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# Descriptions of Four New Damselishes (Pomacentridae) from Papua New Guinea and Eastern Australia

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Plates 1-5

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## ABSTRACT

Four new species of damselfishes, *Abudefduf whitleyi*, *A. flavipinnis*, *Pomacentrus australis*, and *P. pseudochrysopoecilus* are described. *A. whitleyi* from Queensland differs from its closest relatives, *A. saxatilis* and *A. notatus*, on the basis of colour pattern and a suborbital which is mostly naked. *A. flavipinnis* from New Guinea and the Great Barrier Reef is related to *A. cyaneus* but is separable on the basis of colour pattern and the soft dorsal ray count. *P. australis* from Queensland and New South Wales is characterized by an elongate body, blue coloration, and 14 dorsal spines. *P. pseudochrysopoecilus* from the D'Entrecasteaux Islands, Solomon Sea, and Queensland resembles its namesake, *P. chrysopoecilus*, but can be differentiated on the basis of colour pattern, gill raker count, and habitat preference.

## INTRODUCTION

The present taxonomic knowledge of the Pomacentridae of the Indo-Australian Archipelago is due largely to the comprehensive foundation laid down by Pieter Bleeker (1877a and b), the Dutch surgeon-naturalist who collected and studied the fishes of this region over 100 years ago. More recently, significant contributions have been made by Montalban (1927), Fowler and Bean (1928), Whitley (1929), De Beaufort (1940), Marshall (1964), and Munro (1967). De Beaufort's work is the most comprehensive, listing 85 species of damselfishes from the archipelago. Our knowledge of the pomacentrids of this great faunal region remains inadequate, in spite of these investigations. The senior author is currently preparing a monograph of the Pomacentridae of New Guinea and Queensland which includes 111 species, thus representing a substantial increase in the known fauna. The present paper contains descriptions of four new species, including two *Abudefduf* and two

*Pomacentrus*. Many of the type specimens were collected by the senior author while conducting ichthyological investigations aboard Dr Walter A. Starck's research vessel *El Torito* during the first half of 1972. These collections were made along the northeast coast of Papua New Guinea and at the D'Entrecasteaux Islands, Egum Atoll (Solomon Sea), Osprey Reef (Coral Reef), and Pixie Reef (Great Barrier Reef). Further collections were made by the authors at the Capricorn Group, the southernmost islands of the Great Barrier Reef. Additional specimens were obtained from the Australian Museum, Sydney; of particular value were the large collections of fishes made by the Museum at One Tree Island, Capricorn Group between 1966 and 1972.

### METHODS OF COUNTING AND MEASURING

The methods of counting and measuring are the same as those described in detail by Allen (1972) except the length of the dorsal and anal spines are measured proximally at the base of the spine rather than the point at which the spine emerges from the scaly sheath. Measurements were made with needlepoint dial calipers to the nearest millimetre (mm). Standard length is abbreviated as SL. When more than one paratype is listed an abbreviated style is used with the number of specimens followed by their size range (mm SL) in parentheses. The fraction  $\frac{1}{2}$  appearing in the dorsal and anal fin ray formulae refers to a bifurcate condition of the last ray.

The counts and proportions which appear in parentheses under the description section for each species apply to the paratypes when differing from the holotype. A summary of counts for the dorsal, anal, and pectoral fin rays, gill rakers on the first arch and tubed lateral line scales are presented in Tables 1 and 2.

Type material has been deposited at the following institutions: Australian Museum, Sydney (AMS); Bernice P. Bishop Museum, Honolulu (BPBM); British Museum (Natural History), London (BMNH); Muséum National d'Histoire Naturelle, Paris (MNHN); Queensland Museum, Brisbane (QM); National Museum of Natural History, Washington, D.C. (USNM).

### SPECIES ACCOUNTS

#### *Abudefduf whitleyi* n.sp.

(Plate 1; Table 3)

*Holotype*: AMS I.16634-001, 132 mm SL, Pixie Reef (16° 32' S, 145° 51' E), Great Barrier Reef, off Cairns, Queensland, Australia, 3 m, G. R. Allen, 2 July, 1972.

*Paratypes*: AMS IA.894, 1 (62), Hook Island, Whitsunday Passage, Queensland, Australia, E. H. Rainford, 1922; AMS IA.1772, 1 (94), Port Denison, Queensland, Australia, E. H. Rainford (no date); AMS IB.3112 1 (55), Green Island, off Cairns, Queensland, Australia, F. A. McNeill, 1953; AMS I.15638-007, 7 (106-128), One Tree Island, Capricorn Group, Great Barrier Reef, 5 m, explosives, F. H. Talbot and party, 6 October 1967; AMS I.15642-001, 10 (52-125), same data as AMS I.15638-007 except 4 m, 1 October 1968; AMS I.15681-004, 9 (93-119), same data as AMS I.15638-007 except 8 m, 25 November 1969; AMS I.15683-003, 67 (68-129), same data as AMS I.15638-007 except 4 m, 30 November 1969; BPBM, 13605, 3 (95-101), same data as AMS 15683-003; BPBM 13606, 1 (123), Fitzroy

Island, about 15 miles southeast of Cairns, Queensland, Australia, 3 m, multi-prong spear, G. R. Allen, 6 August 1972; USNM 207939, 1 (95), same data as AMS I.15638-007; USNM 207940, 2 (99), same data as AMS I.15683-003.

*Diagnosis:* A species of *Abudefduf* with the following combination of characters: dorsal spines usually 13; horizontal scale rows from base of dorsal fin to middle of lateral line (exclusive of small dorsal base sheath scales) 3 to 4; predorsal scales reaching to level of nostrils; preorbital and most of suborbital naked; inferior preopercular limb scaly; head and body usually uniformly dark in preservative (except for pale abdominal region), but with five narrow transverse dark bars on pale background when alive; caudal fin and most of soft dorsal and anal fin blackish when alive; caudal lobes pointed.

*Description:* The proportional measurements for the holotype and several paratypes are expressed as percentage of the SL in Table 3.

Dorsal rays XIII,13 (one paratype with XIV,13); anal rays II,12; pectoral rays 19 (19 to 20); pelvic rays I,5; branched caudal rays 13; gill rakers on the first arch 23 (22 to 24); tubed lateral line scales 22 (20 to 21); vertical scale rows from upper edge of gill opening to base of caudal fin 29 (28 to 29); horizontal scale rows from base of dorsal fin to middle of lateral line (exclusive of dorsal base sheath scales)  $3\frac{1}{2}$  ( $3\frac{1}{2}$  to 4); from lateral line to anal fin origin 11; predorsal scales about 21 (about 20 to 24), extending to level of nostrils; teeth of jaws uniserial, relatively slender, with notched tips, about 50 in lower jaw and about 44 in upper jaw.

Body moderately deep, laterally compressed, the greatest depth 1.7 (1.8 to 1.9) in the standard length. Head profile rounded, the head length contained 3.2 (3.1 to 3.6) times in the standard length. The following proportions are expressed into the head length: snout 3.4 (3.5 to 3.9), eye diameter 3.7 (3.3 to 4.0), interorbital width 2.7 (2.8 to 3.5), least depth of caudal peduncle 1.7 (1.7 to 2.0), length of caudal peduncle 2.3 (2.0 to 2.3), of pectoral fin 0.9 (0.8 to 0.9), of pelvic fin 1.0 (0.9 to 1.1), of middle caudal rays 1.7 (1.5 to 1.8).

Single nasal opening on each side of snout; mouth oblique, terminally located; lateral line gently arched beneath dorsal fin, terminating  $3\frac{1}{2}$  scale rows below middle of soft dorsal fin; preorbital, most of suborbital (which has a few scales posteriorly), snout, lips, chin, and isthmus naked; remainder of head and body scaled; scales finely ctenoid; preopercular scale rows 3 with additional row of scales on inferior limb; small sheath scales covering basal  $\frac{1}{2}$  membranous portions of spinous dorsal, and nearly entire membranous portion of soft dorsal, anal, and caudal fins; margin of preorbital, suborbital, preopercle and bones of opercle series entire.

Origin of dorsal fin at level of fifth tubed scale of lateral line; spines of dorsal fin gradually increasing in length to about fourth spine, remaining spines about equal except last which is slightly longer. The following proportions are expressed into the head length: length of first dorsal spine 4.4 (3.7 to 5.1), of fourth dorsal spine 2.1 (1.9 to 2.4), of twelfth dorsal spine 1.9 (2.0 to 2.5), of last dorsal spine 1.7 (1.7 to 2.2), of longest soft dorsal ray 0.9 (0.7 to 1.1), of first anal spine 5.2 (4.2 to 5.4), of second anal spine 1.9 (1.7 to 2.2), of longest soft anal ray 1.2 (0.9 to 1.2).

Colour of holotype in alcohol: head and body mostly dark green (nearly blackish); pale streak in centre of each scale on lower half of body, giving appearance of eight narrow stripes running along length of body; scales of breast and abdomen whitish with brown margins, giving overall dusky appearance; scales of preopercle

and lower half of opercle with whitish mottling; dorsal, anal and caudal fins black; pelvic fins dusky; pectoral fins whitish with small black spot superiorly at base, invading upper half of axil.

All the paratypes except for the smallest are basically the same colour as the holotype. The colours of the smallest paratype (55 mm SL) are as follows: head and body silvery-white grading to brown above the lateral line; five narrow bars (about  $1\frac{1}{2}$  scales wide) on side of body; spinous dorsal fin and anterior portions of soft dorsal and anal fins brown; posterior portion of soft dorsal and anal fins tan; caudal fin with broad dark margins and tan central portion; pectoral fins pale with small dark spot superiorly at base.

Colour in life (from 35 mm transparency): head and body light blue-green grading to blue-white ventrally; eye noticeably blackish; five dark grey, narrow bars on sides extending from base of dorsal fin to lower portion of body, two posteriormost bars very faint; caudal fin, spinous dorsal and about distal three-fourths of soft dorsal and anal fins blackish; pelvic and pectoral fins pale; small blackish spot superiorly at base of pectoral fin extending on to upper half of axil.

*Remarks:* *Abudefduf whitleyi* belongs to a complex which contains several large, transverse barred species (except *sparoides*) including *abdominalis* (Hawaiian Islands), *bengalensis* (Indo-Australian Archipelago), *coelestinus* (Indo-W. Pacific), *notatus* (eastern Indian Ocean and Indonesia-Philippines), *affinis* (Indo-Australian Archipelago), *saxatilis* (circumtropical), *septemfasciatus* (Indo-W. Pacific), *sordidus* (Indo-W. Pacific), *sparoides* (western Indian Ocean) and *taurus* (southern Florida and Caribbean). These species characteristically have 13 dorsal spines, 3-4 scale rows above the lateral line (exclusive of the small dorsal sheath scales), and uniserial teeth which are relatively slender with notched tips. *A. whitleyi* appears to be closely allied to *saxatilis* and *notatus*. The latter species differs in colour, suborbital scalation and anal fin ray count. It is basically brownish in preservative with two to four pale bars on the sides. The suborbital is fully scaled and soft anal rays usually number 13 to 14. *A. saxatilis* differs on the basis of colour and a fully scaled suborbital, with some scalation on the preorbital as well. The upper back of *saxatilis* is generally bright yellow (at least in Australian specimens) and the dark transverse bars are nearly twice the width of those found on *whitleyi*.

Young individuals (less than about 70 mm SL) bear a resemblance to *A. coelestinus* Cuvier and Valenciennes because of the dark margins on the caudal fin. However, the middle portion of the fin darkens with growth and eventually becomes entirely blackish. The dark margins of *coelestinus* persist in adults and are diagnostic for the species. The name *sexfasciatus* (Lacépède) has been used in place of *coelestinus* in the recent literature, but we agree with De Beaufort (1940) in placing *sexfasciatus* in the synonymy of *A. saxatilis*.

*A. whitleyi* is very common on the Great Barrier Reef. It generally lives in relatively shallow water (to depths of about five metres) along the periphery of the outer reef edge. Feeding aggregations composed of a hundred or more individuals are frequently observed swimming high above the substratum. They appear to be feeding on zooplankton, but the stomachs of several specimens which were examined contained nearly 100% algae. Perhaps they selectively feed on bits of algae which are washed off the reef flat by waves and currents.

The smallest ripe female examined was 103 mm SL.

This species is named after Gilbert P. Whitley in honour of his many contributions to Australian ichthyology.

**Abudefduf flavipinnis** n.sp.

(Plate 2; Table 4)

*Holotype*: AMS I.16481-001, 57 mm SL, Pixie Reef, Great Barrier Reef, off Cairns, Queensland, Australia, 20 m, quinaldine and dipnets, G. R. Allen, 2 July 1972.

*Paratypes*: AMS I.16482-001, 3 (15-58), Pixie Reef, Great Barrier Reef, 20-23 m, multi-prong spear, G. R. Allen & W. A. Starck II, 1-2 July 1972; AMS IB.4788, 1 (36), Swains Reef, Great Barrier Reef, Queensland, Australia, A. J. Meagher (no date); AMS I.15622-008, 1 (18), One Tree Island, Capricorn Group, Great Barrier Reef, 13 m, explosives, F. H. Talbot & party, 28 November 1966; AMS I.15625-009, 13 (39-56), same data as AMS I.15622-008 except 33 m, 8 December 1966; AMS I.15635-002, 1 (40), same data as AMS I.15622-008 except 12 m, 3 October 1967; AMS I.15637-011, 1 (44), same data as AMS I.15622-008 except 23 m, 5 October 1967; AMS I.15682-001, 6 (36-49), same data as AMS I.15622-008 except 33 m, 27 November 1969; AMS I.15684-005, 6 (39-50), same data as AMS I.15622-008 except 32 m, 1 December 1969; AMS I.16636-001, 1 (57), same data as AMS I.15622-008 except 22 m, rotenone 3 December 1969; BPBM 13228, 4 (37-51), Samarai Island, New Guinea, near public wharf, 9.5 m, multi-prong spear, G. R. Allen, 16 June 1972; BMNH.1972.8.14.6-7, 2 (41), same data as BPBM 13228; MNHN 1972-88, 2 (43-51), same data as BPBM 13228.

*Diagnosis*: A species of *Abudefduf* with the following combination of characters: dorsal rays usually XIII,  $14\frac{1}{2}$ ; horizontal scale rows between middle of lateral line and dorsal fin base 1 to  $1\frac{1}{2}$ ; predorsal scales extending to front of orbits, not reaching nostrils; inferior limb of preopercle with several small scales; teeth biserial; contour of dorsal fin outline relatively uniform, membranes between dorsal spines, not deeply incised; colour blue with forehead, ventral body region and fins yellow.

*Description*: The proportional measurements of the holotype and several paratypes are expressed as percentage of the SL in Table 4.

Dorsal rays XIII,  $14\frac{1}{2}$  (XIII, 11 to  $14\frac{1}{2}$ ); anal rays II, 14 (II, 13 to 14); pectoral rays 17 (17 to 18); pelvic rays I, 5; branched caudal rays 13; gill rakers on the first arch 21 (19 to 23); tubed lateral line scales 17 on left side, 16 on right side (15 to 18); vertical scale rows from upper edge of gill opening to base of caudal fin 28; horizontal scale rows from base of dorsal fin to middle of lateral line (exclusive of dorsal base sheath scales)  $1\frac{1}{2}$  (1 to  $1\frac{1}{2}$ ); from lateral line to anal fin origin 9 (8 to 9); predorsal scales about 16 (13 to 15), extending to front of orbits; teeth of jaws biserial (at least anteriorly), compressed with bluntly rounded tips, about 35 to 40 in the front row of each jaw, teeth of the outer row about four times larger than inner row teeth.

Body relatively elongate, laterally compressed, the greatest depth 2.5 (2.2 to 2.6) in the standard length. Head profile conical, the head length contained 3.4 (3.0 to 3.5) times in the standard length. The following proportions are expressed into the head length: snout 4.9 (4.3 to 4.9), eye diameter 2.8 (2.4 to 3.1); inter-orbital width 3.9 (3.9 to 4.3), least depth of caudal peduncle 1.9 (1.9 to 2.4), length of caudal peduncle 3.0 (2.8 to 3.4), of pectoral fin 1.0 (0.9 to 1.1), of pelvic fin 1.1 (1.1 to 1.3), of middle caudal rays 1.2 (1.2 to 1.4).

Single nasal opening on each side of snout; mouth oblique, terminally located; lateral line gently arched beneath dorsal fin, terminating  $1\frac{1}{2}$  (1 to  $1\frac{1}{2}$ ) scale rows below base of first (first to third) soft dorsal ray; preorbital, suborbital, snout, lips,

chin and isthmus naked; remainder of head and body scaled; scales finely ctenoid except cheek scales which are cycloid; preopercular scale rows 2, additional row of smaller scales covering upper half of inferior limb; small sheath scales covering about basal  $1/2$  to  $3/4$  of membranous portions of dorsal, anal, and caudal fins; margin of preorbital, suborbital, and bones of opercle series entire.

Origin of dorsal fin at level of second tubed scale of lateral line; spines of dorsal fin gradually increasing in length to about sixth or seventh spine, remaining spines about equal or slightly longer than seventh spine. The following proportions are expressed into the head length: length of first dorsal spine 4.3 (4.6 to 5.2), of seventh dorsal spine 1.9 (1.9 to 2.3), of last dorsal spine 1.8 (1.7 to 2.2), of longest soft dorsal ray 1.3 (1.2 to 1.9), of first anal spine 4.3 (4.4 to 5.0), of second anal spine 1.9 (1.8 to 2.1), of longest soft anal ray 1.3 (1.3 to 1.7).

Colour of holotype in alcohol: most of head and body brownish-blue; ventral portion of head, body, and entire caudal peduncle pale yellow, slightly dusky on head; dorsal fin and portion of back immediately adjacent pale yellow with dusky yellow extension covering predorsal region to rear of orbits; remainder of fins pale yellow; thin black margin on dorsal and anal fins; small black spot superiorly at pectoral base invading axil.

Colour in life: most of head and body bright blue; forehead yellow with pattern of fine blue lines; snout, interorbital, dorsal fin and portion of back immediately adjacent, caudal peduncle, ventral portion of head and body, and all fins brilliant yellow; thin black margin on dorsal and anal fins; small black spot superiorly at pectoral base invading axil.

*Remarks:* *A. flavipinnis* is a member of the subgenus *Glyphidodontops* (*Chrysiptera* of some authors). The group is characterized by a relatively elongate body shape and biserial dentition. *A. flavipinnis* is closely related to *A. cyaneus* (Quoy and Gaimard), which is generally bright blue with one or more of the vertical fins yellow to orange (except juveniles and female specimens from some localities which have translucent fins). The latter usually has 10 to 12 soft dorsal rays and the membranes of the spinous dorsal are deeply incised, at least anteriorly. Furthermore, it does not possess a yellow snout, interorbital, and forehead and, unlike *flavipinnis*, occurs in shallow water (usually less than five metres).

This species was observed at depths ranging from 9.5 metres (Samarai Island) to 37 metres (Osprey Reef, Coral Sea). It is generally solitary in habit or occurs in pairs, sometimes forming colonies of up to a dozen individuals or more. It is found among rubble or around dead coral outcrops which are frequently situated in sandy areas.

Named *flavipinnis* in reference to the striking yellow fins.

### ***Pomacentrus australis* n.sp.**

(Plate 3; Table 5)

*Holotype:* AMS I.16592-001, 59 mm SL, outer reef off east side of One Tree Island Reef (23° 30' S, 152° 05' E), Capricorn Group, Great Barrier Reef, 16 m, quinaldine and dipnet, G. R. Allen, 4 October 1972.

*Paratypes:* AMS I.16524-002, 1 (53), Swansea, Lake Macquarie, New South Wales, J. Lewis, June 1972; AMS I.16592-002, 6 (30-53), collected with the holotype; AMS I.16593-001, 1 (35), One Tree Island, in large pool at low tide on reef flat,

1 m, rotenone, G. R. Allen, F. H. Talbot, D. F. Hoese, D. J. G. Griffin & B. C. Russell, 6 October, 1972; AMS I.15622-007, 1 (55), One Tree Island, 13 m, explosives, F. H. Talbot & party, 28 November 1966; AMS I.15625-007, 7 (44-55), same data as AMS I.15622-007 except 33 m, 8 December 1966; AMS I.15637-010, 10 (39-57), same data as AMS I.15622-007 except 23 m, 5 October 1967; AMS I.15679-005, 2 (52-60), same data as AMS I.15622-007 except 5 m, 21 November 1969; AMS IA.6758, 1 (59), Lindeman Island, Queensland, G. P. Whitley, 9 August 1935; BPBM 13607, 3 (47-54), outer reef off west side of One Tree Island Reef, 30 m, quinaldine & dipnet, G. R. Allen on 2 October 1972.

*Diagnosis:* A species of *Pomacentrus* with the following combination of characters: greatest body depth 2.2 to 2.6 in SL; dorsal spines 14; pectoral rays usually 18; preorbital and suborbital naked with serrate edges, teeth of jaws biserial, those of outer row somewhat spatulate with rounded tips; head and body entirely blue (brown in preservative) or blue dorsally and whitish on ventral half.

*Description:* The proportional measurements of the holotype and several paratypes are expressed as percentage of the SL in Table 5.

Dorsal rays XIV,  $13\frac{1}{2}$  (XIV-XV, 12 to  $14\frac{1}{2}$ ); anal rays II,  $14\frac{1}{2}$  (II,  $14\frac{1}{2}$  to  $15\frac{1}{2}$ ); pectoral rays 18 (17 to 19); pelvic rays I, 5; branched caudal rays 13; gill rakers on the first arch 20 (19 to 21); tubed lateral line scales 17 on left side, 18 on right side (17 to 19); vertical scale rows from upper edge of gill opening to base of caudal fin 28 (27 to 28); horizontal scale rows from base of dorsal fin to middle of lateral line (exclusive of dorsal base sheath scales)  $1\frac{1}{2}$ ; from lateral line to anal fin origin 9; predorsal scales about 17 (17 to 20), extending to about level of nostrils; teeth of jaws biserial (at least anteriorly), those of outer row somewhat spatulate with rounded tips, about 32 in lower jaw and 42 in upper jaw; teeth of inner row slender, about  $\frac{1}{2}$  width of outer row teeth.

Body elongate, laterally compressed, the greatest depth 2.5 (2.2 to 2.6) in the standard length. Head profile conical, the head length contained 3.4 (3.2 to 3.5) times in the standard length. The following proportions are expressed into the head length: snout 3.6 (3.8 to 4.4), eye diameter 3.1 (2.8 to 3.3); interorbital width 3.6 (2.8 to 3.3), least depth of caudal peduncle 2.2 (1.9 to 2.3), length of caudal peduncle 2.9 (2.7 to 3.3), of pectoral fin 1.1 (1.0 to 1.2), of pelvic fin 1.1 (1.0 to 1.1), of middle caudal rays 1.2 (1.1 to 1.4).

Single nasal opening on each side of snout; mouth oblique, terminally located; lateral line gently arched beneath dorsal fin, terminating  $1\frac{1}{2}$  scale rows below base of first soft dorsal ray; preorbital, suborbital, snout, lips, chin, and isthmus naked; remainder of head and body scaled; scales finely ctenoid; preopercular scale rows 3; inferior and posterior limb naked; small sheath scales covering about basal  $\frac{1}{2}$  to  $\frac{3}{4}$  of membranous portions of dorsal, anal, and caudal fins; preopercle armed with single spinule; edge of suborbital and preopercle denticulate; edge of bones of opercle series entire except one or two flattened projections on upper portion of opercle.

Origin of dorsal fin at level of third tubed scale of lateral line; spines of dorsal fin gradually increasing in length to last spine. The following proportions are expressed into the head length: length of first dorsal spine 4.5 (3.8 to 5.2): of seventh dorsal spine 2.2 (2.1 to 2.5), of last dorsal spine 2.0 (2.1 to 2.5); of longest soft dorsal ray 1.5 (1.4 to 1.7); of first anal spine 5.0 (4.0 to 5.4), of second anal spine 2.2 (2.0 to 2.6), of longest soft anal ray 1.5 (1.5 to 1.6).



Colour of holotype in alcohol: head and body generally dark blue, paler ventrally and on caudal peduncle; three pale lines on anterior portion of head, the first from front of eye to lip (just below nostril), the second extending along sub-orbital and preorbital onto lip, and the third extending along uppermost row of scales on preopercle; small black spot on suprascapula, near origin of lateral line; pectoral base dusky; dorsal and anal fins blue-grey with pale submarginal band; pelvic and pectoral fins whitish or slightly grey; caudal fin whitish, faintly dusky along posterior margin.

Many of the recently collected paratypes are entirely dark blue except for pale pectoral, pelvic, and caudal fins. A few are blue dorsally and abruptly whitish on the ventral half of the body. After several years of preservation in isopropyl alcohol the bluish colour tends to turn brown and the pale lines of the snout and preopercle disappear.

Colour in life: two basic colour patterns were observed at the Capricorn Group. Individuals were either mostly dark blue (except for the pale fins mentioned above) or sky-blue above and whitish on the ventral half of the body, with the demarcation between the light and dark areas angling upwards posteriorly. The blue of the dark form is somewhat iridescent and the scales of the body have dusky margins which results in a crosshatch pattern. Both forms have a dark grey forehead and a pattern of pale blue submarginal stripes on the anal fin.

*Remarks:* The combination of characters listed under the diagnosis is sufficient for distinguishing this species. At first glance it might be mistaken for *P. pavo* (Bloch). Both species are blue, relatively elongate, and possess a dark suprascapular spot. However, *P. pavo* differs in having 13 dorsal spines and 13 to 13½ soft anal rays. It is pale iridescent blue with a pattern of blue iridescent lines on the head and an oval iridescent blue spot on each body scale. Both species were observed in the lagoon at One Tree Island in depths as shallow as 1½ metres. The typical lagoon habitat consisted of open sandy areas with occasional coral outcrops, which provide refuge for several pomacentrid species. *P. australis*, unlike *P. pavo*, was also present on the outer reef slope, generally in rubble areas, ranging in depth from 12 to 35 metres. It occurs solitarily or in groups composed of several individuals. Feeding takes place a short distance above the bottom. The stomach contents of several paratypes we examined were in an advanced state of digestion, but appeared to consist mainly of zooplankton.

This pomacentrid has not been collected outside of Australian waters and in reference to its southern distribution is named *australis*.

### ***Pomacentrus pseudochrysopoecilus* n.sp.**

(Plates 4 and 5A; Table 6)

*Holotype:* BPBM 13608, 62 mm SL, off north side of Naura Islet (9° 36' S, 150° 27' E), Fergusson Island, D'Entrecasteaux Group, 2 m, quinaldine, G. R. Allen, 30 May 1972.

*Paratypes:* AMS I.15633-006, 7 (75-101), One Tree Island, Capricorn Group, Great Barrier Reef, 2 m, explosives, F. H. Talbot & party, 30 September, 1967; AMS I.16479-001, 3 (48-78), same data as holotype; QM I.6009, 1 (125), Hopkinson Reef, off Townsville, Australia, G. Coates, 13 September, 1937; USNM 207936, 2 (65-69), same data as holotype except collected with rotenone and multi-prong spear.

*Diagnosis:* A species of *Pomacentrus* with the following combination of characters: dorsal spines 13; preorbital and suborbital naked except 1 or 2 small scales on posterior portion of suborbital; notch lacking between preorbital and suborbital; lower margin of preorbital and suborbital denticulate; snout scaled to level of nostrils; teeth biserial; ground colour of head and body brown, usually with one or two pale saddles (sometimes absent in preservative) dorsally at middle of body which extend at least  $1\frac{1}{2}$  scale rows below lateral line; large adults frequently without pale saddles; juveniles with two, broad, white bars on sides (extending on to dorsal fin) with large ocellus between bars on dorsal fin.

*Description:* The proportional measurements of the holotype and several paratypes are expressed as percentage of the SL in Table 6.

Dorsal rays XIII,14 (XIII,13 to  $14\frac{1}{2}$ ); anal rays II,13 $\frac{1}{2}$  (II,13 to  $13\frac{1}{2}$ ); pectoral rays 17; pelvic rays I,5; branched caudal rays 13; gill rakers on the first gill arch 21 (20 to 22); tubed lateral line scales 16 on right side, 18 on left side (16 to 18); vertical scale rows from upper edge of gill opening to base of caudal fin 28; horizontal scale rows from base of dorsal fin (at soft dorsal junction) to middle of lateral line (exclusive of dorsal base sheath scales)  $1\frac{1}{2}$ ; from lateral line to anal fin origin 9; predorsal scales about 18 (about 19 to 23), extending well forward of anterior edge of orbits, about to level of nostrils; teeth biserial, long and slender with rounded tips, those of the outer row close set, about twice as large as those of the inner row.

Body moderately deep and laterally compressed, the greatest depth 2.0 (2.0 to 2.3) in the standard length. Head profile conical; the head length contained 3.3 (3.3 to 3.5) times in the standard length. The following proportions are expressed into the head length: snout 3.9 (3.4 to 3.8), eye diameter 3.0 (2.6 to 3.3), interorbital width 4.1 (3.6 to 3.9), least depth of caudal peduncle 1.9 (1.7 to 1.9), length of caudal peduncle 2.8 (2.5 to 3.0), of pectoral fin 1.1 (1.1 to 1.2), of pelvic fin 1.0 (1.0 to 1.1), of middle caudal rays 1.1 (1.1 to 1.2).

Single nasal opening on each side of snout; mouth oblique, terminally located; lateral line gently arched beneath dorsal fin, terminating  $1\frac{1}{2}$  scale rows below base of first to third soft dorsal rays; preorbital, most of suborbital, tip of snout, lips, chin and isthmus naked, remainder of head and body scaled; scales finely ctenoid, preopercular scale rows 3, additional row of smaller scales on inferior limb; small sheath scales covering basal  $\frac{1}{2}$  of spinous dorsal, basal  $\frac{2}{3}$  of soft dorsal and anal fins, and basal  $\frac{3}{4}$  of caudal fin; lower margin of preorbital and suborbital denticulate; posterior margin of preopercle denticulate; posterior margin of opercle entire except for two blunt projections on upper portion.

Origin of dorsal fin at level of third tubed scale of lateral line; spines of dorsal fin gradually increasing in length to last spine. The following proportions are expressed into the head length: length of first dorsal spine 2.8 (3.3 to 4.6), of last (13th) dorsal spine 1.7 (1.6 to 1.7), of longest soft dorsal ray 1.2 (1.1 to 1.3), of first anal spine 5.6 (3.7 to 4.5), of second anal spine 1.9 (1.8 to 2.1), of longest soft anal ray 1.3 (1.2 to 1.3).

Colour of holotype in alcohol: ground colour of head and body brown, darker anterodorsally; numerous pale spots on scales of preopercle and opercle; a single whitish bar or saddle dorsally at middle of body, originating at the base of dorsal spines IX–XII and terminating  $1\frac{1}{2}$  scales below lateral line; small black spot superiorly at pectoral base; anus black; dorsal, anal, pelvic, and caudal fins dusky; pectoral fin pale.

The largest paratype is completely dark brown, except for the pale pectoral fins and narrow blue streaks on each scale of the body. The 65 mm and 75 mm paratypes faintly retain the posterior-most bar as described below under colour in life of the holotype. The two saddles or bars of these individuals, however, extend halfway down the sides, gradually tapering to a point. The pale saddles are missing on the paratypes from One Tree Island. These specimens are entirely brown except for pale pectoral fins. A black suprascapular spot is faded and scarcely visible on the holotype, but vivid in the paratypes. The smallest paratype (fig. 5A) retains the juvenile colour pattern characterized by two broad white bars with a large yellow-ringed black ocellus between the two bars on the dorsal fin.

Colour of holotype in life: ground colour of head and body brown, dark brown anterodorsally; scales of preopercle and opercle with numerous blue dots; two whitish bars or saddles on dorsal portion of body, the first originating from base of dorsal spines IX–XII and terminating  $1\frac{1}{2}$  scales below lateral line, the second (which disappears rapidly after death) extending from base of soft dorsal rays 4–9 to same level as anterior bar; black spot about  $\frac{1}{2}$  pupil diameter at lateral line origin; small black spot superiorly at pectoral base; anus black; thin blue streak at centre of each scale of body, but not detracting from overall brownish appearance; dorsal fin dusky or brownish basally, bluish distally with thin black margin and two submarginal orange bands; anal fin dusky brown basally, distal portion orange with three oblique submarginal bands of blue; pelvics cinnamon brown; pectorals pale yellow; caudal fin brown basally, bluish distally with orange margins.

Most of the individuals sighted at Fergusson Island were generally brown with two white saddles. However, many adults were observed on the Great Barrier Reef which were entirely dark brown with a single saddle. These individuals can easily be mistaken for *P. chrysopoecilus* (see Remarks section below). At Egum Atoll, Solomon Sea, several large (approximately 180 mm TL) individuals were observed which were entirely dark brown without any characteristic markings. Apparently the saddles disappear gradually with growth.

*Remarks:* *P. pseudochrysopoecilus* is closely related to *P. chrysopoecilus* Schlegel and Muller and *P. fasciatus* Cuvier and Valenciennes. Its colour pattern (especially in preservative) is very similar to that of *P. chrysopoecilus* and it has probably been included with this species in the past. Fowler and Bean's (1928) plate 11 of a colour variant of *P. pristiger* is probably *P. pseudochrysopoecilus* on the basis of the midbody bar configuration. It is possible that plate 12 of the same work is also a figure of this species, rather than another variant of *P. pristiger*. The midbody bar in both these figures extends below the lateral line. *P. chrysopoecilus* is not a junior synonym of *P. pristiger* as stated by Fowler and Bean. The latter species was described from Mauritius and has 12 dorsal spines. It is possibly synonymous with *P. nigricans*, a widely distributed species of the Indo-Pacific. The live colour pattern (Table 7) and total number of gill rakers on the first gill arch (23–24 in 13 specimens of *chrysopoecilus*) constitute the principal differences between *chrysopoecilus* and *pseudochrysopoecilus*. The juvenile colour patterns of like-sized individuals of these species are contrasted in Figure 5. Specimens of *chrysopoecilus* under 25 mm SL, which were observed at Fergusson Island, were uniformly dark, except for pale pelvic, pectoral, and caudal fins, pale abdominal region, a whitish bar below the middle of the spinous dorsal extending to the level of the pectoral fins, a pale band on the forehead, and a large ocellus near the soft dorsal junction. *P. pseudochrysopoecilus* individuals under 25 mm SL were essentially marked as shown in Figure 5. Furthermore, the two species were sympatric, but clearly separated ecologically at the D'Entrecasteaux Group. At Naura Islet in the vicinity of the type locality, there is an extensive inshore reef, about 300 metres wide, which plunges abruptly

to deeper water on the outer edge. The average depth of the inshore reef is 1 to 1.5 metres. *P. pseudochrysopoecilus* was confined to a narrow belt, just inside the algal ridge, about 50 metres from the outer edge. The bottom consisted primarily of live coral thickets interspersed with open areas of sand and dead coral. The water in this area was generally clear with visibility in excess of 25 metres. *P. chrysopoecilus* was encountered in a belt, about 50 metres wide, directly adjacent to the shoreline Naura Islet. The area was characterized by heavy silting and murky water. The uniformly flat bottom was composed of consolidated coral rock, interrupted occasionally with patches of rocks and turtle grass. Thus, the two habitat zones were separated by a horizontal distance of approximately 200 metres. *P. chrysopoecilus* has been recorded from Indonesia, the Philippines, New Guinea and the Palau Islands.

*P. fasciatus* differs primarily in colour pattern, although it is reported to have predorsal scales which extend only to the middle of the interorbital, as opposed to the fully scaled interorbital of *P. pseudochrysopoecilus*. It is basically a brown fish with four yellow bars (located behind the eye, below the anterior and posterior portion of the spinous dorsal, and at the upper caudal peduncle). This species was not observed along the southeast coast of New Guinea (Madang to Samarai, including the D'Entrecasteaux Group), but has been reported from Queensland (one specimen), northern Australia, Indonesia, and the Philippines.

Named *pseudochrysopoecilus* because of the close resemblance to *chrysopoecilus*.

#### ACKNOWLEDGMENTS

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**Table 1**

Dorsal and Anal Fin Ray Counts for New Pomacentrids from New Guinea, Solomon Sea, and The Great Barrier Reef

| Species                             | Dorsal Rays |     |    |     |    |     |    |     |    |     |    |     |    | Anal Rays |     |    |     |    |     |    |     |    |  |
|-------------------------------------|-------------|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----------|-----|----|-----|----|-----|----|-----|----|--|
|                                     | XIII        | XIV | 11 | 11½ | 12 | 12½ | 13 | 13½ | 14 | 14½ | 15 | 15½ | II | 12        | 12½ | 13 | 13½ | 14 | 14½ | 15 | 15½ |    |  |
| <i>Abudefduf whitleyi</i> .. ..     | 19          | I   | .. | ..  | .. | ..  | 20 | ..  | .. | ..  | .. | ..  | 20 | 20        | ..  | .. | ..  | .. | ..  | .. | ..  | .. |  |
| <i>A. flavipinnis</i> .. ..         | 21          | ..  | I  | ..  | .. | ..  | I  | ..  | 5  | 14  | .. | ..  | 21 | ..        | ..  | 4  | 14  | 3  | ..  | .. | ..  | .. |  |
| <i>Pomacentrus australis</i> .. ..  | ..          | 32  | .. | ..  | I  | I   | 2  | 22  | 2  | 4   | .. | ..  | 32 | ..        | ..  | .. | ..  | .. | 25  | 4  | 3   | .. |  |
| <i>P. pseudochrysopecilus</i> .. .. | 13          | ..  | .. | ..  | .. | ..  | I  | ..  | 2  | 10  | .. | ..  | 13 | ..        | ..  | 2  | 10  | I  | ..  | .. | ..  | .. |  |

**Table 2**

Pectoral Ray, Gill Raker, and Tubed Lateral Line Scale Counts for New Pomacentrids from New Guinea, Solomon Sea, Coral Sea, and The Great Barrier Reef

| Species                             | Pectoral Rays |    |    |    |    | Gill Rakers |    |    |    |    |    |    |    | Tubed Lateral Line Scales |    |    |    |    |    |    |    |  |
|-------------------------------------|---------------|----|----|----|----|-------------|----|----|----|----|----|----|----|---------------------------|----|----|----|----|----|----|----|--|
|                                     | 16            | 17 | 18 | 19 | 20 | 18          | 19 | 20 | 21 | 22 | 23 | 24 | 15 | 16                        | 17 | 18 | 19 | 20 | 21 | 22 |    |  |
| <i>Abudefduf whitleyi</i> .. ..     | ..            | .. | .. | 6  | 14 | ..          | .. | .. | .. | 2  | 10 | 8  | .. | ..                        | .. | .. | .. | 18 | 2  | 2  | .. |  |
| <i>A. flavipinnis</i> .. ..         | ..            | 4  | 16 | I  | .. | ..          | I  | 4  | 9  | 6  | I  | .. | 3  | 10                        | 4  | I  | .. | .. | .. | .. | .. |  |
| <i>Pomacentrus australis</i> .. ..  | ..            | 9  | 19 | 4  | .. | ..          | 4  | 8  | 10 | .. | .. | .. | .. | I                         | 8  | 14 | 6  | .. | .. | .. | .. |  |
| <i>P. pseudochrysopecilus</i> .. .. | ..            | I  | 12 | .. | .. | ..          | .. | 2  | 7  | 4  | .. | .. | .. | 3                         | 5  | 4  | .. | .. | .. | .. | .. |  |

**Table 3**Morphometric Proportions (in % of SL) of Twenty Specimens of *Abudefduf whitleyi* from The Great Barrier Reef

| Morphometric measurement                  | Range<br>(% SL) | Mean<br>(% SL) |
|---|-----------------|----------------|
| Standard length (SL) .. .. .              | 95-132          | ..             |
| Body depth .. .. .                        | 51.9-58.4       | 54.6           |
| Head length .. .. .                       | 28.1-31.8       | 29.9           |
| Snout length .. .. .                      | 7.5-9.0         | 8.2            |
| Eye diameter .. .. .                      | 7.8-8.6         | 8.3            |
| Interorbital width .. .. .                | 8.8-11.3        | 9.7            |
| Least depth of caudal peduncle .. .. .    | 15.5-17.9       | 16.5           |
| Length of caudal peduncle .. .. .         | 12.9-14.5       | 13.6           |
| Snout to origin of dorsal fin .. .. .     | 38.9-43.7       | 41.8           |
| Snout to origin of anal fin .. .. .       | 70.0-75.8       | 72.1           |
| Snout to origin of pelvic fin .. .. .     | 40.9-45.8       | 42.8           |
| Length of dorsal fin base .. .. .         | 57.3-61.6       | 58.9           |
| Length of anal fin base .. .. .           | 20.6-23.2       | 22.0           |
| Length of pectoral fin .. .. .            | 33.1-36.5       | 34.5           |
| Length of pelvic fin .. .. .              | 28.4-33.5       | 30.6           |
| Length of pelvic spine .. .. .            | 14.8-17.0       | 15.8           |
| Length of 1st dorsal spine .. .. .        | 6.2-8.0         | 7.0            |
| Length of 4th dorsal spine .. .. .        | 12.4-14.6       | 13.8           |
| Length of 12th dorsal spine .. .. .       | 12.6-16.0       | 14.1           |
| Length of last dorsal spine .. .. .       | 14.7-18.5       | 16.3           |
| Length of longest soft dorsal ray .. .. . | 29.8-40.6       | 33.1           |
| Length of 1st anal spine .. .. .          | 5.7-7.2         | 6.5            |
| Length of 2nd anal spine .. .. .          | 14.0-16.6       | 15.5           |
| Length of longest anal ray .. .. .        | 25.6-33.4       | 29.6           |
| Length of middle caudal rays .. .. .      | 16.6-20.1       | 18.5           |

**Table 4**Morphometric Proportions (in % of SL) of Ten Specimens of *Abudefduf flavipinnis* from Samarai, New Guinea and The Great Barrier Reef

| Morphometric measurement                  | Range<br>(% SL) | Mean<br>(% SL) |
|---|-----------------|----------------|
| Standard length (SL) .. .. .              | 37-57           | ..             |
| Body depth .. .. .                        | 39.0-46.5       | 42.2           |
| Head length .. .. .                       | 29.0-32.4       | 30.8           |
| Snout length .. .. .                      | 6.0-7.3         | 6.7            |
| Eye diameter .. .. .                      | 9.9-13.4        | 12.1           |
| Interorbital width .. .. .                | 6.9-8.1         | 6.9            |
| Least depth of caudal peduncle .. .. .    | 13.4-15.3       | 14.0           |
| Length of caudal peduncle .. .. .         | 9.1-11.1        | 9.9            |
| Snout to origin of dorsal fin .. .. .     | 32.3-37.1       | 34.1           |
| Snout to origin of anal fin .. .. .       | 63.0-73.6       | 67.4           |
| Snout to origin of pelvic fin .. .. .     | 37.9-48.4       | 41.8           |
| Length of dorsal fin base .. .. .         | 57.6-69.3       | 63.1           |
| Length of anal fin base .. .. .           | 23.1-27.5       | 25.3           |
| Length of pectoral fin .. .. .            | 28.8-32.7       | 30.5           |
| Length of pelvic fin .. .. .              | 25.0-27.7       | 26.6           |
| Length of pelvic spine .. .. .            | 15.0-17.2       | 16.4           |
| Length of 1st dorsal spine .. .. .        | 5.8-7.3         | 5.8            |
| Length of 5th dorsal spine .. .. .        | 13.6-15.8       | 14.9           |
| Length of 14th dorsal spine .. .. .       | 14.8-18.4       | 16.1           |
| Length of longest soft dorsal ray .. .. . | 19.4-24.8       | 21.2           |
| Length of 1st anal spine .. .. .          | 6.3-7.1         | 6.7            |
| Length of 2nd anal spine .. .. .          | 15.0-17.1       | 16.2           |
| Length of longest anal ray .. .. .        | 18.5-22.9       | 20.9           |
| Length of middle caudal rays .. .. .      | 21.8-25.5       | 24.1           |

**Table 5**Morphometric Proportions (in % of SL) of Fifteen Specimens of *Pomacentrus australis* from The Great Barrier Reef

| Morphometric measurement                  | Range<br>(% SL) | Mean<br>(% SL) |
|---|-----------------|----------------|
| Standard length (SL) .. .. .              | 48-60           | ..             |
| Body depth .. .. .                        | 38.0-44.5       | 41.3           |
| Head length .. .. .                       | 28.2-30.7       | 29.9           |
| Snout length .. .. .                      | 6.9-8.1         | 7.3            |
| Eye diameter .. .. .                      | 9.3-11.1        | 9.9            |
| Interorbital width .. .. .                | 6.2-8.1         | 7.2            |
| Least depth of caudal peduncle .. .. .    | 13.4-15.7       | 14.2           |
| Length of caudal peduncle .. .. .         | 9.6-10.9        | 10.4           |
| Snout to origin of dorsal fin .. .. .     | 33.2-36.7       | 35.0           |
| Snout to origin of anal fin .. .. .       | 63.8-82.1       | 67.7           |
| Snout to origin of pelvic fin .. .. .     | 37.4-43.2       | 39.5           |
| Length of dorsal fin base .. .. .         | 59.6-64.5       | 62.5           |
| Length of anal fin base .. .. .           | 25.9-29.5       | 27.1           |
| Length of pectoral fin .. .. .            | 25.8-29.1       | 27.4           |
| Length of pelvic fin .. .. .              | 27.1-30.4       | 28.8           |
| Length of pelvic spine .. .. .            | 14.7-17.2       | 15.9           |
| Length of 1st dorsal spine .. .. .        | 5.6-7.9         | 6.7            |
| Length of 7th dorsal spine .. .. .        | 12.2-14.4       | 13.4           |
| Length of last dorsal spine .. .. .       | 13.7-17.4       | 15.2           |
| Length of longest soft dorsal ray .. .. . | 18.3-21.4       | 20.5           |
| Length of 1st anal spine .. .. .          | 5.3-7.5         | 6.2            |
| Length of 2nd anal spine .. .. .          | 11.1-15.5       | 13.2           |
| Length of longest anal ray .. .. .        | 16.2-20.8       | 19.2           |
| Length of middle caudal rays .. .. .      | 21.8-25.0       | 23.3           |

**Table 6**Morphometric Proportions (in % of SL) of Ten Specimens of *Pomacentrus pseudochrysopoecilus* from Fergusson Island, D'Entrecasteaux Group and One Tree Island, Great Barrier Reef

| Morphometric measurement                  | Range<br>(% SL) | Mean<br>(% SL) |
|---|-----------------|----------------|
| Standard length (SL) .. .. .              | 62-101          | ..             |
| Body depth .. .. .                        | 44.9-48.8       | 46.1           |
| Head length .. .. .                       | 28.4-31.0       | 29.8           |
| Snout length .. .. .                      | 7.8-8.3         | 8.0            |
| Eye diameter .. .. .                      | 9.1-10.5        | 9.8            |
| Interorbital width .. .. .                | 7.7-8.2         | 7.9            |
| Least depth of caudal peduncle .. .. .    | 16.2-17.1       | 16.6           |
| Length of caudal peduncle .. .. .         | 10.4-12.0       | 11.1           |
| Snout to origin of dorsal fin .. .. .     | 35.6-37.1       | 36.2           |
| Snout to origin of anal fin .. .. .       | 65.9-69.3       | 68.0           |
| Snout to origin of pelvic fin .. .. .     | 37.2-41.7       | 39.3           |
| Length of dorsal fin base .. .. .         | 60.4-62.9       | 61.8           |
| Length of anal fin base .. .. .           | 24.0-25.4       | 24.4           |
| Length of pectoral fin .. .. .            | 25.0-27.4       | 26.6           |
| Length of pelvic fin .. .. .              | 28.1-30.2       | 28.9           |
| Length of pelvic spine .. .. .            | 16.7-18.6       | 17.3           |
| Length of 1st dorsal spine .. .. .        | 6.5-7.7         | 6.8            |
| Length of last dorsal spine .. .. .       | 17.7-18.4       | 18.2           |
| Length of longest soft dorsal ray .. .. . | 24.2-26.4       | 25.0           |
| Length of 1st anal spine .. .. .          | 5.5-7.5         | 6.8            |
| Length of 2nd anal spine .. .. .          | 14.4-16.0       | 15.1           |
| Length of longest anal ray .. .. .        | 22.6-24.6       | 23.7           |
| Length of middle caudal rays .. .. .      | 25.7-28.2       | 26.6           |

**Table 7**

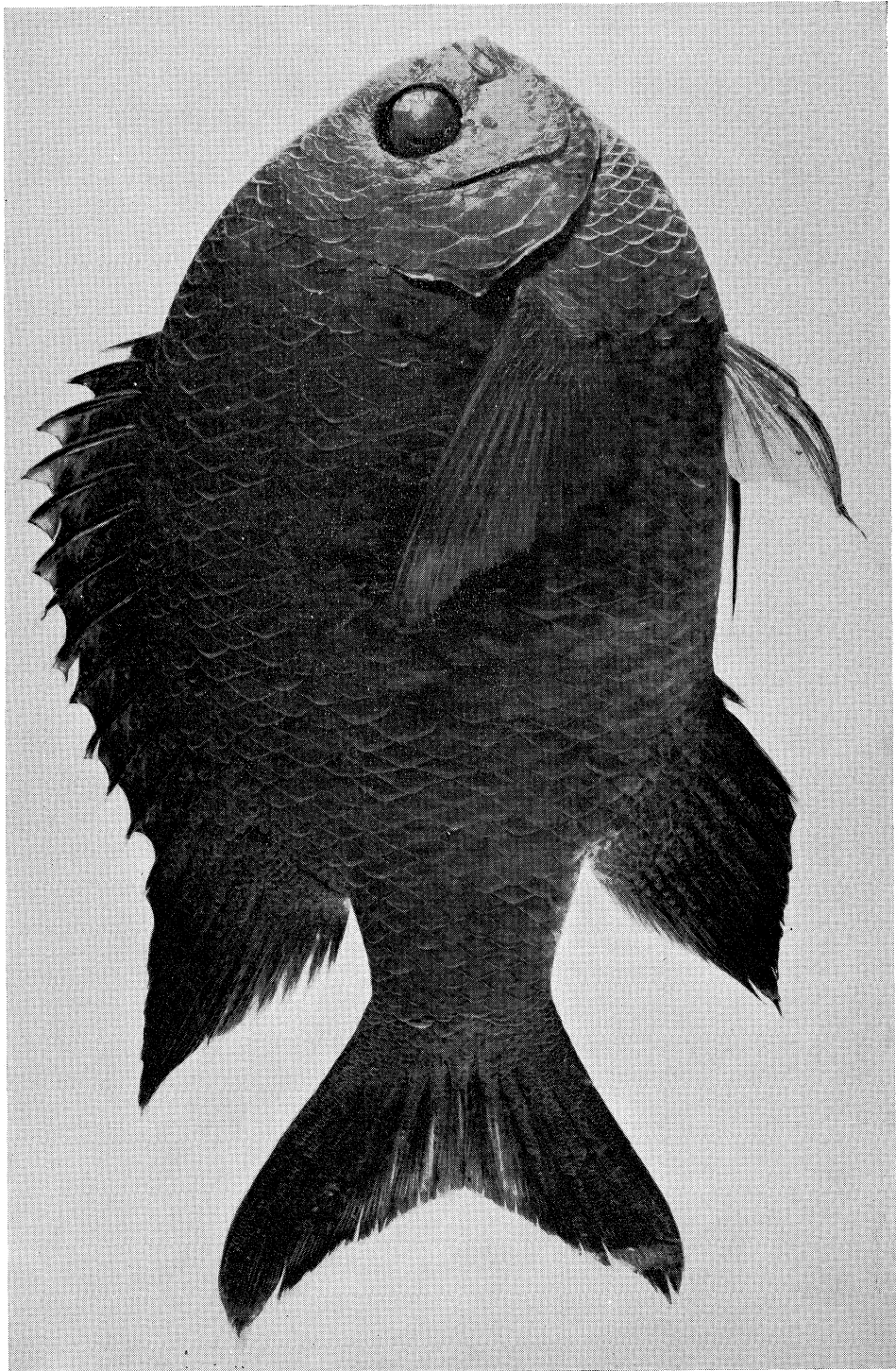
Principal Colour Pattern Differences between Live Adult Specimens of *Pomacentrus pseudochrysopoecilus* and *P. chrysopoecilus* from Fergusson Island

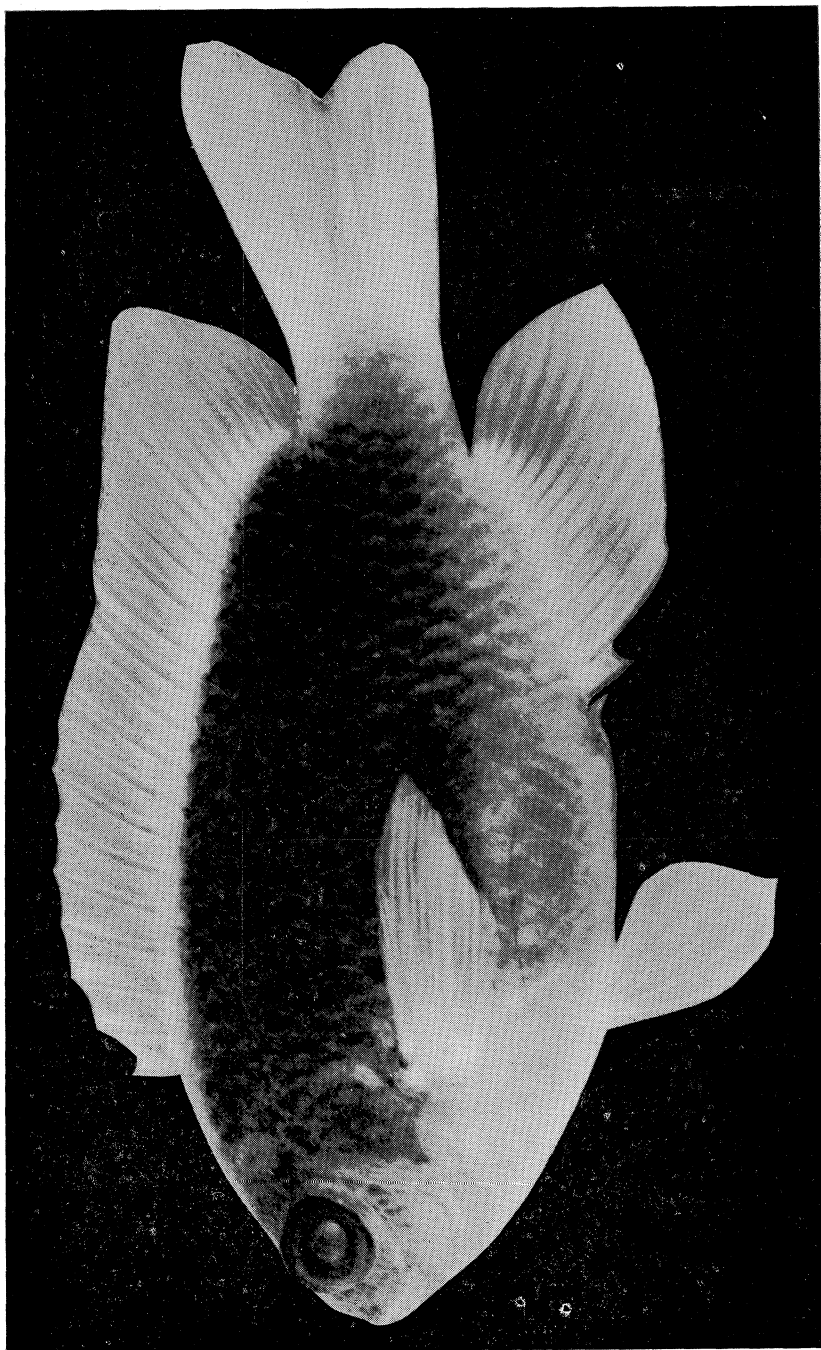
| <i>P. pseudochrysopoecilus</i>  | <i>P. chrysopoecilus</i>   |
|---|--|
| Pale saddle usually below dorsal spines IX–XII and extending at least $1\frac{1}{2}$ scales below lateral line. | Pale saddle usually below dorsal spines VI–IX and terminating at lateral line. |
| Pale saddle frequently present below soft dorsal fin.   | Saddle below soft dorsal fin absent.   |
| Forehead dark brown.  | Whitish bar across forehead.   |
| Distal half of dorsal fin with alternating orange and blue submarginal bands.                                   | Distal half of dorsal fin more or less uniform.                                |
| Pelvic fins light brown.  | Pelvic fins blackish or dark grey.   |
| Caudal fin dusky to brown.  | Caudal fin pale.   |

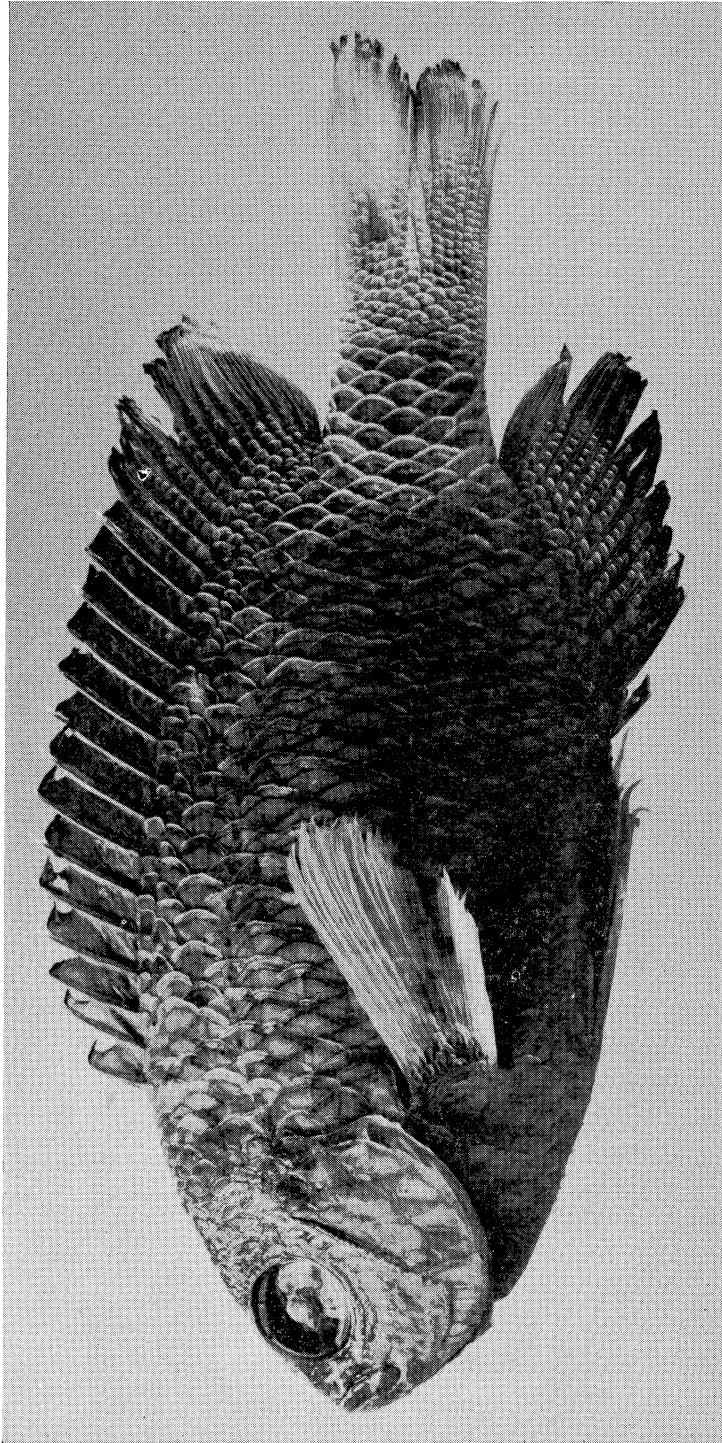
**PLATES**

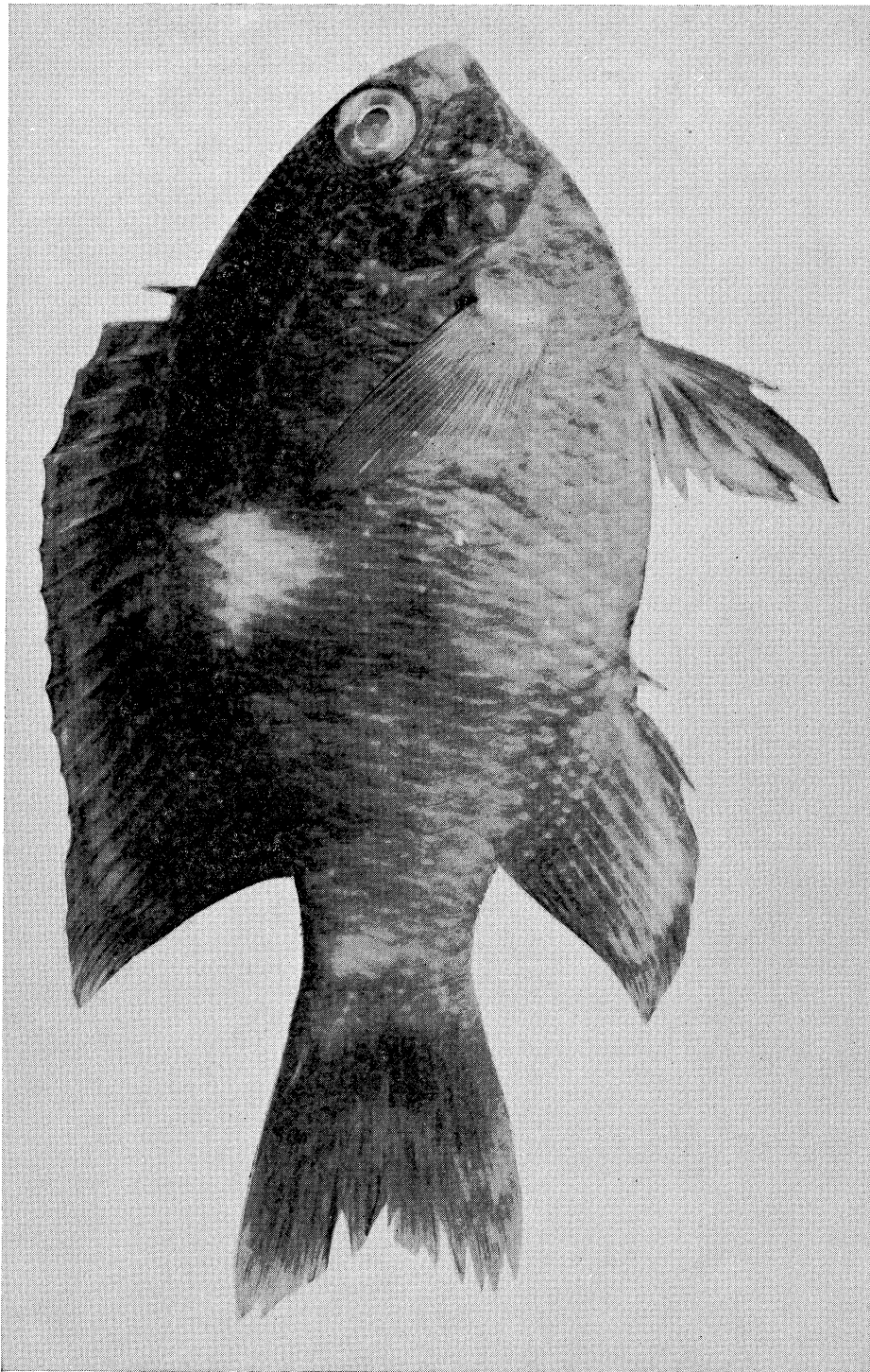
- Plate 1. *Abudefduf whitleyi*, holotype, standard length 132 mm (photo by Charles Turner).  
 Plate 2. *Abudefduf flavipinnis*, holotype, standard length 57 mm.  
 Plate 3. *Pomacentrus australis*, holotype, standard length 59 mm (photo by Charles Turner).  
 Plate 4. *Pomacentrus pseudochrysopoecilus*, holotype, standard length 62 mm.  
 Plate 5. A. *Pomacentrus pseudochrysopoecilus*, paratype, standard length 48 mm; B. *P. chrysopoecilus*, standard length 50 mm. Both specimens from Fergusson Island, D'Entrecasteaux Group.

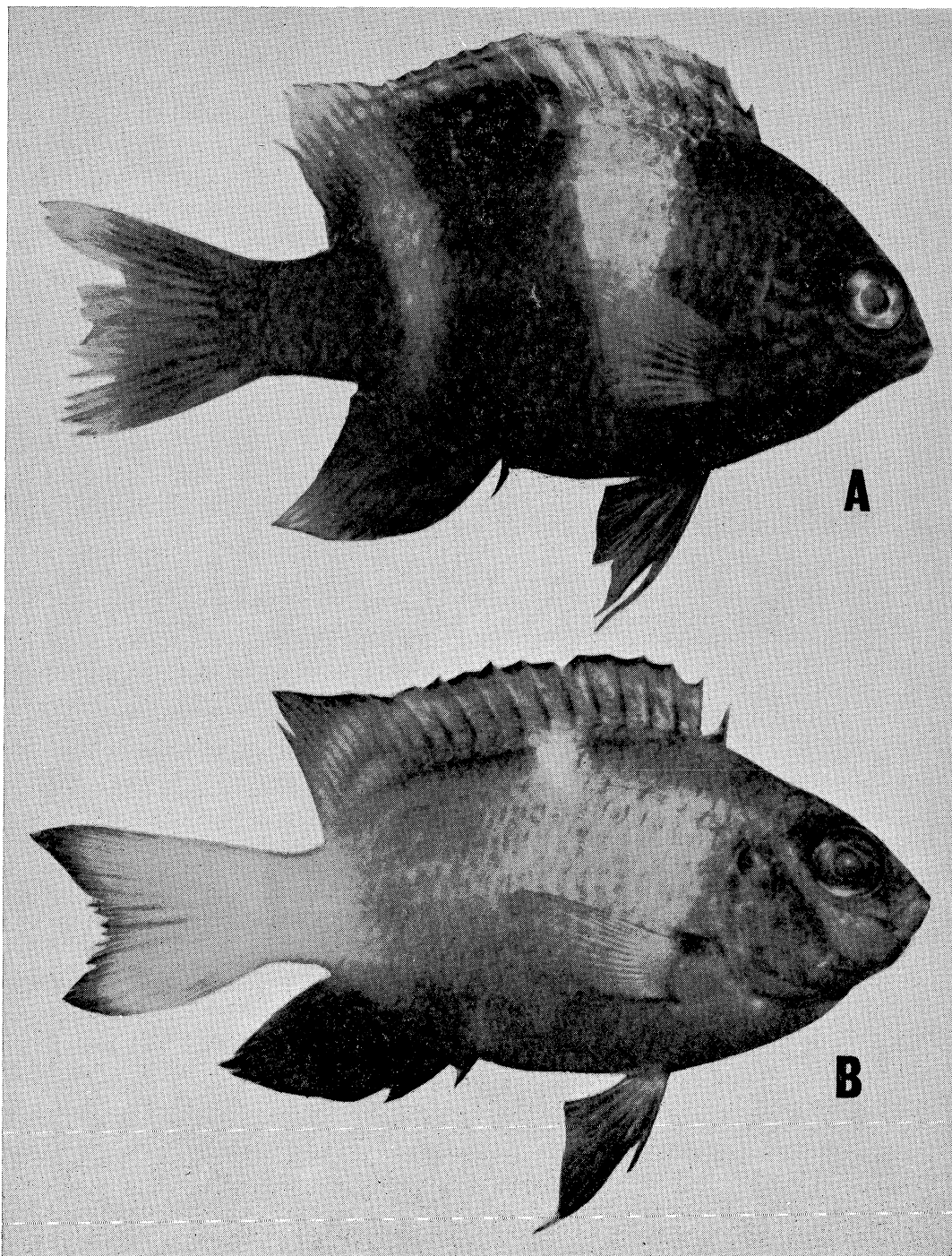












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- (ii) The author's name and professional address.
- (iii) A summary not exceeding either 3 per cent of the text or 200 words and intelligible to the reader without reference to the main text.
- (iv) A list of contents may be included if the paper is very long.
- (v) Introduction.
- (vi) The main text of the paper.
- (vii) Acknowledgments.
- (viii) References (see below).
- (ix) Index (in the case of very long papers).

The approximate position of tables and figures should be indicated in pencil at the left-hand margin.

Only the names of genera and species should be underlined. Unless indicated elsewhere in the text, or where nomenclature follows a generally accepted standard (which should be cited), the authority should be cited when any specific name is used for the first time.

In taxonomic papers the short form (taxon, author, date, page) should be used in synonymies and the full reference taken to the end of the paper. In synonymies a period and dash (—) should separate the name of the taxon and the name of the author except in the case of the reference to the original description. Where new species are described the location of the type material must be indicated and Article 73 and associated recommendations of the International Code of Zoological Nomenclature should be followed. Dichotomous keys with contrasting parts of couplets adjacent to each other are recommended. In these only the first part of the couplet should be numbered and the beginning of the second indicated with a dash at the left-hand margin. Keys must not use serially indented couplets.

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Mayr, E., E. G. Linsley, and R. L. Usinger, 1953. Methods and principles of systematic zoology. McGraw-Hill, New York. Pp. ix, 328, 14 tables, 45 figs.

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FROM PAPUA NEW GUINEA AND  
EASTERN AUSTRALIA

*by*

GERALD R. ALLEN and D. R. ROBERTSON

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