Chilatherina sentaniensis, how to recognize the real species?

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Revised and supplemented English version

After my presentation at the annual 2007 IRG convention in Harrislee, Germany I was asked for explanations on how to recognize the “real” Chilatherina sentaniensis.

This article presents the criteria to distinguish the several different Chilatherina strains under this name in the hobby. C. sentaniensis was described in 1908 by Weber and was confirmed by Allen in his Revision of the Genus Chilatherina in 1981.

The only known and confirmed collection place is the so-called “Carwash Creek” (in Indonesian “Jembatan Dua”, that means “second bridge”) flowing down from the Cyclops Mountains and entering Lake Sentani. In past times Chilatherina from the estuary part of Carwash Creek were misidentified as C. sentaniensis and kept in the hobby for many years. The fact is though that this is a lake-dwelling form of C. fasciata, which should be called C. fasciata “Lake Sentani”. This strain came into the hobby in the 1980’s via the Zoo of Antwerp and IRG-member Gilbert Maebe and was kept pure-blooded in the hobby. These are wonderful, high-bodied fishes with wine-red and blue color shades (Picture 1). Moreover under this name are other fishes in the hobby looking clearly different and showing colors in pink shades (Picture 2). This strain is kept in Europe and North America. Furthermore, by a lucky chance in spring 2007 I came along a third strain offered to my under the name C. sentaniensis (Picture 3). Those fishes are different from the other strains in body shape and color. In particular, they are way more slender. Males show shining red body sides. This leads to the question, which one of these strains, if at all, complies with the description of C. sentaniensis.

Picture 1: Chilatherina fasciata “Lake Sentani”. Photo: Graf

Picture 2: Chilatherina sentaniensis “USA”. Photo: Graf

Picture 3: This is the real Chilatherina sentaniensis. Photo: Graf

The description criteria for C. sentaniensis are according to Allen (1981) two features: Ten soft rays in the second dorsal fin versus 12 – 14 (up to 16) for C. fasciata. A longer snout (2.5 to 2.9 times in the head length) versus 3.0 – 3.5 times for C. fasciata.

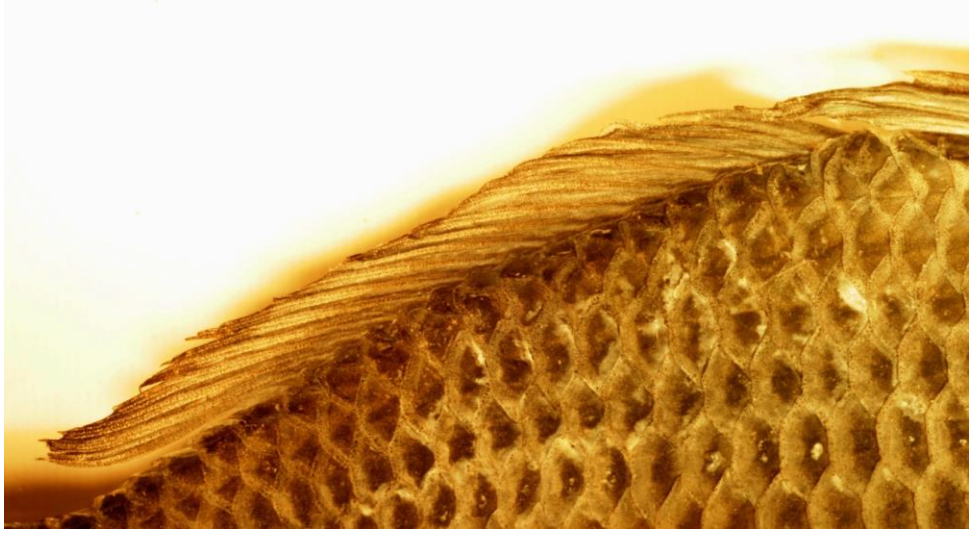
1. Number of soft rays in the second dorsal fin

   For the counting I prepared ethanol samples of all three strains and counted the rays under a macro lens. The first, thick ray doesn´t count.

The results are presented in Table 1:

Table 1	Number of soft rays in the second dorsal fin
C. fasciata “Lake Sentani” (Picture 1 and 4)	16
C. sentaniensis (Picture 2 and 5)	12
C. sentaniensis (Picture 3 and 6)	9

Result: only the specimen from Picture 3 show the typical number of soft rays in the second dorsal ray for C. sentaniensis.



Picture 4: Second dorsal fin of Chilatherina fasciata “Lake Sentani”. Photo: Graf

Picture 5: Second dorsal fin of Chilatherina sentaniensis “USA”. Photo: Graf

Picture 6: Second dorsal fin of Chilatherina sentaniensis. Photo: Graf

2. Calculation of the head-snout relation

This is a calculated value which is calculated using the length of the snout (sl), measured from the tip of the upper lip until the beginning of the eyeball, and the length of the head, measured from the tip of the upper lip until the rear end of the gill cover, both expressed in % of the standard length (SL). This value is 3.0 – 3.5 for C. fasciata and 2.5 – 2.9 for C. sentaniensis (Allen 1981).

The measurements taken from the samples mentioned under No. 1 are presented in Table 2 and compared with the average values of wild-caught specimen shown in Allen (1981).

Table 2	sl (% of SL)	hl (% of SL)	**Relation**
C. fasciata "Lake Sentani" (Picture 1)	6.25	23.75	**3.80**
C. sentaniensis (Picture 2)	7.63	25.42	**3.33**
C. sentaniensis (Picture 3)	9.09	24.68	**2.71**
C. sentaniensis (Allen 1981)	10.40	28.80	**2.77**
C. fasciata (Allen 1981)	7.45	25.35	**3.40**

Result: Only the specimen shown in Picture 3 show the typical head-snout relation for C. sentaniensis.

3. Conclusion

Under the name Chilatherina sentaniensis are at least three different strains in the hobby. The specimen shown on Picture 1 are clearly members of the species C. fasciata. Picture 7 shows a

wild-caught specimen from the estuary section of Carwash Creek into Lake Sentani. This matches perfectly with the pictures of the strain which is in the hobby for more than 30 years.

Picture 7: Chilatherina fasciata from estuary section of Carwash Creek. Photo: Lange

The specimen shown on Picture 2 are clearly not C. sentaniensis. Although regarding the smaller number of soft rays in the second dorsal fin there is reason to doubt that those are meeting C. fasciata. Additional counts of the horizontal scale rows show, that these specimen show 14 – 15 scale rows. C. sentaniensis shows only 11 – 13 horizontal scale rows. C. bleheri however shows 14 – 16 scale rows (Allen 1985). Furthermore, the pink coloration of male specimens is obvious and typical for C. bleheri. The number of soft rays in the second dorsal fin of those fishes is 12. This is too many for C. sentaniensis (10), but not enough for C. fasciata (12 – 14) and C. bleheri (11 – 16).

So there is a reasonable suspicion that those fishes are hybrids between C. sentaniensis and C. bleheri. This presumption is supported by genetic analysis carried out by Dr. Peter Unmack (pers. comm.). His results place these fishes close to C. bleheri.

It is a positive aspect that we have “real” C. sentaniensis in the hobby (Picture 3). Those fishes comply with all criteria for the identification of this species. The red body color of the males is somewhat surprising, because it is not mentioned in any literature. However Picture 8 (Photo: G. Allen) shows a wild caught (and possibly rotenone poisoned) specimen of C. sentaniensis showing faint orange colored scale margins matching approximately with the red color of Aquarium specimens. It is possible that selective breeding plays an additional role.

Picture 8: Chilatherina sentaniensis wild caught. Photo: Allen

Breeding C. sentaniensis is not a major problem, therefore we can hope that we will have a good captive population in the hobby. Yet, it remains mysterious how this strain came to Europe.

The captive population is even more important as C. sentaniensis seems to be extinct in nature. Several searches in Carwash Creek carried out by the author and others could not find this species anymore. This is as a result of a gold mine in the upper reaches of Carwash Creek poisoning the whole stream. No other habitat of C. sentaniensis has been found to date. The author and Dan Dority carried out an extensive search around the southern side of Lake Sentani, inspecting every creek entering the lake, to no avail. Kadarusman posted a poster with several collection places around Lake Sentani claiming the re-discovery of C. sentaniensis. In my opinion the pictures added to this poster show only C. fasciata, in particular females, because all fishes show too many rays in the second dorsal fin.

Literature:

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

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