; upper lip yellowish; iris orange-red.

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Fig. 1. - Holotype of *Cirrhilabrus adornatus*, male, 52.1 mm SL, Pulau Ular, Sumatra (note spear wound on side of body below soft portion of dorsal fin).

Remarks

This colorful little wrasse is named *adornatus*, from the *Latin* meaning adorned or decorated, in reference to the bright red markings on the body and dorsal fin.

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Fig. 2. - Male of *Cirrhilabrus adornatus*, ca 55 mm TL, Pulau Ular, Sumatra.

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Fig. 3. - Male of *Cirrhilabrus adornatus*, ca 65 mm TL, Mentawai Islands.

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Fig. 4. - Female of *Cirrhilabrus adornatus*, ca 50 mm TL, Pulau Ular, Sumatra.

This fish is known thus far only from off Padang, Sumatra and the Mentawai Islands. It is a common species over rubble substrata on outer reef slopes; it was not seen in less than about 10 m and occurs to depths of at least 30 m. Video tapes taken of males by the junior author show a characteristic mode of swimming with the head end obliquely angled downward.

Table 1

Counts of Gill Rakers of *Cirrhilabrus adornatus*

15	16	17	18
3	5	3	1

Table 2
Proportional Measurements of Selected Type Specimens of *Cirrhilabrus adornatus* Expressed as Percentages of the Standard Length

	Holotype	Paratypes						
	BPBM	BPBM	BPBM	NSMT	NSMT	CAS	RUSI	USNM
Museum number	37631	37632	37632	P-52635	P-52635	95378	55123	345505
Sex	male	female	female	female	female	male	male	male
Standard length (mm)	52.1	30.5	40.8	43.2	47.7	56.0	57.7	63.4
Body depth	33.2	33.1	31.3	34.3	34.8	33.6	34.7	31.4
Body width	15.1	14.4	14.7	14.1	15.9	15.5	15.1	15.1
Head length	32.8	36.4	34.0	35.8	33.6	33.4	33.1	33.3
Snout length	9.6	9.9	9.8	9.3	9.4	9.8	9.6	9.5
Orbit diameter	7.5	9.8	8.6	8.6	7.7	7.3	7.9	7.8
Interorbital width	7.7	8.2	7.6	8.5	8.4	8.2	8.4	7.9
Upper-jaw length	7.9	8.9	8.0	8.1	8.4	8.2	8.3	7.9
Caudal-peduncle depth	16.5	16.3	15.4	15.9	16.7	15.8	15.1	14.1
Caudal-pecuncle length	15.7	15.9	15.6	15.8	15.7	16.2	aberrant	16.4
Predorsal length	31.4	32.9	34.3	33.8	32.4	32.2	32.5	33.4
Preanal length	61.1	63.8	64.5	63.0	62.1	61.6	61.5	60.8
Prepelvic length	37.0	36.9	36.7	37.1	36.3	35.9	36.2	36.1
Dorsal fin base	55.8	54.8	54.8	55.6	57.2	58.2	55.5	55.1
First dorsal spine	9.2	10.7	10.3	9.5	10.1	9.9	9.3	9.5
Longest dorsal spine	15.9	16.2	16.3	16.1	16.0	15.7	15.9	15.8
Longest dorsal ray	17.1	17.2	16.8	16.5	16.7	16.7	17.0	16.6
Anal-fin base	25.3	23.6	23.9	25.5	23.7	26.4	aberrant	25.9
First anal spine	8.8	9.6	8.9	8.6	8.7	8.8	9.0	9.0
Second anal spine	10.8	13.1	12.5	12.5	12.2	10.9	11.3	11.4
Third anal spine	13.3	15.5	13.3	13.9	13.0	13.2	13.3	13.0
Longest anal ray	15.8	16.3	16.0	16.4	15.8	16.2	15.5	15.3
Caudal-fin length	28.2	28.9	27.2	27.3	27.2	28.6	33.4	27.9
Pectoral-fin length	20.8	20.5	20.8	20.8	20.7	22.9	22.6	22.8
Pelvic-spine length	14.4	16.9	16.2	14.4	14.6	14.3	12.8	12.7
Pelvic-fin length	25.0	20.0	20.1	20.8	19.9	25.2	24.3	21.6

Cirrhilabrus adornatus is a very distinctive species for which we cannot find any close relatives. Only *C. exquisitus* Smith shares all of the following characters with it: median predorsal scales 5; scale rows on cheek 2; pectoral rays 14-15 (rarely 14); dorsal fin membranes not elevated above spine tips; male with a double emarginate caudal fin with pointed lobes; pelvic fins of male short. *C. adornatus* differs in its deeper body (depth 2.9-3.2 in SL, compared to 3.2-3.5 for *exquisitus*); straighter dorsal profile of its head; longer snout (3.4-3.85 in head, compared to 3.8-4.4 for *exquisitus*); fewer gill rakers (15-18, compared to 17-21 for *exquisitus*), and very different color pattern (notably the large oval black spot posteriorly on the upper caudal peduncle of the male of *exquisitus*). *C. exquisitus* is the most wide-ranging of the species of the genus, occurring from East Africa to French Polynesia. The male form exhibits considerable geographic variation in color pattern.

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RÉSUMÉ

Cirrhilabrus adornatus, une nouvelle espèce de Labridé de Sumatra.

Décrite de la côte sud-ouest de Sumatra (Padang et îles Mentawai), cette espèce est la 32e décrite du genre qui rassemble de petites espèces sexuellement dichromatiques (protogynes) vivant en harems au dessus des récifs, des fonds rocheux et, le plus souvent, des substrats détritiques ouverts où ils se dissimulent facilement, les prédateurs demeurant toujours bien visibles. Au cours des pariades, les mâles déploient les nageoires et présentent souvent des couleurs métalliques brillantes. Le mâle présente 2 taches rouge vif sous la portion antérieure de la nageoire dorsale. Femelle rouge brillant uniforme avec une tache noire arrondie sur le pédoncule caudal. Espèce très typée, à laquelle on ne connaît aucun proche parent ; seul *C. exquisitus,* l'espèce la plus largement répandue (côte Est africaine à Polynésie française), présente certaines ressemblances.