

# A redescription of *Haplochromis labriformis* (Nichols & LaMonte, 1938)

M.J.P. van Oijen & F. Witte

Oijen, M.J.P. van & F. Witte. A redescription of *Haplochromis labriformis* (Nichols & LaMonte, 1938). Zool. Med. 77 (29), 30.xii.2003: 473-479, figs 1-4.— ISSN 0024-0672.

M.J.P. van Oijen, Afdeling Vertebraten (Pisces), Nationaal Natuurhistorisch Museum, Leiden, PO Box 9517, 2300 RA Leiden, The Netherlands (e-mail: oijen@naturalis.nnm.nl).

F. Witte, Institute of Biology, Leiden University, P.O. Box 9516, 2300 RA, Leiden, The Netherlands (e-mail: witte@rulsfb.leidenuniv.nl).

Key words: Cichlidae: *Haplochromis labriformis*: redescription: Lake Victoria.

The single cichlid fish from Lake Victoria on which Nichols & LaMonte (1938) based their new species *Tilapia labriformis* was re-examined. It turned out to be a haplochromine cichlid. The specimen is redescribed and compared to similar species from Lake Victoria.

## Introduction

In 1938 J.T. Nichols and F.R. LaMonte described two new species from a small collection of fishes from Lake Victoria that was sent to the American Museum of Natural History in 1937. The collection was made by Michael Lerner. Nothing is known about the catch locality, the catch date or the fishing technique. One of the described species, a characid, *Micralestes lernerii*, was later found to be a synonym of *Alestes sadleri* Boulenger, 1906 (Greenwood, 1959). The other species was a cichlid, which Nichols & LaMonte described as a species of *Tilapia*. However, this specimen has ctenoid scales on the flank (a character mentioned in the description by Nichols & LaMonte), whereas tilapiines have cycloid scales (Trewavas, 1981). Further it lacks foramina on the ventral surface of the lower pharyngeal bone as well as a median ridge of bone at the dorsal keel of the lower pharyngeal bone (tilapiine characters defined by Stiassny, 1991). Therefore, it is not a tilapiine but a haplochromine cichlid. The species is neither mentioned in Greenwood's revisions of the Lake Victoria *Haplochromis* species (many papers in Greenwood, 1981), nor in his papers on the phyletic classification of the 'genus' *Haplochromis* (Greenwood, 1979, 1980). As both the description and the accompanying drawing are not accurate and contain mistakes, the species is redescribed here in order to facilitate a comparison with other haplochromine species from Lake Victoria.

Definitions follow Barel et al. (1977) and Witte & Witte-Maas (1981).

## Description

*Haplochromis labriformis* (Nichols & LaMonte, 1938)  
(figs 1-4, table 1)

*Tilapia labriformis* Nichols & LaMonte, 1938: 2.

*Haplochromis labriformis*; van Oijen et al., 1991: 135; Eschmeyer, 1998: 856.

*Tilapia labriformis*; van Oijen, 1996: 76.

Material.— Holotype, AMNH 13738, a male, 62.0 mm SL, collected from Lake Victoria by M. Lerner in 1937.

Diagnosis.— A small, moderately slender micrognathic species, with unequally bicuspid teeth, a single inner row in both jaws, and the caudal third part of the premaxilla edentulous. Body of the preserved specimen uniformly light brown, without markings.

State of preservation (fig. 1). The specimen has the suspensoria abducted and the mouth wide open. Both pectoral fins are folded forward and some rays of the pectoral fin on the right side are damaged. In the dorsal half of the caudal fin the caudal quarter of rays is broken off. The gill apparatus has been cut to dissect the lower pharyngeal element, which was found inserted below the branchial basket. The symphysis of the lower jaw is disconnected and a rostral section of the left premaxilla is only loosely attached to the remainder of the bone.

Habitus (figs 1, 2).— General body shape moderately slender. Caudal peduncle relatively broad. Dorsal head profile nearly straight. Premaxillary pedicel prominence not visible. Snout acuteness not measurable. Gape inclination not measurable. Premaxilla not expanded medially. Maxillary extension not measurable. Lips not thickened. Lateral snout outline not measurable. Because of the widely opened mouth the mental prominence is not visible, but inspection of the mental area shows there is a protuberance on the ventral side of the symphysis of the dentary. Horizontal limb of preoperculum rostrally inclining dorsad. Vertical limb dorsally inclining caudad. Cephalic lateral line openings not enlarged. Lateral line canals on lachrymal not well visible. Eye moderately large, circular. Dorsal eye margin nearly touching dorsal head profile. Pupil slightly elliptical. A small aphakic space anterior to the lens.

Fins.— Pectoral fin with fourteen rays. The longest ray on the left side just reaches the vertical through the anal fin origin. First pelvic ray reaching the origin of the third anal spine. Anal fin with three spines and nine rays. Dorsal fin with fifteen spines and ten rays. Tips of dorsal and anal not reaching a vertical through the caudal fin base. Caudal fin with 22 rays. The posterior margin of the dorsal part of the fin is damaged. Judging from the ventral half of the fin margin, the outline was slightly emarginate.



Fig. 1. *Haplochromis labriformus* (Nichols & LaMonte, 1938). Holotype, AMNH 13738, left lateral view. Scale equals 10 mm.

As lunate caudal fins are unknown for the haplochromine cichlids of Lake Victoria, the convexity of the caudal margin in the figure of Nichols & LaMonte (1938) (see fig. 3) probably was exaggerated.

**Scales.**— Scales on cheek, gill cover and nuchal area cycloid. On nape and dorsum the scales are cycloid up to below the sixth dorsal spine where they become weakly ctenoid. From below the tenth spine the scales are fully ctenoid. Flank, chest, belly and caudal peduncle with ctenoid scales. Chest scales smaller than scales on belly and flank, size transition gradual. Caudal fin with single rows of small, elongate ctenoid scales between the rays of the basal fourth part. More caudally, a few isolated small ctenoid scales are present between some of the dorsal and ventral rays. There are 32 lateral line scales, five scales between the lateral line and the dorsal fin origin, five scales between the pectoral and the pelvic fin bases and three horizontal scale rows on the cheek.

**Gill-apparatus.**— There are 14 gill rakers on the lower part of the first gill arch on the left side; the lowermost three reduced, the following one short and the following nine slender and conical. The tip of the 13th raker is slightly expanded tending to bifid. The gill rakers are relatively widely spaced, their tips not touching each other. There are ca 96 gill filaments on the first hemibranch on the left side.

**Oral teeth.**— Shape (fig. 4). Outer row teeth are relatively short, broad, slightly curved, subequally bicuspid. The major cusp is subequilateral and has a small flange near the cusp gap. Cusp gap narrow. Minor cusp blunt. In lateral view the neck is moderately slender and the crown expanded. In lateral view neck normal, crown compressed at the tip. Some lateral teeth may be weakly bicuspid or have the minor cusp broken off. Tooth size decreases caudad. Inner row teeth are very small, weakly tricuspid or tricuspid.

— **Dental arcade and tooth band.** Dental arcade rounded and U-shaped. The caudal third of the premaxilla is edentulous. There is one inner row in the upper jaw and one inner row in the lower jaw. The inner row in the lower jaw is slightly irregular.

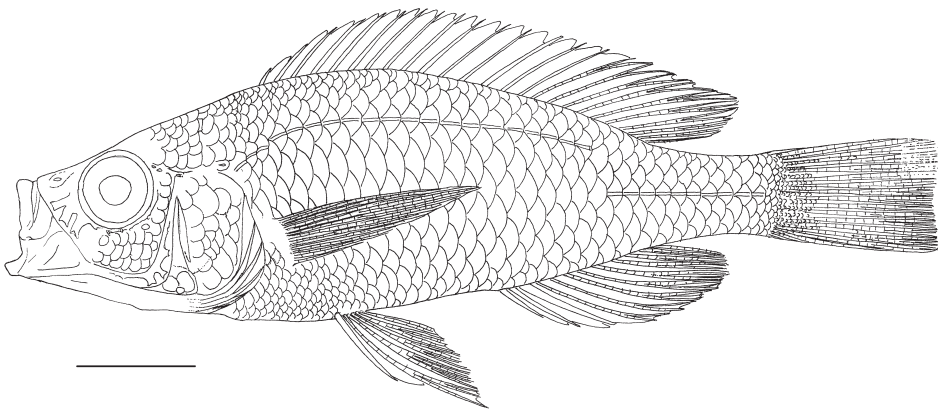


Fig. 2. *Haplochromis labriformis* (Nichols & LaMonte, 1938). Holotype, AMNH 13738. Habitus, left lateral view. Scale equals 10 mm. Drawing by M. van Oijen.

— Counts and setting. There are 14 (left)+17 (right) = 31 teeth in the outer row of the upper jaw and 16 (left)+15 (right) = 31 teeth in the outer row of the lower jaw. Outer teeth in both jaws regularly set at a distance of  $1/4$ - $3/4$  times the diameter of the tooth base. Gap between outer row and inner row distinct in both jaws. Outer row in lower jaw just not reaching the base of the coronoid wing.

— Implantation. Outer teeth in upper jaw erect, slightly symphysiad inclined. Inner row teeth in upper jaw slightly recumbent. Outer teeth in lower jaw slightly procumbent, slightly symphysiad inclined. Inner row teeth in lower jaw erect.

Pharyngeal teeth.— Counts. There are 40 teeth in the caudalmost row and 12 and 13 in the medial series.

— Shape. Most pharyngeal teeth are of the bevelled type, fine and acutely pointed. There are a few teeth of the pronounced type in the rostral area. The teeth in the caudalmost row are relatively stout and blunt, of the hooked type. However, the major cusp is only slightly curved. Tooth size increases from rostral to caudal and from lateral to medial.

#### Osteology.

— Neurocranium. Judging from an X-ray photograph, the neurocranium of *H. labriformis* is very similar to that of *H. laparogramma* (Greenwood & Gee, 1969; fig. 18)

— Oral jaws. Premaxilla; dentigerous arm shorter than ascending arm. Ventral outline of the dentigerous arm nearly straight. Mandible slender. Length/ depth ratio 2.3. Length of the tooth bearing part is  $1/3$  of the jaw length. (Measurements taken from X-ray photograph).

— Lower pharyngeal element. Lower pharyngeal element rather shallow, slightly longer than broad. Dentigerous area slightly broader than long.

— Vertebrae. There are 30 vertebrae, comprising 13 abdominal and 17 caudal elements.

Viscera.— No information is available on the configuration of the intestines.

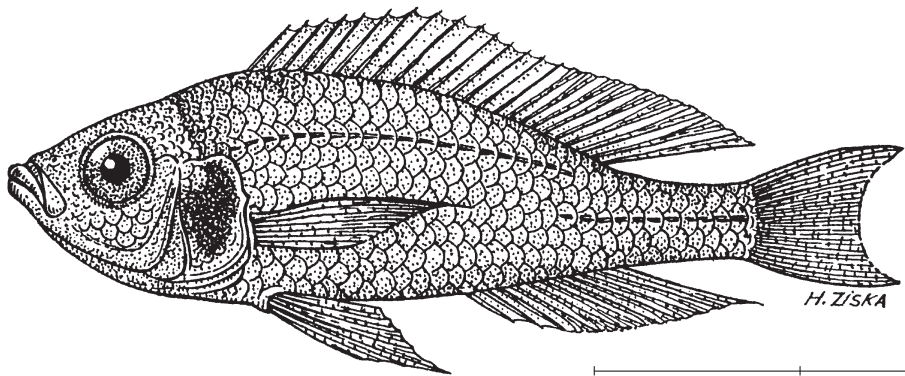


Fig. 3. *Haplochromis labriformis* (Nichols & LaMonte, 1938). Holotype, AMNH 13738. Habitus, from Nichols & LaMonte (1938).

Gonads.— The testis of the specimen are in an advanced stage of development (stage IV, see Mous et al., 1995: 74). Males with testis in this stage of development normally have the pelvic fins blackish. In this specimen there are only few traces of pigment cells on the membrane between the first and second ray.

Colouration.— There are no data available on the live colouration of the specimen. — Preserved colouration. The specimen is uniformly light brownish except for faint remains of an opercular blotch.

Distribution.— *H. labriformis* is only known from Lake Victoria.

Catch locality.— Apparently the only information accompanying the specimen when it was presented to the American Museum of Natural History was that it was caught in Lake Victoria.

### Remarks on the original drawing

In the original drawing (fig. 3) the mouth is closed, the premaxilla is slightly protruded, the mouth bottom is depressed and the branchiostechal rays seem abducted. As at present (figs 1, 2) the specimen has the mouth wide open, the suspensoria abducted and the premaxillae maximally protruded, it is likely that the mouth was artificially closed for the first drawing. Therefore, the shape of the rostral part of the head, including the gape inclination and the snout acuteness in that drawing are artificial. There are more inaccuracies in the original drawing. The convexity of the caudal margin of the caudal fin is exaggerated: in reality it is not lunate, but emarginate. The tips of the dorsal and anal fins do not reach the caudal fin origin. The length and shape of various fin spines and rays are inaccurate. The number of pectoral, dorsal and anal rays is inaccurate. Size and position of many scales are erroneous. Especially those on the chest, which are smaller than the other ones on the ventral side. The area of the opercular blotch is drawn too large. As the fish now is uniformly brownish, shading has not been applied to the new habitus figure (fig. 2).

### Comparison of *H. labriformis* with similar species from Lake Victoria

As the specimen of *H. labriformis* is a male and has a relatively large edentulous caudal part at the premaxilla, it resembles species of the *laparogramma* group (Witte & Witte-Maas, 1987). The specimen was compared to similar sized males of three species of the *laparogramma* group, viz.: *Haplochromis laparogramma* Greenwood & Gee, 1969, *H. heusinkveldi* Witte & Witte-Maas, 1987 and *H. pyrrhocephalus* Witte & Witte-Maas,

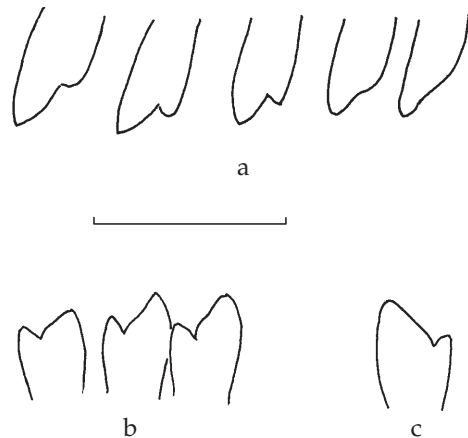


Fig. 4. *Haplochromis labriformis* (Nichols & La-Monte, 1938). Holotype AMNH 13738. Distal part of outer row teeth, rostral view. a. Rostralmost teeth of left premaxilla. b. Rostralmost teeth of right mandible. c. Second medial tooth of left mandible. Scale equals 1 mm.

1987. Moreover, it was compared with specimens of *H. piceatus* Greenwood & Gee, 1969, as this species resembles the species of the *laparogramma* group (Witte and Witte-Maas, 1987). For the comparison with *H. piceatus* and *H. laparogramma*, specimens from the north and the south side of the Lake were used.

*H. labriformis* differs from the three species of the *laparogramma* group as it has only one inner row in both jaws, whereas the others all have a short second row in the lower jaw and usually a complete second inner row in the upper jaw. *H. piceatus* has two, rarely three inner rows in the upper jaw and one or two inner rows in the lower jaw.

Comparison of morphometric measurements revealed that the holotype of *H. labriformis* differs from *H. laparogramma*, *H. pyrrocephalus*, *H. heusinkveldi* and *H. piceatus* by having a shorter caudal peduncle and a shallower cheek. The most obvious difference with *H. laparogramma* lies in the mid lateral band, which is lacking in *H. labriformis*.

Compared to *H. heusinkveldi*, *H. labriformis* has also a relatively deeper body, a shallower caudal peduncle, a longer snout, a larger head width and smaller teeth. *H. labriformis* differs from *H. laparogramma* and *H. heusinkveldi* because the dorsal outline of the dorsum meets the dorsal outline of the caudal peduncle in an angle, whereas in the other species this transition is smooth.

Compared to *H. pyrrocephalus* *H. labriformis* also has a longer snout, a larger head width, a smaller eye and a shorter lower jaw. In *H. pyrrocephalus* the fins have a much lighter colour than the body. The outer teeth and the flange of their major cusps in *H. labriformis* are slightly smaller compared to those in *H. pyrrocephalus*. Compared to *H. piceatus*, *H. labriformis* also has a slightly shorter head.

Moreover *H. labriformis* differs from all above mentioned species in having the gill rakers on the first gill arch more widely spaced.

#### Affinities with the genus *Yssichromis* Greenwood, 1980

Following the guide to the identification of haplochromine genera in Lakes Victoria, Kioga, Nabugabo, Edward, George and Kivu (in Greenwood, 1980), the dental characters of *Haplochromis labriformis* place it near *Yssichromis*. Although, its body depth of 31.5% SL falls outside the range of 23-30% given for that genus, Witte and Witte-Maas (1987) already stated that on the basis of data in Greenwood and Gee (1969) the range should at least be stretched to 31.1%, while their new species *H. pyrrocephalus*, a certain member of the *laparogramma* group, would extend the range to 34%. Caudal peduncle length and caudal peduncle length/depth of *H. labriformis* fall in the range of *Yssichromis* as given in Greenwood (1980). However, for reasons given in van Oijen (1996) we prefer to place this species in *Haplochromis*.

### Conclusion

The single specimen of *Haplochromis labriformis* closely resembles specimens of the *H. laparogramma* group (Witte & Witte-Maas, 1987) and *H. piceatus*. *H. labriformis* has a relatively smaller cheek depth and differs in the number of inner rows and slight differences in tooth shape. The observed differences in preserved colouration may become less distinct over the years. As the catch locality of the specimen is unknown and the species composition of Lake Victoria has altered drastically since the upsurge of the Nile Perch, it is doubtful if additional specimens of this species will ever be recog-



nised as such. This paper may well be the last attempt to save *H. labrififormis* at least temporarily from oblivion.

### Acknowledgements

We are indebted to the staff of the Department of Ichthyology of the American Museum of Natural History, New York, for sending the type of *Tilapia labrififormis* on loan. We thank Peter Snelderwaard, Van der Klaauw laboratory, Leiden, for the Xray photographs and Bernardo Guillen for the photo of the specimen.

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Received: 24.vi.2003

Accepted: 5.x.2003

Edited: C. van Achterberg

