

THREE NEW SPECIES OF GOBIID FISHES OF THE GENUS *AMBLYELEOTRIS* FROM THE CENTRAL AND WESTERN PACIFIC

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ABSTRACT. - Three new species of the Indo-Pacific goby genus *Amblyeleotris* are described from the central and western Pacific. The species of this genus live symbiotically with alpheid shrimps, and all are colored with bars that vary from dark brown to red, orange, or yellow. *Amblyeleotris rubrimarginata* from the Great Barrier Reef and New Caledonia has 13 (rarely 14) dorsal soft rays, 14 (rarely 15) anal soft rays, 77-94 scales in longitudinal series, pelvic fins united for about 10% of their length, pelvic frenum present, a dark spot behind the eye, and a red margin or rows of small red spots on the dorsal and caudal fins. *Amblyeleotris harrisorum* from Kiritimati (Christmas Island), Line Islands, has 13 dorsal soft rays, 14 anal soft rays, 81-96 scales in longitudinal series, pelvic fins separate, no pelvic frenum, a bright yellow caudal fin, and oblique yellow lines behind the eye. *Amblyeleotris marquesas* from Nuku Hiva, Marquesas Islands has 14 dorsal soft rays, 15 anal soft rays, 92-96 scales in longitudinal series, pelvic fins united for about 10% of their length, no pelvic frenum, broad orangish brown bars with a narrow bar in upper half of each white interspace.

KEY WORDS. - *Amblyeleotris*, shrimp goby, Great Barrier Reef, Line Islands, Marquesas Islands.

INTRODUCTION

The Gobiidae is the most speciose family of marine fishes, and it is also well represented in brackish and freshwater habitats. About 212 genera and 1,875 species are recognized (Nelson, 1994). Within this large and diverse family there are species of about 15 genera that live symbiotically with alpheid shrimps (Bayer & Harry-Rofen, 1957; Harada, 1969; Moehring, 1972; Yanagisawa, 1978; Karplus, 1987). The shrimps (generally a pair) excavate and maintain the burrow, and the goby acts as the sentinel. When the shrimp emerges from the burrow, it usually maintains contact with the goby with one of its antennae. If the shrimp is about to leave the burrow, but the goby detects the approach of a possible predator, it will communicate the danger to the shrimp by rapidly fluttering its caudal fin. If the predator continues to come closer, the goby will quickly dart head first into the burrow.

Amblyeleotris Bleeker (1874) is the largest genus of shrimp gobies with about 27 species, all of which

occur in the Indo-Pacific region. As adults they range from 27 to 190 mm standard length (SL); most are colorful, typically with five bars on the body that vary from orange or red to brown. The body is elongate, the depth 4.9 to 7.0 in SL. The mouth is large, oblique, with a strongly projecting lower jaw, the maxilla reaching to or beyond a vertical through the middle of the eye. The gill opening extends forward to below the preopercle. The interorbital space is very narrow. The dorsal and anal soft rays vary from 12-19; the caudal fin is longer than the head and rounded to slightly pointed; the pelvic fins vary from entirely separated to fully joined, with or without a pelvic frenum. The scales are small, ctenoid posteriorly on the body and cycloid anteriorly, those in longitudinal series varying from 58-155; the head is naked or with scales either medially or on the side of the nape. The cheek papillae are arranged in four or more near-vertical rows and two horizontal rows; the pattern varies little from species to species.

Amblyeleotris is most similar to *Cryptocentrus* and *Vanderhorstia*. *Cryptocentrus* differs in having 9-11

dorsal soft rays, typically only cycloid scales, a more compressed head, and the maxilla reaching to or beyond a vertical at the posterior margin of the eye. *Vanderhorstia* differs in having 47-67 scales in longitudinal series, a more compressed head, and in having a longitudinal pattern of papillae on the cheek.

We present here the descriptions of three new species of *Amblyeleotris* from islands of the central and western Pacific. The first author plans a revision of the genus, at which time a key to the species will be published.

MATERIALS AND METHODS

Type specimens of the new species are deposited at the American Museum of Natural History, New York (AMNH); Australian Museum, Sydney (AMS); Academy of Natural Sciences of Philadelphia (ANSP); The Natural History Museum, London (BMNH); Bernice P. Bishop Museum, Honolulu (BPBM); California Academy of Sciences, San Francisco (CAS); U.S. National Museum of Natural History, Washington, D.C. (USNM); Western Australian Museum, Perth (WAM); and Zoological Reference Collection, National University of Singapore (ZRC). Counts and morphometric proportions in parentheses refer to paratypes.

Lengths of specimens are in standard length (SL), measured from the anteriormost point of the upper lip in the median plane to the base of the caudal fin (end of hypural plate). Measurements are expressed as proportions of either SL or head length (HL), and follow Randall (1994).

TAXONOMY

Amblyeleotris rubrimarginata, new species (Figs. 1-3, 4A)

Amblyeleotris sp. Steene, 1990: 273, upper fig. (Papua New Guinea).

Amblyeleotris gymnocephala - Kuitert & Debelius, 1994: 258, middle fig. (Indonesia); Eichler & Myers, 1997: 391, third fig. (Indonesia to Philippines) (non Bleeker).

Amblyeleotris sp. Halstead, 2000: 178, upper fig. (Milne Bay, Papua New Guinea).

Material examined. - Holotype - BPBM 38832, 61 mm, Australia, Queensland, Great Barrier Reef, Lizard Island, seagrass bed in Watson's Bay, (approximately 14° 40' S; 145° 28' E), 12 m, spear, coll. M.S. Mohlmann, 5 Oct.1997.

Paratypes - AMNH 231270, 50 mm; BMNH 2001.1.4:3, 77 mm; CAS 213863, 78 mm; USNM 364027, 2: 76-78 mm; ZRC 46180, 70 mm, same data as holotype. ANSP 177925, 58 mm; BMNH 2001.1.4:2, 73 mm; CAS 213862, 75 mm; WAM P.31767-001, 49 mm; WAM P.31768-001, 34 mm and ZRC 46179, 80 mm, Australia, Queensland, Lizard Island, seagrass bed in Watson's Bay, 12 m, spear, coll. M.S. Mohlmann & I. Kufner, 6 Oct.1997. AMNH 231269, 69 mm, seaward of Horseshoe Reef, Lizard Island, Queensland, Australia, spear, 8 m, coll. M.S. Mohlmann, 4 Oct.1997. BPBM 34318, 3: 75-79 mm, outside barrier reef off Tenia Island, New Caledonia, 22° 1' 1" S, 165° 55' 5" E, coarse sand with large ripple marks, 10 m, spear, coll. J. E. Randall, 25 Mar.1990.

Diagnosis. - A species of *Amblyeleotris* with 13 (rarely 14) dorsal soft rays, 14 (rarely 15) anal rays, 81-86 scales in longitudinal series, pelvic fins with an interspinal frenum, fifth pelvic rays united approximately 10% of fin length, a dark spot directly behind upper part of orbit, and red margins or a row of small red spots on both dorsal fins and upper margin of caudal fin.

Description. - Dorsal rays, VI-I,13 (13-14); anal rays I,14 (14-15); last ray of second dorsal fin and anal fin bifurcate to insertion; pectoral rays 19 (18-20); pelvic rays I,5, rays branched to 4 to 9 filaments distally (Fig. 4A); branched caudal rays 14, upper 2 and lower 1 unbranched segmented; upper procurrent caudal rays 5 (3-6), lower 5 (3-6); longitudinal scale series 83 (81-86) + 6 (5-6) scale rows basally on caudal fin; transverse scale series 27 (25-30); circumpeduncular scales 25 (23-26); lower-limb gill rakers 10.

Body elongate, depth 6.1 (5.6-7.7) in SL; body moderately compressed, width 10.2 (8.2-11.1) in SL; head length 3.8 (3.4-4.4) in SL; dorsal profile of head sloping steeply upwards from front of upper jaw to anterior edge of orbit; orbit projecting slightly above dorsal profile of head; posterior margin of head anterior to insertion of first dorsal spine; orbit oblong and obliquely angled forward and downward, maximum diameter 3.2 (3.0-4.0) in HL; interorbital space 8.0 (7.5-10.5) in HL; caudal-peduncle depth 2.5 (2.1-2.9) in HL; caudal-peduncle length 1.8 (1.5-2.1) in HL.

Mouth large, posterior edge of maxilla extending almost to a vertical with the posterior margin of eye, upper-jaw length 2.7 (2.1-2.8) in HL; mouth obliquely sloping down, lower jaw projecting slightly; jaws with an outer row of well-spaced, slender, incurved, conical teeth and an inner band of villiform teeth in three to four rows anteriorly, narrowing to a single row posteriorly; third and

fourth pairs of teeth at front of upper jaw enlarged as canines; outer row of teeth at front of lower jaw longest, but none of canine proportions; two stout canines medial to villiform band about half way back in lower jaw. Tongue slightly rounded with small dark speckles. Gill opening extending forward ventrally to a vertical approximately one half orbit diameter behind eye. Anterior nostril a short conical membranous tube, the opening approximately one-fourth diameter of base; base of anterior nostril almost reaching dorsal margin of upper lip; posterior nostril just touching margin of orbit. Anterior oculoscapular canal with B', C, D, E, F, G and H', C and D (not shown) singular, between interorbitals on top of head; posterior oculoscapular canal with K', and L', preopercular canal with M', N, and O', sensory papillae in a transverse pattern (Fig. 3).

Scales ctenoid posteriorly on body, becoming smaller and cycloid anteriorly. Ctenoid scales extending dorsally to base of eighth dorsal ray, ventrally to base of tenth anal ray, and mid-body to a vertical drawn from base of sixth spine of first dorsal fin; nape midline, breast and pectoral-fin base naked; no scales on dorsal or anal fins.

Origin of first dorsal fin in line with origin of pelvic fin, predorsal length 3.1 (2.7-3.4) in SL; dorsal spines slender and curved (measured when approximately straightened), third spine longest 1.5 (1.2-1.8) in HL; membrane from sixth spine nearly contiguous with origin of second dorsal fin; spine of second dorsal fin 2.0 (1.7-2.5) in HL; twelfth (12-13) dorsal soft ray longest, 1.1 (1.0-1.5) in HL; origin of anal fin approximately in line with first dorsal soft ray; anal spine 2.7 (2.4-3.6) in HL; thirteenth (rarely fourteenth) anal soft ray longest, 1.1 (1.1-1.7) in HL; caudal fin pointed, 2.3 (2.3-3.2) in SL; pectoral fins pointed, extending to a vertical below anterior edge of second dorsal origin, 4.4 (3.8-5.4) in SL; concave frenum connecting pelvic spines; pelvic spine 2.7 (2.2-4.0) in HL; innermost pelvic rays connected approximately 10% of their length; pelvic-fin length 3.4 (3.0-4.2) in SL, extending to base of fourth anal soft ray.

Live color (Figs. 1, 2). - Light greenish white dorsally, shading to white ventrally, with five brownish orange to brownish red bars, each narrower dorsally; middle of each white interspaces with an orangish brown line, more evident on lower side; upper half of each white interspace with scattered small orangish brown spots; a black spot smaller than pupil immediately dorsoposterior to eye; adjacent edge of iris also black; an oblique, broken, yellow-

edged blue line on cheek, continuing onto nape, with a few small blue and yellow spots above and below; a dark smudge posterior to maxilla; dorsal fins translucent with fine irregular light blue and yellow lines and/or small spots, the margin red with a light blue submarginal line or with a row of small red spots, one spot per membrane; caudal fin translucent yellowish gray with a large dark reddish blotch at base, sometimes forming a crescent, the upper margin of posterior half of fin red with a light blue submarginal line or with small red spots edged below in blue; anal fin translucent yellowish gray with an orange margin and narrow blue submarginal line; paired fins translucent yellowish gray.

Color of holotype in ethyl alcohol. - Ground color light brown with five darker brown bars approximately equal in width, anterior three complete, posterior two fading ventrally; first bar angling slightly forward from nape along preoperculum to isthmus; second bar from III to VI spines of first dorsal fin; its anterior edge angling forward towards posterior base of pelvic fins, its trailing edge nearly vertical; interspace between second and third bars greater than widest bar width; anterior margin of third bar originating between dorsal soft rays one and two, angling forward slightly in line with anus, fading to ground color ventrally; posterior margin originating at fourth dorsal soft ray, nearly vertical, in line with fourth anal soft ray, and fading ventrally; fourth bar originating at eighth dorsal soft ray, angling forward to eighth anal soft ray; posterior margin originating at eleventh dorsal soft ray, extending downward almost vertically to eleventh anal soft ray; fifth bar originating four to five scale rows posterior to insertion of last dorsal ray, angling slightly forward and fading ventrally, its posterior margin four to five scale rows anterior of hypural, angling slightly posteriorly and fading ventrally. Interspace between first and second bar bisected with three dark spots, first at base of dorsal fin, last in line with dorsal insertion of pectoral; interspace between second and third bars with two broken mottled lines originating at dorsal fin and curving to meet at body midline; interspace between third and fourth bars with thin line near posterior margin of third bar, and a more pronounced line bisecting interspace and splitting to an inverted Y near midlateral line; interspace between fourth and fifth bars with a bisecting line originating at second dorsal fin and extending to midlateral line; thin mottled line over hypural. Head with a pronounced dark spot adjacent to orbit in a relative position of 2 o'clock; medium brown spot above corner of maxilla. First dorsal fin with thin line of dark pigment along distal



Fig. 1. *Amblyeleotris rubrimarginata*, Australia, GBR, Wishbone Reef.



Fig. 2. *Amblyeleotris rubrimarginata*, paratype, BMNH 2001.1.4:3, 77 mm SL;, Australia, GBR, Lizard Island.

edge; second dorsal fin with a very narrow dusky margin and a darker dusky submarginal line curving in each membrane and joining margin at ray tips; dorsoposterior half of caudal fin with irregular dusky margin; indistinct brown spot covering approximately 15% of base of branched caudal rays; short dark dashes on membrane between third and fourth upper branched caudal rays and fourth and fifth branched caudal rays; anal, pectoral, and pelvic fins unmarked in preserved specimens.

Distribution. - Although we list type specimens only from the Great Barrier Reef and New Caledonia, photographs of this species as *Amblyeleotris* sp. or *A. gymnocephala* (see synonymy above) have been published from Papua New Guinea, Indonesia, and the Philippines. The second author has photographs from Lombok and Sumbawa in Indonesia; Lion Island, Papua New Guinea, and Redang Island, Malaysia.

Etymology. - *Amblyeleotris rubrimarginata* is named from the Latin *rubri* for red and *marginata* for edge, in reference to the distinctive bright red margin of the dorsal fins.

Remarks. - *Amblyeleotris rubrimarginata* is found on sandy to silty sandy substrates associated with coral reefs or sea grass beds from depths of 3 to 26 m and living in association with alpheid shrimps. A single or pair of gobies may occupy the burrow, generally with a pair of alpheid shrimps.

This species is most similar to *A. japonica* which has similar dorsal and anal-fin ray counts and pelvic-fin structure. *Amblyeleotris japonica* has a lower number of scales in longitudinal series (69-78) compared to *A. rubrimarginata* (77-94). The red margin on the dorsal and caudal fins and the black spot behind the eye are the most conspicuous color markings that serve to separate *A. rubrimarginata* from other species of the genus.

***Amblyeleotris harrisorum*, new species**
(Figs. 4B, 5-7)

Material examined. - Holotype - BPBM 38833, 58 mm, Line Islands, Kiritimati, sand rubble slope at Lionfish Wall (approximately 1° 42' N; 157° 10' W), 32 m, spear, coll. M.S. Mohlmann, 14 Feb.1998.

Paratypes - AMS I.40485-001, 73 mm; CAS 213861, 66 mm; ZRC 46178, 58 mm; USNM 364026, 51 mm; BMNH 2001.1.4:1, 49 mm, collection data same as holotype, except coll. M.S. Mohlmann & E. Conklin.

Diagnosis. - A species of *Amblyeleotris* with 13 second dorsal rays, 14 anal rays, 81-86 scales in longitudinal series, pelvic fins lacking an interspinal frenum, fifth pelvic rays completely separate, caudal fin bright yellow with an orange and blue margin, and a yellow oblique line behind eye.

Description. - Dorsal rays, VI-I,13; anal rays I,14 (15), last ray of second dorsal fin and last ray of anal fin bifurcate to insertion; pectoral rays 19 (17-19);

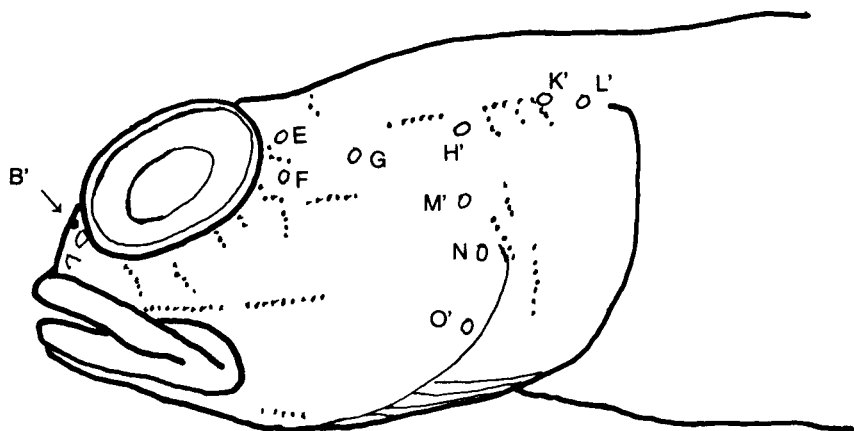


Fig. 3. *Amblyeleotris rubrimarginata*, lateral view of the head to show cephalic sensory system.

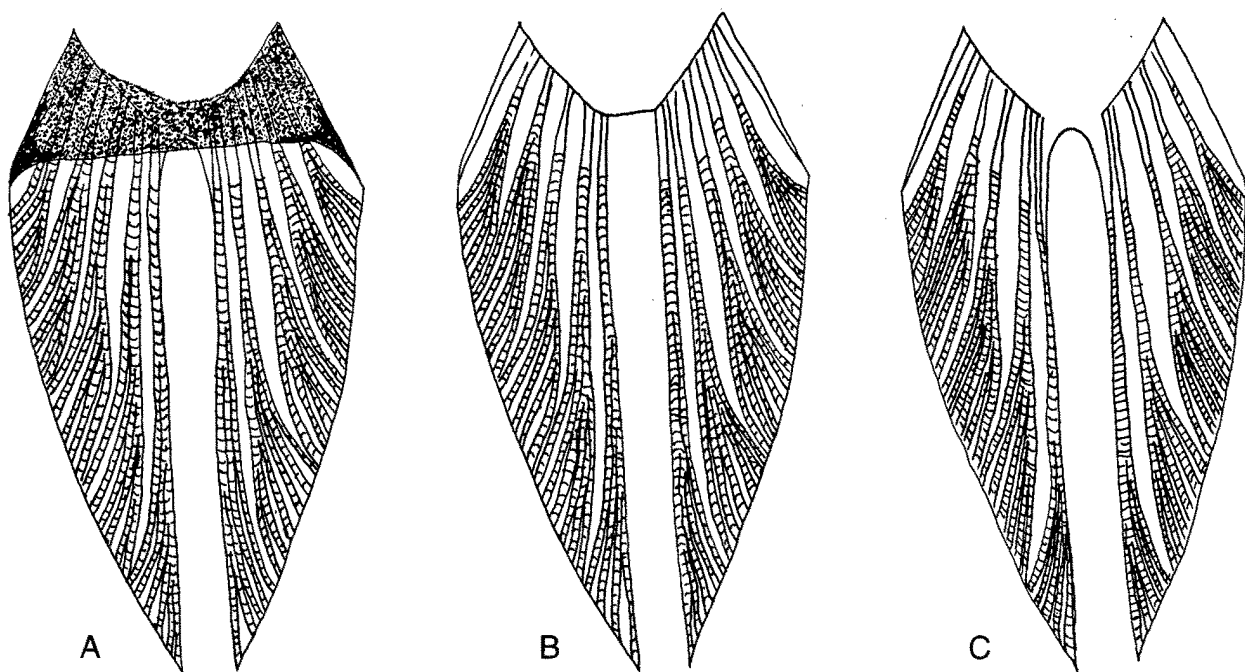


Fig. 4. Pelvic fin structure showing pelvic frenum presence or absence and extent of membrane connecting fifth pelvic rays: A. *Amblyeleotris rubrimarginata*; B. *A. harrisorum*; C. *A. marquesas*.

pelvic rays I,5, rays branched to 5 to 8 filaments distally (Fig. 4B); branched caudal rays 14, unbranched segmented upper 2 and lower 1; upper procurrent caudal rays 7(5-9), lower 7(5-8); longitudinal scale series 81 (81-86) + 6 (5-6) scale rows basally on caudal fin; transverse scale series 31 (27-33); circumpeduncular scales 24 (21-23).

Body elongate, depth 5.8 (5.7-7.3) in SL; body moderately compressed, width 10.4 (9.8-11.6) in SL; head length 4.1 (3.6-4.2) in SL; dorsal profile of head sloping steeply from upper jaw to anterior edge of orbit, then slightly sloping upwards to first dorsal fin; posterior margin of head anterior to insertion of first dorsal spine; orbit obliquely oblong, maximum diameter 3.5 (3.2-4.2) in HL, extending slightly above dorsal profile of head; interorbital space 7.4 (7.6-12.2) in HL; caudal-peduncle depth 2.3 (2.4-3.1) in HL; caudal-peduncle length 2.0 (1.7-2.0) in HL.

Mouth large, posterior margin of maxilla extending almost to a vertical with the posterior margin of orbit, upper-jaw length 2.3 (2.4-2.9) in HL; mouth obliquely sloping down, lower jaw projecting slightly; jaws with an outer row of well-spaced, slender, incurved conical teeth and an inner band of villiform teeth in three rows anteriorly, narrowing to

a single row posteriorly; outer row of teeth at front of upper jaw progressively larger, the most lateral a large stout recurved canine; two or three strong recurved canines medially about half way back in lower jaw. Tongue slightly rounded with small faint speckles. Gill opening extending forward ventrally to a vertical approximately one-half orbit diameter behind eye and dorsally approximately to horizontal line drawn through middle of orbit. Anterior nostril a short membranous tube; base of anterior nostril approximately 1/3 distance between lip and orbit margin above lip; posterior nostril opening elongate along margin of orbit. Anterior oculoscapular canal with B', C, D, E, F, G and H', C and D (not shown) singular, between interorbitals on top of head; posterior oculoscapular canal with K', and L', preopercular canal with M', N, and O', sensory papillae in a transverse pattern (Fig. 7).

Scales ctenoid posteriorly on body, becoming smaller and cycloid anteriorly. Ctenoid scales extending dorsally to base of twelfth dorsal ray, ventrally to base of fourteenth anal ray, and mid-body to a vertical drawn from base of sixth dorsal soft ray; nape and pectoral-fin base naked; breast scaled; no scales on dorsal or anal fins, but approximately four to five scale rows basally on caudal fin.

Origin of first dorsal fin in line approximately one-half orbit diameter posterior to pelvic ray insertion, predorsal length 3.2 (3.0-3.3) in SL; dorsal spines slender and curved (measured when approximately straightened), fourth spine longest 1.8 (1.6-1.8) in HL; membrane from sixth spine nearly contiguous with origin of second dorsal fin; spine of second dorsal fin 2.4 (2.0-3.1) in HL; twelfth dorsal soft ray longest, 1.6 (1.3-1.8) in HL; origin of anal fin approximately in line with second dorsal soft ray; anal spine 2.9 (2.8-3.5) in HL; thirteenth, rarely fourteenth anal soft ray longest, 1.6 (1.3-1.8) in HL; caudal fin pointed, 3.2 (3.1-3.8) in SL; pectoral fins pointed, extending to a vertical below sixth dorsal spine, 4.5 (4.9-5.3) in SL; no pelvic frenum; pelvic spine 3.5 (3.1-3.7) in HL; pelvic fins separate; pelvic-fin length 4.8 (4.3-6.0) in SL, extending to within one orbit diameter of anus.

Color of holotype in ethyl alcohol. - Ground color light brownish yellow, only fourth of five orange bars seen in life remaining visible, its anterior margin originating at tenth dorsal soft ray, posterior margin approximately two scale rows behind thirteenth dorsal soft ray, bar slightly chevron-shaped, angling forward to mid-body and then back ventrally with anterior margin intersecting ninth anal soft ray, posterior margin intersecting thirteenth anal soft ray; no additional markings visible on preserved specimen. No distinct markings remaining on head. First dorsal fin with very faint light pigment centered between spines, none on immediately adjacent spines; second dorsal and anal fin with very sparse dark dots in the center of membrane between rays, lacking pigment adjacent to rays; caudal fin with small dark dots along dorsal and ventral margins, posterior 1/3 of fin also with small dark dots; paired fins unmarked in preserved specimens.

Color when fresh (Figs. 5, 6). - White with five pale orange bars; anterior margin of first bar approximately two orbit diameters behind eye, extending to posterior margin of operculum, bar narrowing ventrally following curve of operculum; second bar from middle of first dorsal fin, extending down slightly below midbody line; third bar originating at approximately third dorsal soft ray with posterior margin at approximately sixth dorsal soft ray, extending ventrally to midbody line; fourth bar medium orange, originating at tenth dorsal soft ray, angling forward to ninth anal soft ray, posterior margin originating at eleventh dorsal soft ray, extending downward almost vertically to thirteenth anal soft ray; fifth bar a pale orange spot on base of caudal fin, not extending to dorsal or ventral margins

of fin. Interspace between bars approximately twice widest portion of bars; no markings in white interspaces. Head with an oblique yellow line behind eye continuing onto nape; lips and jaws pale yellow. Membranes of first dorsal fin pale yellow with a reticulum of light blue. Second dorsal fin yellow with two blue lines running near the top and bottom of fin and small blue speckles scattered between lines. Caudal fin yellow with an orange and blue margin. Anal fin pale orangish with yellow margin. Pectoral and pelvic fins very light yellow.

Distribution. - *Amblyeleotris harrisorum* has only been collected from Kiritimati (Christmas Island), but it should be expected at least at the other Line Islands.

Etymology. - *Amblyeleotris harrisorum* is named in honor of Mr. and Mrs. Hamilton Harris who sponsored the fish collecting at Kiritimati.

Remarks. - *Amblyeleotris harrisorum* has been collected at a single location on a sandy rubble substrate at the base of a steep outer reef slope at a depth of 32 m. A survey of the sandy area farther away from the reef base revealed no additional burrows of goby shrimp pairs.

Amblyeleotris harrisorum appears to be most similar to *A. aurora* Polunin & Lubbock, from islands of the western Indian Ocean which also has 13 dorsal soft rays, 14 anal soft rays, and nearly the same number of scales in longitudinal scale series. It is also similar in color, but lacks the following features of *A. aurora*: a red line from behind eye to posterior tip of maxilla, large red spots on caudal fin, second dorsal with yellow to orange spots edged in blue, a large red spot between soft rays 12 and 13. In addition, its pelvic fins are connected approximately 10% of fin length whereas they are fully separated in *A. harrisorum*.

***Amblyeleotris marquesas*, new species**
(Figs. 4C, 8-10)

Material examined. - Holotype - BPBM 38511, 64 mm, Marquesas Islands, Nuku Hiva, Anaho Bay, east side of entrance (approximately 9° 00' S; 139° 30' W), 23.5 m, spear, coll. J. E. Randall, 4 Oct.1998.

Paratypes - AMS I.40486-001, 59 mm, same data as holotype; ZRC 46181, 69 mm, Marquesas Islands, Nuku Hiva, north side of Sentinelle de l'Est, outer Taiohae Bay, 18 m, spear, coll. J. L. Earle, 3 Oct.1998.

Diagnosis. - A species of *Amblyeleotris* with 14 dorsal soft rays, 15 anal soft rays, 92-96 scales in



Fig. 5. *Amblyeleotris harrisorum*, Line Islands, Kiribati.



Fig. 6. *Amblyeleotris harrisorum*, Line Islands, Kiribati.

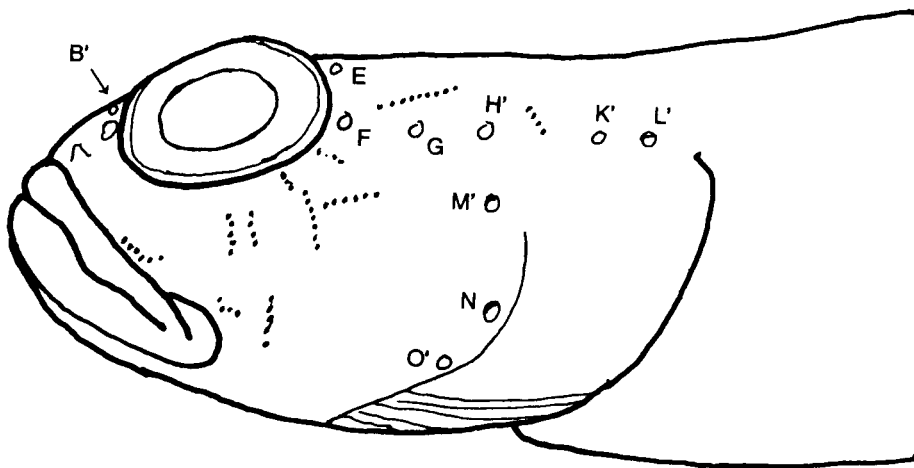


Fig. 7. *Amblyeleotris harrisorum*, lateral view of the head to show cephalic sensory system.

longitudinal series, pelvic fins lacking an interspinal frenum, fifth pelvic rays united about 10% of their length, and white interspaces on body with narrow orangish brown bars.

Description. – Dorsal rays, VI-I,14; anal rays I,15, last ray of second dorsal fin and anal fin bifurcate to insertion; pectoral rays 19 (18); pelvic rays I,5, rays branched to four to seven filaments distally (Fig 4C); branched caudal rays 14, unbranched segmented upper 2, lower 1; upper procurrent caudal rays 4 (4-6), lower 4 (4-6); longitudinal scale series 92 (92-96) + 6 scale rows basally on caudal fin; transverse scale series 27 (29); circumpeduncular scales 24 (21-22).

Body elongate, depth 7.1 (6.6-7.7) in SL; body moderately compressed, width 10.7 (11.3-13.8) in SL; head length 4.3 (4.1-4.3) in SL; dorsal profile of head curving back from maxilla to anterior edge of orbit in approximately 45 degree angle; profile curve flattening behind orbit; posterior margin of head approximately 1.25 orbit diameter before insertion of first dorsal spine; orbit obliquely oblong, maximum diameter 3.8 (3.2-4.1) in HL; interorbital space 8.3 (7.3-8.0) in HL; caudal-peduncle depth 2.5 (2.8-2.9) in HL; caudal-peduncle length 1.8 (1.9-2.0) in HL.

Mouth large, posterior margin of maxilla extending almost to a vertical with the posterior one-third of pupil, upper-jaw length 2.5 (2.3-2.4) in HL; mouth obliquely sloping down, lower jaw projecting slightly. Front of upper jaw with an outer row of three pairs of well-spaced, slender, incurved conical teeth, the lateral fourth pair twice as large and recurved; well-spaced teeth of outer row on side of upper jaw incurved and

angling slightly forward; lower jaw with an outer row of well-spaced slender, incurved conical teeth, the four pairs anteriorly in jaws largest, but none as canines; 3 large recurved canines medially on side of lower jaw; both jaws with an inner band of villiform teeth in about three rows anteriorly, narrowing to one posteriorly. Tongue blunt with small dark speckles. Gill opening extending forward ventrally to a vertical approximately one-half orbit diameter behind eye. Anterior nostril a short conical membranous tube, the opening approximately one-third diameter of base; base of anterior nostril not reaching dorsal margin of upper lip; posterior nostril just touching margin of orbit. Anterior oculoscapular canal with B', C, D, E, F, G and H', C and D (not shown) singular, between interorbitals on top of head; posterior oculoscapular canal with K', and L'; preopercular canal with M', N, and O', sensory papillae in a transverse pattern (Fig. 10).

Scales ctenoid, becoming smaller and cycloid anteriorly. Ctenoid scales extending dorsally to base of thirteenth dorsal ray, ventrally to base of thirteenth anal ray and mid-body to a vertical drawn between second and third dorsal soft ray; midline of nape, breast, and pectoral-fin base naked; no scales on dorsal or anal fins but approximately six scale rows basally on caudal fin.

Origin of first dorsal fin approximately in line with posterior insertion of pelvic fins, predorsal length 3.7 (3.5) in SL; dorsal spines slender and curved (measured when approximately straightened), fourth spine longest 1.8 (1.8-1.9) in HL; membrane from sixth spine nearly contiguous with origin of second dorsal fin; spine of second dorsal fin 2.4 (2.3-2.5) in



Fig. 8. *Amblyeleotris marquesas*, holotype, BPBM 38511, 64 mm SL; Marquesas Islands, Nuku Hiva.



Fig. 9. *Amblyeleotris marquesas*, Marquesas Islands, Nuku Hiva.

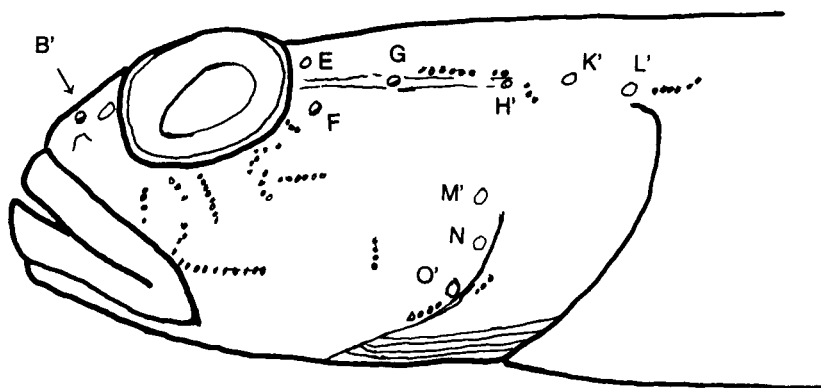


Fig. 10. *Amblyeleotris marquesas*, lateral view of the head to show cephalic sensory system.

HL; thirteenth dorsal soft ray longest, 1.4 (1.5) in HL; origin of anal fin approximately in line with first dorsal soft ray; anal spine 3.8 (3.6-4.0) in HL; fourteenth anal soft ray longest, 1.5 (1.3-2.1) in HL; caudal fin pointed, 3.2 (3.1-4.1) in SL; pectoral fins pointed, extending to a vertical just posterior to dorsal spine VI, 4.9 (4.9-5.4) in SL; no interspinal frenum; pelvic spine 3.8 (3.6-3.8) in HL; innermost pelvic rays connected for approximately 10% of their length; pelvic-fin length 5.0 (4.7-4.9) in SL, extending to a vertical half way from sixth dorsal spine to posterior margin of fin.

Color of holotype in ethyl alcohol. – whitish with four narrow light brown bars dorsally on body, the first between dorsal spines I and II, angled slightly forward and appearing as two darker parallel lines; second bar between posterior end of first dorsal fin and origin of second dorsal fin, also appearing as two darker parallel lines; third bar between dorsal soft rays 7 and 8, uniform in color and extending approximately one-fourth body depth ventrally; fourth bar midway between last dorsal soft ray insertion and base of caudal fin, extending ventrally for two scale rows. A light colored line originating behind orbit and curving dorsally onto nape; cheek lightly speckled with dark dots; lips and anterior portion of head with slightly heavier concentration of dots. First and second dorsal fins with dots in a reticulate pattern on membranes; caudal fin without markings; anal and pelvic fins with uniform distribution of minute dots on all membranes; pectoral fins unmarked.

Live Color (Figs. 8, 9) light greenish gray dorsally, shading to white ventrally, with a slightly oblique

brownish red bar from nape across posterior operculum, and three slightly oblique, broad, brownish red bars on body; bars on body broadest midlaterally, about twice as broad as white interspaces; upper half of each white interspace with a reddish brown bar that is broader and darker dorsally; snout and lips dark purplish gray; irregular orange markings dorsally on postorbital head; an oblique light blue line below eye; iris mottled orange with two adjacent blue spots in ventroposterior part; membranes of dorsal fins pale orangish with irregular pale blue lines; caudal fin pale orangish with a large brownish red spot at base; anal and pelvic fins pale bluish; pectoral fins with transparent membranes and gray rays.

Distribution. - *Amblyeleotris marquesas* is presently known only from Nuku Hiva, Marquesas Islands, French Polynesia.

Etymology. - *Amblyeleotris marquesas* is named for the type locality.

Remarks. - *Amblyeleotris marquesas* was found at depths of 20 to 25 m living in association with *Alpheus randalli*. A single or pair of gobies may occupy the burrow with one or two alpheid shrimps.

Several species of *Amblyeleotris* have broad solid bars, including *A. arcupinna*, *A. aurora*, *A. fontanesii*, *A. gymnocephala*, *A. harrisorum*, *A. yanoi* and *A. japonica*. Of these, *A. gymnocephala*, *A. japonica*, and *A. yanoi* have similar markings on the lighter colored interspaces. *Amblyeleotris marquesas* lacks the dark horizontal line behind the eye of *A. gymnocephala* and the yellow caudal fin of *A. japonica* and *A. yanoi*.

Amblyeleotris fontanesii is most similar in its counts of 14-15 dorsal soft rays, 15-16 anal soft rays, and 82-101 longitudinal scales series; it differs from *A. marquesas* in having a pelvic frenum and lacking dark markings in the pale interspaces.

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