Ichthyology

CHILATHERINA AXELRODI,
A New Species of Rainbowfish (Melanotaeniidae) From Papua New Guinea *

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Photos by the author

The rainbowfishes of the family Melanotaeniidae are common inhabitants of tropical streams, lakes and swamps in the Australia-New Guinea region. All of the approximately 40 known species are relatively small (usually well under 15 cm total length) and many exhibit bright colors. Although well suited to life in captivity, most species remain strangers to the aquarium trade, primarily because of poor access to the remote areas in which they dwell. The majority of species are inhabitants of New Guinea where there are few roads and airline schedules are notoriously erratic, particularly when the shipment of live fishes is involved. Moreover, the entire western half of New Guinea (Irian Jaya) is under Indonesian control and is presently off limits to fish collectors, scientific or otherwise. This poorly collected region is potentially the most interesting area within the distributional range of the family.

I have been engaged in the study of rainbowfish classification for the past five years. During this period a number of field expeditions to northern Australia and Papua New Guinea has yielded rich collections of freshwater fishes, including most of the previously described species of rainbowfishes and at least eight species new to science. The present article contains the description of a new rainbowfish collected in September, 1979 during my most recent visit to New Guinea. Details of this expedition will appear in a future issue of *Tropical Fish Hobbyist*.

The new species is a member of the genus *Chilatherina* which contains four other species: *C. campsi* (Whitley), *C. lorentzi* (Weber), *C. sentaniensis* (Weber), and *C. crassispinosa* (Weber). The latter species was previously considered to be the lone representative of the genus *Centratherina*, but as a result of a recent generic study (Allen, in press) it is now included in *Chilatherina*. The genus is restricted to northern New Guinea except *C. campsi* of the Central Highlands is found both immediately north and south of the central divide in the Jimmi and Wahgi Valleys respectively. *Chilatherina crassispinosa* and *C. lorentzi* are relatively widespread ranging from the Lae area of Papua New Guinea westward into northern Irian Jaya. Both species are common in foothill streams below about 300 meters elevation, although the latter species is also found in lowland river valleys. *Chilatherina sentaniensis* inhabits Lake Sentani near Jayapura, the capital city of Irian Jaya.

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The members of *Chilatherina* are distinguished from other rainbowfishes by the straight or only slightly curved premaxilla and the characteristic snout profile which features a projecting, bulbous upper lip covered with external teeth and a thin inferior lower lip.

Type specimens of *Chilatherina axelrodi* have been deposited at the following institutions: Australian Museum, Sydney (AMS); Museum National d'Histoire Naturelle, Paris (MNHN); Kanudi Fisheries Research Laboratory, Port Moresby, Papua New Guinea (PNG); Rijksmuseum van Natuurlijke Historie (RMNH); United States National Museum of Natural History, Washington, D.C. (USNM); Western Australian Museum, Perth (WAM); and Zoologisch Museum, Amsterdam (ZMA).

CHILATHERINA AXELRODI,
New Species,
Axelrod's Rainbowfish

Holotype.—WAM P26739-001, 81.1 mm SL, Yungkiri stream (Pual or Nemayer River system), about 6 km north of Bewani on Vanimo Road, Papua New Guinea (approximately 2°58'S, 141°08'E), seine net, G. Allen, B. Parkinson, and P. Neusinger, 13 September 1979.

Paratypes (collected with the holotype).—AMS: 7 specimens, 46.2-75.7 mm SL; MNHN: 3 specimens, 60.5-65.5 mm SL; PNG: 5 specimens, 53.0-68.2 mm SL; RMNH: 5 specimens, 56.5-72.0 mm SL; USNM: 3 specimens, 43.4-75.4 mm SL; WAM P26739-002: 22 specimens, 35.4-85.3 mm SL; ZMA 5 specimens, 41.0-61.5 mm SL. (Museum numbers were not available at time of publication).

Description

Fin-ray counts are summarized in Table 1. Data in parentheses indicate the range for paratypes when differing from the holotype. Proportional measurements are presented as percentages of the standard length. These data are based on the holotype and 25 paratypes, 53.5-86.8 mm SL, unless stated otherwise.

Dorsal rays VII-I, 11 (V to VII-I, 11 to 13); anal rays I, 22 (I, 19 to 24); pectoral rays 14 (13 to 15); horizontal scale rows 10; vertical scale rows 38 (37 to 40); predorsal scales 17 (16 to 19) (avg. 17, N = 31); preopercle-suborbital scales 15 (15 to 22) (avg. 19, N = 24).

Greatest body depth 40.4, greatest depth of paratypes by sex and size class as follows: males — (a) 40-49 mm SL, 30.0-34.7 (avg. 32.8, N = 5), (b) 50-69 mm SL, 34.0-39.1 (avg. 37.2, N = 18), (c) 70+ mm SL, 36.1-41.3 (avg. 39.3, N = 11); females — (a) under 50 mm SL, 32.6 (N = 1), (b) 50-63 mm SL, 31.1-36.1 (avg. 33.4, N = 15); head length 24.7 (23.9-25.8); snout length 8.6 (6.7-8.8); eye diameter 7.8 (7.5-9.3); interorbital width 7.4 (7.2-8.2); caudal peduncle depth 11.2 (10.1-11.7); caudal peduncle length 14.8 (14.1-17.7); predorsal distance (45.1-48.9); preanal distance 47.1 (46.8-52.4); prepelvic distance 35.5 (34.6-36.7).

Jaws oblique, upper jaw produced; premaxilla without an abrupt bend between the anterior horizontal portion and lateral part; maxilla ends slightly anterior to front of eye; upper lip swollen anteriorly, lower relatively thin; teeth conical with slightly curved tips; teeth in upper jaw covering lip outside of mouth, arranged in a band of 7 to 10 irregular rows anteriorly gradually reduced to a single row posteriorly; teeth in lower jaw arranged in two bands separated by edentulous space, outer band consisting of

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Table 1
Fin Ray Counts of Type Specimens of
CHILATHERINA AXELRODI

1st Dorsal fin spines

V	VI	VII
3	30	3

2nd Dorsal fin soft rays

11	12	13
15	18	3

Anal fin soft rays

19	20	21	22	23	24
2	1	12	13	6	2

Pectoral fin rays

13	14	15
4	28	4

single row of slightly enlarged teeth directed anteriorly, and inner band composed of 3-4 irregular rows of posteriorly curved teeth; several rows of small, conical teeth on vomer; palatines with a narrow band of similar teeth arranged in a single row.

Scales relatively large, arranged in regular horizontal rows; most of body scales with slightly crenulate margins; predorsal scales extending to posterior portion of interorbital; preopercle scale rows from posterior angle to edge of eye 3 to 4.

First dorsal fin originates opposite base of 1st to 3rd soft anal rays; first dorsal spine 16.0 (14.3-17.7), its length slightly (in females) to distinctly (in males) shorter than longest (usually 3rd or 4th) spine; longest spine of first dorsal fin 19.2 (15.4-21.4), its tip reaching base of spine of second dorsal fin in females, and 2nd to 3rd soft rays in males when depressed. Spine of second dorsal fin 11.1 (15.5-19.0 in females, 10.9-15.0 in males); longest (anteriormost in mature females, posteriormost in males) soft rays of second dorsal fin 14.7 (14.1-15.7); depressed posterior ray of second dorsal fin reaches mid-region of caudal peduncle in females and nearly to caudal fin base in males. Anal fin spine 8.6 (7.5-10.8); longest (about 8th to last) anal rays 14.8 (11.7-15.0). Soft dorsal and anal fins rectangular in outline, the posterior rays somewhat elongate and pointed in males. Pelvic fin tips when depressed reaching base of anal spine in females and extending to base of 1st to 3rd soft anal rays in males; length of pelvic fin 18.9 (15.0-19.3). Pectoral fin pointed, its length 17.5 (16.4-18.2). Caudal fin moderately forked, its length 21.9 (21.4-24.1).

Color in life: similar to that shown in accompanying photograph of freshly collected holotype except yellow fin coloration slightly more brilliant.

Color in alcohol: generally brownish on back and whitish on lower two-thirds of body with dark markings similar to those shown in the photograph of holotype; dorsal and caudal fins dusky; anal fin whitish at base and dusky on distal half; pelvic and pectoral fins mainly translucent. Some paratypes light brown or tan on back with darkly pigmented scale outlines; dark midbody stripe faint or absent on several paratypes.

Comparisons

Of the five known members of the genus, *Chilatherina axelrodi* is most closely related to *C. lorentzi*, which is widely distributed in northern New Guinea, and *C. sentaniensis* in Lake Sentani, Irian Jaya (West New Guinea). These species share a similar body shape, dentition, and general coloration. However, they are separable on the basis of head and snout length, dorsal ray counts, and to a certain extent on the basis of color pattern. *Chilatherina axelrodi* has a consistently shorter head and snout length; its head fits about 4 times in the standard length compared with about 3.2-3.6 for the others. The snout length of *C. axelrodi* is generally about equal to the horizontal eye diameter whereas it is slightly to considerably greater than the eye diameter in the other two species (at least in specimens in excess of about 55 mm SL). The soft ray count for the second dorsal fin of *C. axelrodi* is usually 11 or 12 compared with 9 or 10 (occasionally 11, rarely 12) for *C. sentaniensis* and 13 or more (rarely 12) for *C. lorentzi*. Furthermore, the majority of specimens of *C. axelrodi* possess 6 rays in the first dorsal fin compared with a normal complement of 4 or 5 in *C. lorentzi* and *C. sentaniensis*. The general coloration consisting of a brownish back with white on the lower sides is present in all three species, but *C. axelrodi* differs by usually having a series of 6-10 pronounced bars on the lower side. Similar bars are sometimes evident on the other species, but they are generally very faint and fewer in number. The above comparisons are based on 75 specimens of *C. lorentzi* in the WAM collection and 58 specimens of *C. sentaniensis* from RMNH.

Ecology

The type specimens were collected from a small flowing stream in rainforest habitat about 37 km inland from the coastal town of Vanimo and approximately 14 km due east of the Indonesian border. Most of the types were taken from two relatively large, slow flowing pools measuring about 3 x 10 meters with a maximum depth of 1.5 meters. Although situated in rainforest the stream bed was relatively open and exposed to sunlight, which is typical of *Chilatherina* streams. The water was slightly turbid and a temperature of 25.8°C and pH of 7.8 were recorded.

Dr. Gerald R. Allen seining for rainbowfishes at one of many New Guinea collecting sites.

The gut contents of many of the paratypes indicates a diet consisting primarily of filamentous algae. *Chilatherina axelrodi* was by far the most common fish in the stream which was also inhabited by two other rainbowfishes, *C. crassispinosa* and *Melanotaenia affinis*.

Etymology

The species is named in honor of Dr. Herbert R. Axelrod who generously provided collecting assistance and financial aid during the 1979 expedition to Papua New Guinea.

Chilatherina lorentzi, male, 87 mm standard length, Lake Wanam, Papua New Guinea.

Chilatherina crassispinosa, male, 82 mm standard length, Ramu River, Papua New Guinea.

Chilatherina campsi, male, 55 mm standard length, Wahgi River, Papua New Guinea.

Chilatherina axelrodi, male, holotype, 81.1 mm standard length.

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References

Allen, G.R. (in press)—A generic classification of the rainbowfishes (Melanotaeniidae). *Rec. West. Austral. Mus.*

The author collects specimens of *Chilatherina axelrodi* with a small seine at the type locality near Bewani, Papua New Guinea. →