FOUR NEW DAMSELFISHES (POMACENTRIDAE) FROM THE SOUTHWEST PACIFIC

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(Plates III and IV)

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Synopsis

Four new species of damselfishes which were collected at Indonesia, Melanesia, Lord Howe Island and New South Wales are described. *Glyphidodontops niger* n.sp. was taken at Cape Nelson, New Guinea. It is closely allied to *G. biocellatus*, *G. glaucus*, *G. leucopomus*, and *G. unimaculatus*, all of which are widely distributed Indo-Pacific species. *G. notialis* n.sp. was collected at New Caledonia, Lord Howe Island and New South Wales. It bears a close resemblance to *G. rapanui* from Easter Island. *G. talboti* n.sp. was taken at Indonesia, Solomon Islands, New Hebrides, Fiji Islands and the Great Barrier Reef. It is related to *G. traceyi* from the Marshall and Caroline Islands. *Pomacentrus albimaculus* n.sp. was collected at Madang, New Guinea. It is allied to *P. amboinensis* from the western Pacific.

INTRODUCTION

The damselfishes (family Pomacentridae) are one of the largest families of tropical reef fishes, both in number of species and number of individuals. It is estimated that there are at least 250 species, approximately 150 of which inhabit the seas of Australia and Melanesia. Most of our knowledge of the group in this region is based on the insufficient works of Bleeker (1877) and Fowler and Bean (1928). In 1973 the author made extensive collections of damselfishes at Fiji Islands, New Caledonia, New Hebrides, Solomon Islands, New Britain, New Guinea, the Great Barrier Reef of Australia, and Lord Howe Island. These collections contain 132 species, a substantial increase compared with 85 species reported by de Beaufort (1940) for the region which includes Malaysia, Indonesia, Melanesia and Australia. At least 12 of the species are new, including four species, *Glyphidodontops niger*, *G. notialis*, *G. talboti* and *Pomacentrus albimaculus*, which are described herein.

The Pomacentridae represent an extremely diverse lineage. The majority of Indo-West Pacific members are usually assigned to five major genera : *Amphiprion* Bloch and Schneider, *Dascyllus* Cuvier, *Chromis*, Cuvier, *Abudefduf* Forskal and *Pomacentrus* Lacépède. However, recent studies by the author (unpublished) revealed the necessity for a comprehensive revision of certain genera, in particular *Abudefduf* and *Pomacentrus*. In the South Pacific region 93 of 143 species have been assigned to these two "genera." Under this scheme those individuals with a serrate preopercle margin are assigned to *Pomacentrus* and those with a smooth margin to *Abudefduf*. This arrangement leads to a multiplicity of problems as there are certain groups of species which display intermediate criteria, being characterised by a crenulate or weakly serrate preopercle. A

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TABLE 1

Soft dorsal and anal fin ray counts for new Pomacentrids

Species	Dorsal Rays										Anal Rays									
	11	11½	12	12½	13	13½	14	14½	15	15½	12	12½	13	13½	14	14½	15	15½	16	16½
Glyphidodontops niger				6									6							
G. notialis						1	1	9		1								10	1	1
G. talboti	3	11									7	7								
Pomacentrus albimaculus								4								1	1	2		

TABLE 2

Pectoral ray, tubed lateral line scales and gill raker counts for new Pomacentrids

Species	Pectoral Rays				Lateral Line Scales					Gill Rakers					
	15	16	17	18	14	15	16	17	18	18	19	20	21	22	23
Glyphidodontops niger			6					6				5	1		
G. notialis		2	7	3			2	5	5			3	5	3	1
G. talboti	2	12			2	5	7			7	5	1	1		
Pomacentrus albimaculus			4				3	1				1	3		

revision of the Pomacentridae of the western Pacific, (Allen, in press *a*), reveals there is justification for splitting these groups into at least 13 genera. Surprisingly, most of these divisions were recognised nearly a century ago by Bleeker (1877). *Abudefduf*, as presently recognised, is particularly diverse and obviously constitutes a polyphyletic assemblage. This group is separable into the following genera : *Abudefduf* Forskal, *Amblyglyphidodon* Bleeker, *Glyphidodontops* Bleeker, *Hemiglyphidodon* Bleeker, *Paraglyphidodon* Bleeker, *Plectroglyphidodon* Fowler and Ball and two additional genera which will be described by the author. The genus *Pomacentrus*, as currently recognised, is divisable into *Amblypomacentrus* Bleeker, *Dischistodus* Bleeker, *Eupomacentrus* Bleeker and *Pomacentrus* Lacépède. Most of the species pertaining to this group will remain in the latter genus.

Methods of Counting and Measuring

The methods of counting and measuring are the same as those described by Allen (1972), except the length of the dorsal and anal spines are measured proximally from the base of the spine rather than from the point at which the spine emerges from the scaly sheath. Measurements were made with needle-point dial calipers to the nearest one-tenth millimetre. Standard length is abbreviated as SL. The fraction ½ which appears 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, tubed lateral line scales and gill rakers on the first gill arch is presented in Tables 1 and 2.

Type specimens have 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) ; United States National Museum of Natural History, Washington, D.C. (USNM).

Descriptions

Glyphidodontops niger, n. sp.

(Plate III, Fig. *a*)

Holotype. AMS I.16708–004, 41·8 mm SL, coll. G. Allen, 26/V/1972, near mouth of Tufi Inlet, Cape Nelson, New Guinea (9°05′S, 149°19′E), 1–2 m, quinaldine and dipnets.

Paratypes. AMS I.16708–005, 5 specimens, 17·2–30·6 mm SL, collected with the holotype.

Diagnosis. A species of *Glyphidodontops* with the following combination of characters : body depth 2·0 to 2·1 in SL ; dorsal spines 13 ; horizontal scale rows between middle of lateral line and dorsal fin base 1½ ; predorsal scales reaching level of nostrils ; preorbital, suborbital and inferior limb of preopercle naked ; teeth biserial ; membranes between dorsal spines slightly incised ; colour in alcohol uniformly dark brown with intense black spot covering pectoral base.

Description. Proportional measurements for the holotype and two selected paratypes are expressed as percentage of the standard length in Table 3.

Dorsal rays XIII, 12½ ; anal rays II, 13 ; pectoral rays 17 ; pelvic rays I, 5 ; branched caudal rays 13 ; gill rakers on the first arch 21 (20) ; tubed lateral line scales 17 ; vertical scale rows from upper edge of gill opening to base of caudal

TABLE 3

Measurements of the holotype and two paratypes of Glyphidodontops niger (expressed in thousandths of the standard length)

Characters	Holotype AMS I.16708–004	Paratype AMS I.16708–005	Paratype AMS I.16708–005
Standard length (mm)	41·8	29·3	25·5
Greatest body depth	498	478	502
Greatest body width	203	184	192
Head length	316	338	353
Snout length	81	82	82
Eye diameter	107	116	126
Interorbital width	96	92	90
Least depth of caudal peduncle	156	154	149
Length of caudal peduncle	103	116	102
Snout to origin of dorsal fin	431	420	439
Snout to origin of anal fin	694	683	675
Snout to origin of pelvic fin	407	399	416
Length of dorsal fin base	615	517	620
Length of anal fin base	254	266	235
Length of pectoral fin	311	273	255
Length of pelvic fin	323	341	306
Length of pelvic spine	184	198	204
Length of 1st dorsal spine	52*	68	82
Length of 7th dorsal spine	163	143	153
Length of last dorsal spine	172	160	165
Length of longest soft dorsal ray	220	205	216
Length of 1st anal spine	86	79	82
Length of 2nd anal spine	165	147	157
Length of longest soft anal ray	239	205	216
Length of middle caudal rays	251	215	235

* damaged.

fin 27 ; horizontal scale rows from base of dorsal fin to terminal lateral line scale (exclusive of dorsal base sheath scales) 1 ; from lateral line to anal fin origin 8 ; predorsal scales about 20, extending to level of nostrils ; teeth biserial, those of outer row slender, close-set with flattened tips numbering about 36 in each jaw, inner row of buttress teeth about $\frac{1}{2}$ width of outer row teeth.

Body ovate, laterally compressed, the greatest depth 2·0 (2·0 to 2·1) in the standard length. Head profile conical, the head length contained 3·2 (2·8 to 3·2) times in the standard length ; snout 3·9 (4·1 to 4·3), eye diameter 2·9 (2·8 to 2·9) ; interorbital width 3·3 (3·7 to 3·9), least depth of caudal peduncle 2·0 (2·2 to 2·4), length of caudal peduncle 3·1 (2·9 to 3·6), of pectoral fin 1·0 (1·2 to 1·4), of pelvic fin 1·0 (1·0 to 1·2), of middle caudal rays 1·3 (1·5 to 1·6), all in the head length.

Single nasal opening on each side of snout ; mouth oblique, terminally located ; lateral line gently arched beneath dorsal fin, terminating one scale row below base of 13th dorsal spine ; preorbital, suborbital, snout tip, lips, chin, and isthmus naked ; remainder of head and body scaled ; scales finely ctenoid ; preopercle scale rows 2, inferior and posterior limb broadly naked ; small sheath scales covering basal 1/2 to 2/3 of membraneous portions of dorsal, anal, and caudal fins ; margin of preorbital, suborbital, preopercle and opercle entire.

Origin of dorsal fin at level of third tubed lateral line scale ; spines of dorsal fin gradually increasing in length to last spine, length of first dorsal spine 3·9 (4·3 to 4·5), of seventh dorsal spine 4·3 to 4·5 (paratypes only, holotype damaged), of last dorsal spine 1·8 (2·1), of longest soft dorsal ray 1·4 (1·6 to 1·7), of

first anal spine 3·7 (4·3), of second anal spine 1·9 (2·3), of longest soft anal ray 1·3 (1·6 to 1·7), all in the head length ; caudal fin emarginate, lobes rounded ; pectoral fins slightly rounded.

Colour of holotype in alcohol : Head and body dark brown, breast paler, median fins dark brown except posterior portion of soft dorsal and caudal fins pale ; pelvic fins brown ; pectoral fins pale with black spot covering base and axil.

Colour of holotype in life : Uniformly bluish-black with intense black spot covering pectoral base and axil ; pectoral fin translucent.

Individuals under about 30 mm SL are uniformly bluish-black with a series of neon blue stripes on the sides, one per horizontal scale row.

Remarks. *G. niger* belongs to a species complex which includes *G. biocellatus* (Quoy and Gaimard), *G. glaucus* (Cuvier), *G. leucopomus* (Cuvier), and *G. unimaculatus* (Cuvier). These species are sympatric inhabitants of tropical Indo-West Pacific reefs, usually frequenting depths of less than 2-3 metres. They are similar with regards to counts and general body shape, but the adults at least are easily distinguished, both alive and in preservative, on the basis of colour. *G. biocellatus* is characterised by a brown ground colour and single whitish bar, several scales wide, just behind the pectoral fin. The juveniles of this species, as well as those of *G. leucopomus* and *G. unimaculatus* are similar to adult *G. leucopomus* which are predominately yellow with a blue stripe extending from the eye to the soft dorsal fin and with one or two occelli on the posterior part of the dorsal. The " *amabilis* " variety of *G. leucopomus*, an ecological variant discussed by Allen (in press, *b*), is characterised by two or three whitish bars on a dark ground colour. *G. glaucus* is uniformly pale. Adults of *G. unimaculatus* are predominantly brownish with a small black spot at the base of the hindmost dorsal rays. The head and anterior portion of the body is abruptly pale in some individuals (" *hemimelas* " variety). *G. niger* is the only uniformly blackish member of the complex and also the only species which possess a black pectoral base and axil.

G. niger was encountered at Cape Nelson, New Guinea and Goodenough Island, D'Entrecasteaux Islands. It was relatively common at both localities in areas of moderate surge between 0·5 and 2 metres. The largest individuals encountered were approximately 50 mm SL. The stomach contents of two paratypes indicate an algal diet.

The specific name refers to the characteristic black colouration of the body.

Glyphidodontops notialis, n. sp.

(Plate III, Fig. *b*)

Holotype. AMS I.17402–008, 49·2 mm SL, coll. J. Randall and B. Goldman, 17/II/1973, off Phillip Point, Lord Howe Island (31°32′S, 159°04′E), 15 m, rotenone.

Paratypes. LORD HOWE ISLAND : AMS I.17357–016, 50·8 mm SL, same data as holotype except coll. G. Allen, B. Goldman and W. Starck, 5/II/1973 ; AMS I.17358–012, 6 specimens, 44·7–61·3 mm SL, coll. G. Allen and party, 5/II/1973, off west side of Mt. Lidgbird, 20–25 m, rotenone ; AMS I.17374–007, 2 specimens, 49·3 and 52·0 mm SL, coll. F. Talbot and party, 18/II/1973, on outer reef between Rabbit Island and Erscott's Passage, 16 m, explosives ; AMS I.17377–014, 3 specimens, 28·2–51·5 mm SL, coll. G. Allen and J. Randall, 24/II/1973, North Islet, 25 m, rotenone ; BMNH 1973.10.17.4–9, 6 specimens, 51·0–64·5 mm SL, coll. F. Talbot and party, 25/II/1973, on outer reef between Rabbit Island and Erscott's Passage, 12 m ; BPBM 15935, 18 specimens, 45·4–64·2 mm SL, same data as preceding paratypes except coll. 26/II/1973 ; BPBM 15936, 16 specimens, 43·5–62·8 mm SL, same as preceding except coll. 19/II/1973 ; MNHN 1973–59, 3 specimens, 45·0–52·4 mm SL, same data as holotype except coll. G. Allen, 15/II/1973, quinaldine ; USNM 211292, 4 specimens, 24·8–51·9 mm

SL, same data as holotype except coll. J. Randall and party, 26/II/1973 ; NEW CALEDONIA : AMS I.,17466–001 59·0 mm SL, coll. G. Allen, 15/VI/1973, Puetege Reef, off southeast tip of New Caledonia, 20 m, multi-prong spear.

Diagnosis. A species of *Glyphidodontops* with the following combination of characters : body depth 2·3 to 2·5 in SL ; dorsal spines 13 ; horizontal scale rows between middle of lateral line and dorsal fin base 1½ ; predorsal scales reaching level of nostrils ; suborbital and inferior limb of preopercle scaly ; teeth uniserial, dorsal outline uniform without incisions between spines ; colour mostly bluish-black (dark brown to blackish in preservative).

Description. Proportional measurements for the holotype and two selected paratypes are expressed as percentage of the standard length in Table 4.

TABLE 4

Measurements of the holotype and two paratypes of Glyphidodontops notialis (expressed in thousandths of the standard length)

Characters	Holotype AMS I.17402–008	Paratype AMS I.17466–001	Paratype USNM 211292
Standard length (mm)	49·2	59·0	39·0
Greatest body depth	403	436	400
Greatest body width	180	186	180
Head length	298	285	308
Snout length	63	71	72
Eye diameter	103	92	121
Interorbital width	78	75	80
Least depth of caudal peduncle	151	144	146
Length of caudal peduncle	103	109	115
Snout to origin of dorsal fin	308	336	346
Snout to origin of anal fin	608	612	669
Snout to origin of pelvic fin	384	398	426
Length of dorsal fin base	660	644	577
Length of anal fin base	298	312	277
Length of pectoral fin	333	310	308
Length of pelvic fin	346	305	318
Length of pelvic spine	166	159	167
Length of 1st dorsal spine	55	54	56
Length of 7th dorsal spine	151	153	144
Length of last dorsal spine	157	166	151
Length of longest soft dorsal ray	359	322	235
Length of 1st anal spine	84	80	87
Length of 2nd anal spine	141	125	128
Length of longest soft anal ray	340	322	244
Length of middle caudal rays	241	224	231

Dorsal rays XIII,14½ (XIII,13½ to 15½) ; anal rays II,15½ (II,15½ to 16½) ; pectoral rays 17 (16 to 18) ; pelvic rays I,5 ; branched caudal rays 13 ; gill rakers on the first arch 20 (20 to 23) ; tubed lateral line scales 17 (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 to terminal lateral line scale (exclusive of dorsal base sheath scales) 1½ ; from lateral line to anal fin origin 9 ; predorsal scales about 18 to 20, extending to level of nostrils ; teeth uniserial, incisiform, about 40 to 44 in each jaw.

Body elongate, laterally compressed, the greatest depth 2·5 (2·3 to 2·5) in the standard length. Head profile conical, the head length contained 3·4 (3·3 to 3·5) times in the standard length ; snout 4·7 (4·0 to 4·6), eye diameter 2·9 (2·6 to 3·1) ; interorbital width 3·8 (3·7 to 3·9), least depth of caudal peduncle 2·0 (2·0 to 2·1), length of caudal peduncle 2·9 (2·5 to 2·7), of pectoral fin 1·0 (0·9 to 1·0), of pelvic fin 0·9 (0·9 to 1·0), of middle caudal rays 1·2 (1·2 to 1·4), all in the head length.

Single nasal opening on each side of snout; mouth oblique, terminally located; lateral line gently arched beneath dorsal fin, terminating 1½ scale rows below base of second to third soft dorsal ray; preorbital, snout tip, lips, chin and isthmus naked; remainder of head (including suborbitals) and body scaled; head scales cycloid, remainder finely ctenoid; preopercle scale rows 2 with additional row of scales on inferior limb; small sheath scales covering basal 1/3 to 2/3 of membraneous portions of dorsal, anal and caudal fins; margin of preorbital, suborbital, preopercle and opercle entire.

Origin of dorsal fin at level of second tubed lateral line scale; spines of dorsal fin gradually increasing in length to last spine; length of first dorsal spine 5·5 (5·3 to 6·3), of seventh dorsal spine 2·0 (1·9 to 2·3), of last dorsal spine 1·9 (1·7 to 2·1), of longest soft dorsal ray 0·8 (0·9 to 1·3), of first anal spine 3·6 (3·2 to 4·1), of second anal spine 2·1 (2·0 to 2·4), of longest soft anal ray 0·9 (0·9 to 1·3), all in the head length; caudal fin forked, the lobes filamentous; pectoral fins pointed.

Colour of holotype in alcohol: Ground colour of head and body dark brown, scale centres slightly lighter; breast and abdomen tannish; median fins dark brown to blackish; pelvic fins dusky with blackish tips; pectoral fins mainly translucent with black wedged-shaped spot covering upper portion of base, axil of fin pale.

Colour of holotype in life: Head and anterior portion of body blue-grey grading to blackish behind pectoral fins; dorsal, anal, and basal portion of caudal fin bluish-black; dorsal and anal fins with bright blue margin; distal half of caudal fin blue; pelvic fins dusky with bluish anterior edge, tips black; pectoral fins light blue with blackish spot superiorly at base.

Remarks. *G. notialis* most closely resembles *G. rapanui* (Greenfield and Hensley, 1970) which is endemic to Easter Island. Both species are elongate (depth 2·3–3·0 in SL), possess elongate posterior dorsal and anal rays and are predominately blackish in colouration with blue fin margins. *G. rapanui* differs by having biserial dentition, a slightly deeper body (average depth 2·7 in SL), and a colour pattern which includes blue spots on the head and anterior portion of the body, a pale caudal fin and peduncle, and a black spot covering the base of the pectoral fin. The counts for the fin rays, tubed lateral line scales and gill rakers are virtually identical in these two species.

G. notialis is one of the most common damselfishes outside the lagoon at Lord Howe Island. The habitat, which is essentially subtropical, consists largely of rocky canyons, ledges and boulders covered with algae. The species was observed at depths ranging from 7 to 45 metres. *G. rapanui* was observed by the author to inhabit a similar environment at Easter Island. The stomach contents of several paratypes of *G. notialis* contained algae and crustacean remains (largely copepods).

This species is named *notialis* (*Gr.* " southern ") in reference to its geographical distribution. It is the most southerly occurring species of *Glyphidodontops* and a common inhabitant of Lord Howe Island, the world's southernmost coral reef.

Glyphidodontops talboti, n. sp.

(Plate III, Fig. *c*)

Holotype. AMS I.15684–004, 39·8 mm SL, coll. F. Talbot and party, 1/XII/1969, One Tree Island (23°30′S, 152°05′E), Capricorn Group, Great Barrier Reef, 30 m, explosives.

Paratypes. GREAT BARRIER REEF: AMS I.15486–038, 34·2 mm SL coll. H. Choat, 31/I/1966, Heron Island, Capricorn Group, 9 m, rotenone; AMS, I.16479–001, 39·7 mm SL, coll. W. Starck, 1/VII/1972, Pixie Reef, off Cairns, Queensland, 12 m, multi-prong spear; AMS I.15647–001, 36·5 mm SL, same data as holotype except coll. 9/X/1968, 13·5 m; AMS I.15637–009, 31·8 mm

SL, same data as holotype except coll. 5/X/1967, 23 m ; INDONESIA : USNM 209745, 2 specimens, 22·7 and 34·7 mm SL, coll. V. Springer and M. Gomon, 11/I/1973, off Tandjung Suli, Ambon Island, Moluccas, 2–3 m, rotenone ; USNM 210026, 2 specimens, 32·3 and 36·5 mm SL, coll. V. Springer and M. Gomon, 19/I/1973, offshore west of Tandjung Namatatuni, Ceram, Moluccas, 14–16 m, rotenone ; SOLOMON ISLANDS : AMS I.17479–002, 38·8 mm SL, coll. G. Allen, 5/VII/1973, off Tassafaronga Point, about 7 nautical miles west of Honiara, Guadalcanal, 20 m, quinaldine ; BMNH 1973.10.17.10–12, 3 specimens, 32·5–42·0 mm SL, coll. J. Randall and B. Goldman, 18/VII/1973, off southwest corner of Savo Island, 10 m, rotenone ; MNHN 1973–60, 30·8 mm SL, coll. G. Allen and J. Randall, 30/VII/1973, off Tanavulu Point, northern end of Florida Island, 20–30 m, rotenone ; NEW HEBRIDES : AMS I.17472–001, 3 specimens, 28·5–38·2 mm SL, coll. G. Allen, 22/VI/1973, off Malapoa Point, near Vila, Efate, 10 m, rotenone ; AMS I.17473–001, 25·7 mm SL, coll. G. Allen and D. Popper, 23/VI/1973, about 3½ nautical miles south of Vila, Efate, 13 m, rotenone ; AMS I.17475–001, 39·8 mm SL, coll. G. Allen, D. Popper and W. Starck, 25/VI/1973, Pula Iwa Reef (17°02′S, 168°17′E) off Emae Island, 25 m, rotenone ; FIJI ISLANDS : AMS I.17464-001, 36·8 mm SL, coll. G. Allen, 8/VI/1973, outer reef at mouth of Nukulau Pass, near Suva, Viti Levu, 30 m, multi-prong spear ; BPBM 14564, 37·0 mm SL, coll. J. Randall, 11/III/1973, outside Mbengga barrier reef, off Yanutha Island, 10 m, rotenone.

TABLE 5

Measurements of the holotype and two paratypes of Glyphidodontops talboti (expressed in thousandths of the standard length)

Characters	Holotype AMS I.15684–004	Paratype AMS I.15647–001	Paratype AMS I.15637–009
Standard length (mm)	39·8	36·5	31·8
Greatest body depth	445	460	459
Greatest body width	190	209	203
Head length	299	315	315
Snout length	75	66	66
Eye diameter	108	115	132
Interorbital width	73	71	76
Least depth of caudal peduncle	151	145	148
Length of caudal peduncle	111	134	129
Snout to origin of dorsal fin	392	419	393
Snout to origin of anal fin	673	669	670
Snout to origin of pelvic fin	387	411	409
Length of dorsal fin base	575	597	576
Length of anal fin base	211	211	226
Length of pectoral fin	299	329	280
Length of pelvic fin	324	321	305
Length of pelvic spine	176	197	204
Length of 1st dorsal spine	58	74	60
Length of 8th dorsal spine	138	153	154
Length of last dorsal spine	91	93	91
Length of longest soft dorsal ray	216	214	186
Length of 1st anal spine	50	58	66
Length of 2nd anal spine	151	181	182
Length of longest soft anal ray	219	216	208
Length of middle caudal rays	302	329	320

Diagnosis. A species of *Glyphidodontops* with the following combination of characters : dorsal spines 13 ; horizontal scale rows between middle of lateral line and dorsal fin base 1½ ; predorsal scales reaching level of nostrils ; suborbital and inferior limb of preopercle scaly ; teeth biserial ; membranes between dorsal

spines deeply to moderately incised ; colour largely pale purple (red-brown in preservative) with prominent black spot near base of hindmost dorsal spines.

Description. Proportional measurements for the holotype and two selected paratypes are expressed as percentage of the standard length in Table 5.

Dorsal rays XIII,11½ (XIII,11 to 11½) ; anal rays II,12 (II,11½ to 13) pectoral rays 16 (15 to 16) ; pelvic rays I,5 ; branched caudal rays 13 ; gill rakers on the first arch 19 (18 to 20) ; tubed lateral line scales 16 (14 to 16) ; vertical scale rows from upper edge of gill opening to base of caudal fin 27 ; horizontal scale rows from base of dorsal fin to terminal lateral line scale (exclusive of dorsal base sheath scales) 1½ ; from lateral line to anal fin origin 9 ; predorsal scales about 17 (17 to 20), extending to level of nostrils ; teeth of jaws biserial, at least anteriorly, those in outer row somewhat spatulate with rounded tips, about 34 in lower jaw and 38 in upper jaw ; teeth of inner row slender, about ½ width or less of outer row teeth.

Body ovate, laterally compressed, the greatest depth 2·2 (2·2 to 2·3) in the standard length. Head profile conical, the head length contained 3·3 (3·2 to 3·3) times in the standard length ; snout 4·0 (4·3 to 5·5), eye diameter 2·8 (2·4 to 3·0), interorbital width 4·1 (4·0 to 4·6), least depth of caudal peduncle 2·0 (1·8 to 2·2), length of caudal peduncle 2·7 (2·2 to 2·5), of pectoral fin 1·0 (1·0 to 1·2), of pelvic fin 0·9 (1·0 to 1·1), of middle caudal rays 1·0 (1·0 to 1·1), all in the head length.

Single nasal opening on each side of snout ; mouth oblique, terminally located ; lateral line gently arched beneath dorsal fin, terminating 1½ scale rows below base of last dorsal spine ; suborbital scaled ; snout tip, lips, chin, isthmus, and most of preorbital naked ; remainder of head and body scaled ; scales finely ctenoid ; preopercle scale rows 2 with additional row of scales on inferior limb ; small sheath scales covering about basal 1/2 to 1/3 of membraneous portion of dorsal, anal, and caudal fins ; margin of preorbital, suborbital, and bones of opercle series entire (edge of preopercle weakly crenulate in some specimens).

Origin of dorsal fin at level of fourth tubed lateral line scale ; spines of dorsal fin gradually increasing in length to about eighth spine, remaining spines gradually decreasing in length ; length of first dorsal spine 5·2 (4·3 to 5·8), of eighth dorsal spine 2·2 (1·9 to 2·2), of last dorsal spine 3·3 (2·8 to 3·4), of longest soft dorsal ray 1·4 (1·5 to 1·8), of first anal spine 6·0 (3·8 to 5·5), of second anal spine 2·0 (1·7 to 1·9), of longest soft anal ray 1·4 (1·4 to 1·7), all in the head length ; caudal fin emarginate ; pectoral fins pointed.

Colour of holotype in alcohol : Head and body generally reddish-brown ; predorsal region, side of head and ventral surface of body suffused with yellow to tan ; prominent black spot about size of eye near base of hindmost dorsal spines (9th to 13th), extending about halfway out on fin ; anal papilla black ; fins pale, slightly yellowish.

The 31·8 mm paratype from One Tree Island is faded due to the action of the preservative and is basically pale tan with the black dorsal spot and black anal papilla. The other paratypes from Melanesia and Queensland are similar to the holotype in colouration.

Colour in life : Most of body faded purple ; predorsal region and head yellow ; prominent black spot about 1–1½ size of eye at base of hindmost dorsal spines ; anal papilla black ; dorsal and anal fins usually translucent, yellow basally ; pectoral and caudal fins translucent to pale yellow ; pelvic fins yellow.

Remarks. G. talboti is closely related to *G. traceyi* from the Marshall and Caroline Islands. Morphologically the two species are nearly identical, but they differ significantly in colouration. The colour of several *G. traceyi* observed at Palau was as follows : head and body mostly purple grading to yellow at level of soft dorsal fin origin ; anterior half of anal fin and spinous dorsal fin purple with black spot about size of eye at base of hindmost dorsal spines ; soft dorsal fin,

caudal fin, and posterior half of anal fin yellow ; pectoral fins translucent, pelvic fins dark purplish-brown. Thus, the colour pattern of *G. traceyi* is nearly the opposite of that exhibited by *G. talboti*, which is primarily yellow anteriorly and purplish posteriorly. Two specimens of *G. traceyi* which I collected at Palau also differ in having $10\frac{1}{2}$ soft dorsal rays, one less than the usual number for *G. talboti*. However, Woods and Schultz (1960) gave a range of 10 to 12 rays for 12 specimens from the Marshall Islands. They included *traceyi* in the genus *Pomacentrus* on the basis of the finely serrate preopercle. However, they stated that the serrations are so small they may be seen only with difficulty unless magnified and some specimens have the serrations only near the angle of the preopercle. Likewise, some specimens of *G. talboti* exhibit a weakly crenulate preopercle margin, usually confined to that portion near the angle. Examination of the general morphology of these species indicates a relationship to the genus *Glyphidodontops* rather than *Pomacentrus*. *G. rollandi* from the Indo-Australian Archipelago is a closely related form. *G. talboti* and *G. traceyi* appear to have allopatric distributions. The latter species is known from the Marshall and Caroline Islands and probably occurs at the Philippines. *G. talboti* is apparently confined to Indonesia, Melanesia and Queensland. In addition to the localities listed for the types, it was observed at Madang, New Guinea, at Rabaul, New Britain, at Egum Atoll (Solomon Sea), at the D'Entrecasteaux Islands and at Osprey Reef (Coral Sea).

Abudefduf bonang (non Bleeker) of Fowler and Bean (1928) is probably synonymous with *G. traceyi* judging from their description of specimens from the Philippines. The counts, measurements, size range (35–53 mm SL) and general colour pattern are in agreement. Bleeker's (1853 ; 1877) description and figure of *Paraglyphidodon bonang* indicate that it is a distinct species, differing from *G. traceyi* and *G. talboti* in several respects. The counts given by Bleeker which include 15 to 16 dorsal rays, 13 to 14 anal rays and 19 to 20 pectoral rays, represent significant differences. In addition, *P. bonang* grows to a much larger size. The largest specimen recorded by Bleeker was 150 mm TL, nearly three times the length of the author's largest *G. talboti*. The author has observed hundreds of individuals of *G. traceyi* and *G. talboti* in the sea, none of which exceeded about 60 mm TL. The 36·5 mm SL paratype of *G. talboti* is a mature female with eggs, also indicative of the small size of the species. Specimens of *P. bonang* were reported by Bleeker (1877) and de Beaufort (1940) as having a white-edged dark brown ocellus near the middle of the dorsal fin. According to Bleeker, this ocellus may disappear in large specimens. *G. traceyi* and *G. talboti*, by contrast, do not have a pale ring around the dark dorsal spot and the spot persists in individuals of all sizes.

The status of *Glyphidodon mutabilis* Cartier (1874), relegated to a synonym of *Abudefduf bonang* (non Bleeker) by Fowler and Bean (1928) is uncertain. The soft dorsal and anal fin ray counts are too high for either *G. traceyi* or *G. talboti*.

G. talboti was generally observed on outer reef slopes in depths ranging from about 8 to 30 metres. It is a solitary dweller which hovers a short distance above the bottom while feeding. The stomach contents of two paratypes indicate a diet consisting largely of pelagic tunicates, copepods, isopods and a small amount of algae.

Named in honour of Dr. Frank H. Talbot, Director of the Australian Museum, the collector of the holotype.

Pomacentrus albimaculus, n. sp.

(Plate IV, Figs. *a* and *b*)

Holotype. AMS I.16691–006, 61·7 mm SL, coll. G. Allen, 7/IV/1972, near main wharf at Madang, New Guinea (5°14′S, 145° 45′E), 16 m, multi-prong spear.

Paratypes. AMS I.16691–007, 3 specimens, 45·5–56·5 mm SL, collected with the holotype.

Diagnosis. A species of *Pomacentrus* with the following combination of characters : body depth 1·9 to 2·0 in SL ; dorsal spines 13 ; preorbital and suborbital naked ; prominent notch between preorbital and suborbital ; inferior edge of suborbital denticulate ; teeth biserial anteriorly ; colour grey (brown in preservative) with darker scale edges giving overall reticulated appearance, prominent white spot on upper half of caudal peduncle when alive.

Description. Proportional measurements for the holotype and two selected paratypes are expressed as percentage of the standard length in Table 6.

Dorsal rays XIII,14½ ; anal rays II,15½ (II,14½ to 15½) ; pectoral rays 17 ; pelvic rays I,5 ; branched caudal rays 13 ; gill rakers on the first arch 21 (20 to 21) ; tubed lateral line scales 17 (16) ; vertical scale rows from upper edge of gill opening to base of caudal fin 28 ; horizontal scale rows from base of dorsal fin to terminal lateral line scale (exclusive of dorsal base sheath scales) 1½ ; from lateral line to anal fin origin 9 ; predorsal scales about 18, extending to level of nostrils ; teeth conical with rounded tips, biserial at front of jaw, about 34 primary teeth in the lower jaw and 40 in the upper.

TABLE 6

Measurements of the holotype and two paratypes of Pomacentrus albimaculus (expressed in thousandths of the standard length)

Characters	Holotype AMS I.16691–006	Paratype AMS I.16691–007	Paratype AMS I.16691–007
Standard length (mm)	61·7	56·5	45·5
Greatest body depth	519	492	517
Greatest body width	195	188	198
Head length	300	301	306
Snout length	75	81	75
Eye diameter	97	96	106
Interorbital width	73	78	84
Least depth of caudal peduncle	146	149	143
Length of caudal peduncle	97	94	88
Snout to origin of dorsal fin	381	372	374
Snout to origin of anal fin	622	639	666
Snout to origin of pelvic fin	376	372	391
Length of dorsal fin base	674	646	633
Length of anal fin base	327	303	286
Length of pectoral fin	292	294	297
Length of pelvic fin	324	324	328
Length of pelvic spine	175	184	199
Length of 1st dorsal spine	86	71	88
Length of 7th dorsal spine	154	154	171
Length of last dorsal spine	173	168	185
Length of longest soft dorsal ray	259	258	286
Length of 1st anal spine	73	73	73
Length of 2nd anal spine	165	161	174
Length of longest soft anal ray	256	264	259
Length of middle caudal rays	248	265	275

Body ovate, laterally compressed, the greatest depth 1·9 (1·9 to 2·0) in the standard length. Head profile conical, the head length contained 3·3 times in the standard length ; snout 4·9 (3·7 to 4·1), eye diameter 3·1 (2·9 to 3·1) ; interorbital width 4·1 (3·7 to 3·9), least depth of caudal peduncle 2·1 (2·0 to 2·1), length of caudal peduncle 3·1 (3·2 to 3·5), of pectoral fin 1·0, of pelvic fin 0·9, of middle caudal rays 1·2 (1·1), all in the head length.

Single nasal opening on each side of snout ; mouth oblique, terminally located ; lateral line gently arched beneath dorsal fin, terminating 1½ scale rows below base of second soft dorsal ray ; preorbital, suborbital, snout tip, lips, chin, and isthmus naked ; remainder of head and body scaled ; scales finely ctenoid ;

preopercle scale rows 3 ; small sheath scales covering basal 1/2 to 2/3 of mem, braneous portions of dorsal, anal, and caudal fins ; margin of preorbital, suborbital- and preopercle denticulate ; margin of opercle entire.

Origin of dorsal fin at level of third tubed lateral line scale ; spines of dorsal fin gradually increasing in length to last spine ; length of first dorsal spine 3·5 (3·5 to 4·3) ; of seventh dorsal spine 1·9 (1·8 to 2·0) ; of last dorsal spine 1·7 (1·7 to 1·8) ; of longest soft dorsal ray 1·2 (1·1 to 1·2) ; of first anal spine 4·1 (4·1 to 4·2), of second anal spine 1·8 (1·8 to 1·9), of longest soft anal ray 1·1 (1·1 to 1·2), all in the head length ; caudal fin slightly emarginate ; pectoral fins pointed.

Colour of holotype in alcohol : Head and body brown, scale margins and top of head darker ; upper portion of caudal peduncle pale tan ; dorsal and anal fins brownish with one or two pale submarginal bands, distal tips of membranes between dorsal spines black and small dark spot in middle of soft dorsal between 9th and 11th ray ; caudal fin brown ; pectoral and pelvic fins pale tan ; small blackish spot on opercle near lateral line origin and diffuse dark spot on upper pectoral base, axil of pectoral pale.

Colour of holotype in life : Head and body grey with dusky scale edges giving overall reticulated appearance ; median fins pale grey with one or two pale blue submarginal bands on dorsal and anal fins ; pelvic fins pale blue-grey ; pectoral fin translucent with blackish spot at upper portion of fin base ; small bluish spot on opercle near origin of lateral line ; prominent white spot on upper half of caudal peduncle.

The small dark spot between the 9th and 11th soft dorsal rays is a remnant of the juvenile ocellus which disappears with growth. The ocellus is generally present on specimens under about 40 mm SL.

Remarks. P. albimaculus belongs to the subgenus *Pseudopomacentrus* Bleeker and is closely allied to the following species from the western Pacific : *P. amboinensis* Bleeker, *P. grammorhynchus* Fowler, *P. melanochir* Bleeker, *P. melanopterus* Bleeker, *P. moluccensis* Bleeker, *P. nigromanus* Weber, *P. nigromarginatus* Allen, *P. philippinus* Evermann and Seale, and *P. tripunctatus* Cuvier and Valenciennes. The relationships between most of the members of this group have been discussed by Allen (1973). *P. albimaculus* appears to be most closely related to *P. amboinensis*, but this latter species differs by having a slightly higher gill raker count (22 to 24), and is primarily yellowish in colouration. *P. nigromarginatus* has a similar reticulated pattern and grey ground colour, but differs by having a black margin on the soft dorsal and caudal fins, an intense black spot covering the entire pectoral fin base and axil, and usually 14 or 15 tubed lateral line scales.

P. albimaculus was only encountered at Madang during a cruise which included several stops along the northeastern coast of New Guinea from Madang to Samarai. It was relatively common in the harbour and lagoon in turbid areas of limited visibility at depths between 10 and 20 metres. It shares this habitat with *P. amboinensis*. The stomach contents of the holotype consisted mainly of algae.

The specific name *albimaculus* refers to the characteristic white spot on the upper caudal peduncle.

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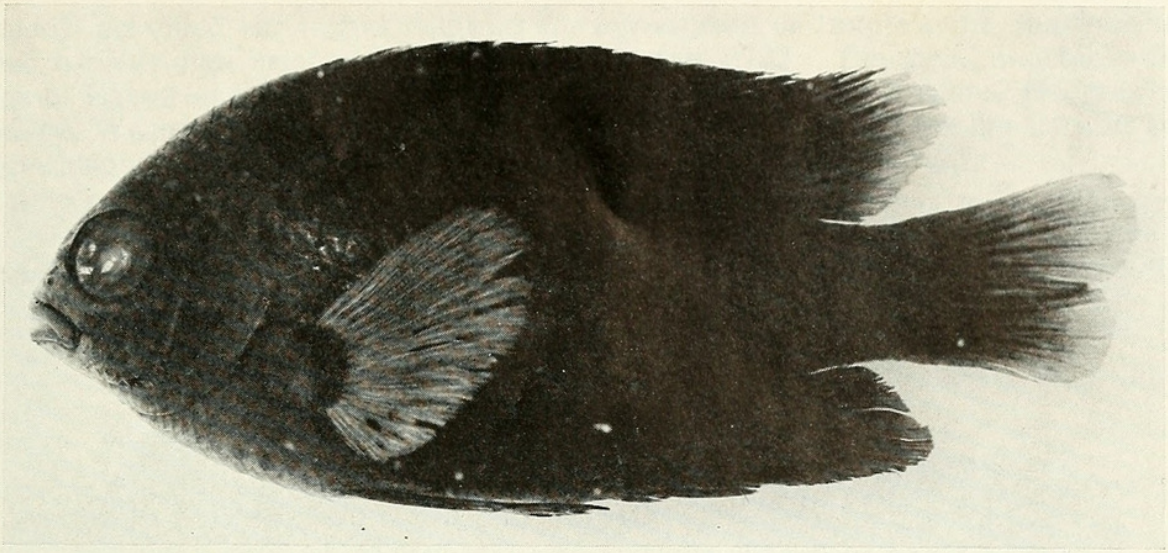

Fig. *a*. *Glyphidodontops niger*, holotype, 41·8 mm SL, Cape Nelson, New Guinea.

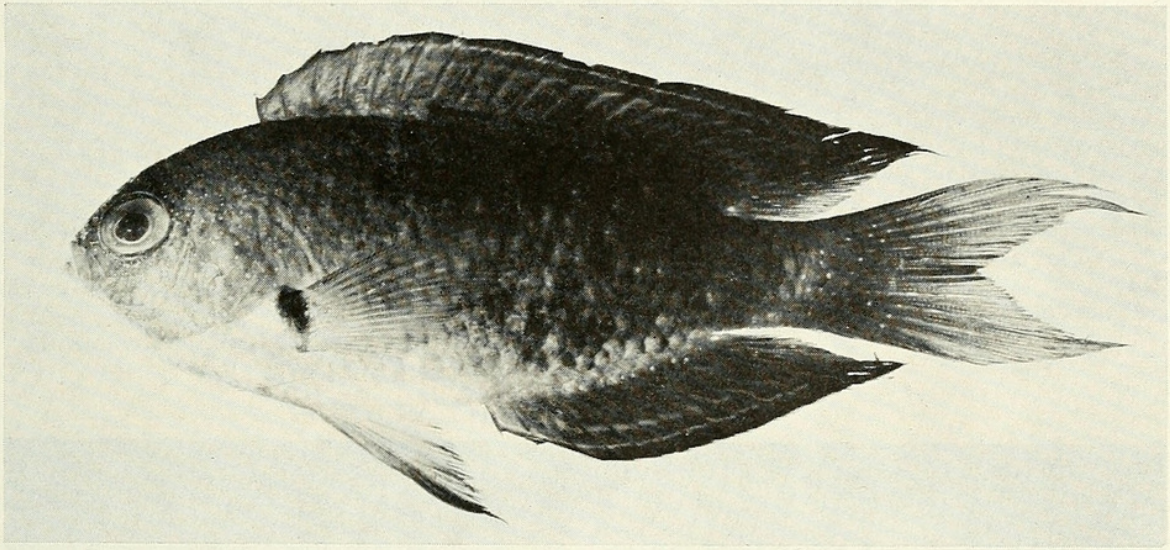

Fig. *b*. *Glyphidodontops notialis*, holotype, 49·2 mm SL, Lord Howe Island.

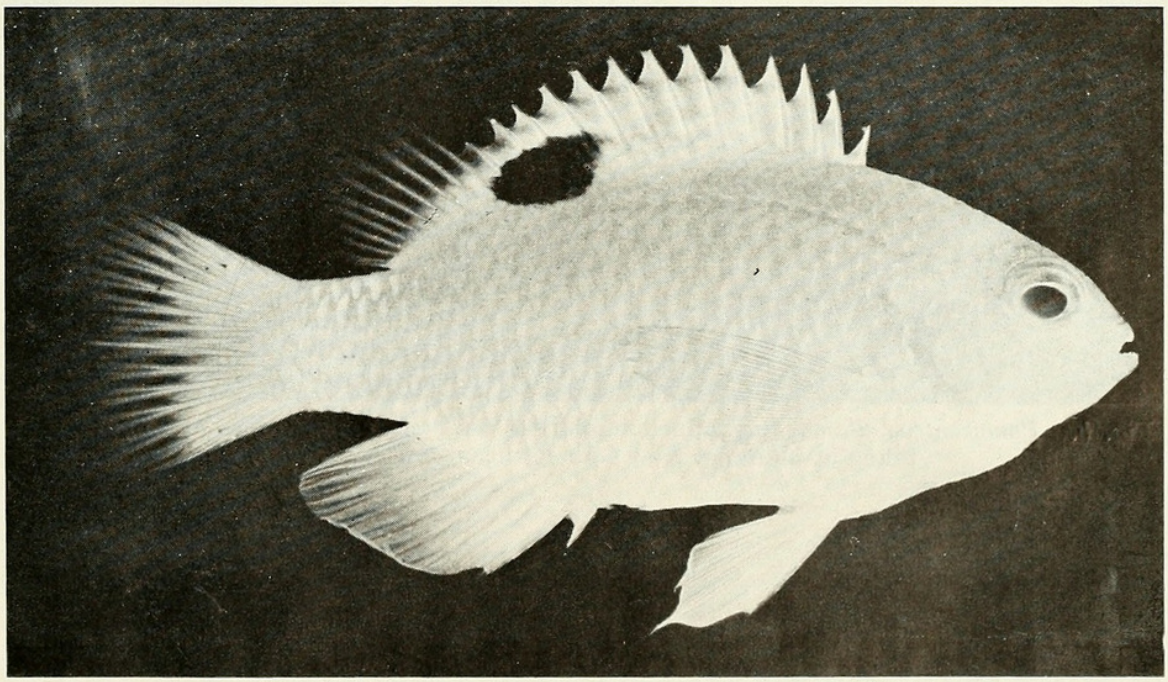

Fig. *c*. *Glyphidodontops talboti*, paratype, 37·0 mm SL, Fiji Islands.