



## ERRATUM to V23-2

The illustration of the two featured species in the Article '*Glossolepis* from northern New Guinea' by Johannes Graf & Henni Ohee in *Fishes of Sahul* V23-2 were wrongly captioned.

In all the captions the names were swapped between the two species.

"*Glossolepis multisquamata* form *kabia*" should read "*Glossolepis multisquamata*".

"*Glossolepis multisquamata*" should read "*Glossolepis kabia*".

The species can be distinguished as follows: the basically red coloured ones from the Mamberamo system are *G. multisquamata* (formerly called "Red Eye Tiger" or "Lake Kli"), the green coloured ones from the Sepik or Ramu system (eg "Paro Village") are *Glossolepis kabia*. Both are shown below.



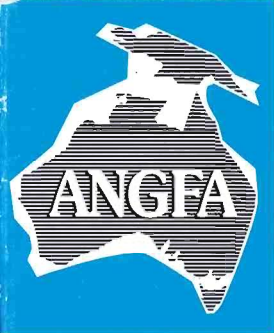
*Glossolepis multisquamata*

J.G.

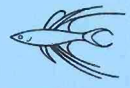


*Glossolepis kabia*

G.A.



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*Corrected Version*



*Glossolepis multisquamata*                      Pagai, West Papua, northern New Guinea.                      J.G.



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The still waters in Faowi Lake of the Mamberamo River system.

G.L.

## GLOSSOLEPIS FROM NORTHERN NEW GUINEA

'The *Glossolepis* from the Mamberamo River, Sepik River and Ramu River and possible recognition of *Glossolepis kabia* (Herre)'

Johannes Graf\* & Hendrite L. Ohee\*\*

### Abstract

*Glossolepis* samples from the Mamberamo, Sepik and Ramu River in New Guinea are compared. It is concluded that the *Glossolepis* from the Mamberamo River are *Glossolepis multisquamata* (Weber & de Beaufort). The *Glossolepis* from Ramu and Sepik Rivers hitherto considered as the same (not affecting the taxa *G. ramuensis* and *G. maculosus*) are possibly a distinct species. For those the taxon *Melanotaenia kabia* Herre, 1935 would be applicable and assigned to the genus *Glossolepis*, as the taxon *Glossolepis kabia* (Herre, 1935).

### Introduction

As currently recognised, *Glossolepis multisquamata* (Weber & de Beaufort) occurs in the Mamberamo, Sepik and Ramu River systems in northern New Guinea. *G. multisquamata* was originally described as *Melanotaenia multisquamata* by Weber & de Beaufort in 1922, based on samples collected at various locations in the Idenburg River (now called Taritatu, a Mamberamo River affluent).

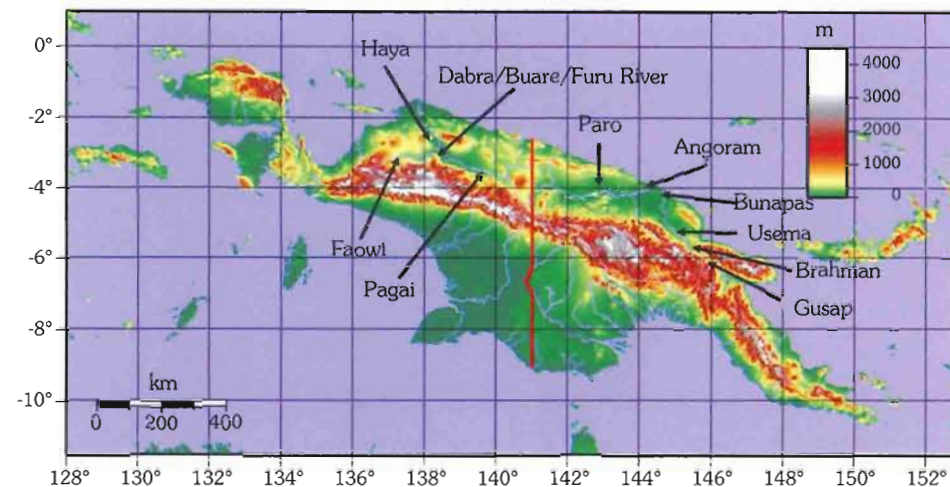


Fig. 1: Map of locations where *Glossolepis multisquamata* has been found in New Guinea.

In 1967 Munro transferred *Melanotaenia multisquamata* to the genus *Nematocentris* and synonymised *Melanotaenia kabia* and *M. rosacea* with it, which were described by Herre, 1935, based on samples from the Sepik River. Allen & Kailola, 1979, subsequently assigned the taxon to *Glossolepis*. In his generic classification of the family of rainbowfishes, Allen, 1980, followed this change, but incorrectly treated the gender of the genus as masculine. As the genus ends with "lepis", it is feminine. His spelling as *G. multisquamatus* was corrected back to the original *G. multisquamata* (Eschmeyer, 2008).

### Mamberamo River basin distribution

In the past years *Glossolepis multisquamata* has been found in at least six places in the Mamberamo River basin, which are listed below.

1. Faowi Lake, upper Tariku River, by Graf, Dority & Lange in August 2008.  
The collection site was a small, silty lake with still blackwater, situated in swamp forest out of the floodplain area of the main river, which was in about 2–3 km distance. The lake appeared to have been overgrown by plants for a very long time and accessing the open water required to walk over the solid plant material layer for about 300 metres. *Glossolepis multisquamata* was the only fish species found in this lake.
2. Pagai, middle Taritatu River, by Graf, Dority & Lange in August 2008.  
The collection site was an oxbow lake with clay bottom and still, turbid water. This site appeared to be in the floodplain area of occasional high water levels of the main river. Water levels vary very much in this area. During our visit the level of the main river rose about six metres overnight without local rainfall, and obviously the high rainfalls in the mountains led to the increasing water levels. *Glossolepis multisquamata* was found with *Melanotaenia praecox* and *Oreochromis mossambicus* (Tilapia). ...





*Glossolepis kabia*. Sepik River, Papua New Guinea. Length 82 mm SL. G.A.

3. Haya (Haya Lake), Van Rees Mountains, March 2008 by H. L. Ohee  
The collection site was a still, blackwater lake with dense riparian vegetation.
4. Lake Kli close to Dabra, Bleher 1994.  
The collection site was described as a lake, and accessible from the river by boat. The water temperature measured 29.5 °C (as detailed by Bleher).
5. Buare Lakes (central Mamberamo) in March 2008 by H. L. Ohee.  
**a/** Rogutrewelij Lake was small, 15–20 m wide and 1.0–1.3 m deep in dry season. It could rise to more than 1.5 m in depth during the rainy season. It had still, turbid water, a mud bottom and an open forest cover. Elevation 60 m above sea level. The water temperature measured 34°C.  
**b/** Sijfufe Lake was small, 10–15 m wide and 1.0–1.2 m deep, with turbid water and a mud bottom. An open scrub-forest, elevation 53 m above sea level. The water temperature measured 35°C.  
**c/** Kurekruwa Lake was small, 5.0–7.0 m wide and less than 1.5 m deep, with still turbid water and a mud bottom. An open scrub-forest, elevation 52 m above sea level. The water temperature measured 30°C.  
**d/** Kubai Lake is small, 5.0–7.0 m wide and 1.0–1.8 m deep, with still, turbid water and a mud bottom. An open scrub-forest, elevation 53 m above sea level. The water temperature measured 35°C.



*Glossolepis kabia*. Sepik River, Papua New Guinea. G.A.

6. Buare Lagoon & Furu River, G. Allen, P. Boli, & O. Foisa, September 2000; Richards & Suryadi, 2002.  
**a/** Buare Lagoon, situated approximately 8 km east of Dabra. Small, 1.5–5.0 m wide, to 1 m deep, and a slow flowing turbid channel, with soft mud bottom, through open-scrub forest draining Oxbow Lake. Water temperature measured 33.1°C.  
**b/** Furu River collection first site is best described as a canoe landing area about 500 m upstream from the junction with the Idenburg River, approximately 3 km east of Dabra. A small, slightly turbid stream (average width 4 m and depth 4 cm, with pools to 1.6 m deep), with a moderate to slow flow through open forest with canopy regrowing since logging. A second site, about 100 m downstream from Furu Camp, approximately 4 km southeast of Dabra consisted of a small, clear pool (4–5 m in diameter and to 1.8 m deep) at the base of a 1 m high cascade with a moderately fast flowing stream over rock and sand bottom with log debris through a closed canopy of rainforest.

The collections of *Glossolepis multisquamata* in the Mamberamo basin listed above indicate a widespread distribution in this system. Collection sites in Dabra, Buare and Furu River are in close vicinity to each other, but those in Faowi, Haya and Pagai represent the entire central Mamberamo basin. This species was common in its typically preferred habitats, which appear to be the mainly slow-flowing to still lakes and backwaters (oxbow lakes and cut-off arms of the main river channel) in the lowlands. At this stage it has not been recorded from the feeder creeks at higher elevations and the lower freshwater reaches. ...



### *Glossolepis* from northern New Guinea



*Glossolepis kabia* . Ramu River, Papua New Guinea.

G.A.

#### **Sepik and Ramu River basins distribution.**

Sepik River specimens assigned to *Glossolepis multisquamata* were collected in February 2002 from Paro Village, close to Pagwi, by Kent Webster of Los Angeles, USA, and are being kept by aquarists. The collection site was a small, slow flowing blackwater creek. Allen, 1981 recorded *G. multisquamata* from Angoram, situated on the lower Sepik River, and further records are provided in Allen & Coates, 1990. *G. multisquamata* was recorded from eight different collection sites at the lower, middle and upper Sepik River. A picture of a specimen from Chambri Lake (290 km from river mouth) was shown. Habitats were given as lakes, oxbow lakes or creeks with slow-flowing or still water. The authors describe this species to be "incredibly abundant".

Allen, 1991 reported *Glossolepis multisquamata* to be abundant in backwaters of the Ramu River. During his expedition, this species could be easily netted in the appropriate habitats in the hundreds. This *Glossolepis* was recorded from several sites along the main river channel, specifically at Bunapas (40 km upstream), Usema (420 km upstream) and Gusap (530 km upstream). More records are in Allen *et al.*, 1992. *Glossolepis multisquamata* was found at several places around Brahman Mission Station, in small creeks and swamps, and along the Brahman-Ramu River road, approximately 430 km from the river mouth. The collections demonstrate that *G. multisquamata* ranges from the lower freshwater-reaches to more than 500 km upstream, where they were most commonly found in floodplain lakes, oxbow lakes and slow flowing blackwater creeks.



*Glossolepis kabia* . Ramu River, Papua New Guinea.

G.A.

#### **Comparisons of populations from the different river systems**

*Glossolepis multisquamata* from the Mamberamo River region is a stunning fish in which adult males have a massively elongated anal fin comparable to that in male *G. wanamensis*. One key difference though is that the anal fin in Mamberamo fish tends to have a ragged appearance, which seems to be a unique feature among rainbowfishes. This characteristic is another major distinction to *G. leggetti* from the Tiawiwa River which is thought to be the closest relative to *G. multisquamata* (Allen & Renyaan, 1998). The second dorsal fin of Mamberamo fish is elongated as well and shows the same ragged appearance, and another major difference to *G. wanamensis* and Sepik/Ramu *G. multisquamata* is their colouration. Male Mamberamo fish have intense red lines that run along the length of the fish between the scale rows (similar to the coloured lines found in *G. doryti*), and the median fins are strongly pigmented with black and red. Another unique characteristic is the red eye colouration of male Mamberamo fishes, which led to the common name "Red Eye Tiger".

*Glossolepis multisquamata* individuals from the Sepik/Ramu rivers have an anal fin of the length which is typically like those of most other rainbowfish species and never have a ragged appearance. This form rarely has any strong red colouration anywhere on its body or fins, but shows green and blue shades with yellow to orange longitudinal lines, but never real red. A few individuals may show reddish colouring on fin margins and on belly, but these are exceptional (Webster pers. comm.). Although there are slight differences in the shape of the anal fin of adult males, which is convex for specimens from the Sepik River and more or less linear ...





*Glossolepis multisquamata*, Buare Lake, northern New Guinea. J.G..

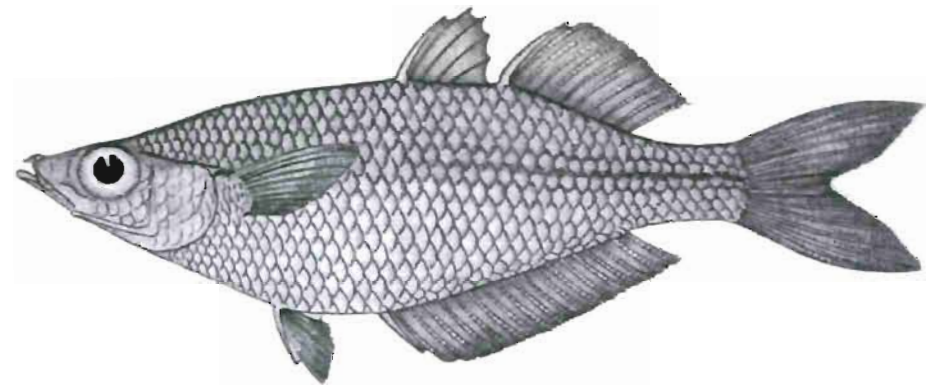
for those from the Ramu River, based on current knowledge it appears that the populations of *Glossolepis multisquamata* from the Sepik and Ramu Rivers are very similar. Both rivers share the same floodplain during seasons of high waters (Allen & Coates, 1990, Allen *et al.*, 1992), which would provide the opportunities for populations to mix.

Male *Glossolepis wanamensis* show a somewhat intermediate appearance between the Mamberamo and Sepik/Ramu populations of *Glossolepis multisquamata*, having elongated anal and second dorsal fins like the Mamberamo populations (but not ragged), and colouration that is very similar to the Ramu/Sepik populations.

As in many rainbowfish species, female *Glossolepis* of the Mamberamo and Sepik/Ramu River populations are almost indistinguishable. In contrast to those from the Mamberamo, female specimens from the Paro Village (Sepik River) population show light blue-green coloured scales on the upper half of the body. It is not yet clear if this is a constant characteristic for females from all Ramu/Sepik River populations.

The original description of *Glossolepis multisquamata* by Weber & Beaufort (1922) is based on samples from the Idenburg River (now called Taritatu), which is part of the Mamberamo system. The second dorsal and the anal fin rays are described as follows: "Second dorsal and especially anal very high, the longest rays of anal as long as head, often much longer and equal as height of body." (Weber, 1922). The Weber description closely matches the *Glossolepis multisquamata* found at six different locations spread over the whole Mamberamo drainage.

Herre (1935) described *Melanotania rosacea* and *Melanotania kabia* based on samples from Nyaurangai, Sepik River (300 km from the sea), and Koragu, Kerame River (350 km from the sea). Both species undoubtedly are *Glossolepis*, based on the crenulated margins of the scales, overhanging premaxillary and the drawing of a specimen of *Melanotania kabia* in Herre



Herre's 1936 Figure 46 of *Melanotania kabia*, Sepik River and Kerame River, New Guinea.

(1936). For *Melanotania kabia* the fins are described by Herre as follows: "The dorsal and anal rays are low, the last ray of the second dorsal about twice in the head, the first dorsal and anal a little higher, 1.33 to 1.5 times in the head". For *Melanotania rosacea*, the description is as follows: "The dorsal and anal rays are low, about twice in the head". Both descriptions match *Glossolepis multisquamata* from the Sepik and Ramu River systems, but not those from the Mamberamo River. Herre (1935) also remarked: "This species is close to *Melanotania multisquamata* Weber & Beaufort, but differs in several particulars".

Reading the Herre descriptions from 1935 and 1936 with today's knowledge, it is obvious that he described females as *Melanotania kabia* and males as *Melanotania rosacea*. The values for the body depth (2.45–2.7 for "*M. kabia*", 3.0–3.2 for "*Melanotania rosacea*") are a strong indication for this conclusion, as adult male *Glossolepis* typically have a much greater body depth than females. The samples for both species came from the same locations. Furthermore, Herre (1936) contains a drawing of *Melanotania kabia* that clearly shows a female *Glossolepis* (see illustration above).

Further support that these populations represent different species comes from genetic studies within the family Melanotaeniidae currently in progress by Drs. P. Unmack & G.R. Allen. Preliminary results indicate that the Mamberamo and Sepik/Ramu populations are distinct based on the mitochondrial cytochrome b gene, with around 2% sequence divergence, a value that is similar to those between other rainbowfish species (Unmack, pers. comm.).

### Conclusion

*Glossolepis multisquamata* was described based on samples from the Mamberamo basin. Therefore the name "*multisquamata*" should refer to populations from that region. Weber's (1922) description of the second dorsal and anal fin rays reinforces the identity of this form, matching those samples from the Mamberamo basin.

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... *Glossolepis* from northern New Guinea



## ... *Glossolepis* from northern New Guinea

Female and male *Glossolepis* from the Sepik River were first described as two different species by Herre (1935) as *Melanotaenia kabia* and *Melanotaenia rosacea* respectively. Based on the evidence presented above, it seems likely that the Sepik & Ramu River populations represent a separate species. In this case, the name *Glossolepis kabia* (Herre) would be applicable. *Melanotaenia kabia* was described first (p. 397) in Herre's publication, followed by *Melanotaenia rosacea* (p. 398). This gives priority to *Melanotaenia kabia*, renamed to *Glossolepis kabia*. *Melanotaenia rosacea* would be regarded as a junior synonym.

### Etymology

*Glossolepis*: Greek, "glossa" = "tongue" + Greek, "lepis" = "scale", which is in reference to the crenulated margins of the scales.

*multisquamata*: Latin, = "with many scales"

*kabia*: "Kabi" is, according to Herre (1935), the name of the native people living at Koragu, from where the type specimens of *Glossolepis kabia* came.

### Acknowledgements

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