

NOTES ON A COLLECTION OF FISHES FROM THE TANA RIVER BELOW GARISSA, KENYA

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Introduction

The Tana River drains the southern and eastern slopes of Mount Kenya and the eastern slopes of the Aberdares, and is the largest river in Kenya. The trout reaches, above 5,000 ft., have been examined in detail by van Someren (1952), and collections of fishes have been made in the middle reaches, chiefly by Copley. But from Garissa to the sea, a distance of about 150 miles, the river has received little attention; difficult and often impossible road communications have been largely responsible.

In October 1958 and February 1959 several localities between Garissa and Ngau were visited. The main river and floodwater pools were fished at Garissa, Hola, Garsen, Wema, Golbanti and Ngau, using a small handnet, a 10-ft. muslin seine, and a large 30-ft. seine of 1-in. mesh. On both occasions the river was low and juvenile fishes predominated.

From Garissa to the sea the river meanders across a broad, sandy floodplain where ox-bows, cut-offs and associated river forms are common. A thin belt of riverine forest and cultivated land flanks the river, and dense stands of *Phragmites* line the banks. In the floodwater pools (*ziwas*) *Pistia*, *Salvinia* and *Nymphaea* occasionally achieve a nearly 100 per cent cover. These pools contain a wealth of aquatic fauna and are the principal breeding grounds and nurseries for many species of river fish.

The present collection contains three genera and four species which have not previously been recorded from the Tana River. The systematic position of some of these is still in some doubt, and will be dealt with more fully elsewhere, but tentative identifications can be given here.

Notes on Specimens Collected

Protopterus amphibius. Fairly common in most floodwater pools and swamps near the Athi and Tana rivers. Trewavas (1954) records specimens also from the Ijara waterholes and the Eusso Nyiro basin to the north of the Tana River.

Mormyrus spp. A species of *Mormyrus* has been seen in the upper Tana and was reported but not seen at Garsen. *M. tenuirostris* Peters and *M. hildebrandii* Peters have been recorded from the Athi River (Boulenger 1909). The latter Boulenger tentatively synonymised with *M. kannume* Forsk. of Lake Victoria and the Nile, and the former apparently differs from *M. kannume* only in dorsal fin position. It is likely that further specimens will show that *M. kannume* is in fact present in both the Athi and the Tana rivers.

Gnathonemus sp. This genus has not previously been recorded from either the Athi or Tana rivers. A single adult and some juveniles, caught at Hola, Garsen, Wema and Golbanti, strongly resemble *G. macrolepidotus* Peters, a widespread species found in many of the eastern rivers of Africa. Worthington pointed to the close affinity between this species and *G. victoriae* Worthington of Lake Victoria, and recent work by Poll and Trewavas may show the two to be synonymous.

Petrocephalus catastoma. *P. degeni* Blgr. of Lake Victoria and *P. stuhlmanni* Blgr. of the Kingani and other eastern rivers, are now considered synonymous with *P. catastoma* of Lake Nyasa (Whitehead, awaiting publication). The Tana River *Petrocephalus* fall into the same group, but are considered a distinct sub-species owing to their higher number of dorsal rays.

Alestes affinis. This species has been caught in all localities between Garissa and Ngau. Copley (1941) records *A. nurse* Rüppell in the Athi, but it is more likely that these were *A. affinis*.

Labeo spp. *L. gregorii* occurs in the lower Athi and Tana rivers, apparently replacing *L. cylindricus* Peters, which is found in the middle reaches of both rivers. A single specimen from a floodwater pool near Garsen cannot be referred to either of the above species, but shows some affinities with *L. victorianus* Blgr. of Lake Victoria. More specimens are required.

Barbus spp. The large 'Mahseer' *Barbus* (with parallel striæ on the exposed portion of the scales) so characteristic of the middle Athi and Tana, are entirely absent from the lower reaches, although they have been recorded as far down the Athi as the Lugards Falls area. Two of the smaller species of *Barbus* (with radiating striæ on the scales) are common in the lower reaches of both rivers, *B. zanzibaricus* being more abundant than *B. taitensis*. These two species appear to replace a similar large- and small-scaled species pair in the upper reaches, *B. amphigramma* Blgr. and *B. cf. portali* Blgr., both of which also occur in the Lake Victoria basin (Whitehead 1959 a).

Engraulicypris sp. This genus has not previously been recorded from either the Athi or the Tana rivers. A single half-grown adult and two juveniles were caught in a floodwater pool at Garissa. The largest fish has seven short gillrakers (similar to *E. bottegi* Vincig. of Lake Rudolf), but 37 lateral line scales, as in *E. bredoi* Poll of Lake Albert and *E. minutus* Blgr. of Lake Tanganyika. More specimens are needed before this fish can be named with certainty.

Clarotes laticeps. A small specimen was caught in a floodwater pool near Garsen. Copley (*loc.cit.*) lists this fish as occurring in the Athi also, but none have been seen.

Eutropius near *E. depressirostris*. Very common in all parts of the Tana and Athi rivers up to about 2-3,000 ft. This genus replaces *Schilbe* to the east of the Kenya rift valley.

Physalia sp. Previously unknown in the Athi and Tana rivers. Specimens have now been caught at Hola, Wema and Garsen, at the edges of the river but not in floodwater pools. In appearance these fishes resemble the almost transparent *P. pellucida* Blgr. of the Nile. They differ in lacking serræ on the pectoral spines, as does also *P. somalensis* Vincig. from Somaliland, which however has more anal rays.

Clarias mossambicus. This almost ubiquitous species is common in all parts of the Athi and Tana rivers up to about 4,000 ft. It is possible that other species may be present.

Synodontis spp. Two species have been found in the Athi and Tana rivers. *S. zambesensis*, the larger of the two, is grey with small black spots on the back and flanks. The second species, as yet unnamed, is marbled in yellow, black and olive green. In size and coloration the two bear a most striking resemblance to the species pair in Lake Victoria, *S. victoriae* Blgr. (grey) and *S. afro-fischeri* Hilgand (marbled), but differ in numbers of mandibular teeth.

Tilapia spp. Fishes with three anal spines (*T. mossambica*) occur in both the Athi and Tana rivers, but four-spined fishes (*T. nigra*) have so far not been found in the lower Tana; they have however been recorded in the upper reaches. The distinction between *T. mossambica* and *T. nigra* lies solely in the numbers of anal spines and the associated increase in dorsal spines in 4-6 spine fishes. Present work has suggested that two forms or varieties, rather than species, are present in these rivers. Four-spined fishes have now been stocked in ponds at the Hola irrigation scheme and these will undoubtedly find their way into the main river.

Lebistes sps. These mosquito-eating fishes have now been widely distributed throughout the Coastal Province as an anti-malarial measure, and they are common in floodwater pools in the Golbanti area. Specimens have also been caught at Kibwezi, on the Athi River, but have not been found in the floodwater pools of the lower Athi. Indigenous cyprinodonts appear to be absent from both the Athi and the Tana.

Glossogobius giuris. Juveniles of this euryhaline species have been caught in floodwater pools as far up the Tana as Garissa, where they probably form permanent freshwater populations. Two other gobies occur in the lower 30 miles of the Athi River, *Awaous aeneofuscus* (Peters) and *Eleotris fusca* (Schneider), but they have not been found in the Tana above Golbanti.

Anguilla spp. Three freshwater eels occur in the Athi and Tana rivers, *A. mossambica*, *A. bicolor bicolor*, and *A. nebulosa labiata*, the latter being the more abundant (Whitehead 1959 b). A single elver of *A. mossambica* has been recorded from the lower Athi (van Someren & Whitehead 1959), but most indigenous river fishing traps are too coarse to retain small elvers and the local fishermen are entirely ignorant of their existence. Frost (1955) made a detailed study of the Tana river eels.*

Discussion

The freshwater fishes of Kenya fall into three distinct biogeographical groups. Those of the Rift Valley rivers and lakes, particularly Lake Rudolf, have strong 'nilotic' affinities, a large number of genera common to the Nile system being present.

*Observations on the biology of eels (*Anguilla* spp.) of Kenya Colony. Colonial Office Fish. Pub., No. 6.

By contrast, the fish fauna of the Lake Victoria basin to the west of the Kenya rift is notable for the absence of many typically nilotic genera, of which *Polypterus*, *Lates*, *Hydrocyon*, *Mormyrops*, *Hyperopisus*, *Citharinus* and *Distichodus* may be cited as examples. The absence of such nilotics and the very high percentage of species endemic to Lake Victoria, seem to indicate a distinct faunal type, the Victorian (Greenwood 1956). Finally, the eastward-flowing rivers to the east of the Kenya rift (the Athi and Tana systems) also lack the typical nilotic genera, but are closely linked faunistically with the more southerly of the eastern rivers of Africa, the Rovuma, the lower Zambesi and to some extent also Lake Nyasa.

The absence of these nilotic genera from certain lake and river systems in Africa has probably arisen in several ways. In the case of Lake Victoria, Greenwood (1951) has shown that at least two genera (*Lates* and *Polypterus*) were present in that area during Miocene times. He suggests that severe desiccation eliminated the nilotic stock and that physical barriers such as the Murchison Falls have prevented subsequent re-entry. The eastern rivers on the other hand may perhaps have never contained nilotic fishes, the distribution of the latter having taken place at a time when the eastern watershed of Africa was separated from that of the west. This isolation has apparently persisted until the present day, although the presence of *Clarotes* and *Physailia* in the lower Tana argues that some interchange with perhaps the Lake Rudolf system must have taken place. *Eutropius*, the third Tana river genus which is absent from Lake Victoria but present in the Nile, may represent a relict of an ancient fauna which had colonised much of tropical Africa before the separation of the eastern watershed and the distribution of the nilotic stocks.

Excluding eels and the euryhaline gobies, the remaining 11 lower Tana genera are also found in both Lake Victoria and the Nile. In the upper eastern rivers the links with Lake Victoria are very close, representatives of three small siluroid genera being identical or closely allied (Whitehead 1958). The same is true also for *Gara* and three small *Barbus* species (*B. kersteni* Peters and the two previously mentioned), while the three mormyrid genera of the Tana are again close or identical to Lake Victoria species.

The similarities between the eastern river and the Lake Victoria fish fauna may have resulted from direct interchange of the kind suggested by Kent (1942) (river reversal due to the rise of the eastern rift arch). Alternatively the species common to both areas may represent part of a once widespread fauna which has now become separated by the eastern rift. Marlier (1953) concluded that many species of fish found in the upper Ruzizi River, some of which occur in the upper reaches of rivers affluent to Lake Victoria, were relicts of such a fauna which have now become isolated by geographical and ecological barriers.

It must be emphasised that speculation based purely on distributional grounds is often misleading when unsupported by biological data. Knowledge of the biology of the Tana River fishes is still rudimentary and much remains to be done before faunal relationships can be determined with certainty.

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TABLE I

A List of Fishes collected in the Tana River below Garissa

(* = not previously recorded from Tana river).

LEPIDOSYRENIDAE

Protopterus amphibius (Peters) (all localities)

MORMYRIDAE

Mormyrus sp. (reported only at Wema, February 1959).

**Gnathonemus* near *G. macrolepidotus* Peters. (Holo, Wema, Garsen and Ngau, October 1958 and February 1959.)

Petrocephalus catostoma (Günther) (Holo to Ngau, October 1958 and February 1959.)

CHARACIDAE

Alestes affinis Günther. (Garissa to Ngau, October 1958 and February 1959.)

CYPRINIDAE

Labeo gregorii Günther (all parts of river below Garissa)

**Labeo* sp. (Garsen, February 1959.)

**Barbus zanzibaricus* Peters (all parts below Garissa)

**Barbus taitensis* Günth. (all parts below Garissa)

**Engraulicypris* sp. (Garissa and Holo, October, 1958).

BAGRIDAE

Clarotes laticeps Rüppell (Garsen, October 1958).

SCHILBEIDAE

Eutropius near *E. depressirostris* (all parts below Garissa).

**Physalia* sp. (Holo, Wema and Garsen, October 1958 and Feb., 1959)

CLARIIDAE

Clarias mossambicus Peters (all parts below Garissa).

MOCHOCIDAE

Synodontis zambesensis Peters (all localities).

**Synodontis* sp. (all localities).

CYPRINODONTIDAE

Lebistes sp. (introduced: floodpool at Ngau)

CICHLIDAE

Tilapia mossambica Peters (all localities)

GOBIIDAE

Glossogobius giuris (Ham. Buch) (all localities)

ANGUILLIDAE

Anguilla mossambica Peters

Anguilla nebulosa labiata Peters

Anguilla bicolor bicolor McClelland (probably confined to lower reaches.)

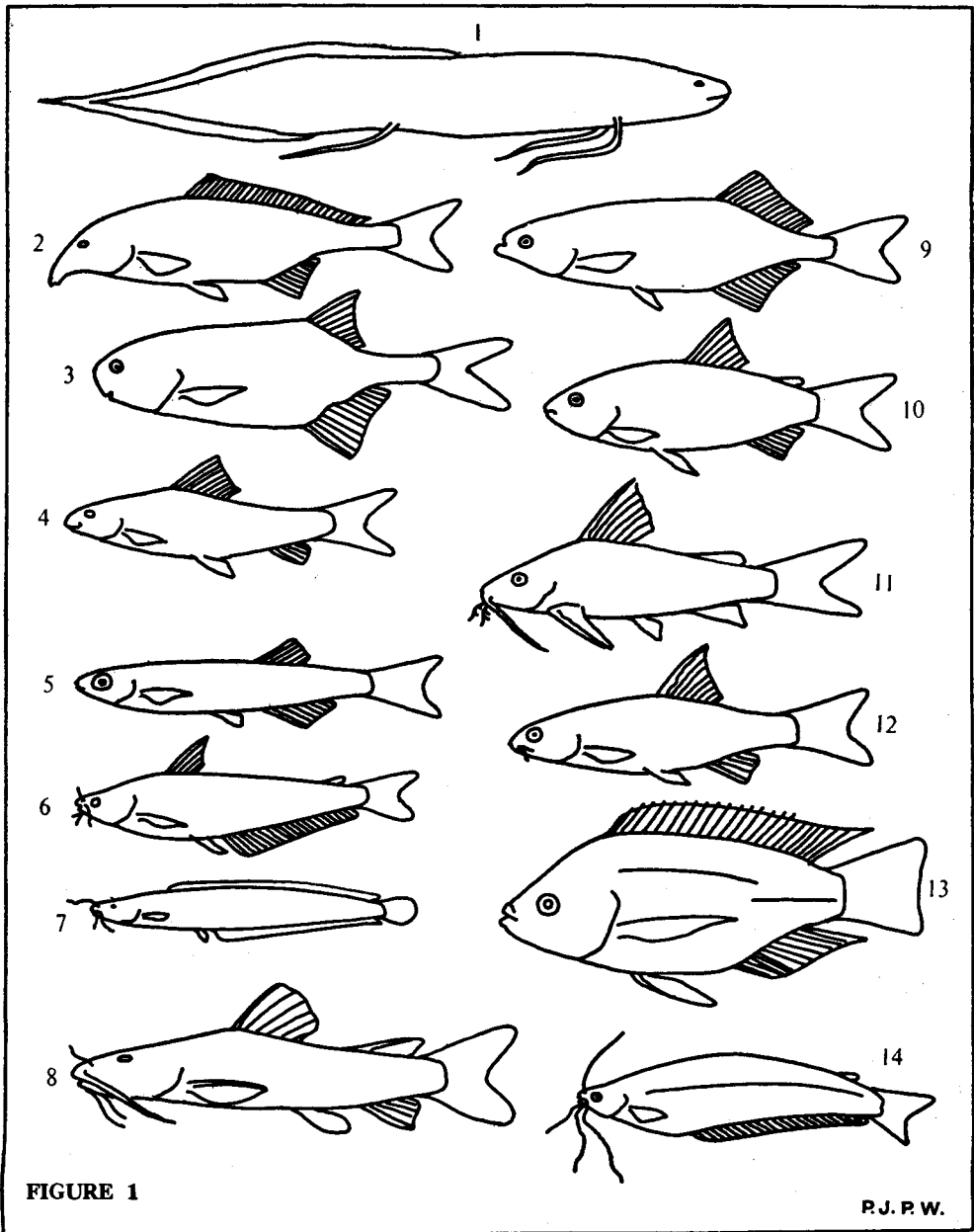


FIGURE 1

P.J. P.W.

Outline drawings of the fishes found in the lower Tana River below Garissa. Approximate sizes of adults (total lengths) are indicated in brackets.

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| 1. <i>Protopterus amphibius</i> (attains over 100 cm.) | 6. <i>Eutropius</i> sp. (25 cm.) | 11. <i>Synodontis</i> sp. (16 cm.) |
| 2. <i>Mormyrus</i> sp. (30 cm.) | 7. <i>Clarias mossambicus</i> (up to 100 cm.) | 12. <i>Barbus zanzibaricus</i> |
| 3. <i>Petrocephalus catastoma</i> (9 cm.) | 8. <i>Clarotes laticeps</i> (up to 80 cm.) | (12 cm.) |
| 4. <i>Labeo gregorii</i> (30 cm.) | 9. <i>Gnathonemus</i> sp. (20 cm.) | 13. <i>Tilapia mossambica</i> (30 cm.) |
| 5. <i>Engraulicypris</i> sp. (6-8 cm.) | 10. <i>Alestes affinis</i> (14 cm.) | 14. <i>Physalla</i> sp. (10 cm.) |