

AMERICAN MUSEUM *Novitates*

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, N.Y. 10024

Number 2926, pp. 1–9, figs. 1, 2, tables 1, 2

October 5, 1988

Two New Species and a New Genus of Cardinalfishes (Perciformes: Apogonidae) from Rapa, South Pacific Ocean

JOHN E. RANDALL¹ AND C. LAVETT SMITH²

ABSTRACT

Two new species of apogonid fishes are described. *Apogon caudicinctus* ranges from the island of Réunion in the western Indian Ocean to the Pitcairn Group in the south-central Pacific. It is transparent red with blackish edges on the scales and a broad blackish bar posteriorly. *Cercamia cladara*, known only from the Rapa, the Society

Islands, and the Austral Islands, is transparent without obvious color markings. It and its close relative *Rhabdamia eremia* Allen, 1987, are distinguished by having only 2 epipleural ribs, spinules on the preopercle and posttemporals, no predorsal bones, and 9 + 15 vertebrae. The genus *Cercamia* is proposed for these two species.

INTRODUCTION

The authors independently made large collections of fishes at the remote island of Rapa in French Polynesia, which lies at 27°36'S, 114°18'W in the South Pacific Ocean. Although Rapa is sometimes included with the Austral Islands, it is sufficiently isolated to be regarded as a separate biogeographical unit. The junior author collected fishes at Rapa 11–17 April 1970 as a member of the Ingersoll-Stout expedition and the senior author

visited the island 26 January to 22 February 1971 with support from the National Geographic Society (see popular account by Randall, 1974). The senior author and his associates also spent one day collecting at nearby Marotiri (Îlots de Bass).

The Rapa fish collections are deposited at the American Museum of Natural History (AMNH) and at the Bernice P. Bishop Museum in Honolulu (BPBM). The authors are

¹ Bernice P. Bishop Museum, Honolulu, Hawaii.

² Curator, Department of Ichthyology, American Museum of Natural History.

preparing a joint report on their collections. We are describing here two new species of apogonid fishes, popularly known as cardinalfishes, before publication of that report.

Fifteen species of cardinalfishes were collected at Rapa. One of the two undescribed fishes of this family, a species of *Apogon* Lacépède, ranges from the Pitcairn Group to Réunion in the western Indian Ocean. The other is known only from Rapa, the Society Islands, and the Austral Islands.

Specimens of the new species are deposited at the authors' institutions and at the California Academy of Sciences, San Francisco (CAS); Museum National d'Histoire Naturelle, Paris (MNHN); National Science Museum, Tokyo (NSMT-P); J. L. B. Smith Institute for Ichthyology, Grahamstown (RUSI); U.S. National Museum of Natural History, Washington, D.C. (USNM) and the Western Australian Museum, Perth (WAM).

Standard length (SL) was measured from the tip of the snout (front of the upper lip) in the median plane to the base of the caudal fin (end of hypural plate). Body depth was taken from the extreme base of the anterior dorsal spines to the ventral edge of the abdomen at the axil of the pelvic fins; head length was measured from the tip of the snout to the posterior end of the opercular flap. Snout length was measured from the fleshy edge of the orbit to the front of the upper lip in the median plane. Orbit diameter is the greatest fleshy diameter; interorbital width is the least bony width. Caudal peduncle depth is its least depth and caudal peduncle length is the horizontal distance from the rear base of the anal fin to the caudal-fin base. Caudal length is the horizontal distance from the caudal base to the tip of the longest caudal ray, and caudal concavity is the horizontal distance from the tip of the shortest median rays to a vertical through the tip of the longest rays. Spine and ray lengths were measured to the base of these elements (for the median fins it was useful to determine the base of the spines and rays by transmitting a bright light through the specimen).

The last two dorsal and anal rays are counted as one if they share the same pterygiophore. Pectoral-ray counts include the short uppermost ray. Lateral-line scale counts do not include the small scales on the base of the caudal fin. Gill-raker counts include ru-

diments (developed rakers were regarded as those longer than the width of their base); the raker at the angle is included in the lower-limb count.

Proportional measurements in tables 1 and 2 are given as percent of standard length. Measurements in the text are ratios rounded to the nearest 0.05. Data in parentheses refer to paratypes.

Apogon caudicinctus, new species

Figure 1, table 1

Apogon doryssa non Jordan and Seale, Hayashi in Masuda et al., 1984: 145, pl. 130E (Ryukyu Islands).

HOLOTYPE: BPBM 13002, male, 52.4 mm SL, Rapa, south side of Mei Point, rocky shore to 3 m, rotenone, John E. Randall and Dean B. Cannoy, 14 February 1971.

PARATYPES: BPBM 7398, 1: 49.9 mm SL, Ryukyu Islands, Ishigaki, reef about ½ mi off Ishigaki City, 6–11 m, rotenone, J. E. Randall and A. H. Banner, 22 May 1968; BPBM 20068, 2: 21.0–50.4 mm SL, Réunion, west coast, Cap Houssaye, cave in 12 m, rotenone, J. E. Randall, 23 October 1973; AMNH 72760, 3: 25.0–27.0 mm SL, Rapa, Baie Anatakuri off Pte. Teakateke, rubble and *Sargassum* bottom off lava rock wall, 3.5 m, rotenone, C. L. Smith, E. Cusick, J. Cook, 12 April 1970; AMNH 72759, 5: 15–30 mm SL, Rapa, Rapa Iti, about 25 m off north side, dead reef bottom with cover of *Sargassum*, 2.5 m, rotenone, C. L. Smith and P. Goodrich, 14 April 1970; AMNH 72756, 1: 30.0 mm SL, Rapa, north side of Tarokoi Island, boulder and encrusted rock bottom with dense cover of *Sargassum*, 3.5 m, rotenone, C. L. Smith and P. Goodrich, 15 April 1970; BPBM 16799, 2: 53.9–64.3 mm SL, Down St. Paul, Big Pool, 0.6 m, rotenone, J. E. Randall, D. B. Cannoy, R. R. Costello, and N. Young, 7 January 1971; NSMT-P 44622, 46.8 mm SL, Pitcairn Group, Ducie Atoll, northwest side of small boat channel, coral rock bottom with patches of coarse sand and gravel, 0.3–1.3 m, rotenone, J. E. Randall, D. B. Cannoy, and S. Christian, 14 January 1971; CAS 60678, 49.0 mm SL and MNHN 1987-1249, 48.5 mm SL, same data as holotype; RUSI 27055, 56.6 mm SL, Marotiri, southeast islet, tide-pool, 0–1.5 m, rotenone, A. Sinoto, R. R. Costello, A. Make, and L. Watanabe, 20 Feb-

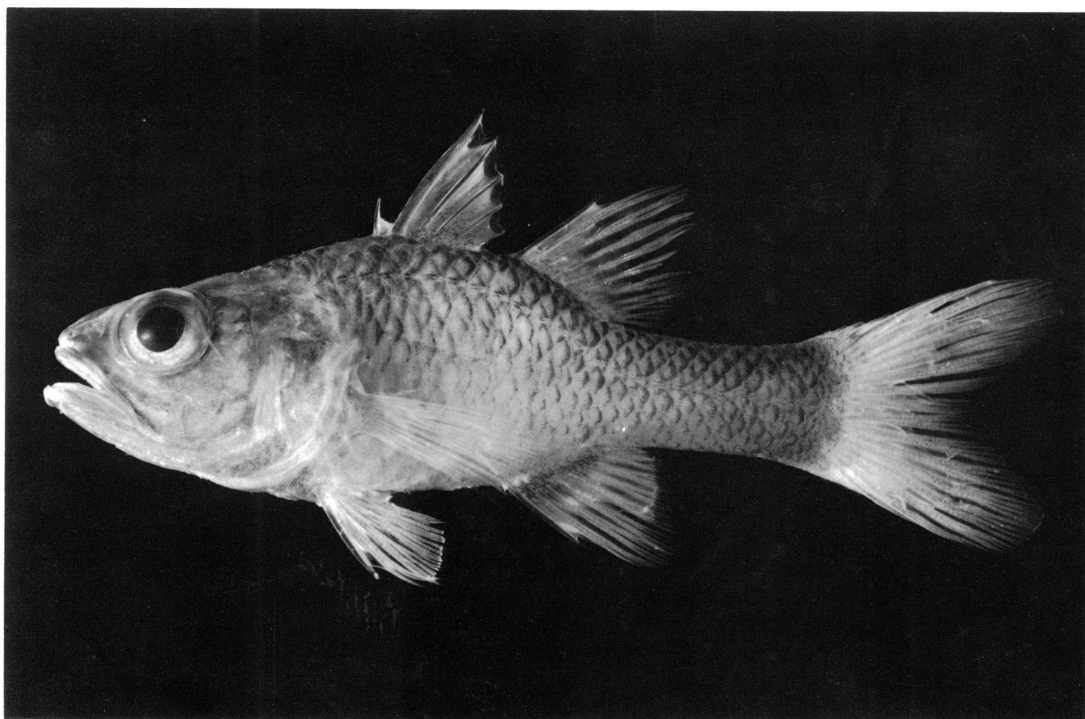


Fig. 1. *Apogon caudicinctus*. Holotype, BPBM 13002, 52.5 mm standard length. Photograph by J. E. Randall.

ruary 1971; WAM P.29385-001, 53.2 mm SL, same data as preceding; USNM 288237, 2: 32.7–51.0 mm SL, Fiji, Vatoa Island (19°48'S, 178°15'W), sand-lined depression with caves and crevices near surf break, 4.5–9 m, rotenone, A. D. Lewis, 14 June 1986.

DIAGNOSIS: Dorsal rays VI–I,9; anal rays II,8; pectoral rays 12; lateral-line scales 24; median predorsal scales 7 or 8; gill rakers 3–4 + 12–13; body depth 2.95–3.45 in SL; profile of head from top of snout to dorsal-fin origin nearly straight; caudal peduncle long and slender, its length 3.30–3.55 in SL; second dorsal spine longest, 1.45–1.80 in head; caudal fin deeply forked, the caudal concavity 2.45–2.90 in head; transparent red, the edges of dorsal body scales dark; a diffuse blackish bar across posterior half of caudal peduncle.

DESCRIPTION: Dorsal rays VI–I,9; anal rays II,8; pectoral rays 12; principal caudal rays 17 (median 15 branched); upper and lower procurrent caudal rays 6 (6–7); lateral-line scales 24 (plus three or four smaller pored scales on caudal-fin base); scales above lateral

line to origin of dorsal fin 2; scales below lateral line to origin of anal fin 8; median predorsal scales 7 (7–8); circumpeduncular scales 16–19 (depending on method of counting); gill rakers 3–4 (one or two rudiments) + 12–13 (two to four as rudiments); branchiostegal rays 7; pseudobranchial filaments of holotype 13; vertebrae 10 + 14.

Body depth 3.05 (2.95–3.45) in SL; body width 1.90 (1.70–2.15) in depth; head length 2.50 (2.50–2.65) in SL; snout blunt, the profile from mouth rising nearly vertically to about level of center of eye, then nearly straight to origin of dorsal fin; snout length 4.15 (3.65–4.20) in head; orbit diameter 3.30 (2.85–3.15) in head; interorbital flat except for slight median and lateral ridges, the bony width 5.20 (4.37–5.70) in head; caudal peduncle nearly uniform in depth throughout its length, the depth 2.65 (2.30–3.10) in head; caudal peduncle about twice as long as deep, its length 1.35 (1.25–1.40) in head.

Mouth terminal or with upper jaw slightly protruding and slightly oblique, the gape

TABLE 1
Proportional Measurements of Type Specimens of *Apogon caudicinctus*
Expressed as a Percentage of Standard Length

	Paratypes									
	Holotype,		USNM		NSMT-P		MNHN		USNM	
	BPBM	AMNH	AMNH	USNM	NSMT-P	MNHN	BPBM	RUSI	BPBM	
	13002	72759	72760	288237	44622	1987-1249	7398	27055	16799	
Standard length	52.4	23.2	27.6	32.7	46.8	48.5	49.9	51.0	56.6	64.3
Body depth	32.6	29.0	30.4	30.6	31.6	31.8	33.5	32.6	33.8	33.6
Body width	17.3	15.9	14.9	16.8	16.9	18.2	15.6	19.3	16.9	17.9
Head length	40.2	39.2	39.0	38.5	40.2	39.8	39.9	39.6	37.8	39.2
Snout length	9.7	10.2	10.7	9.3	10.5	10.1	10.4	9.4	9.4	9.7
Orbit diameter	12.2	14.7	13.1	14.4	12.8	12.6	12.8	13.9	12.0	12.5
Interorbital width	7.7	8.7	9.1	7.9	7.5	7.3	7.0	7.8	7.4	6.9
Upper jaw length	21.4	21.5	22.3	21.4	21.4	21.3	21.2	21.2	20.2	20.4
Caudal peduncle depth	15.1	12.9	15.0	12.5	13.7	14.6	14.6	13.2	16.3	15.3
Caudal peduncle length	29.8	28.9	29.7	30.3	29.5	28.9	30.1	29.6	28.1	28.5
Predorsal length	43.7	43.5	41.7	44.5	44.8	43.4	43.5	44.1	42.5	43.6
Preanal length	57.5	57.0	58.0	57.6	58.5	58.2	59.5	58.8	58.2	59.1
Prepelvic length	36.5	38.3	37.7	37.7	38.7	38.8	38.2	38.7	37.2	38.1
Length of 1st dorsal spine	7.6	7.7	7.2	6.1	6.4	5.9	6.5	5.6	7.3	7.5
Length of 2nd dorsal spine	25.0	21.5	21.7	26.0	26.2	23.0	25.1	27.3	24.4	23.4
Length of 3rd dorsal spine	21.0	17.1	18.7	21.3	21.0	18.7	20.7	20.8	20.7	19.9
Length of 2nd dorsal fin spine	16.9	15.1	14.5	15.3	17.2	15.2	16.0	17.2	15.4	aberrant
Length of longest dorsal ray	25.7	broken	25.3	broken	26.1	26.0	24.1	24.0	26.5	23.5
Length of 1st anal spine	4.8	4.7	4.1	4.7	4.5	4.2	3.7	4.2	3.8	4.7
Length of 2nd anal spine	15.5	14.6	14.3	15.3	16.5	14.7	15.2	16.1	15.1	14.6
Length of longest anal ray	24.3	23.7	22.8	23.7	broken	23.8	broken	21.8	23.5	22.1
Caudal fin length	32.2	32.1	34.2	36.3	broken	33.0	32.0	33.9	33.6	32.1
Caudal concavity	14.4	15.9	14.8	15.6	—	14.5	15.4	15.8	15.0	13.6
Pectoral fin length	26.8	26.4	25.8	27.1	27.2	26.0	25.1	25.7	25.8	24.9
Pelvic spine length	16.7	16.1	15.0	17.9	18.1	16.1	16.3	17.8	16.6	17.1
Pelvic fin length	23.2	22.6	22.0	24.2	25.0	24.8	23.4	23.7	23.6	25.3

forming an angle of about 20° to the horizontal axis of the head and body; maxilla reaching posterior to a vertical at rear edge of pupil, the upper jaw length 1.90 (1.75–1.90) in head; posterior edge of maxilla straight or with a very slight indentation, the corners rounded. Jaws with bands of villiform teeth, broader anteriorly where there are about 9 irregular rows of teeth, narrowing to 5 or 6 rows in midsides of jaws; villiform teeth in a V-shaped patch on vomer, with about 4 rows of teeth medially, narrowing to 2 laterally; palatines with 2 irregular rows of very small teeth. Lips finely papillate. Gill raker at angle of first arch and adjacent raker of lower limb the longest, about 2.80 in orbit diameter of holotype. Anterior nostril in a membranous tube anterior to center of eye, about half distance to front of snout; posterior nostril a vertically elongate aperture diagonally upward and behind anterior nostril; a large pore ventroanterior to posterior nostril, partially covered by a triangular flap, leading to a large suborbital channel.

A single flat opercular spine at level of center of eye; edge of upper opercular membrane forming an obtuse angle, the apex of which bisects the distance from posterior end of opercular flap to upper end of gill opening; lower two-thirds of posterior margin of preopercle serrate (14 serrae on holotype), the lower corner and ventral margin membranous and crenulate (with 5 convexities).

Scales weakly ctenoid; head naked except for large scales on nape and operculum. Fins naked except for small scales basally on caudal fin and a large, bluntly pointed, scaly process of 2 scales midventrally on base of pelvic fins.

Origin of dorsal fin posterior to end of opercular flap above fourth lateral-line scale; first dorsal spine about one-fourth to one-third length of second dorsal spine, 5.30 (5.10–7.10) in head; second dorsal spine longest and stoutest, 1.60 (1.45–1.80) in head; first dorsal soft ray generally the longest, 1.55 (1.45–1.65) in head; origin of anal fin below base of first dorsal soft ray; first anal spine short, 8.40 (8.20–10.70) in head; second anal spine 2.60 (2.45–2.70) in head; caudal fin 3.10 (2.75–3.10) in SL, deeply forked with rounded lobes, the caudal concavity 2.80 (2.45–2.90) in head.

Middle pectoral rays longest, 1.50 (1.45–1.60) in head.

Origin of pelvic fins slightly anterior to pectoral-fin base, the first and second rays longest, just reaching or extending slightly beyond origin of anal fin, the fin length 1.75 (1.55–1.75) in head.

Color of holotype in alcohol: pale yellowish, the edges of the scales dorsally and posteriorly on body dark brown; a diffuse dark brown bar on posterior half of caudal peduncle and extending centrobasally onto caudal fin (but scale centers still paler than edges); fins pale except for scattered melanophores basally on dorsal and anal fins.

Color of holotype when fresh: body transparent red with blackish edges on scales and a broad blackish bar posteriorly as described above; head red; spines and soft rays of fins transparent red, the membranes clear; a red band basally on caudal fin posterior to blackish bar.

ETYMOLOGY: This species is named *Apogon caudicinctus* from the Latin *cauda* for tail and *cinctum* for girdle or belt, in reference to the broad blackish bar across the posterior caudal peduncle and base of caudal fin, its most diagnostic color marking.

REMARKS: *Apogon caudicinctus* appears to be most closely related to *A. doryssa* (Jordan and Seale) with which it shares the same fin-ray and scale counts, transparent red life color, caudal-fin shape, and the straight dorsal profile of the head. It differs from *doryssa* in having a shorter second dorsal spine (1.45–1.80 in head, compared to 1.25–1.40 for *doryssa*), in the dark edges of the scales and the blackish posterior bar, one fewer gill raker (15–17 for *caudicinctus* compared to 16–18 for *doryssa*), and in larger size. Our largest specimen of *caudicinctus* measures 64.3 mm SL. The largest of 24 specimens of *doryssa* we have examined measures 41 mm SL.

We have examined specimens from Rapa, the Pitcairn Group, Fiji, the Ryukyu Islands, and Réunion. The lowest latitude for the collections which yielded *A. caudicinctus*, 19°48'S, is that of Vatoa Island, Fiji, suggesting that this species is antitropical in its distribution. The specimens were taken from reefs or rocky substrata with caves and ledges where the depth was less than 12 m.

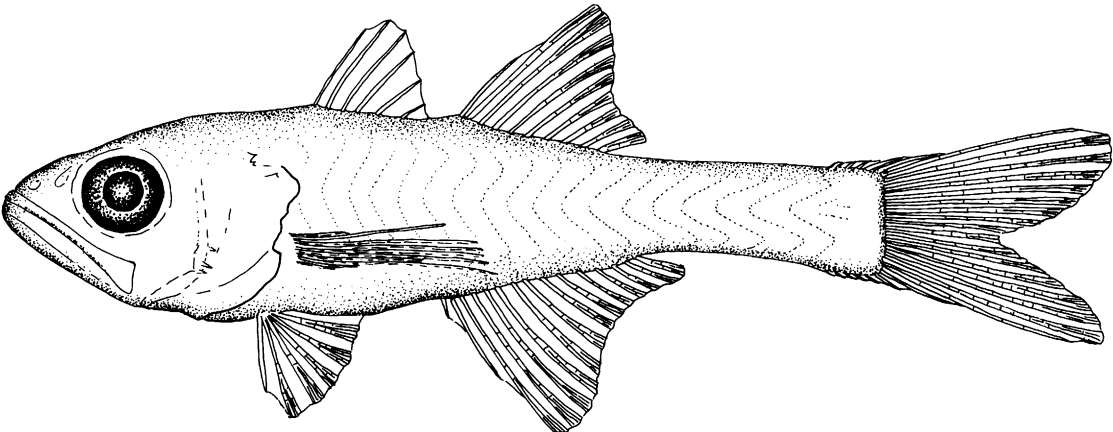


Fig. 2. *Cercamia cladara*. Holotype, BPBM 31978, 27.1 mm standard length. The scales are missing on the specimen. Drawing by C. L. Smith.

TABLE 2
Proportional Measurements of *Cercamia cladara* Expressed as a Percentage of Standard Length

	Holo- type, BPBM 31978	17279-1	17279-2	17279-3	17279-4	17279-5	17279-7	17279-8	17279-9
Standard length	27.1	39.4	34.7	32.6	30.6	30.5	28.5	26.6	23.3
Body depth	22.9	22.8	22.8	23.9	25.8	22.6	22.1	—	23.2
Body width	9.2	11.2	10.4	10.1	9.2	9.8	10.5	9.8	9.0
Head length	38.0	37.8	35.7	35.2	37.6	34.4	36.5	37.2	39.9
Snout length	8.1	8.9	7.5	8.9	8.5	7.9	8.1	8.3	7.7
Orbit diameter	11.1	10.2	9.8	10.7	10.5	10.2	10.2	11.3	11.2
Interorbital width	7.7	8.1	8.4	7.7	7.8	7.2	8.1	9.4	8.2
Upper jaw length	17.3	18.8	16.7	16.9	16.0	16.4	16.8	18.0	17.2
Caudal peduncle depth	10.0	9.4	9.8	8.6	9.8	9.2	9.8	10.2	10.7
Caudal peduncle length	29.2	28.2	26.8	28.5	27.8	26.9	29.1	27.8	28.8
Predorsal length	37.6	37.6	36.3	37.7	36.3	35.4	36.8	38.0	37.3
Preanal length	51.7	55.1	55.9	53.7	52.9	52.1	50.9	53.0	51.1
Prepelvic length	33.2	34.0	30.8	31.6	31.7	30.8	31.6	31.6	33.5
Length of 1st dorsal spine	11.1	—	10.1	10.7	11.1	9.8	11.6	10.5	9.4
Length of 2nd dorsal spine	12.9	—	10.7	—	11.1	11.5	14.0	13.2	13.7
Length of 3rd dorsal spine	11.8	—	10.4	—	12.1	—	13.7	12.0	13.7
Length of 2nd dorsal fin spine	9.6	—	8.9	10.1	9.2	10.5	9.1	—	9.0
Length of longest dorsal ray	19.9	19.0	17.0	18.7	17.6	17.4	19.6	18.4	18.9
Length of 1st anal spine	3.3	2.8	2.3	2.5	3.9	2.6	2.8	3.0	2.6
Length of 2nd anal spine	11.8	9.6	9.5	9.8	9.5	10.5	11.2	11.7	12.0
Length of longest anal ray	19.2	17.8	20.2	17.8	17.3	17.4	20.4	21.1	20.6
Caudal fin length	31.7	28.7	29.7	29.1	25.2	28.9	30.2	28.2	31.3
Caudal concavity	15.5	13.7	13.3	16.0	13.1	14.1	17.5	—	14.2
Pectoral fin length	24.0	22.1	23.1	23.0	21.6	21.6	22.1	24.4	21.9
Pelvic spine length	9.6	9.9	10.1	9.8	9.5	9.8	10.5	10.2	8.6
Pelvic fin length	15.1	14.7	15.6	15.6	16.0	15.7	15.1	—	15.5

Cercamia, new genus

Type species *Cercamia cladara*
Randall and Smith

DIAGNOSIS: Apogonid fishes with 9 + 15 vertebrae, two pairs of epipleural ribs, no predorsal bones, and hypurals 1–4 fused into a double fan-shaped structure. Included species: *Cercamia cladara* and *Rhabdamia eremia* Allen, 1987.

DESCRIPTION: Both species are transparent and without obvious markings. Hypurals 1–4 are fused; hypural 5 is a separate bone. There are 3 epurals, no uronurals, and no autogenous hemal spines. Epipleural ribs are present on the first two pairs of pleural ribs. There are one or two spinules on the posttemporal and spines on both flanges of the preopercle.

RELATIONSHIPS: This genus appears to be related to *Rhabdamia* (as defined by Fraser, 1972) on the basis of its caudal skeleton, but it differs from *Rhabdamia* in having spines on the posttemporal and preopercle and in the absence of predorsals. It also resembles *Pseudamiops* in having epipleural ribs only on the first two pairs of pleural ribs rather than five to seven pairs as in *Rhabdamia*.

The vertebral count of 9 + 15 occurs in no other species of the family Apogonidae.

ETYMOLOGY: *Cercamia* is from the Greek *Kerkos*, tail, and *Amia*, a Greek fish name that has been applied to apogonid fishes. This name alludes to the elongate tail resulting from the unique vertebral count with one fewer abdominal and one more caudal vertebrae than other cardinalfishes. It is feminine.

TABLE 2—(Continued)

17279-10	17279-11	17279-12	17279-13	BPBM 17202
21.9	24.6	23.3	20.9	43.6
23.7	22.4	22.7	—	23.2
9.6	10.6	7.7	10.0	10.3
38.8	35.8	35.2	34.4	35.3
7.8	7.7	8.6	7.7	7.6
11.9	10.6	10.3	10.5	10.1
9.6	8.9	8.2	9.6	7.3
21.0	15.9	16.7	17.2	16.7
11.0	9.8	9.4	10.0	10.6
29.2	26.4	28.3	30.6	27.3
38.4	35.8	35.6	34.9	36.9
53.9	50.8	50.6	52.6	52.8
34.7	31.3	30.9	30.1	32.8
11.9	9.8	10.7	9.1	9.6
13.7	12.6	12.4	—	12.2
11.9	13.0	12.0	11.0	11.2
10.0	10.2	11.2	10.0	—
20.1	19.9	19.3	18.7	19.5
3.2	3.7	3.4	3.8	2.8
12.8	11.8	11.2	12.0	9.2
21.0	18.3	18.9	19.1	18.1
29.7	28.9	29.2	—	31.0
13.7	14.2	13.7	—	—
23.3	23.6	25.8	24.4	22.5
8.7	10.6	9.9	9.6	8.5
16.9	15.0	14.6	15.3	15.4

Cercamia cladara, new species

Figure 2, table 2

HOLOTYPE: BPBM 31978 male, 27.1 mm SL, Rapa, reef at entrance to Haurei Bay, coral and coral debris with ledges, 15–18 m, rotenone, J. E. Randall and D. B. Cannoy, 10 February 1971.

PARATYPES: BPBM 17279, 5: 20.9–39.4 mm SL; AMNH 75135, 2: 24.6–34.7 mm SL; AMNH 75135SW, 23.3 mm SL; CAS 61348, 28.5 mm SL; MNHN 1987-2035, 23.5 mm SL; NSMT-P 44801, 30.5 mm SL; RUSI 29535, 30.6 mm SL; WAM P.29655-001, 26.6 mm SL; USNM 290959, 32.6 mm SL. All same data as holotype. BPBM 17202, 43.6 mm SL, Rapa, off entrance to Haurei Bay (north of Rapa Iti), gorge between two coraliferous mounds, 20 m, rotenone, J. E. Randall, D. B. Cannoy, D. Bryant, 27 January 1971.

ADDITIONAL SPECIMENS: BPBM 13727 9: 23–32 mm SL. Austral Islands, Rurutu, off west side of Areva, 45° coral slope with very little sand, 46–58 m, rotenone, J. E. Randall, D. B. Cannoy, D. M. Devaney, R. M. McNair, and J. R. Haywood, 28 February 1971; AMNH 72397, 43: 23.2–30.8 mm SL. Tahiti, reef off Papeari 20–35 ft, 6–10 m, rotenone, C. L. Smith, R. Mathews, 23 April 1970; AMNH 72415, 72: 23.0–31.4 mm SL. Tahiti, reef off Papeari, 7.5–12 m, rotenone, C. L. Smith, R. Mathews, 23 April 1970.

DIAGNOSIS: Dorsal rays VI-I,9; anal rays II,12-13; pectoral rays 10, gill rakers 3 or 4 + 14-16; body depth 4.20-4.50 in SL; scales weakly ctenoid, deciduous (most scales missing from our specimens); snout rather pointed, 4.00 to 5.20 in head; caudal peduncle long and slender, its length 3.25 to 3.80 in SL, its depth 3.35 to 4.05 in head; fins high, longest dorsal spine 6.85-9.40 in SL, longest dorsal soft ray 5.00-5.90 in SL, longest anal rays 4.75-5.65 in SL. Color transparent, the only pigment a few melanophores on the brain membranes, and 1-8 large stellate melanophores behind the eye, not present in all individuals.

DESCRIPTION: Dorsal rays VI-I,9; anal rays II,12 or 13; pectoral rays 10; principal caudal rays 17, branched caudal rays 8/7 = 15; upper and lower procurrent rays stout, spinelike, 6-8. Scales missing but there are about 22 myomeres between the pectoral base and the caudal fin. Gill rakers 3 + 15 [3 or 4 (one rudimentary) + 14-16]; pseudobranchial filaments 7 (7-11); vertebrae 9 + 15.

Body depth 4.40 (4.20-4.50) in SL; body width 2.50 (2.05-2.95) in body depth; head length 2.60 (2.50-2.90) in SL; orbit 3.40 (3.00-3.70) in head length; snout bluntly pointed, the profile of head nearly straight from snout to nape; interorbital region gently convex; its bony width 4.90 (3.95-4.90) in head; caudal peduncle slender, about 3 times as long as deep, nearly uniform in depth throughout its length, its depth 3.80 (3.35-4.05) in head.

Mouth terminal or with the lower jaw slightly projecting and slightly oblique, forming an angle of about 20° with the horizontal axis of head and body; maxilla reaching a vertical through rear margin of pupil; upper jaw length 2.20 (1.85-2.35) in head; posterior edge of maxilla concave, its corners rounded. Upper jaw teeth in a narrow row, tiny anteriorly, progressively slightly larger posteriorly; teeth on dentary in a narrow band anteriorly, a single row on the sides; lateral teeth slightly larger than those anteriorly and posteriorly; vomerine tooth row reduced to 2 embedded teeth at posterior corners of the dentigerous surface; palatines toothless.

Gill raker at angle of first arch slightly shorter than adjacent raker on lower limb,

about 2.20 in eye in holotype. Anterior nostril with a low fleshy rim; posterior nostril a comma-shaped opening anterior to eye. Opercular spine single; opercle with concentric striations. Lower opercular membrane, where supported by branchiostegal rays, forming a lobe. A small spine, sometimes double, on posttemporal. Anterior edge of preopercle with a sharp point at angle; posterior edge with about 5 short spines, the middle one largest. Tongue narrow and spoon-shaped.

Scales deciduous, none of our specimens having more than a few scales remaining (those that are present are weakly ctenoid with only a few dentations along the exposed edge of the scale). We are not able to determine the condition of the lateral line. Head naked except for nape. Six transverse rows of papillae on interorbital region. Fins naked.

Dorsal origin slightly behind the pectoral base; first four interspaces between dorsal spines progressively longer, the fifth appreciably greater than the fourth; first dorsal spine 1.15 (1.00-1.45) in length of second spine, second and third spines subequal. Spine of second dorsal fin about half length of first (longest) soft ray which is about 5.00 (5.00-5.90) in SL. Second dorsal fin with concave margin; all dorsal soft rays branched. Origin of anal fin below origin of second dorsal; first anal spine about one-fourth length of second spine which is about two-thirds length of first soft ray; first and second anal rays subequal; all anal rays branched; anal fin similar in shape to second dorsal fin. Caudal fin deeply forked with bluntly pointed lobes; caudal concavity 2.45 (2.10-2.90) in head. Pectoral base very narrow, high on the side and nearly vertical, its width 3.35 in orbit diameter in holotype; upper pectoral ray short, middle pectoral rays longest (the lowest rays much shorter) reaching to base of third or fourth anal ray. Origin of pelvic fins anterior to pectoral base; pelvic spine about two-thirds length of first ray; longest pelvic rays not reaching anus, median pelvic ray joined to abdominal wall for most of its length; pelvic fin length 2.50 (2.20-2.75) in head.

Color in alcohol: The holotype is nearly without pigment, having only a few scattered melanophores on the membranes of the brain

and a dusky peritoneum. Some specimens have one to eight large stellate melanophores behind the eye.

ETYMOLOGY: This species is named *cladara* from the Greek kladaros meaning frail or easily broken in reference to the deciduous scales and weak fin spines.

REMARKS: Some of the females taken in April had large ovaries with well-developed, but not fully ripe oocytes.

Distribution: Apparently this species is known only from Rapa, the Society Islands, and the Austral Islands.

Cercamia cladara is most closely related to *Cercamia eremia* (Allen), from which it differs in having 3 or 4 + 14–16, rather than 1 + 11 or 12 gill rakers. *Cercamia cladara* also has a slightly longer tail (28.7–31.3 vs. 23.2–28.4% SL in 10 specimens of *C. eremia*), a deeper caudal convexity (13.1–17.5 vs. 11.1–13.8% SL), and longer pectoral fins (21.6–25.8 vs. 19.8–23.4% SL in *C. eremia*).

ACKNOWLEDGMENTS

The authors thank Carl J. Ferraris for preparing a cleared and stained specimen of *Cer-*

camia cladara, and Gerald R. Allen for the loan of specimens of *Rhabdamia eremia*. The manuscript was reviewed by Thomas H. Fraser, George Dale, and James C. Tyler, all of whom made valuable comments.

REFERENCES

- Allen, G. R.
1987. New Australian fishes. Part 2. Four new species of Apogonidae. Mem. Mus. Victoria 48: 3–8.
- Fraser, T. H.
1972. Comparative osteology of the shallow water cardinal fishes [Perciformes: Apogonidae] with reference to the systematics and evolution of the family. Ichthyol. Bull. J. L. B. Smith Inst. Ichthyol. Rhodes Univ. 34: v + 105 pp.
- Masuda, Hajime, Kunio Amaoka, Chuichi Araga, Teruya Uyeno, and Tetsuo Yoshino, eds.
1984. The fishes of the Japanese archipelago. Tokyo: Tokai Univ. Press. Vol 1, xxii + 437 pp. Vol. 2, pl. 1–370.
- Randall, John E.
1974. Rapa and beyond. Oceans 7(6): 24–31, 11 figs.

Recent issues of the *Novitates* may be purchased from the Museum. Lists of back issues of the *Novitates*, *Bulletin*, and *Anthropological Papers* published during the last five years are available free of charge. Address orders to: American Museum of Natural History Library, Department D, Central Park West at 79th St., New York, N.Y. 10024.