TROPICAL FISH HOBBYIST
vol XXIX (8): 23-30, 1981
April issue

Ichthyology

A New But Well-known APHYOSEMION Species From the Southern Congolese Plateau, APHYOSEMION ZYGAIMA N. Sp.

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Our experience with the genus *Aphyosemion* has taught us to be cautious regarding the identification of killifishes imported by the commercial trade under a name described prior to the 1950's. A classic case of confusion was the early importation of Nigerian *A. gardneri* under the incorrect name *A. calliurum*. First, the type localities of the two taxa are separated by about 300 kilometers, although the actual distribution of each is not fully known. Second, *A. gardneri* inhabits the inland plateau, while *A. calliurum* is restricted to the coastal plain, a difference now considered as a key in the separation of superspecies in *Aphyosemion*. Third, the supposed origins of commercial imports were situated far from both type localities. These factors resulted in confusion for many years. Several other similar cases could be mentioned.

This paper is concerned with confusion surrounding a fish from Mindouli referred to as *A. louessense*. Scheel (1968, *Rivulins of the Old World:* 277-278) reported, "In 1964 Brichard and Roberts collected live specimens of various cyprinodont species in the Congo .... Among them there was a strain of *Aphyosemion* collected near Mindouli on the upper reaches of the Niari River, an affluent of the Kouilou River." Scheel studied and identified these fish as *A. louessense* (Pellegrin, 1931), though he admitted that other strains collected by J. Lambert closer to the type locality of *A. louessense* (i.e., more northerly) were different. Scheel's identification has been followed until now.

In 1978, two expeditions in the southern Republic of the Congo provided more information and live specimens of this fish and others. During the first, north of the Niari River and within the Du Chaillu Massif, Wachters and Buytaert, and then two weeks later the author, too, found many populations of the *A. ogoense* (Pellegrin) superspecies. All of them were characterized by an asymmetrical color pattern in the caudal fin and by a high haploid number of chromosomes. During the second expedition, this one south of the Niari River, near Mindouli, the author redis-

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Aphyosemion louessense has an asymmetrical caudal fin color pattern in the male, carrying a yellow marginal band along the lower edge of the fin and a red band along the upper edge. Photo by the author.

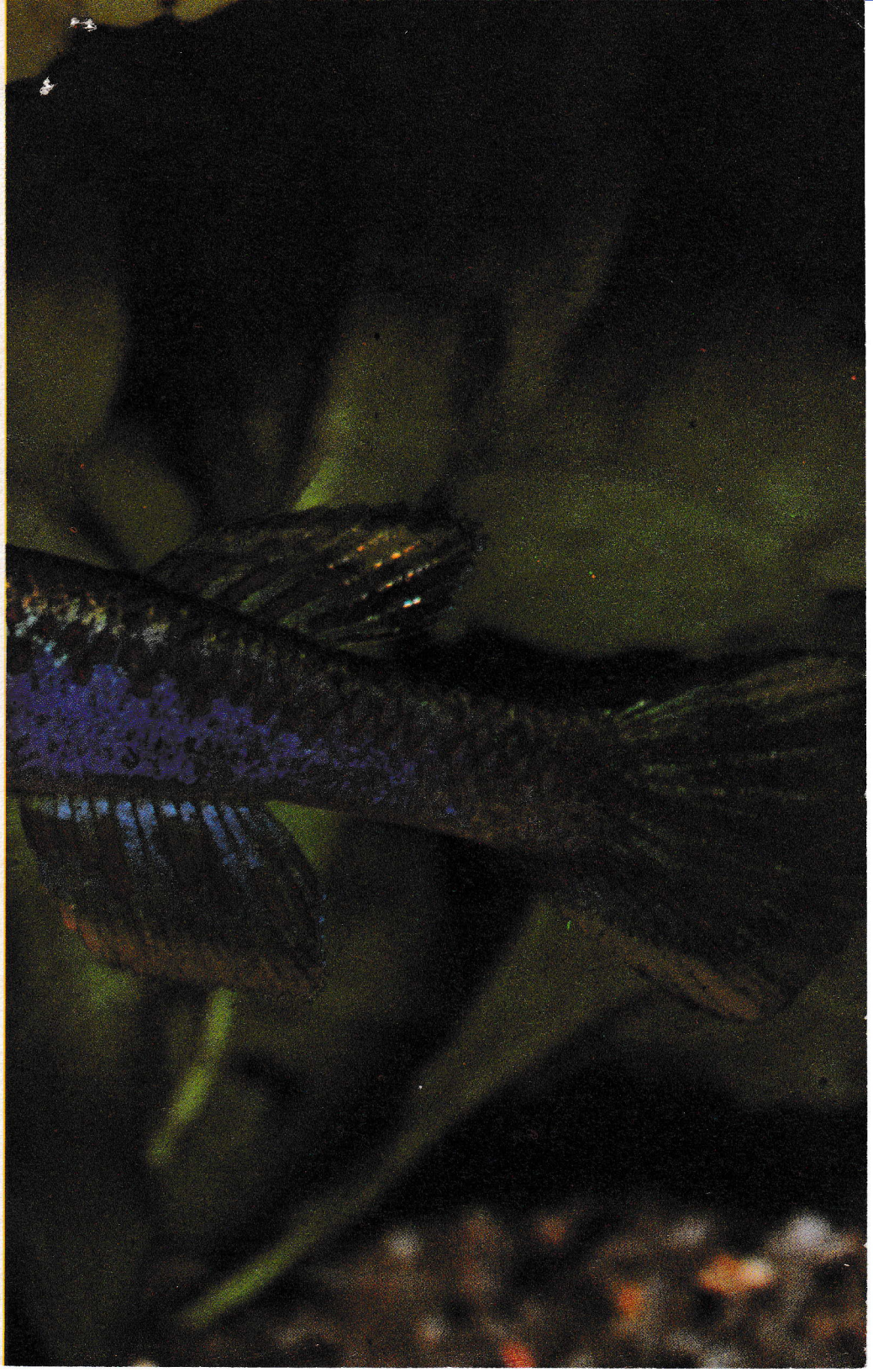


TABLE I-Data on meristics and morphology (all percentages are based on SL)

NAME CODE		SEX	SL m/m	TL %	P.D. %	P.A. %	P.V. %	Hd %	Ht %	D	A	D/A	L.L.
ZYG	HOLO	M	36.8	127	64	57	45	25	20	13	16	+ 6	32 + 3
ZYG	PARA-1	M	36.2	123	64	56	45	23	20	12	15	+ 6	31 + 3
ZYG	PARA-1	F	34.6	119	66	58	45	24	18	13	16	+ 6	30 + 2
ZYG	PARA-2	M	36.2	127	66	58	47	26	19	13	16	+ 6	33 + 2
LOU	LOC166	M	27.5	122	66	60	49	25	22	11	15	+ 6	32 + 2
LOU	LOC166	M	24.3	125	67	62	51	27	21	11	15	+ 6	31 + 3
LOU	LOC166	M	22.4	127	67	59	50	27	21	12	16	+ 7	32
LOU	LOC166	F	25.3	122	68	58	47	28	21	12	16	+ 7	30 + 2
LOU	LOC166	F	24.7	125	66	59	48	28	21	12	16	+ 8	32 + 2
LOU	LOC166	F	21.7	124	68	62	48	26	21	13	16	+ 7	31

covered Brichard's fish which was characterized by a symmetrical color pattern in the caudal fin and, according to Scheel (op. cit.), a very low number of haploid chromosomes (n=10), relating it to *A. labarrei* from Zaire.

The problem was then to redefine Pellegrin's real *A. louessense* according to three criteria:

1. Geography: holotype from the Louesse River, which flows north of the Niari River.
2. Caudal pattern: asymmetrical.
3. Karyotype: unknown, but individuals collected in the Mapati Sibiti area, 30 km east of the Louesse River show a high number of chromosomes (n=20). [The identity of *louessense* is still uncertain, as it appears that the holotype is a female from a little more northern locality in the Louesse Basin and that the color pattern (one red longitudinal band) is based on individuals (paratypes) from the Lali River near Sibiti (for further discussion, a subsequent article reviewing the *ogoense* group will be published in Germany).]

Therefore, *A. louessense* is a member of the *ogoense* group, north of the Niari River, and Brichard's *Aphyosemion* from south of the Niari River should be considered as distinct. It is described below under the name *A. zygaima*.

APHYOSEMION ZYGAIMA, New Species

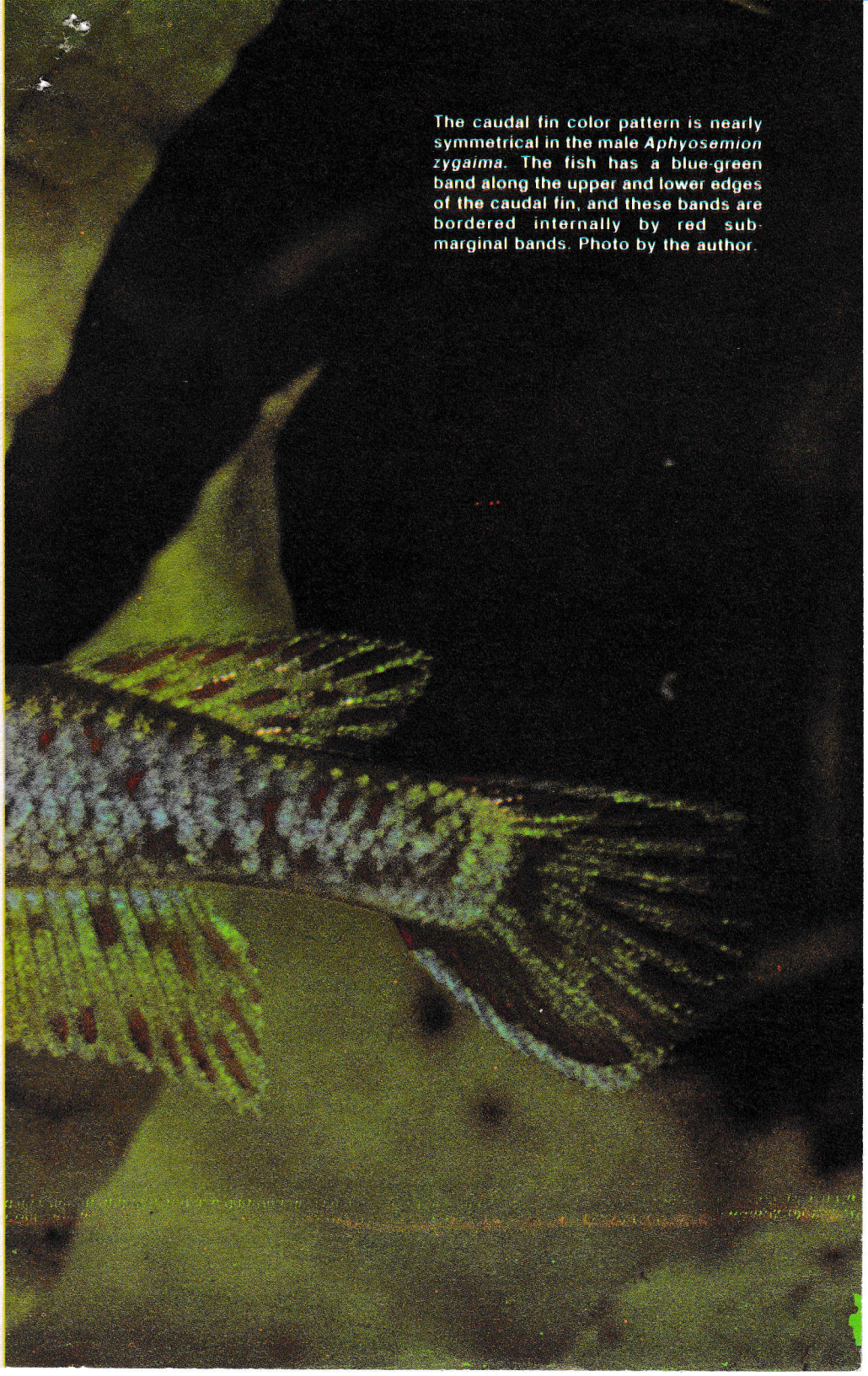
Holotype.—73-39 P 1635-645, male, 46.9 mm in TL, 36.8 mm in SL, collected at Mindouli, southern Republic of the Congo, some 100 km west of Brazzaville. Brichard *leg.* 1964, Musee Royal de l'Afrique Centrale, Tervuren, Belgium.

Paratypes (1).—73-39 P 1635-645, 1 male, 1 female and 9 other specimens from the same sample. Tervuren.

Paratypes (2).—78-19 P 3994, 1 male and 5 other specimens from another sample, probably from a nearby locality. Brichard *leg.* 1964, Tervuren.

Additional Material.-One collected by the author at Mindouli, near the train station, Loc. 175, brook named Voma, 9 VIII 1978 (J.H. Huber collection).

Color Pattern.—Males show some red spots and blotches placed irregularly on the metallic blue-green sides. The number of spots varies but is never large. The unpaired fins present a symmetrical flamed pattern. The caudal pattern is as follows: blue-green margin, red submargin, red flames on a green background, red submargin, blue-green margin. Females show the same red pattern less intensively; their basic color is light brown. The name evokes the often-linked flames of a blood-red color. The red pattern remains after preservation.



The caudal fin color pattern is nearly symmetrical in the male *Aphyosemion zygaima*. The fish has a blue-green band along the upper and lower edges of the caudal fin, and these bands are bordered internally by red submarginal bands. Photo by the author.

Morphology (see Table 1).—The fin counts are typical of the average *Aphyosemion:* D.13; A.16; D/A=+6. As a comparison, the same figures for *A. louessense* in the present sense are given. It seems that *A. zygaima* is a little less elongate and that its dorsal is placed nearer to the anal, but these differences, based only on a few specimens from two populations, should be checked on a larger collection. *A. zygaima* shows a G frontal scalation (no H scales) and open neuromasts.

Discussion.—By the karyotype, the color pattern and the locality, *A. zygaima* should be approached in the Zaire fauna by *A. labarrei* Poll, 1952, *A. ferranti* (Boulenger, 1910) and possibly some other forms to be discovered. All three known forms show a symmetrical caudal pattern. *A. zygaima* and *A. labarrei* both have a low haploid number of chromosomes, but their karyotypes are different according to Scheel. Though their type localities are separated by only 120 km, the Zaire River falls between them and may be a barrier. *A. labarrei* and *A. ferranti* show a similar red longitudinal band on the body, but their type localities are separated by 900 km.

By the karyotype, *A. zygaima* is distinct from all the medium-sized *Aphyosemion* of this region that show a high chromosome number, including:

1. The *ogoense* plateau group with three branches and many recently described species:

   a. *A. ogoense* and its allies: *A. louessense* (in the present sense), *A. pyrophore* (Huber and Radda, 1979), *A. caudofasciatum* (Huber and Radda, 1979), *A. sp.* RPC 206-207 (coll. Buytaert, 1979), *A. sp.* -Malinga (loc. 212, Huber collection, 1979). All of them show an asymmetrical caudal pattern.

   b. *A. thysi* and its yellow counterpart, *A. schluppi* (Radda and Huber, 1978), with an asymmetrical pattern.

   c. *A. wachtersi* and *A. buytaerti* (Radda and Huber, 1978), tentatively placed here according to their karyotypes, though they show a different body pattern and blue dots in the caudal.

2. The *coeleste* superspecies that inhabits mainly the Gaboon part of the Du Chaillu Massif: *A. coeleste* (Huber and Radda, 1977), with a symmetrical pattern.

3. The *striatum* coastal group: *A. microphtalmum* (Lambert and Gery, 1967) and perhaps, in the Nyanga, *A. primigenium* Radda and Huber, 1977, with a symmetrical pattern.

Morphologically, *A. zygaima* is distinct from the more slender species *A. australe* from the coastal plain from Lake Tchimba to Point Noire and the *elegans* superspecies whose elements inhabit the Bateke Plateau to the east and the Kinkala area, where it may be sympatric with *A. zygaima.*