

6. Notes on Fishes of the Black Volta

Fish were caught by a team of four fishermen from Batoo Village using two canoes over 24 days between 21 June and 23 July 1997. 14 locally made nets were set which were 1.5 metres wide and 6 - 19 metres long with an eye size from 13 - 80mm. The nets were generally set in slow flowing areas close to the river banks. 3 large nets were set across the width of the river but proved unsuitable because of the large debris load of the river. Eight locally made basket traps were set without bait in shallow areas near the river banks with the aperture of the traps directed upstream. Nets were moved regularly and required regular maintenance due to debris collection and hippo damage. Captures other than fish were limited to two subadult Nile crocodiles and one turtle, all of which recovered and were subsequently released (see elsewhere). Sampling was carried out only on the main river and no tributaries were investigated. Nets were set between 8°17'N and 8°21'N but field notes do not give capture locations.

Summary of Results

In total 272 fish were caught of which 250 have been identified. In total 46 species from 17 families were caught. 22 fish were not identified, either because notes were incomplete or because no specimens were provided. These fish belong to 8 "types" and tended to be small (median 10.45g, mean 169g (+/- 354, range 5-1220g).

LOGNORMAL PLOT FOR BLACK VOLTA FISH

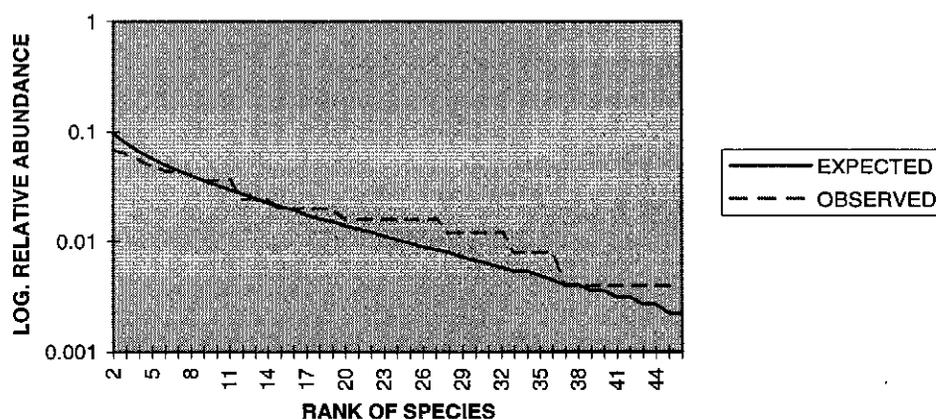


FIGURE 6.1. Lognormal distribution for Black Volta fish

Estimated mean of lognormal distribution = .5491

Estimated variance of lognormal = .17296

Estimated total number of species in community = 47

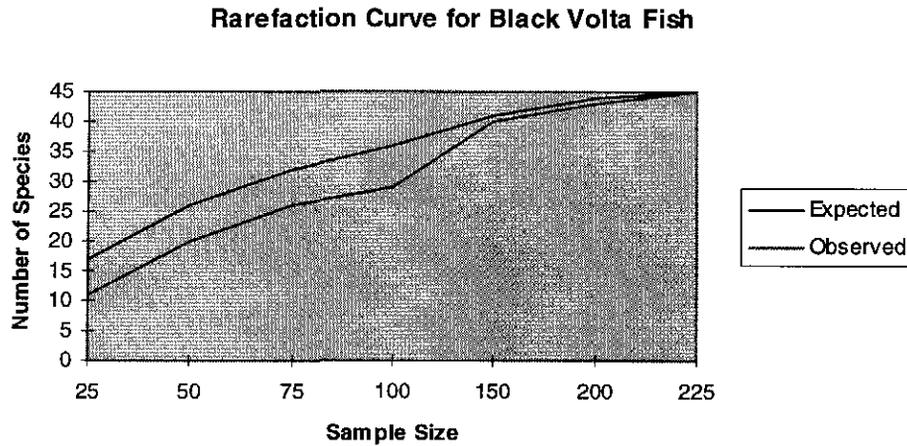


FIGURE 6.2. Rarefaction curve for Black Volta Fish.

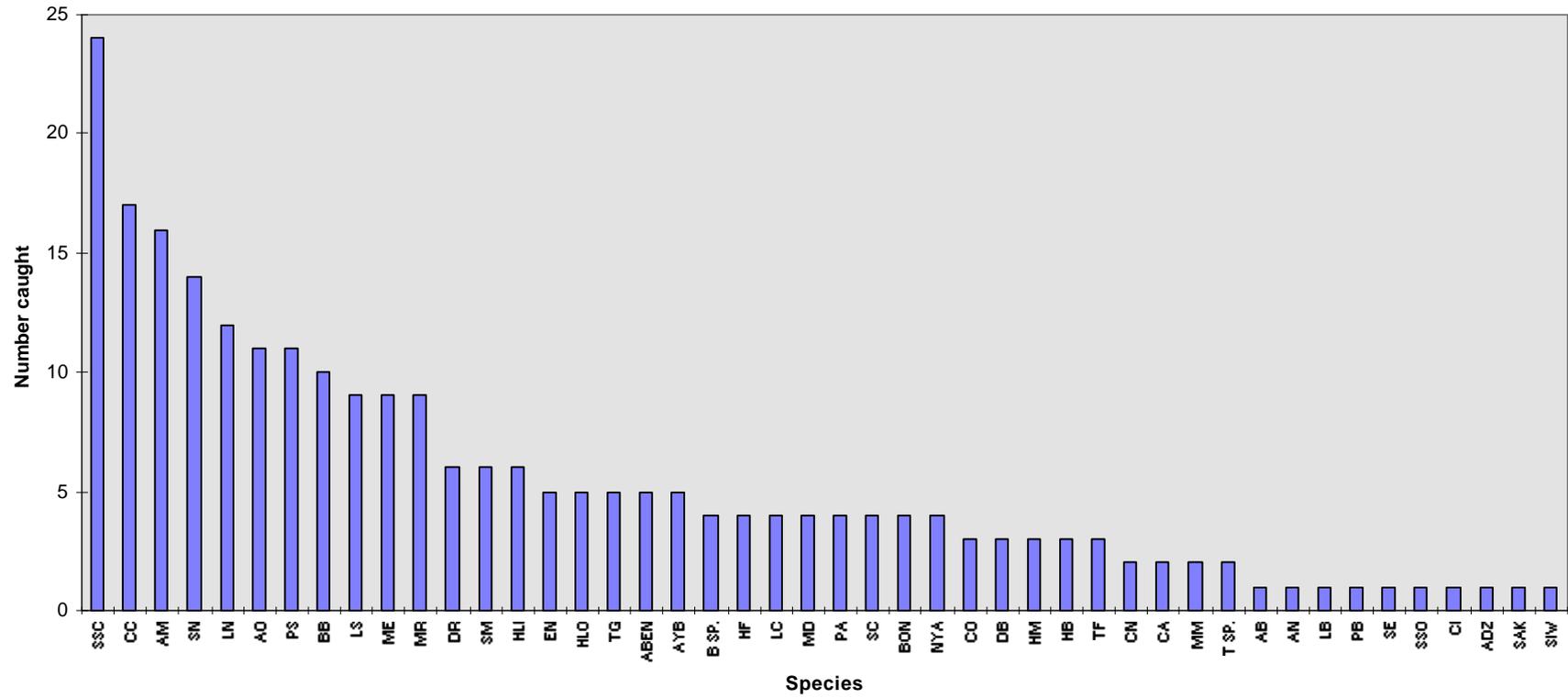
An average of 10.75 fish were caught each day (sd 9.13, range 1-33) - Figure 6.4. Total biomass of catch averaged 3216g of fish caught each day (sd 2499, range 15-8625) - Figure 6.5. Median of 2434g of fish caught each day (interquartile range 1199-4808).

Calculating diversity by numbers gives the following measurements for fish in the Black Volta River.

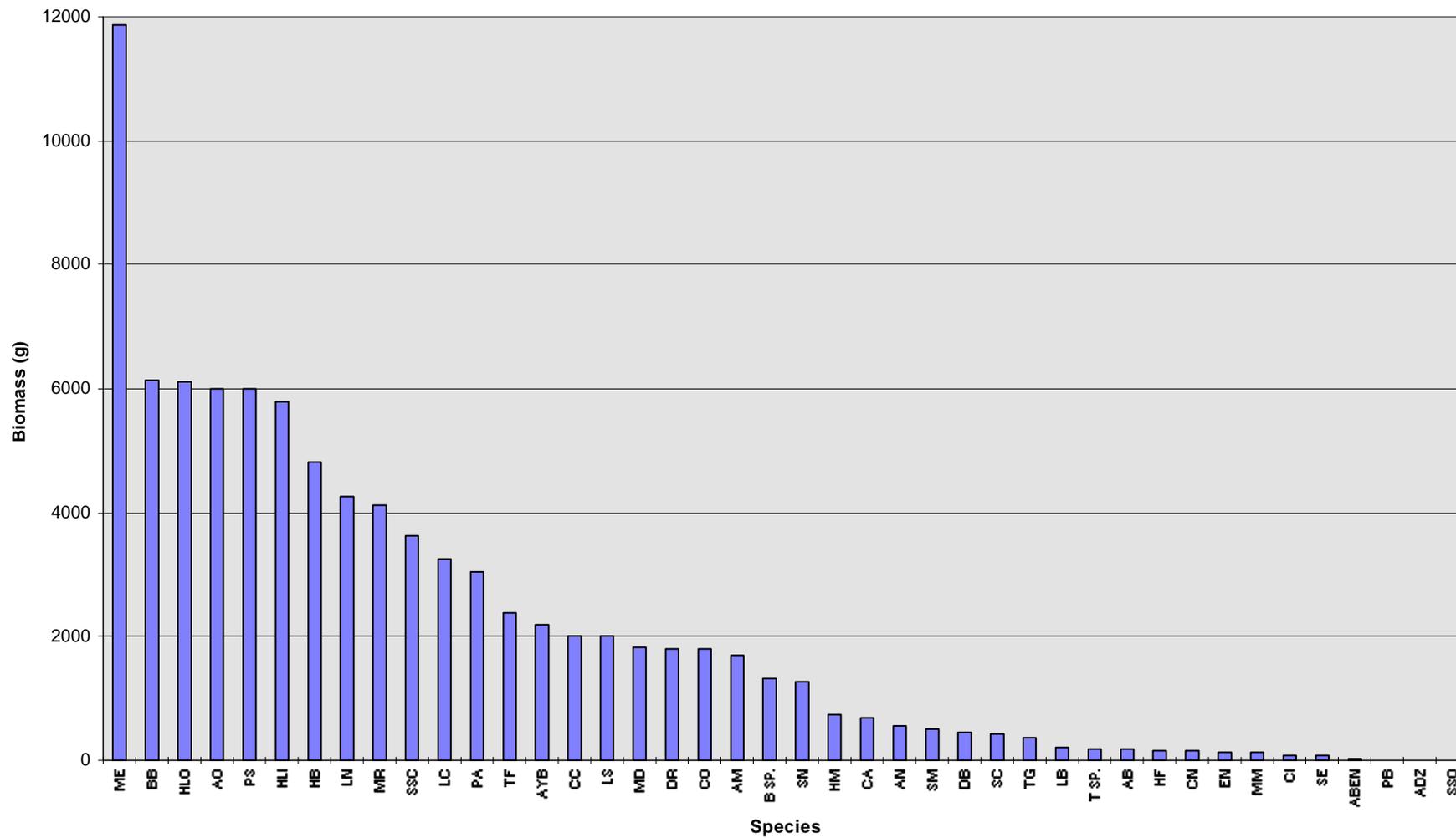
METHOD	NUMBERS	BIOMASS
Simpson's	.964	.942
Simpson's reciprocal	25.222	17.371
Shannon-Wiener	5.025 bits per individual	4.488 bits per individual
Brillouin	4.620 bits per individual	N/A
Maximum diversity:		
Simpson	.982 evenness .982	.976 evenness .965
Shannon-Weiner	5.524 evenness .910	5.392 evenness .832
Brillouin	5.067 evenness .912	N/A

TABLE 6.1 Diversity measurements for Black Volta fish

FREQUENCY DISTRIBUTION OF BLACK VOLTA FISH BY NUMBERS



Biomass of Black Volta Fish Sample



All the fishermen we spoke to agreed that one Mormyrid has disappeared from the Black Volta at Bui in recent years. From the descriptions given we assume the species is *Gnathonemus petersi* or a close relative. This fish was said to be widespread and abundant as recently as 1994 but has not been encountered since.

Fish probably provides the vast majority of animal protein for people in the Village of Battoo. Fishing occurs both outwith and within the National Park and there are widespread claims that it is necessary to fish within the protected area in order to maintain an adequate catch. Fishing activity is greatest in the dry season and presumably least during the wet season survey period. The average yield per canoe of wet season net fishing suggests that it is not viable unless more than 20 nets are set.

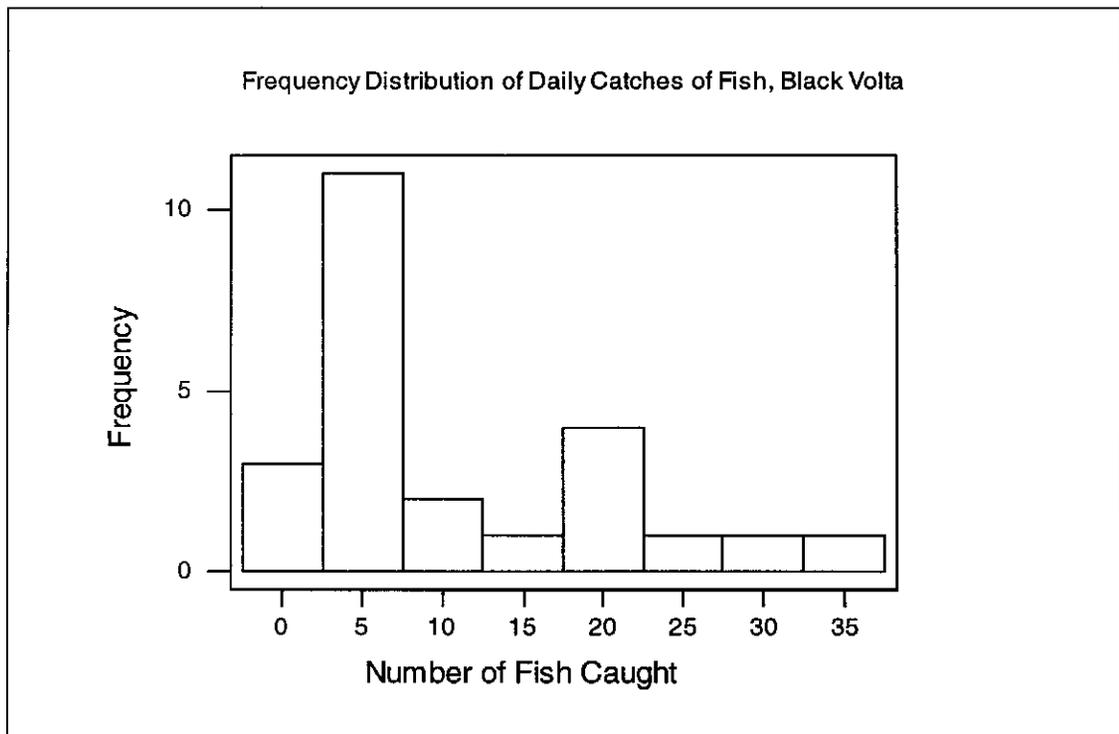


FIGURE 6.4 Distribution of species in daily catches

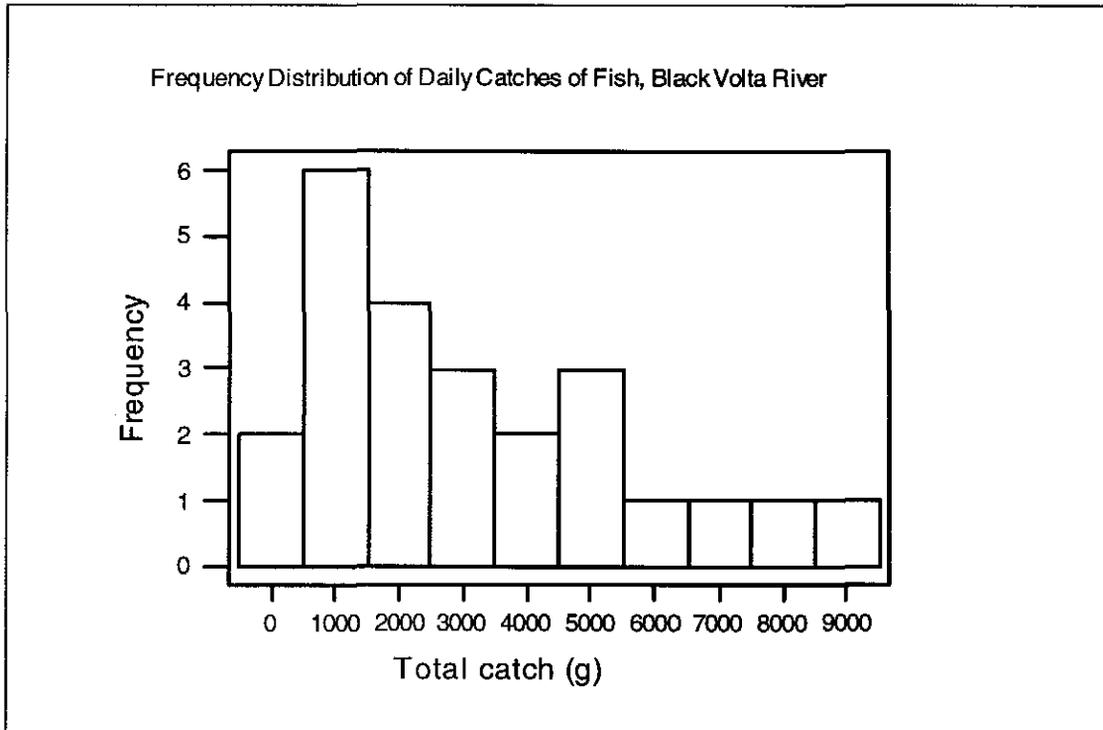


FIGURE 6.5 Distribution of daily catches by weight

The identifications given here are tentative and have not been confirmed. *Synodontis* were identified using an English translation of the key given by Poll (1971). Others are based on Boulenger's (1909-1916) catalogues, Blache (1964) and Holden and Reed (1972). All lengths given in the text are standard lengths measured from the tip of the snout to the edge of the caudal peduncle. Voucher specimens of some species were preserved and are currently at Ghana Wildlife Department Head Office in Accra. They will eventually be deposited with the rest of the collection at Cape Coast University. Tag numbers of voucher specimens are given in square brackets [].

Order: CLUPEIFORMES

suborder Mormyroidei

FAMILY GYMNARCHIDAE

Genus *Gymnarchus*

Gymnarchus niloticus

This species was caught during the survey but the available data is inconsistent. The species was not common and has a reputation for being particularly tasty. [no specimen]

FAMILY MORMYRIDAE

Genus Mormyrops

Mormyrops deliciosus

Four specimens were netted in slow or moderately flowing water. Known locally as **norgbe**. Average length was 468mm (sd 6.15, range 381-526) weight 456g (sd 281, range 295-875). [BV053b]

Genus Mormyrus

Mormyrus rume

The commonest momyrid in the survey. Nine specimens were netted in moderate and fast water. Known locally as **godogo** Average length was 384mm (sd 53, range 299-468) weight 457g (sd 186g 195-762). [BV090]

Mormyrus macropthalmus

Known locally as **agamata**, two specimens of 142 and 222mm and 27 and 102g were netted in slow and moderate water. [BV044].

Genus Petrocephalus

Petrocephalus bane

A single specimen was netted in moderately flowing river measuring 75mm and weighing 7.5g. Known locally as **Ekple**. [BV045]

Order: TETRAODONTIFORMES

suborder Tetraodontoidei

FAMILY: TETRAODONTIDAE

Tetraodon fahaka

This comical looking fish is instantly recognisable. It has a very powerful, crushing bite. Four specimens were netted, three in fast water and one in slow water. Average length was 265mm (sd 55, range 199-318) weight 875g (sd 5032, range 325-1450). This was the only fish species encountered which is not used by people as food on account of its poisonous flesh. It is nevertheless valued for some form of traditional medicine, the exact nature of which we could not determine. Some people claimed that the viscera are used to make poison or a posion antidote. The local name is **poprowuo**. [no specimen]

Order: CYPRINIFORMES

suborder CHARACOIDEI

FAMILY CHARACIDAE

Genus Hydrocynus

Hydrocynus lineatus

Six specimens were caught; four juveniles netted in moderate and slow water had mean length of 239mm (sd 24, range 224-274) and weight of 119g (sd 40, range 60-144). Two larger animals (324mm/505g and 592mm/4800g) netted in fast water. Members of the genus are easily recognised by their cruel array of teeth but distinguishing species is difficult. Known locally as **aavuwo**. [BV013]

Hydrocynus sp.

Two small tigerfish netted in fast water could not be assigned to *C. lineatus*. Measured 107 and 154mm and weighed 30 and 60g. [BV128].

Genus Alestes

Alestes baremose

Distinguished by having 22 or more branched rays on the anal fin. A single specimen (length 240mm, weight 132g) was netted in fast water. Known locally as **asentiwoe**. [BV041]

Alestes macrolepidotus

16 mainly small specimens netted in slow water. Average length was 169mm (sd 56, range 89-318mm) weight 105g (sd 116, range 21-485g). Known locally as **yoha**. [BV006]

Alestes nurse

The commonest characin in the study, known locally as **dzogbla**. 21 specimens were netted, all but two in fast water. Average length was 109mm, (sd 17, range 88-169) average weight was 270g (sd 90, range 138-550). [BV043]

FAMILY CITHARINIDAE

Genus Citharinus

Citharinus citherus

Known locally as **eva**, 17 specimens were netted in slow and moderate water. Average length was 165mm (sd 19, range 124-204) average weight was 118g (sd 50, range 52-236).

FAMILY DISTICHODONTIDAE

Genus Distichodus

Distichodus brevipinnis

Recognised by its long adipose fin but sharing the name **agbasra** with *D.rostratus*. Two specimens of 170 and 172mm weighed 115 and 120g. Another measuring 218mm weighed 210g.

Distichodus rostratus

Six specimens were netted in slow and moderate water. Average length was 271mm (sd 62, range 210-367), average weight was 301g (sd135, range 171-510). Known locally as **agbasra**. [no specimen]

FAMILY ICHTHYBORIDAE

Genus Ichthyborus

Ichthyborus besse

An unusual fish with a hinged upper jaw. A single specimen measuring 240mm and weighing 205g was netted in moderate water. Known locally as **slixe**. [no specimen]

suborder Cyprinoidei

FAMILY CYPRINIDAE

Genus Labeo

Labeo senegalensis

Nine specimens were caught, two of which were caught in nets in moderate water (there is no capture data for the other specimens). Known locally as **agbogboye** it is distinguished from other species by having eyes visible from both above and below. All specimens caught appear to be juveniles with average length of 220mm (sd 43, range 154-302mm) and weight of 223g (sd 128, range 61-490g). [BV003]

Labeo coubie

Three specimens netted in moderately flowing water and one caught in a trap in fast water. Known locally as **dzanasu**. Two juveniles measured 123 and 221mm, weight 46 and 255g. Two adults measured 298 and 363mm and weighed 1940 and 1010g [BV042].

Labeo sp.

Known locally as **agbobogboe yibo**, possibly *Labeo pseudocoubie*. Five specimens were netted in slow or moderate water measuring 268mm (sd 107, range 153-428). The three largest had mean weight of 730g (sd 461, range 305-1220).

Suborder Siluroidei

FAMILY BAGRIDAE

Genus Auchenoglanis

Auchenoglanis occidentalis

Eleven specimens were caught with an average length of 296mm (sd 76, range 232-481) and average weight of 547g (sd 344, range 246-1210). Known locally as **Kpolo** and distinguished by the lack of a nasal barbel. Holden and Reed (1972) state that the species is most commonly encountered in pools during the dry season, that they rarely exceed 350mm. [BV047]

Genus Bagrus

Bagrus bayad

Five specimens netted in slow and moderate water. Known locally as **yalefo**. Mean length was 321mm (sd 145, range 212-539) and mean weight of 614g (sd 613, range 152-1553). [BV048]

Bagrus sp.

Four specimens of a catfish known locally as **avejame yalefo** netted in slow water probably represent *Bagrus docmac*. Three specimens had a mean length of 258mm (sd 22, range 238-282) and weight of 233g (sd 23, range 220-260). A slightly larger individual measured 365mm and weighed 610g. [BV214]

Genus Chrysichthys

Chrysichthys nigrodigitatus

Known locally as **blolo**. Two specimens were netted in slow water measuring 158 and 182mm and weighing 58 and 96g. [BV114].

FAMILY: CLARIIDAE

Genus Clarias

Clarias anguillaris

Two specimens were netted in slow water. Lengths were 343 and 313mm, weights 375 and 310g. Known locally as **adewu**. Distinguished from *C. lazera* by the fewer (less than 30) gill rakers on the lower arm of the first gill arch in the former species.

Genus Heterobranchus

Heterobranchus longifilis

Five specimens of this species, known locally as **adewudze** were caught; four from nets in slow water and one in a fast water trap. Mean standard length was 442mm (sd 116, range 313-615) and mean mass of 1221g (sd 954, range 370-2800). They were distinguished from *H.bidorsalis* on the basis of lack of red pigmentation in the fins and the equal length of the dorsal and adipose fins. [BV021]

Heterobranchus bidorsalis

Three specimens of this catfish known locally as **adewu** and distinguished from the *Clarias* with the same name by the large adipose fin of Heterobranchus. Three specimens were caught, two netted in slow and moderate water and one trapped in fast water. Lengths and weights. [no specimen]

FAMILY SCHILBEIDAE

Genus: Schilbe

Schilbe mystus.

Identified on the basis of its short barbels and known locally as **Gadavi**. Six specimens were caught in nets set in slow or moderate water and measured an average of 158mm (sd 60, range 84-247) and weighed 82g (sd 90.2, range 15-236g). [BV032]

Genus Eutropius

Eutropius niloticus

Distinguished from *Schilbe mystus* by the presence of an adipose fin but known by the same local name **gadavi**. Five specimens were netted in moderate and fast water. Average length was 123mm (sd 38, range 92-185), average weight was 26g (sd 30, range 7-78). [BV059]

FAMILY MALAPTERURIDAE

Malapterurus electricus

The electric catfish is known locally as **eni**. Comparatively little of the bulk of the fish is available as food because of the large amount of fatty tissue around the body. Specimens were netted in slow, moderate and fast water and five specimens were

trapped in fast water. Average length was 390mm (sd 115, range 254-600mm) weight was 1319 (sd 1106, range 365-3750g). [no specimen]

FAMILY: MOCHOCIDAE

Genus: Synodontis

Synodontis schall

The commonest synodontid encountered, *S.schall* is known locally as **tse tse dze**. 24 specimens were caught with a mean standard length of 183mm (sds 32, range 119-268) and mean weight of 150g (sd 75 range 41-365). *S.schall* was caught in nets set in slow and moderate water and in traps set in fast water. [BV019]

Synodontis sorex

A single specimen of this species was netted in slow water. It measured 3.9cm standard length (49mm total length) and weighed 1.4g. This species is distinguished from most others in the genus by the small number (6-10) of mandibular teeth. The species may be rare throughout the year in Bui because there is no local name. [BV219]

Synodontis eupterus.

Recognised by the long soft rays in the dorsal fin. A single specimen 15cm SL 71g was caught in a net in moderate water. This fish was no common name around Bui, perhaps indicating that it is locally rare. [BV272]

Synodontis membranaceus/Hemisynodontis membranaceus

A distinctive mochid known locally as **tse tse goye**. Three specimens were netted, all in slow water with mean standard length of 217mm (sd 17, range 200-233) and an average weight of 245g (sd 87, range 168-340). [BV112]

Synodontis nigrita

This common species shows great variation in pattern and colouration. Known locally as **tse tse du du**. 15 specimens were caught, 14 netted in slow or moderate water and one caught in a trap in fast water. Average length was 144mm (sd21, range 115-178mm) and average weight was 88mm (sd 40, range 40-160g). Recognised by its completely pigmented ventral surface and 25-38 mandibular teeth. [BV015, BV020]

Synodontis clarias

Usually recognised by its distinctive red tail, *S.clarias* is known locally as **tse tse afinui**. Four specimens were netted in slow or moderate water measuring an average of 160mm (sd 18, range 138-179) and weighing an average of 107g (ds 32, range 77-142g). [BV115]

Order: PERCIFORMES

Suborder Percoidei

Family CICHLIDAE

Genus Hemichromis

Hemichromis fasciatus

Known locally as **Boye**. Three specimens were caught in slow and moderate water. 125-134mm and weighing 48-68g. [no specimen]

Genus Tilapia

Tilapia galilaea

Known locally as **akpa**. Four specimens were netted in slow or moderate water. Average length of three specimens was (range 109-158) average weight (range 72-120). This species was distinguished by the pink flushes on the fins and throat, which may indicate breeding condition. Holden & Reed (1972) report that this species is common on sandy bottoms but rare over mud. [BV070]

Tilapia spp.

Three other "**akpa**" representing two species were found that could not be identified to species were netted in moderate and slow flowing water. [BV031;BV160]

FAMILY SERRANIDAE/CENTROPOMIDAE

Genus Lates

Lates niloticus

12 juvenile specimens of the infamous Nile perch were netted in slow, moderate and fast water. Known locally as **lesi**. Standard length averaged 247mm (sd 74, range 164-394) average weight was 356g (sd 288, range 105-990g). [no specimen]

suborder Ophicephaloidei

FAMILY CHANNIDAE/OPHICEPHALIDAE

Genus Channa/Ophicephalus

Channa obscura/Ophicephalus obscurus

According to Holden and Reed (1972) snakehead fish are rare in West Africa. Three specimens were caught in slow and moderate water measuring average of 335mm (sd 104, range 229-436) and weighing 597g (sd 156, range 450-761). Known locally as **norgi**. [no specimen]

BRACHYOPTERYGI

ORDER POLYPTERIFORMES

FAMILY POLYPTERIDAE

Genus Polypterus

Polypterus ansorgei

Five specimens netted in slow or moderate water. Known locally as *dosu*. Average length was 415mm (sd 53, range 363-498mm), average weight was 710g (sd 401, range 355-1390). Recognised by having 14 pinnules in the dorsal fin. We found no evidence that these fish prey on *Synodontis* catfish, contrary to Holden and Reed (1972). [no specimen]

Polypterus senega/us

Eleven specimens were netted in slow and moderate water. Distinguished by having fewer pinnules on the dorsal fin than *P.ansorgei*, in shares the same local name of *dosu*. Average length was 412mm (sd 29, range 376-512) average weight was 545g (sd 62, range 468-671g). [no specimen]

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