Chilatherina pricei, a new species of Rainbowfish (Melanotaeniidae) from Irian Jaya

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Abstract

A new species of melanotaeniid, *Chilatherina pricei*, is described on the basis of 23 specimens, 42.5-88.7 mm SL, collected between 1991 and 1995 in the Reifafeif River, near Warironi Village, Yapen Island, Irian Jaya. It is similar to *C. fasciata* of the northern New Guinea mainland, but differs in colouration and has a shorter, blunter snout with the maxillary reaching the level of the eye (falling well short of eye in *C. fasciata*). It is also similar to an undescribed species from the Siriwo region of Irian Jaya, but lacks a prominent midlateral stripe and reddish fins (males), and differs in modal counts of soft anal rays (usually 24-27 in *C. pricei* versus 19-24), and number of cheek scales (usually 19-23 in *pricei* versus 16-18).

Introduction

The melanotaeniid genus *Chilatherina* contains small (to about 10 cm SL), freshwater fishes that inhabit rivers, creeks, and lakes of northern New Guinea. The genus was reviewed by **Allen** (1981), who recognised six species including *C. axelrodi* Allen, *C. campsi* (Whitley), *C. crassispinosa* (Weber), *C. fasciata* (Weber), *C. lorentzi* (Weber), and *C. sentaniensis* (Weber). Two other species, *C. bulolo* (Whitley, see **Allen** 1983) and *C. bleheri* (Allen, 1985), have been added since the publication of that work. The present paper describes a new member of the genus that was collected by the authors in 1991 and 1995 at Yapen Island, off the central north coast of Irian Jaya.

The methods of counting and measuring are as follows: *dorsal and anal rays* - the last ray of the anal and second dorsal fins is frequently divided at the base and counted as a single ray; *lateral scales* - number of scales in horizontal row from upper corner of gill cover to caudal-fin base, excluding the small scales posterior to the hypural junction; *transverse scales* - number of scales in vertical row between anal fin origin and base of first dorsal fin; *predorsal scales* - number of scales along midline of nape in front of first dorsal fin; *cheek scales* - total number of scales covering the suborbital and preoperculum; *standard length (SL)* - measured from the tip of the upper lip to the caudal-fin base; *head length* - measured from the tip of the upper lip to the upper rear edge of the gill opening; *caudal peduncle depth* is the least depth and *caudal peduncle length* is measured between two vertical lines, one passing through the base of the last anal ray and the other through the caudal-fin base.

Counts and measurements that appear in parentheses in the description refer to the range for paratypes if different from the holotype. Type specimens are deposited at the Museum Zoologicum Bogoriense, Bogor, Indonesia (MZB) and the Western Australian Museum, Perth (WAM).

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Chilatherina pricei sp. nov.
(Figs 1-3)

Holotype. MZB 6232, male, 88.7 mm SL, Reifafeif River, about 4 km upstream from Warironi Village, Yapen Island, Irian Jaya (1°51'S, 136°33'E), 0.5-1.5 m depth; rotenone, **G. Allen**, **S. Renyaan**, and **D. Price**, 11 July 1995.

Paratypes. MZB 6233, 10 specimens, 42.5-78.1 mm SL, Reifafeif River, near Warironi Village, Yapen Island, 5-1.5 m depth; seine, **G. Allen** and **D. Price**, 24 May 1991; WAM P.31033-011, 4 specimens, 52.7-79.4 mm SL, Reifafeif River, near Warironi Village, Yapen Island, 0.5-1.5 m depth; seine, **D. Price**, July 1991; WAM P.31034-008, 7 specimens, 58.4-80.7 mm SL, Reifafeif River, near Warironi Village, Yapen Island, 0.5-1.5 m depth; seine, **G. Allen** and **D. Price**, 24 May 1991; WAM P.31041-002, 67.9 mm SL, collected with holotype.

Description

Dorsal rays V-I,14 (IV to VI-I,11 to 15); anal rays I,25 (I,23-28); pectoral rays 15 (12 to 15); pelvic rays I,5; branched caudal rays 15; lateral scales 38 (36 to 39); transverse scales 12 (11 or 12); predorsal scales 20 (17 to 20); cheek scales 22 (17 to 23); gill rakers on first arch 3+ 14 = 17 (2 or 3 + 13 to 15).

Body depth 2.7 (2.6-3.6), head length 3.8 (3.5-3.9), both in SL. Greatest width of body 2.6 (2.3-3.0) in greatest body depth. Snout length 3.1 (2.9-3.5), eye diameter 3.6 (3.1-3.5), interorbital width 2.9 (2.8-3.2), depth of caudal peduncle 2.5 (2.3-2.9), length of caudal peduncle 1.9 (1.7-1.9), all in head length.

Upper jaw slightly protruding; jaws oblique, premaxilla without an abrupt bend between the anterior horizontal portion and lateral part; maxilla ends at level of front border of eye or slightly posterior; upper lip swollen with about 5-8 irregular rows of small conical teeth, mainly embedded outside of mouth, teeth usually narrowing to a single row on posteriormost part of jaw; similar teeth in lower jaw in about 5-10 irregular rows anteriorly, reduced to 1 or 2 rows posteriorly; a few minute, conical teeth on vomer, palatines with narrow row of similar teeth.

Scales relatively large, arranged in regular horizontal rows; scales cycloid or with weakly crenulate margins; predorsal scales extending to posterior half of interorbital; preopercle with 2 or 3 scale rows between its posterior angle and edge of eye.

First dorsal fin originates behind level of anal fin origin, about even with base of second to fourth soft anal ray; longest (third) spine of first dorsal fin in males 1.8 (1.5-2.0) in head length, its depressed tip reaching second or third soft ray of second dorsal fin; longest (third) spine of first dorsal fin in females 2.1-2.6 in head length, its depressed tip reaching spine of second dorsal fin or falling short of this point; longest (anterior in females, posterior in males) rays of second dorsal fin 2.1 (1.6-2.5) in head length, the depressed posterior

rays extending on to basal one-third to one-half of caudal peduncle in females, and posterior one-third of caudal peduncle or nearly to base of caudal fin in males; longest (anterior in females, posterior in males) anal rays 2.1 (2.1-2.3) in head length of males and 2.4-2.8 in head length of females. Pelvic fin tips of males when depressed reaching first or second soft anal ray, length of pelvics 1.7 (1.6-1.9); pelvic fin tips of females when depressed reaching origin of anal fin or slightly beyond, length of pelvics 1.7-2.3 in head length; length of pectoral fins 1.3 (1.3-1.6), of caudal fin 1.2 (1.1-1.3), both in head length. Caudal fin moderately forked.

G. Allen

Fig. 1. - *Chilatherina pricei*, male, about 85 mm SL, Yapen Island, Irian Jaya, photographed in an aquarium.
Chilatherina pricei, mâle, ca 85 mm LS, Yapen Island, Irian Jaya, photographie en aquarium.

G. Allen

Fig. 2. - *Chilatherina pricei*, young male, about 45 mm SL, Yapen Island, Irian Jaya, photographed in an aquarium.
Chilatherina pricei, mâle juvénile, ca 45 mm LS, Yapen Island, Irian Jaya, photographie en aquarium.

Colour in life: overall silvery grey to bluish; scales on back sometimes with golden or yellow margins, wider on upper and lower edge of scale and forming a longitudinal yellow stripe between each scale row; scales on caudal peduncle sometimes entirely golden yellow; about 5-10 dull grey to dark blue bars on lower half of side between level of pelvic fin base and middle of anal fin; some individuals with about 2-6 small dark blue spots on midlateral scale row or on scale row immediately above, on rear half of body; fins mainly translucent bluish, except dorsal and anal fins of mature males often golden yellow.

Colour in alcohol: brown on upper half of body, yellowish tan below; large males (holotype and 80.7 mm paratype) with broad, diffuse blackish stripe along middle of side; most of male specimens with faint hint of 5-10 dark bars on lower half of side; fins whitish or translucent with dusky pigmentation on membranes (particularly on large males).

G. Allen

Fig. 3. - *Chilatherina pricei*, head of young male, about 55 mm SL, Yapen Island, Irian Jaya, photographed in an aquarium..
Chilatherina pricei, tête d'un mâle juvénile, ca 55 mm LS, Yapen Island, Irian Jaya, photographie en aquarium.

Sexual dimorphism: besides the colour difference noted above, males typically become increasingly more deep-bodied with growth. The average body depth as percentage of the SL for two males in excess of 80 mm SL was 37.6, compared with an average of 30.6 for 4 males, 58.1-66.5 mm SL. In contrast, the average body depth of 6 females in excess of 70 mm SL was 32.2, and that of 8 females, 53.5-65.8 mm SL, was 28.8. In addition, the sexes differ in the posterior profile of the second dorsal and anal fins; it is short and blunt in females and more elongate and pointed in males. The first dorsal fin of males is also much longer than in similar-sized females.

Comparisons

Chilatherina pricei is most similar to *C. fasciata*, which is broadly distributed in northern New Guinea between the Markham and Mamberamo river systems and an undescribed *Chilatherina* from the vicinity of Siriwo, Irian Jaya (3°38'S. 136°05'E).

The latter species differs in having reddish median fins (at least in males) and a pronounced dark midlateral stripe, which is either absent or weakly developed in both *C. pricei* and

G. Allen

Fig. 4. - *Chilatherina fasciata*, adult male, about 80 mm SL, Mamberamo River system, photographed in an aquarium.
Chilatherina fasciata, mâle adulte, ca 80 mm LS, système de la Mamberamo River, photographie en aquarium.

G. Allen

Fig. 5. - Near the type locality of *Chilatherina pricei*, Reifafeif River, Yapen Island, Irian Jaya.
Près de la localité type de *Chilatherina pricei*. Reifafeif River, Yapen Island, Irian Jaya.

C. fasicatata. Colouration of these last named species is similar, but *C. fasicata* generally lacks yellow scale edges on the back and males frequently have much more intense dark bars on the lower half of the body (Fig. 4). Besides colour pattern, *C. pricei* differs from the undescribed species in modal counts of soft anal rays (usually 24-27 in *C. pricei* versus 19-24), and number of cheek scales (usually 19-23 in *pricei* versus 16-18). The snouts of both *C. pricei* and the undescribed species are short and blunt in comparison to the elongate, more or less pointed snout of *C. fasciata*. Also, the rear edge of the maxillary in the former two species is about level with the anterior edge of the eye, but falls well short of the eye in *C. fasicata*. The snout and jaw differences are contrasted in Fig. 6.

Habitat

The Reifafeif River habitat (Fig. 5) is typical of numerous streams on Yapen Island, which no doubt are populated by this species. Yapen is a narrow, elongate (approximately 170 km long and up to 25 km wide) island with a central spine of mountains which rise to a maximum elevation of 1500 m. The mountain range is dissected by numerous independent drainage systems, such as the Reifafeif. The streams rise in the steep mountains and plunge to a relatively narrow (3-5 km wide) coastal plain, which is the home of *C. pricei* and most other freshwater fishes on Yapen. The main channel of the Reifafeif River on the coastal plain is approximately 15-30 m wide and in non-flood periods averages about 1-2 m in depth. Water temperatures and pH in July 1995 ranged between 24.2°- 26.4°C and 7.5-8.1. Progressing inland, the river quickly narrows as it approaches the mountains and is characterised by scenic rapids, waterfalls, and deep pools. *Chilatherina pricei* is abundant in the main channel, usually over rock or boulder bottoms. It forms midwater aggregations that feed on algae and small invertebrates, particularly insects. Although the river flows through rainforest and gardens, it is generally open to sunlight over the coastal plain. Another melanotaeniid species, *Melanotaenia japenensis*, is sometimes found with *C. pricei*, but seems to be more common in smaller, shaded tributaries, rather than the main channel.

Table 1
Proportional measurements of selected type specimens of *Chilatherina pricei* expressed as percentage of the standard length

	Holotype MZB 6232 male	Paratype WAM P.31034 -008 male	Paratype MZB 6233 male	Paratype WAM P.31034 -008 female	Paratype WAM P.31034 -008 female	Paratype WAM P.31033 -011 female
Standard length (mm)	88.7	80.7	76.9	74.5	65.8	59.3
Body depth	36.9	38.2	33.0	33.2	30.5	27.5
Body width	14.4	12.6	13.3	13.6	12.2	11.8
Head length	26.5	25.5	25.6	28.2	27.1	27.2
Snout length	8.7	8.2	8.3	9.1	9.3	7.8
Eye diameter	7.4	7.9	7.4	8.9	8.7	8.4
Bony interorbital width	9.0	8.9	8.3	10.1	9.3	8.6
Depth of caudal peduncle	10.5	11.2	10.0	10.1	9.9	9.3
Length of caudal peduncle	13.8	13.9	13.8	15.4	15.7	15.5
Predorsal distance	51.0	51.3	49.9	52.2	48.9	49.9
Preanal distance	49.0	48.1	46.4	52.5	50.8	51.1
Prepelvic distance	37.7	35.9	35.5	39.6	38.0	38.3
2nd dorsal fin base	24.6	24.8	25.0	20.4	21.9	21.4
Anal fin base	44.3	45.6	44.2	39.6	41.5	39.5
Pectoral fin length	21.1	18.8	18.3	19.5	18.2	17.4
Pelvic fin length	15.7	15.5	16.0	15.0	14.0	11.8
Longest ray 1st dorsal fin	14.9	15.5	17.0	12.6	12.6	10.6
Longest ray 2nd dorsal fin	12.5	14.6	16.3	11.4	11.1	12.3
Longest anal ray	12.7	12.4	11.7	10.7	11.2	9.8
Caudal fin length	22.9	22.9	22.1	23.4	22.8	20.2

Table 2
Fin ray counts for type specimens of *Chilatherina pricei*

Spines on 1st Dorsal Fin			Soft Rays - 2nd Dorsal Fin					Pectoral Rays			
IV	V	VI	11	12	13	14	15	12	13	14	15
3	14	6	1	1	9	9	3	1	1	19	2

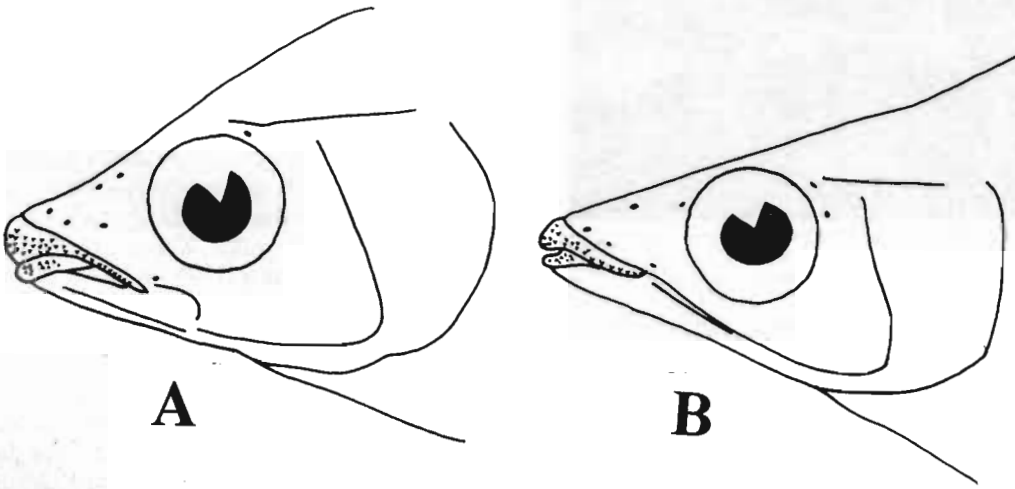

Fig. 6. - Camera lucida drawings of snout region of *Chilatherina pricei*, holotype, 88.7 mm SL (A) and *C. fasciata*, male, 83.0 mm SL (B). Dessins à la chambre claire du museau de *Chilatherina pricei*, holotype, 88,7 mm LS (A) et *C. fasciata*, mâle, 83,0 mm LS (B).

Etymology

Named *pricei* after **David Price**, in recognition of his keen interest in the natural history of New Guinea. He has lived periodically on Yapen Island with his family over the past decade, making valuable collections of fishes and frogs, including type specimens of the new *Chilatherina*.

Acknowledgments

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REFERENCES

Allen (G.R.), 1981.- A revision of the rainbowfish genus *Chilatherina* (Melanotaeniidae). *Rec. West. Aust. Mus.* **9** (3): 279-299.

Allen (G.R.), 1983.- *Chilatherina bulolo*, a valid species of rainbowfish (Melanotaeniidae) from northern New Guinea. *Fishes of Sahul*, **1** (2): 13-17.

Allen (G.R.), 1985.- Three new rainbowfishes (Melanotaeniidae) from Irian Jaya and Papua New Guinea. *Revue fr. Aquariol.* **12** (2): 53-62.

RÉSUMÉ

Chilatherina pricei, une nouvelle espèce de Poisson Arc-en-Ciel (Melanotaeniidae) d'Irian Jaya

Le genre *Chilatherina* renferme de petits (jusqu'à environ 10 cm LS) Poissons d'eau douce qui habitent les cours d'eau et les lacs de la Nouvelle-Guinée septentrionale. Le genre, révisé par **Allen** en 1981, comptait alors six espèces (*axelrodi, campsi, crassispinosa, fasciata, lorentzi, sentaniensis*). Deux autres espèces, *C. bulolo* et *C. bleheri*, y ont été ajoutées en 1983 et 1985.

Une nouvelle espèce a été récoltée par les auteurs de cette note, en 1991 et 1995, à Yapen (Japen) Island, au large de la portion centrale de la côte nord d'Irian Jaya. Nommée *C. pricei* sp.n., elle est décrite d'après 23 spécimens de 42,5-88 mm LS, récoltés dans la rivière Reifafeif, près du village de Waironi.

Elle est semblable à *C. fasciata*, de Nouvelle-Guinée septentrionale, mais s'en distingue par la couleur et un museau plus court et tronqué, avec le maxillaire atteignant le niveau de l'œil (se terminant bien en avant chez *C. fasciata*). Elle est aussi semblable à une espèce non encore décrite de la région de Siriwo, Irian Jaya, mais il lui manque une bande médiolatérale remarquable et des nageoires rougeâtres (mâles) ; elle en diffère aussi par les comptes des rayons de l'anale (24-27 chez *pricei* vs 19-24) et le nombre des écailles des joues (19-23 chez *pricei* vs 16-18).

Le biotope de la rivière Reifafeif est typique de nombreux cours d'eau de l'île qui sont sans doute peuplés par *C. pricei* : ils prennent leur source dans des montagnes escarpées et plongent vers une plaine côtière relativement étroite (3 à 5 km) qui est la patrie de *C. pricei* et de beaucoup d'autres espèces. Dans la plaine, le lit principal de la rivière Reifafeif est large d'environ 15 à 30 m et d'une profondeur moyenne de 1-2 m, hors des crues. Température et pH de l'eau en juillet 1995 : 24,2-26,4 °C et 7,5-8,1. *C. pricei* est abondante, en général au-dessus de rochers ou de galets où elle forme des bancs en pleine eau se nourrissant d'Algues et surtout d'Insectes. *Melanotaenia japenensis* se trouve quelquefois avec *C. pricei*, mais semble plus commun dans les petits affluents.