



**Rachovia splendens Dahl, a Synonym of the Annual Killifish *Rachovia brevis* (Regan)**

Jamie E. Thomerson; Donald C. Taphorn; Neal R. Foster; Bruce J. Turner

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apparently connected in life near distal margin of caudal fin.

About seven months after preservation the female specimen was reexamined. At the corners of the mouth, the membranes overlying the inner surfaces of the maxillaries and premaxillaries and the outer surfaces of the dentaries are jet-black—anteriorly this heavy pigmentation thins out progressively but reaches the symphysis of the lower jaw and continues in the upper jaw region onto the oral valve and nearby membranes essentially to the symphysis.

*Remarks.*—As anticipated by Smith-Vaniz (1972) the extent of the development of the maxilla is a sexually dimorphic character in *O. melachasme*. The female lacks the long, flexible posterior extension of the maxilla seen in the mature male (Fig. 1). It also has a shallower supra-maxilla with a more obtuse dorsal angle than does the holotype (Fig. 1). Sexual dimorphism is also evident in certain other body proportions (especially head length, pelvic-fin length and lengths of dorsal-fin spines and segmented anal-fin rays). Examination of specimens and comparison of the figures of the holotype and allotype of *Opistognathus gilberti* (see Böhlke, 1967, Fig. 1) reveal that it too exhibits sexual dimorphism in spinous dorsal-fin height (a fact not alluded to in the original description of that species). Although the preceding notes on coloration show, when compared with those given by Smith-Vaniz (1972), that there is appreciable sexual dichromatism, the black markings on the medial surface of the maxilla and adjacent membranes are not limited to males, as suggested in the original description. The black markings are not as extensive as in males, however, in which the posterior third of the inner lining of the dentaries and adjacent membranes also are heavily pigmented.

Other differences, not directly attributable to sexual dimorphism, are the extent of scalation and cephalic pore development. In the female scales are less numerous immediately posterior to the pectoral fin and are entirely absent above the pectoral fin; in males these areas are fully scaled except for the regions above and immediately below the lateral line which are naked. The pores in the infraorbital series and on the dorsum of the head are also less numerous than corresponding ones of the holotype. These latter differences, we believe, are to be expected as individual variation. The female specimen agrees with male *O. melachasme* and differs from all other Atlantic species of *Opistognathus* in lacking vomerine teeth, having 10 dorsal-fin

spines, and in having black maxillary markings in combination with a yellow mouth.

The collection of *O. melachasme* off North Carolina represents a significant extension of the geographic range of the species (northward from Cuba). This deepwater jawfish, now known from depths of 100–102 m to at least 155 m, should prove to be widely distributed throughout the Caribbean.

We wish to thank Gene R. Huntsman (National Marine Fisheries Service) for inviting one of us to accompany his group on a cruise of the R/V EASTWARD, and James E. Böhlke for reading the manuscript. This report is contribution no. 36 of the Grice Marine Biological Laboratory, College of Charleston.

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*RACHOVIA SPLENDENS* DAHL, A SYNONYM OF THE ANNUAL KILLIFISH *RACHOVIA BREVIS* (REGAN).—Weitzman and Wourms (1967) pointed out that the New World annual rivulin cyprinodontid, *Rachovia splendens* Dahl 1958a,b is doubtfully distinct from *R. brevis* (Regan) 1912. However, Dahl (1971) recognized both species and discriminated between them as follows: *R. brevis*; generally 10 dorsal rays, 12 or 13 anal rays, 29 or 30 lateral scales, distributed around Ciénaga Grande de Santa Marta. *R. splendens*; dorsal rays 11 or 12, anal rays 14 to 16, lateral scales 33 to 35, distributed between the Rio San Jorge and the Caribbean, in the lower Sinu drainage and east to the Rio Canalete. In August 1972 Thomsen and Plutarco Cala made several collections of *Rachovia* from both sides of the Rio Magdalena. Both species should thus have been present. Examination of this and other material

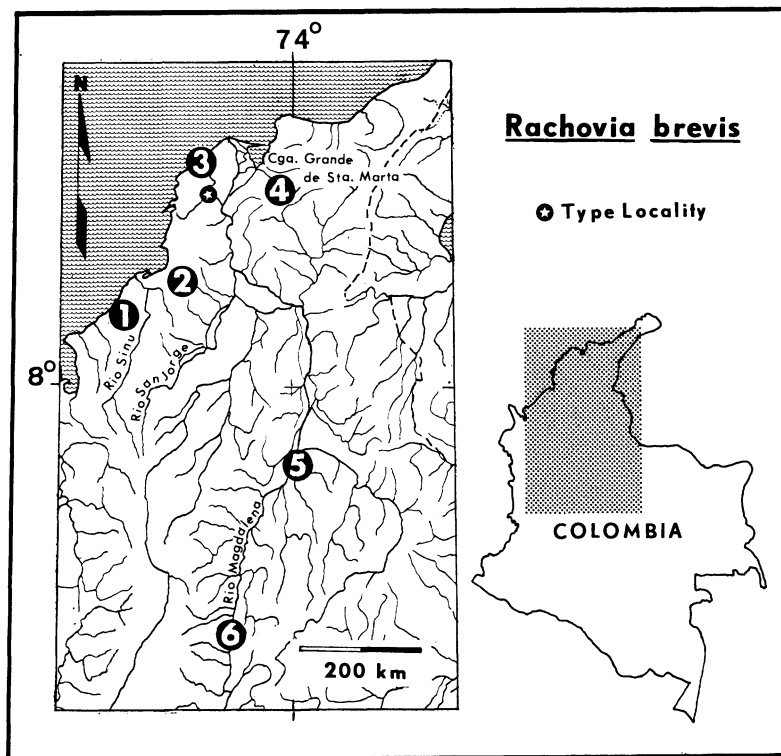


Fig. 1. Distribution of *Rachovia brevis* (Regan) populations in the Colombian coastal llanos and Magdalena valley. Numbers as in text.

from widely separated localities along the coastal llanos of Colombia (Fig. 1) reveals no consistent differences in the characters (Table 1) used by Dahl to separate the nominal species.

*Materials and methods.*—Some specimens were cleared and stained before counting. All elements of the dorsal and anal fins were counted. Lateral scales were counted as indicated by Dahl (1971: 334). The distribution of counts is given in Table 1.

SU (Stanford University) collections are now deposited at the California Academy of Sciences, San Francisco. The UMMZ (University of Michigan Museum of Zoology) collection and one of the Sincelejo collections have been lost. Collections labeled C-72- were made by Thomerson and P. Cala.

Study material is available from five geographic areas of Colombia as follows (paragraph numbers refer to localities in Fig. 1):

1) SU 49517, Cordoba, swamp near Rio Canalete, 16/1/1955; SU 49518, Cordoba, forest swamp, Canalete River system, 18/1/1955.

2) SU 49519, Sucre, pond within Sincelejo,

22/11/1956; Sincelejo, W. A. Kyburz (collection lost).

3) Field number C-72-7, Bolivar, 3 km south of Pueblo Nuevo, 31/8/1972; C-72-8, Bolivar, 10 km NE of Cartagena on highway to Barranquilla, 1/9/1972; C-72-9, Bolivar, 20 km NE of Cartagena on hwy to Barranquilla, 1/9/1972.

4) UMMZ 56917, Magdalena, Fundación market, 11/8/1913 (collection lost); C-72-5, Magdalena, 4 km N of Fundación, 28/8/1972; C-72-6, Magdalena, 20 km N of Fundación, 28/8/1972 (47 cleared and stained).

5. Cornell University 47900, Santander, near Barrancabermeja, 9/1962 (13 cleared and stained).

The distribution of *Rachovia brevis* is shown in Fig. 1. The southernmost locality (6) near Ambalema, Depto. Tolima, is based on a photograph of a specimen collected by Hans G. Heinrich of Bogotá.

*Discussion.*—Regan (1912) gave the type locality for *R. brevis* as "Colombia," noting that the specimen described had been sent to him by Wolterstorff. (According to Frey (1961), Wil-

TABLE 1. MERISTIC CHARACTERS OF *Rachovia brevis* (REGAN) POPULATIONS.

Population	Dorsal Rays						Anal Rays						Lateral Scales						n						
	9	10	11	12	13	14	n	12	13	14	15	16	17	n	26	27	28	29		30	31	32	33	n	
<b>Nominal</b>																									
<i>R. splendens</i>																									
(1)	1	9	12	1			23			4	8	10			22			3	2	7	7	4		23	
(2)	3	18	11	9	1	1	43	1	3	8	17	7	7		43			3	8	22	6	2	3	44	
(3)	1	10	11	3			25			3	15	7			25	1	6	14	2	2				25	
Total	4	29	31	24	2	1	91	1	3	15	40	24	7		90	1	12	24	31	15	6	3	92		
							$\bar{x} = 10.9$								$\bar{x} = 15.2$									$\bar{x} = 29.8$	
<b>Nominal</b>																									
<i>R. brevis</i>																									
(4)	1	11	40	11	1		64		2	18	29	16	1		66			1	2	7	8	17	10	7	52
(5)	4	25	23	2			54	1	2	20	25	6			54			6	16	24	7	1		54	
Total	5	36	63	13	1		118	1	4	38	54	22	1		120	1	8	23	32	24	11	7	106		
							$\bar{x} = 10.7$								$\bar{x} = 14.8$									$\bar{x} = 30.2$	

helm Wolterstorff (1864–1943) was a herpetologist and Curator at the Naturhistorische Museum at Magdeburg. Well-known in German aquarium and terrarium circles, W. Wolterstorff was for years editor of the “Blätter für Aquarien- und Terrarienkunde” and for three years also editor of the “Wochenschrift für Aquarien- und Terrarienkunde.” Rachow’s section (Lieferung 18Ab, 17) on *R. brevis* in Holly, Meinken, and Rachow’s Aquarienfische in Wort und Bild contains further information on the source of the type specimen: several articles appeared between the years 1906 and 1909 in the Blätter and Wochenschrift, describing under the name “*Rivulus micropus*” or “*Cynolebias spec.*” a rivulin killifish, large numbers of which had been imported into Germany by Hans Stuve. These fish were collected only at “Soplaviento, ein Städtchen am ‘Dique de Cartagena,’ an der Strecke Cartagena–Calamar, in einem in der Nähe des Magdalenestromes, hart am Eisenbahndamm gelegenen, ziemlich umfangreichen aber flachen und schlammigen Gewässer.” We thus restrict the type locality of *R. brevis* (Regan) to vicinity of Soplaviento, Depto. Atlántico, Colombia.

The type locality of *R. brevis* is within the range given by Dahl (1971) for the nominal *R. splendens*. Key characters (Table 1) used by Dahl (1971) to separate the nominal species do not show significant differences between them. These data support Weitzman and Wourms’ (1967) suggestion that *R. splendens* is the same as *R. brevis*. We have not been able to find other characters which suggest that two species are involved. There is however, considerable variation in details of male coloration within and between populations. A few males from C-72-8 and C-72-9 had brilliant scarlet subterminal distal bands in the caudal fin. Some males from C-72-6 had a strong orange wash over the anal fin. One male from C-72-5 had a striking black distal marginal bar on the anal fin. Many males show an ocellated dark brown or black spot in the dorsal fin like that characteristic of *Pterolebias maculipinnis* Radda. Male body color varies from dark blue-black to purple to light blue or green with or without red scale outlines.

Weitzman and Wourms (1967) stated that the action taken in this paper would make *Austrofundulus* Myers a junior synonym of *Rachovia* Myers. We agree that the two nominal genera contain closely related species. A review of the two taxa (Taphorn and Thomerson, in prep.) suggests that neither is a completely natural

group as now defined and that two monophyletic lines are present. Whether these two lines deserve generic level recognition is a question best answered in the context of a generic level revision of the Rivulinae (Thomerson, in prep.). For the present, a conservative course of continued recognition of both genera is suggested.

*Acknowledgments.*—G. S. Myers kindly made the SU specimens available for study. J. C. Tyler and A. Wheeler examined the type of *R. brevis* (BMNH 1908.5.14.8), and verified Regan’s description. C. Tapias of INDERENA kindly granted permission for Thomerson and Cala to collect in Colombia. F. Fröhlich kindly supplied information and a photograph to document the Ambalema population. This study was supported by grants to Thomerson by the Graduate School of Southern Illinois University at Edwardsville and the National Geographic Society.

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