

**MORMYRUS SUBUNDULATUS, A NEW SPECIES
OF MORMYRID FISH WITH A TUBULAR SNOUT
FROM WEST AFRICA**

by

Tyson R. ROBERTS (1)

ABSTRACT. - A new species of *Mormyrus* is described, akin of *M. rume*, a well known species largely distributed in West Africa. The two species are sympatric in Bandama R. (I.C.) and Tano R. (Ghana) basins. The actual occurrence of the new species in Sassandra R. (I.C.) needs confirmation.

RÉSUMÉ. - Une espèce nouvelle de *Mormyrus* est décrite, proche de *M. rume*, espèce bien connue et largement distribuée dans l'Afrique de l'Ouest. Les deux espèces sont sympatriques dans les bassins du Bandama (C.I.) et du Tano (Ghana). La présence effective de la nouvelle espèce dans la Sassandra (C.I.) demande confirmation.

Keys-words : Mormyridae, *Mormyrus subundulatus*, West Africa, New species.

Four species of *Mormyrus* from West Africa are recognized in the revision by Lévêque and Bigorne (1985). Two *M. macrophthalmus* Günther, 1866 and *M. hasselquisti* Valenciennes, 1846, have a blunt or short snout and will not be considered further here. Two, *M. rume* Valenciennes, 1846 and *M. tapirus* Pappenheim, 1905 (with its junior synonym *M. goheeni* Fowler, 1919) have an elongate, tubular snout. In West Africa, *M. rume* occurs in the Senegal, Gambia, Volta, and Niger river systems, and in a number of coastal river basins in Ivory Coast and Ghana. *Mormyrus tapirus* has a disjunct distribution, in coastal river systems in Guinea, Sierra Leone, and Liberia, and in Cameroun. It has not been found in Ivory Coast or Ghana.

In May 1964, during fieldwork on the Tano River in western Ghana, the author observed two species of *Mormyrus* with a tubular snout in a fisherman's canoe. One species, with smaller scales, more numerous dorsal fin rays, a slender caudal peduncle, and silvery coloration, is identifiable as *M. rume*; the other, with larger scales, fewer dorsal fin rays, a very deep caudal peduncle, and bronze coloration, was not identified to species and was presumed new.

According to the fisherman, the two species were readily distinguishable by another characteristic: the bronze one gave electrical shock, whereas the silvery one did not. This information was volunteered without any previous reference to electrical behavior. Unfortunately, the fisherman had only a single individual of each species; the specimens were preserved and deposited in the fish collection of the California Academy of Sciences.

In November 1985, the author joined Carl D. Hopkins and John Crawford for several days at the Station Biologique de Lamto of the Université Nationale de Côte d'Ivoire while they investigated electric organ discharges (EOD) of Mormyridae in the Bandama River. During this period we obtained samples of two species of tubular-snouted *Mormyrus*, *M. rume* and the undescribed species originally found in the Tano River. We did not confirm that the new species produces a stronger electrical discharge than *M. rume*, but did learn that the two species differ in the wave form of their EODs.

(1) Department of Ichthyology, California Academy of Sciences, San Francisco, CA, USA.

MORMYRUS SUBUNDULATUS N. SP.
(Fig. 1)

Mormyrus rume (in part) Daget and Iltis, 1965 : 25-26 (specimens from R. Bandama à Béoumi, probably additional specimens and locality records for which specimens are unavailable) ; Lévêque and Bigorne, 1985 : 326-327, 338 (specimens purportedly from R. Sassandra, see below).

Material examined :

Holotype : MNHN 1987-1610, 143 mm, mainstream of R. Bandama near Station Biologique de Lamto, Côte d'Ivoire, November 1985, C.D. Hopkins, J. Crawford, T. R. Roberts.

Paratypes : MNHN 1987-1611, 16 ex. : 42.4-271 mm, same collection data as holotype ; MNHN 1961-241, 183 mm, R. Bandama à Béoumi, Côte d'Ivoire, 22 May 1961, A. Iltis ; CAS (SU) 63507, 238 mm, R. Tano at Samreboi, Ghana, 6-9 May 1964, T.R. Roberts.

Description : *Mormyrus sudundulatus* has an elongate tubular snout ; dorsal fin rays 60-71 ; anal fin rays 16-18 ; scales in lateral series about 87-99, in lateral series on caudal peduncle (from above base of last anal fin ray to tend of hypural fan) about 28-35, and around caudal peduncle 21-26 ; depth of caudal peduncle 13.0-17.2 times in standard length ; color in life predominantly black (Bandama) or bronze (Tano).

Discussion : *Mormyrus rume* superficially resembles *M. subundulatus* in snout form and overall morphology, and is perhaps its closest relative, but differs



Fig. 1 : Top, *Mormyrus subundulatus*, 143 mm, R. Bandama near Lamto (holotype) ; bottom, *Mormyrus rume*, 150 mm, R. Bandama near Lamto.

from it in having more dorsal fin rays (72-95) higher range of anal fin rays (17-21, mode 19), higher range of scales in lateral series (92-115), and a more slender caudal peduncle (data in part from Lévêque and Bigorne, 1985 : 327). Specimens of *M. rume* from the Bandama and its tributaries near Lamto (MNHN 1987-1622, 14 ex. : 71.8-208 mm) have dorsal fins rays 79-89, anal fin rays 17-20, scales in lateral series (difficult to count) about 108-140, scales on caudal peduncle about 40-50, and depth of caudal peduncle 17. 9-20. 4. The pectoral fin and caudal fin lobes are more elongate and pointed, posterior margin of anal fin concave rather than nearly straight. All of the *M. rume* were relatively light-colored, silvery, brassy, or golden, while *M. subundulatus* were very dark, almost black. Recordings of EOD obtained by Hopkins and Crawford for 9 specimens of *M. rume* and 5 *M. subundulatus* (including the holotype) exhibited a constant, clear-cut difference in wave form, in which the initial positive phase is much less pronounced in *M. subundulatus* than in *M. rume* (see following paper by Hopkins and Crawford).

Mormyrus tapirus agrees with *M. subundulatus* in dorsal fin ray counts (60-74) and number of scales in lateral series (83-98) but differs strikingly from it in having a larger eye, more slender caudal peduncle, more anal fin rays (21-29) and fewer circumpeduncular scales (14-19) (meristic data from Lévêque and Bigorne, 1985 : 335).

Etymology : The name *subundulatus*, Latin, "less wavy" refers to the wave form of the EOD compared to that of *M. rume*.

Distribution : *Mormyrus subundulatus* is known only from the mainstream of the Bandama and Tano rivers. In the Bandama most specimens were obtained from a rocky place with moderate to swift current (some *M. rume* were obtained in the mainstream, but it was also found in smaller, relatively sluggish tributaries of the Bandama where *M. subundulatus* was not observed). Meristic data on *M. rume* from many West African river basins presented by Lévêque and Bigorne (1985 : 327) indicates the presence of only a single species (*M. rume*) with a uniformly high dorsal fin ray count, except in the R. Sassandra. The Sassandra lies immediately west of the Bandama in Côte d'Ivoire and is thus a likely place for *M. subundulatus* to occur. Data presented by Lévêque and Bigorne, from a sample of 15 specimens purportedly from the Sassandra indicates two groups based on dorsal fin ray counts corresponding to *M. rume* and *M. subundulatus*. My examination of this sample (MNHN 1981-1340) revealed 3 specimens of *M. rume* and 12 *M. subundulatus*, accompanied without distinction by locality labels for the Sassandra and for the Bandama rivers. Thus the only available data on *M. rume* from the Sassandra is ambiguous, and the presence of *M. subundulatus* in the Sassandra cannot be confirmed on the basis of this sample.

The Cavally, the next important river basin west of the Sassandra, apparently is populated only by *M. rume*. The single Cavally specimen of *M. rume* reported by Lévêque and Bigorne has 81 dorsal fin rays. In March 1986 I spent several days at Tai on the Cavally and observed large numbers of *Mormyrus* gill-netted by Malian fishermen. All of them seemed to be *M. rume*. A series of 10 specimens was preserved (MNHN 1987-1602). These are all *M. rume* and have 81-87 dorsal fin rays. Identity of tube-snouted *Mormyrus* in rivers between the Bandama and the Tano is poorly known. Lévêque and Bigorne reported two specimens of *M. rume* from the Comoe, with 85-86 dorsal fin rays. *Mormyrus rume* is said to be abundant in the Bia but no specimens or data are available. It should be noted that the genus *Mormyrus* apparently is absent in the Pra, the most important basin between the Tano and the Volta.

Acknowledgments : I am grateful to Carl D. Hopkins and John Crawford for inviting me to participate in their research on mormyrids in Côte d'Ivoire, and for providing many specimens of *M. rume* and *M. subundulatus*. Roger Vuattoux, Director of the Station Biologique de Lamto, facilitated my visit here. This paper was written in the Laboratoire d'Ichtyologie of the Muséum National d'Histoire Naturelle while I was engaged as a Visiting Director of Research with ORSTOM (October 1987 and July 1988).

REFERENCES

- DAGET J. & A. ILTIS, 1965. - Poissons de Côte d'Ivoire (eaux douces et saumâtres). *Mém. IFAN*, 74 : 385 p.
- LÉVÊQUE C. & R. BIGORNE, 1985. - Répartition et variabilité des caractères méristiques et métriques des espèces du genre *Mormyrus* (Pisces-Momyridae) en Afrique de l'Ouest. *Cybium*, 9(4) : 325-340.

Reçu le 07-10-1988.

Accepté pour publication le 21-10-1988.