PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 103 Washington: 1954 No. 3327

A REVIEW OF THE LABRID FISH GENUS WETMORELLA WITH DESCRIPTIONS OF NEW FORMS FROM THE TROPICAL INDO-PACIFIC

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Fowler (Fishes of Oceania, suppl. 1, p. 358, 1931) and Weber and de Beaufort (Fishes of the Indo-Australian Archipelago, vol. 8, p. 82, 1940) list *Wetmorella philippina* Fowler and Bean (U. S. Nat. Mus. Bull. 100, vol. 7, p. 211, pl. 17, 1928, type locality Philippine Islands) as a synonym of *Cheilinus fasciatus* (Bloch). We have studied the types of *Wetmorella philippina* (fig. 1) and conclude without any doubt that these specimens are generically distinct from *Cheilinus* and are remarkably distinct from *C. fasciatus* or any other species of labrid currently referred to that genus. The generic characters that distinguish *Wetmorella* from other genera in the Labridae are the large scales on the head, which form a pattern not occurring in any other genus of labrid fishes, and the acutely triangular head. Fowler and Bean (op. cit., pp. 211–212) had six specimens from the Philippines, but only four of them, in our opinion, are *philippina* (holotype: USNM 89968 from Little Santa Cruz, Zamboanga; paratypes: USNM 93503 from Port Langcan, Palawan, USNM 93505 from Atulayan Island, Philippines, and USNM 93528 from Cape Kait, Libani Bay, Celebes). The other two specimens represent undescribed species, and these, along with additional specimens from the Marshall Islands and the Red Sea, are described as new.

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Genus *Wetmorella* Fowler and Bean

Wetmorella Fowler and Bean, U. S. Nat. Mus. Bull. 100, vol. 7, p. 211, 1928. (Genotype, *Wetmorella philippina* Fowler and Bean.)

The genus *Wetmorella* is characterized by dorsal rays IX or X, 9 or 10; anal III,8; pectoral ii,9 or 10; branched caudal rays 6+5; lateral line interrupted with 13 to 15+6 or 7 pores to base of caudal fin. Jaws equal or nearly so; premaxillary protractile; teeth short, conical, in a single row in both jaws, those near front of both jaws becoming gradually enlarged, the two pairs nearest tip of jaws largest; gill membranes broadly joined across isthmus, forming a free fold; head with a distinctive scale pattern composed of large, characteristically shaped scales, arranged in a pattern similar to that shown in figure 53. The chief variation in scales on the head is that there may be 2 median scales on the snout instead of 1; cheek with 1 or 2 rows below which on subopercle may occur another row and a single scale below the latter; 2 or 3 rows of scales behind eye, including the gill cover; a row of large scales occurs above dorsal lateral line, then a second row along spiny dorsal fin, mostly covering the spines except tips, becoming much smaller along soft dorsal rays, almost disappearing on base of last ray; anal fin with a similar sheath of scales; basal half of caudal fin enclosed in large scales; axillary pelvic scale present, short; interorbital space flattish and a little convex; dorsal profile of head nearly straight, forming an angle of 40° to 55° with ventral contour of head; maxillary covered by preorbital when mouth is closed. A blackish ocellate spot in pelvics and at rear of soft dorsal and anal fins; white bar behind eye and on caudal peduncle.

Key to the species of Wetmorella

1*a*. Greatest width of white bar between rear of bases of soft dorsal and of soft anal fins across caudal peduncle is contained about 2.0 to 4.7 times (3.8 to 4.7 in Red Sea specimens) in least depth of caudal peduncle; white bar on caudal peduncle completely encircles it; young only, with white bar from front of spiny dorsal through pectoral base, thence to pelvic base; white bar behind eye meets its fellow near occiput.

2*a*. Caudal fin plain dusky, except in smallest specimens there occur 2 narrow black cross bars, remainder of fin pale or white; some scales on middle of sides have black dots; greatest depth about 2.4 to 2.5 in standard length.....**Wetmorella ocellata,** new species

2*b*. Caudal fin with a few black spots on middle rays, at about three-fourths their length distally; greatest depth 2.4 to 3.2.

3*a*. Greatest width of peduncular white bar 2.3 to 3.4 in least depth of caudal peduncle; no white bar in front of ocellate spot in soft dorsal and in front of soft anal fins (fig. 52).

Wetmorella philippina philippina Fowler

3*b*. Greatest width of peduncular white bar 3.8 to 4.7 in least depth of caudal peduncle; white bar present in front of ocellate spot in soft dorsal and in soft anal fins (pl. 12, fig. A).

Wetmorella philippina bifasciata, new subspecies

1*b*. Greatest width of white bar on caudal peduncle between rear of bases of soft dorsal and of soft anal fins contained about 6 to 10 times in least depth of caudal peduncle; greatest depth about 2.8 to 2.9.

4*a*. A white bar from behind ocellate spot in soft dorsal passes in front of ocellate spot in soft anal fin; a white bar from bases of third and fourth dorsal spines passes behind pectoral base, thence to just behind pelvic base; posterior third of caudal fin with a black band, but rear margin of caudal fin is edged with white; the white bar on caudal peduncle occurs as a saddle ventrally and does not extend on dorsal part of caudal peduncle.

Wetmorella albofasciata, new species

4*b*. No white bar passing between ocellate spot in soft dorsal and that in soft anal; a narrow, white bar extends from in front of ocellate spot in soft dorsal to in front of that in soft anal fin; caudal fin plain dusky, edged with white distally; a white bar between orbits in the interorbital space----------**Wetmorella triocellata,** new species

***Wetmorella philippina bifasciata*, new subspecies**

FIGURE 53; PLATE 12, FIGURES A, B

Holotype.—BM 1951.9.18.1, Red Sea, Suakin, Anglo-Egyptian Sudan, 'Manihine' Collection, January 13, 1951, taken by use of derris root (6 percent rotenone) from pieces of coral growing on sea wall surrounding Suakin, at depth of 3 feet, standard length 50 mm.

Paratype.—BM 1951.9.18.2, taken with holotype and bearing same locality data, standard length 41.5 mm.

Description.—Certain counts and measurements are recorded for the holotype and paratype in tables 1 and 2.

Body compressed, greatest depth opposite middle of spiny dorsal base; snout normal; dorsal profile of head straight or nearly so, forming an angle of 52 to 55° with ventral contour of head and body;

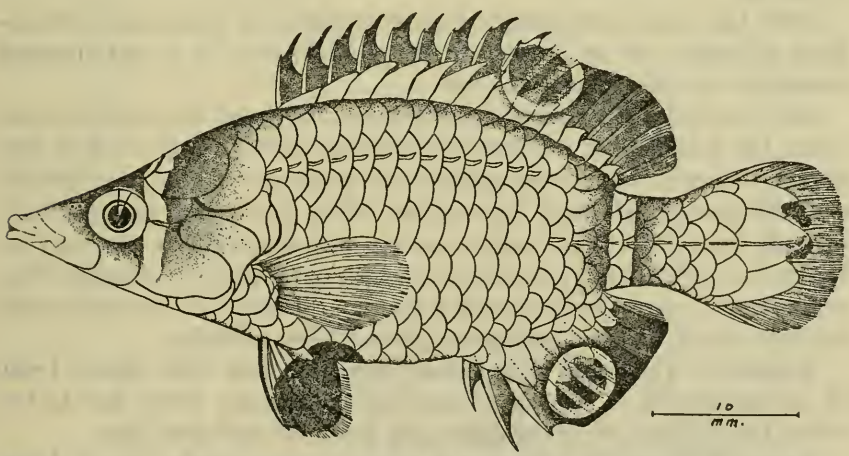


FIGURE 52. Holotype of *Wetmorella philippina philippina* Fowler and Bean (USNM 89968) from the Philippines.

TABLE 1.—*Counts recorded for species of* Wetmorella.

Species	Dorsal rays				Anal rays		Pectoral rays			Branched caudal rays		Lateral line pores				
										Dorsal lobe	Ventral lobe	Upper			Lower	
	IX	X	9	10	III	8	11	9	10	6	5	13	14	15	6	7
W. philippina philippina	3	1	1	3	4	4	7	1	6	4	4	2	1	1	2	2
philippina bifasciata	2	----	----	2	2	2	2	----	2	2	2	2	----	----	2	----
ocellata	12	----	----	12	12	12	12	----	12	3	3	----	5	2	3	4
albofasciata	1	----	----	1	1	1	2	----	2	1	1	----	----	1	----	1
triocellata	1	----	----	1	1	1	2	----	2	1	1	----	----	1	1	----

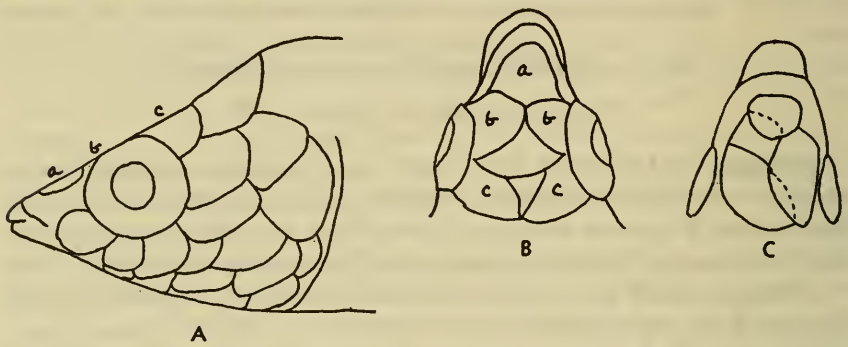


FIGURE 53. Sketch of the arrangement of the scales on the head of holotype of *Wetmorella philippina bifasciata*, new species. A, B, holotype; C, paratype.

interorbital space slightly convex, nostrils small, the anterior one tubular; jaws equal or nearly so; scales on head as illustrated in figure 53.

Since the other morphological characteristics of *Wetmorella philippina bifasciata* are so similar to *W. p. philippina* it is not deemed necessary to redescribe them here.

Color in alcohol.—Background coloration brownish with a narrowish white bar just behind ocellate spot passing through rear base of soft dorsal, thence across caudal peduncle through rear of anal base behind ocellate spot in soft anal fin; another white bar, much less distinct, extends from in front of ocellate spot in soft dorsal fin across body to in front of ocellate spot in anal fin; a narrow, white bar extends from occiput past rear of eye to lower posterior corner of gill cover; caudal fin with about 7 or 8 black spots; pelvics black distally.

Remarks.—This new subspecies from the Red Sea differs from *W. p. philippina* in having a narrower peduncular white bar and a white bar in front of the ocellate spot in dorsal and anal fins.

Named *bifasciata* in reference to the two white bands, one in front and one behind the ocellate spots.

TABLE 2.—*Measurements made on species of* Wetmorella, *expressed in thousands of the standard length*

Characters	*philippina philippina* Fowler				*ocellata*, new species			*albofasciata*, new species	*triocellata*, new species	*philippina bifasciata*, new subspecies, Red Sea	
	Holotype 89968	Paratypes			Holotype 112368	Paratypes		Holotype 93504	Holotype 93529	Holotype 1951.9.18.1	Paratype 1951.9.18.2
		93503	93505	93528		112371	112372				
Standard length in mm	44	30.7	30	38.5	38.6	50	25	36.4	39.2	50	41.5
Length of head	407	394	371	402	396	400	415	406	408	380	397
Greatest depth	414	371	406	374	414	400	403	335	344	380	360
Least depth of body	148	153	171	156	130	136	142	140	148	140	136
Snout	109	111	119	112	119	122	115	115	110	120	120
Eye	105	124	110	125	119	100	138	115	110	110	108
Interorbital space	102	114	97	101	104	106	115	104	97	100	102
Greatest width of peduncular white bar	43	59	58	68	52	60	71	14	20	32	38
Postorbital length of head	189	192	164	187	171	186	190	201	204	170	180
Tip of snout to anus	682	619	645	688	694	688	632	646	638	670	710
Tip of snout to dorsal origin	448	440	413	436	432	424	434	456	446	450	433
Longest fin ray:											
Pectoral	200	195	203	205	194	206	205	192	181	200	180
Pelvic	177	186	219	208	179	182	205	170	191	190	192
Dorsal spine	157	199	213	169	187	184	178	206	191	240	205
Dorsal soft ray	132	163	161	153	145	158	158	145	140	180	169
Anal spine	134	218	184	179	184	176	182	225	191	220	205
Anal soft ray	118	114	148	138	130	154	146	135	140	190	180
Caudal	227	238	271	260	246	256	257	275	263	230	241

Wetmorella ocellata, new species

PLATE 12, FIGURES D, E

Holotype.—USNM 112368, Rongelap Atoll, Kieshiechi Island, north end, lagoon coral head, depth 20 feet, July 24, S–46–285,[2] Brock and Herald, standard length 38.6 mm.

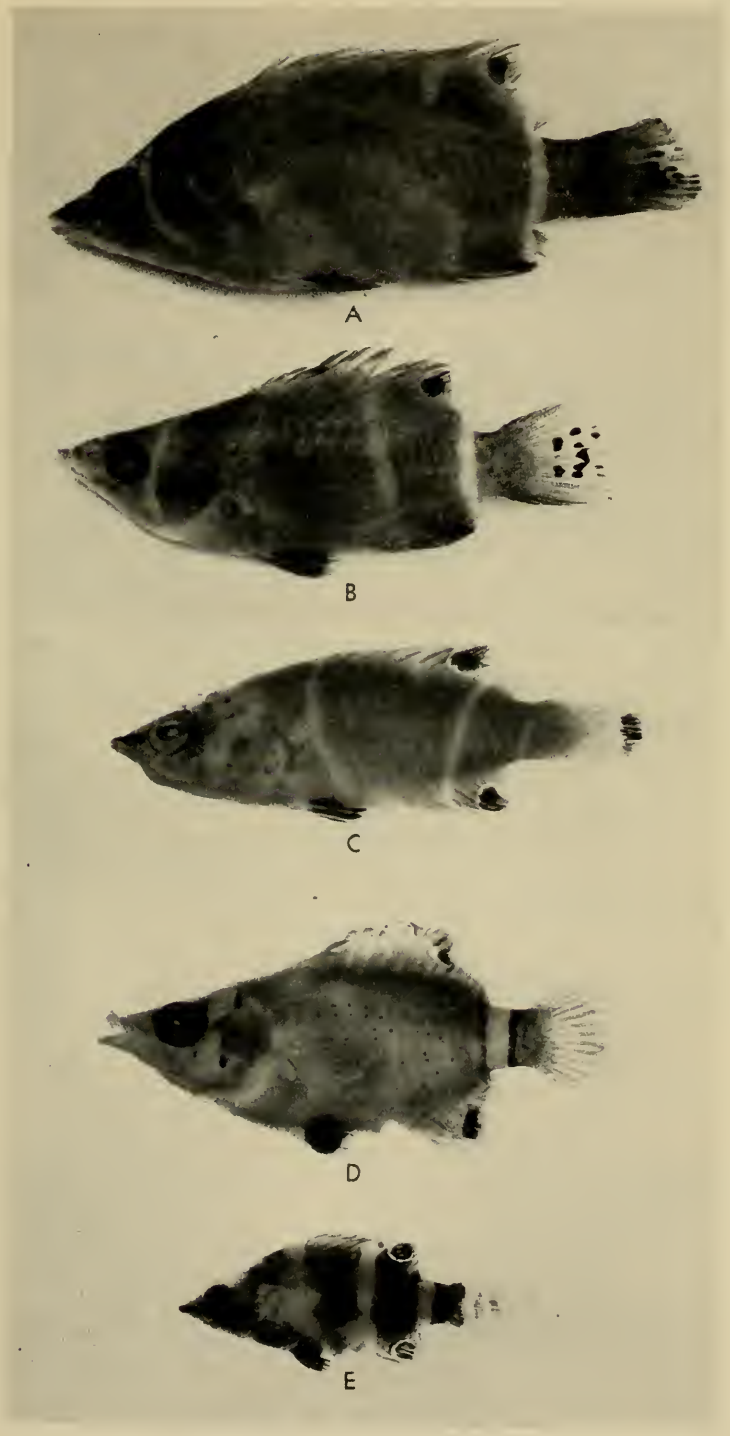
Paratypes.—USNM 112372, Bikini Atoll, coral heads in eastern end of lagoon, depth 20 to 25 feet, March 26, S–46–42,[2] Brock and Schultz, 2 specimens, 25 mm. and 49 mm.; USNM 112371, Bikini Atoll, off Amen Island in lagoon, depth 30 feet, August 4, S–46–307,[2] Herald and Brock, 1 specimen, 50 mm.; USNM 112370, Bikini Lagoon, 100 yards off Airy Island, depth 20 to 40 feet, August 7, S–46–308,[2] Brock and Herald, 6 specimens, 23 mm. to 57 mm. Bikini Atoll, reef between Amen and Bikini Islands in lagoon, depth 30 feet, July 31, 1947, Donaldson and Welander, 1 specimen, 48 mm.; USNM 112369, taken with holotype and bearing same data, 1 specimen, 41 mm.; USNM 112373, Bikini Atoll, Amen Island, August 21, 1947, Univ. Washington, 1 specimen, 43 mm.

Description.—Dorsal rays IX,10; anal III,8; pectoral ii,10; pelvics I,5; branched caudal fin rays 6+5; pores in lateral lines 14 or 15+6 or 7; scales above lateral line 2, below lateral line to anal origin 6; vertical scale rows 20 or 21; gillrakers on first arch about 6+9. (Certain measurements made on the holotype and two paratypes, expressed in thousandths of the standard length, are recorded in table 2.)

Body compressed, the greatest depth opposite middle of spiny dorsal base; snout normal; dorsal profile of head straight or nearly so, forming an angle of 40° to 46° with ventral contour of head and body; interorbital space slightly convex; nostrils small, the anterior one tubular; a vertical line through rear nasal opening passes through front edge of eye; jaws approximately equal; maxillary reaches to a vertical line through front nostril; maxillary covered by preorbital when mouth is closed; dentary normal; premaxillary protractile; teeth short, conical in a single row in both jaws, those near front of both jaws becoming gradually enlarged, the 2 pairs nearest tip of jaws largest, and, when mouth is closed, those of lower jaw fitting

EXPLANATION OF PLATE 12.—*A*, holotype of *Wetmorella philippina bifasciata*, new subspecies (BM 1951.9.18.1) from Red Sea; *B*, paratype of same subspecies from same locality; *C*, holotype of *W. albofasciata*, new species (USNM 93504) from the Philippines; *D*, holotype of *W. ocellata*, new species (USNM 112368) from Rongelap Atoll, Marshall Islands; *E*, paratype of *W. ocellata*, new species (USNM 112372) from Bikini Atoll, 25 mm. standard length.

[2] Collecting station in Operation Crossroads, 1946 (see U. S. Nat. Mus. Bull. 202, 1953).



For explanation see facing page.

between the two opposite teeth in upper jaw; gill membranes broadly joined across isthmus and forming a free fold; head with a distinctive scale pattern composed of large and definite shaped scales as follows: Cheek with a single row of enlarged scales below which on subopercle is another row, and a single scale below the latter; 3 rows behind eye, including gill cover, dorsal surface of head scaled forward to snout just in front of orbits, the two anteriormost scales median in position, then 3 in middle of interorbital space, followed by a pair of larger ones between rear of orbits, then about 5 scales to dorsal fin origin; above dorsal lateral line is a row of large scales, then a second row along spiny dorsal fin, mostly covering the spines except tips, then the row of scales is much smaller along soft rays, almost disappearing on base of last ray; anal fin with a similar sheath of scales; basal half of caudal fin enclosed in large scales; axillary scale of pelvic short; pectoral fin reaches to opposite about seventh scale of lateral line; lateral line interrupted, beginning again 2 scale rows below on caudal peduncle; fourth pectoral ray usually longest; pelvics reaching or nearly reaching anus; caudal fin rounded.

Color in alcohol.—Background coloration light brownish to brownish, with a brown-edged white bar across caudal peduncle just behind rear of bases of soft dorsal and soft anal fins, and another brown-edged white bar just behind eye from side of head to nape; 3 prominent black ocellate spots, one at front of soft dorsal, another at front of soft anal, and the largest occupying each pelvic fin and the underlying part of the body opposite the pelvic fins; no white bar across interorbital space; middle of upper lip dark barred. The two smallest specimens, 23 mm. and 25 mm., probably represent a juvenile color pattern—in addition to the white bar behind the ocellate spots there is another white bar in front of them that extends from bases of last dorsal spines to bases of anal spines; another white band extends from first two dorsal spines just behind pectoral base to pelvics; caudal fin white with two narrow cross bars, the distal margin of fin white.

Ecology.—This interesting new labrid was taken only at depths of about 20 to 40 feet in the lagoon among coral heads. It was not seen in the intertidal zone of the reefs.

Remarks.—This new species may be distinguished from species in the genus *Wetmorella* by means of the key. Its closest relative is *philippina philippina* from which it differs in lacking black pigment spots in the caudal fin; *ocellata* has a plain dusky caudal fin in the adult, and none of the specimens of *ocellata* has even a trace of black spots in the caudal fin. After studying several hundred species of fishes of the tropical Indo-Pacific in numerous families we place a great deal of confidence in the color pattern differences such as occur in the Chaetodontidae, Labridae, Serranidae, and other families.

Thus we have decided to recognize two new species and one new subspecies. Larger series will make it possible to determine the exact status of these new forms. Among our 12 specimens of *ocellata* there is little variation in color pattern except that which occurs between small (young) specimens and the large adult specimens.

Named *ocellata* in reference to the ocellate spots which help to characterize all known species of the genus *Wetmorella*.

Wetmorella albofasciata, new species

Plate 12, E

Wetmorella philippina (in part) Fowler and Bean, U. S. Nat. Mus. Bull. 100, vol. 7, p. 212, 1928 (specimen from Mabul Island, Philippines).

Holotype.—USNM 93504, Mabul Island, Philippines, *Albatross*, September 29, 1909, standard length 36.4 mm.

Description.—Dorsal rays IX,10; anal III,8; pectoral ii,10–ii,10; pelvics I,5–I,5; branched caudal 6+5; pores in lateral line 15+7 with 2 scales above and 6 below to anal origin; vertical scale rows 21.

Certain measurements made on the holotype and expressed in thousandths of the standard length are recorded in table 2.

Since the morphological characteristics of *albofasciata* are so similar to those of *ocellata* it is not deemed necessary to repeat them here except to point out that this species is more slender, its greatest depth about three times in the standard length.

Color in alcohol.—Background coloration brownish, with a narrow, white bar from just behind ocellate spot in soft dorsal, passing across body in front of ocellate spot in soft anal fin, ending on front of anal fin; peduncular white bar confined to lower half of caudal peduncle, not extending much above peduncular lateral line; a short, white bar occurs in front of ocellate spot in soft dorsal and ends near dorsal

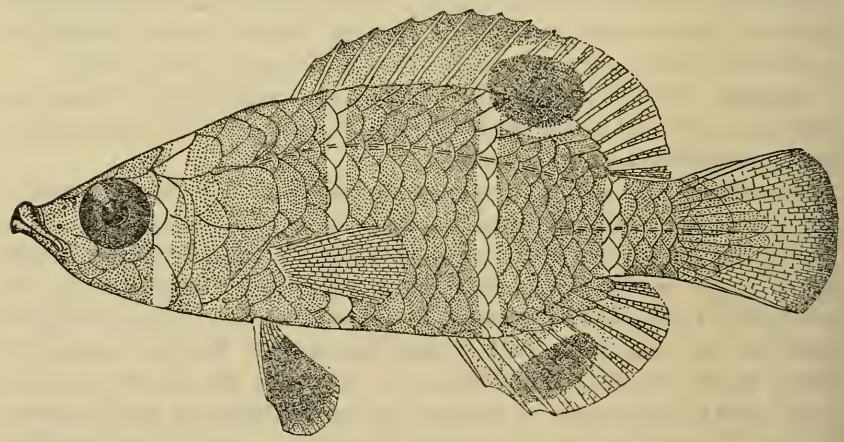


Figure 54. Holotype of *Wetmorella triocellata*, new species (USNM 93529) from the Philippines. Drawn by Mrs. Aime M. Awl.

lateral line; another white bar begins near base of third dorsal spine, curves ventrally, and passes about 2 scales behind pectoral base, thence to behind black area near base of pelvics; distal fourth of caudal fin blackish edged with white on rear margin and the black caudal spot edged with white anteriorly; pelvics blackish except edged with white and body next to pelvics blackish.

Remarks.—This species may be separated from all others referable to the genus *Wetmorella* by the white bar that passes across body between the ocellate spots in soft dorsal and soft anal fins. Named *albofasciata* in reference to the characteristic white bars.

***Wetmorella triocellata*, new species**

FIGURE 54

Wetmorella philippina (in part) Fowler and Bean, U. S. Nat. Mus. Bull. 100, vol. 7, p. 212, 1928 (specimen from Rapurapu Island, June 24, 1909).

Holotype.—USNM 93529, Rapurapu Island, Philippines, *Albatross*, June 24, 1909, standard length 39.2 mm.

Description.—Dorsal rays IX,10; anal III,8; pectorals ii,10–ii,10; pelvics I,5–I,5; branched caudal rays 6+5; pores in lateral line 15+6, with 2 scales above and 6 below to anal origin; vertical scale rows 21.

Certain measurements made on the holotype, and expressed in thousandths of the standard length, are recorded in table 2.

Since the morphological characteristics of *triocellata* are so similar to those of *ocellata*, it is not deemed necessary to repeat them here, except in regard to greatest depth, which is contained about 3 times in the standard length; it is notably a more slender fish than *ocellata* and *philippina*.

Color in alcohol.—A narrow, white bar occurs behind the two ocellate spots in the median fins and another extends from in front of ocellate spot in dorsal to in front of that in anal, ending near base of third anal spine; background coloration light brown; a brown-edged pale bar from behind eyes meets its fellow dorsally on head; probably another brown-edged pale bar extends across interorbital space although this is faded as are all of the pale bars; caudal fin gradually a little darker distally, probably narrowly edged with white. We quote the following *Albatross* color note: "Pale band behind head extends across occiput and bounded by brown line in front and behind its entire extent."

Remarks.—This new species is recognizable from others referable to the genus *Wetmorella* by its slender form in connection with a distinctive color pattern. It is closest to *albofasciata* in regard to its slender form but differs in not having a white bar on the body passing between the two ocellate spots in the median fins.

Named *triocellata* in reference to the three ocellate spots that characterize this group of fishes.

U. S. GOVERNMENT PRINTING OFFICE: 1934