

## A Collection of Freshwater Fishes from Western New Guinea with Descriptions of Two New Species (Gobiidae and Eleotridae)

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### Abstract

Collections of freshwater fishes from western New Guinea (Irian Jaya) are reported. They were procured mainly during two expeditions from the Rijksmuseum van Natuurlijke Historie (Leiden) during 1954-55 and 1959. Collections were made at or in the vicinity of Ajamaru Lakes, Jamur Lake, Wissel Lakes, Digul River at Tanah Merah, Merauke, Japen Island, and the vicinity of Jayapura including Lake Sentani and the Tami River. The material includes 77 species representing 50 genera and 30 families. Two new species are described. *Glossogobius hoesei* sp. nov. (Gobiidae) from the Ajamaru Lakes region is characterized by a truncate tongue, the absence of a branched pit organ canal below the eye, and a relatively short head (about 26 to 28% of the standard length). *Oxyeleotris wisselensis* sp. nov. (Eleotridae) from the mountainous Wissel Lakes region is related to the widely distributed lowland species *O. fimbriata*. It differs, however, with regard to head shape, coloration, and maximum size. A brief diagnosis, illustrations and table of proportional measurements are presented for the new species. Other species are treated in an annotated checklist. In addition, a list of the 158 species thus far recorded from fresh waters of New Guinea is appended. A brief zoogeographical discussion of the New Guinea fauna is also included.

### Introduction

The freshwater fish fauna of New Guinea is relatively impoverished compared with the rich cypriniform-dominated fauna lying to the west. The New Guinea species, with the exception of *Scleropages jardinii*, are secondary freshwater forms having evolved in relatively recent times from marine ancestors. Most of the species thus far documented were collected by Dutch expeditions between 1903 and 1920. Major collectors during this period included de Beaufort (1903 and 1910), Gjellerup (1910-1911), Gooszen (1909), van Heurn (1920), van Kampen (1910-1911), Koch (1904), and Lorentz (1907 and 1909). The majority of these collections were summarized by Weber (1908 and 1913).

The only major collections since 1920 are those from the Fly, Purari, and Laloki Rivers reported by Roberts (1978), Berra *et al.* (1975), and Haines (1979)

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respectively, and those from western New Guinea reported in the present paper. Most of the latter collections were procured between October 1954 and May 1955 by the second author on an expedition from the Rijksmuseum van Natuurlijke Historie (Leiden) at the request of the prevailing government of western New Guinea. Additional specimens were obtained in the vicinity of Tanah Merah during August and September 1959. These were collected at the conclusion of an RMNH expedition to the Star Mountains under the direction of Dr L.D. Brongersma. As a result of personal contact made during the RMNH expeditions a number of complementary collections were subsequently sent to Leiden, mainly by government civil and naval personnel.

Our present collection includes 268 lots containing 2,124 specimens. Seventy-seven species are represented belonging to 50 genera and 30 families. Two species,

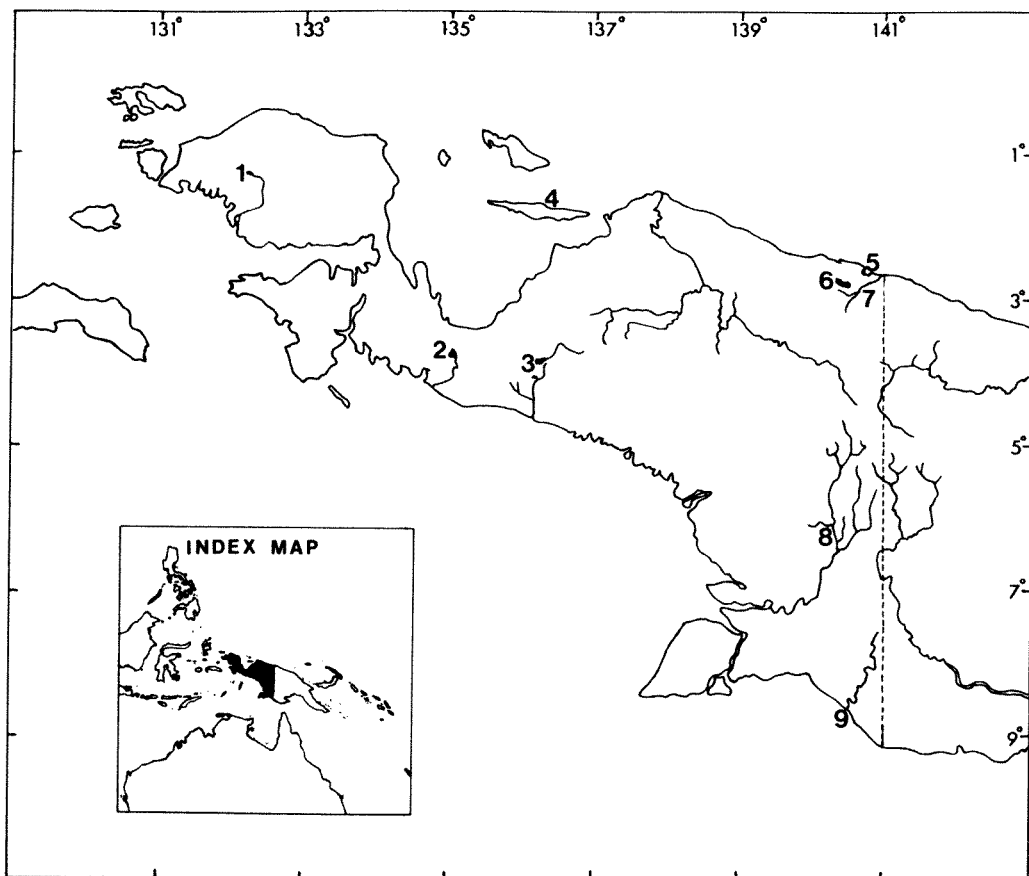


Figure 1 Map of western New Guinea (Irian Jaya). Numbers denote principle collection areas: (1) Ajamaru Lakes; (2) Jamur Lake; (3) Wissel Lakes; (4) Japen Island; (5) Jayapura; (6) Lake Sentani; (7) Tami River; (8) Tanah Merah (9) Merauke.

a gobiid and eleotrid, are herein described as new. In addition, Allen and Cross (1980) published descriptions of four new rainbowfishes (Melanotaeniidae) resulting from these collections.

The principal collection areas are indicated in Figure 1. Boeseman (1963) presented detailed information regarding the physiography and climate of the various sites visited by the 1954-55 expedition. A detailed itinerary was also presented with a series of maps and index of geographic place names. The 1959 fishes were taken from the Digul River near the settlement of Tanah Merah mainly between 5 and 13 September. These specimens are indicated by an asterisk (\*) in the species section which follows.

Families are arranged in phylogenetic sequence following Greenwood *et al.* (1966). An abbreviated reference is given for the original description of each species. The complete reference appears in the bibliography. Under each species a list of specimen lots is given with an abbreviated locality reference (see below) and the museum registration number followed by the number and size range of the specimens. All lengths are standard length unless indicated otherwise. Annotations are included for each species which contain information on the distribution, and in some cases comments on the current status of problematical taxa. Counts and proportions which appear in parentheses in the descriptions of the two new species refer to the range for paratypes if different from the holotype.

### Abbreviations

Institutions — Lembaga Biologi Nasional, Bogor, Indonesia (LBM); Rijksmuseum van Natuurlijke Historie, Leiden (RMNH); National Museum of Natural History, Washington, D.C. (USNM); and Western Australian Museum, Perth (WAM).

Collection localities (see also Boeseman 1963) —

- AJ — vicinity of Ajamaru on Jow Lake, Vogelkop Peninsula, 3-7 March 1955.
- AT — vicinity of Aitinjo on Aitinjo Lake, Vogelkop Peninsula, 11-14 March 1955.
- DA — vicinity of Dimija Village on Dimija River between Paniai and Tage Lakes (Wissel Lakes), 3-9 January 1955.
- DR — Digul River at Tanah Merah, March and June 1956.
- DU — vicinity of Djitmau, about 12 km east of Ajamaru, Vogelkop Peninsula, 8-9 March 1955.
- IR — Ibaru River on the Nimboran Plain about 60 km west of Jayapura near the native villages of Nangkuku and Benjom, 3 November 1954.
- JI — Japen Island near village of Serui, 1954, collected by D.L. Leiker.
- JL — Jamur Lakes, along lake shore and in small streams in vicinity of Gariau Village, 7-13 December 1954.
- JR — Jawej River at Keniapi Village, Wissel Lakes region, 28-30 December 1954.

- JV – small streams and ponds in vicinity of Jayapura (formerly Hollandia), November 1954.
- MN – Wosi River, west of Manokwari, 9 March 1955, collected by L.B. Holthuis.
- MV – small streams in vicinity of Merauke, 4-10 April 1955.
- PL – streams in vicinity of Paniai Lake, Wissel Lakes, 26-28 December 1954.
- SL – Sentani Lake near Jayapura, most specimens collected between 20-26 October 1954, but a few taken in September and November 1954 and November 1960.
- TA – streams in vicinity of Tage Lake, Wissel Lakes, 30 December 1954 to 3 January 1955.
- TGG – Digul River in vicinity of Tanahtinggi, 10-11 March 1956, collected by Lt Romer, Royal Netherlands Navy.
- TI – streams in vicinity of Tigi Lake, Wissel Lakes, 11-17 January 1955.
- TM – Digul River in vicinity of Tanah Merah, 14-17 April 1955 unless indicated by an asterisk (\*) in which case specimens collected 5-13 September 1959.
- TR – Tami River, cut-off arm (oxbow lake) and main channel, about 22 km SE of Jayapura, 18-21 November 1955.

## Systematics

### Family Carcharhinidae . . . Sharks

#### *Carcharhinus leucas* (Müller and Henle)

*Carcharias leucas* Müller and Henle, 1841: 42 (Antilles). JL (FMNH 24698), male, 148 cm TL; JL (RMNH 24699), male, 146 cm TL; JL (RMNH 24611), female, 73 cm TL; JL (RMNH 24697), female, 125 cm TL.

World-wide circumtropical distribution, frequently entering and sometimes breeding in fresh water. The occurrence of this shark in Lake Jamur was reported by Boeseman (1964).

### Family Pristidae . . . Saw Sharks

#### *Pristis microdon* Latham

*Pristis microdon* Latham, 1794: 280 (locality unknown). SL (RMNH 28608), 241 cm; SL (RMNH 28609), 284 cm; SL (RMNH 28659), 61.5 cm; TM\* (RMNH 28430), 10: 71-79 cm. In addition, the RMNH collection contains 8 saws measuring 200-690 mm taken from specimens collected at Sentani Lake, Moif River near Genjem (see Boeseman 1963), and Digul River near Tanah Merah (RMNH reg. nos D3051-52, D3054-58 and D3026).

Widespread in the tropical Indo-Pacific region frequently found in fresh water, particularly in large rivers.

Family Megalopidae . . . Oxeye Herrings

*Megalops cyprinoides* (Broussonet)

*Clupea cyprinoides* Broussonet, 1782: plate ix (Jamaica, Antigua, Brazil, and New Hebrides). TM (RMNH 28431), 2: 190 and 225 mm; MV (RMNH 24527), 2: 118 and 128 mm.

World-wide circumtropical distribution, occurring in the sea and estuaries, but frequently entering fresh water.

Family Clupeidae . . . Herrings

*Nematalosa erebi* (Günther)

*Chatoessus erebi* Günther, 1868 (see Günther 1866): 407 (Mary River, Queensland). JL (RMNH 28432), 23: 27-92 mm; JL (RMNH 28433), 33: 31-83 mm; TM\* (RMNH 28434), 6: 79-105 mm; TM (RMNH 28435), 11: 106-148 mm; TM (RMNH 25078), 4: 270-275 mm; TM (RMNH 28436), 2: 203 and 220 mm; TM (RMNH 28437), 5: 74-127 mm; TM\* (RMNH 28438), 3: 92-108 mm; JL (RMNH 28439), 10: 33-97 mm.

We provisionally follow Nelson and Rothman (1973) in identifying our southern New Guinea material as *Nematalosa erebi*. Roberts (1978) reported two different forms of *Nematalosa* from the Fly River and stressed the need for a re-evaluation of the New Guinea populations. Distributed in fresh waters of Australia and southern New Guinea.

Family Engraulidae . . . Anchovies

*Thryssa scratchleyi* (Ramsay and Ogilby)

*Engraulis scratchleyi* Ramsay and Ogilby, 1887: 18 (Strickland R., New Guinea). TM\* (RMNH 28440), 2: 135 and 138 mm.

Fresh and brackish waters of northern Australia and southern New Guinea.

Family Osteoglossidae . . . Bony Tongues

*Scleropages jardinii* (Kent)

Figure 2

*Osteoglossum jardinii* Kent, 1892: 105 (Batavia River, Cape York, Australia). TM (RMNH 23976), 2: 172 and 182 mm; DR (RMNH 25928), 560 mm; DR (RMNH 25929), 485 mm; TM (RMNH 28441), 2: 470 and 550 mm.

Some confusion exists regarding the identity and nomenclature of *Scleropages* from the New Guinea-Australia region. Most works, for example Fowler (1941), Munro (1956), and Lake (1978) recognized the existence of two species, one from the Fitzroy River system of central-eastern Queensland, and another from a

few rivers in far northern Australia and central southern New Guinea. Inadequate comparison of the two forms in the literature has caused some speculation that only a single species may exist. Even among authors who recognize two species there is not universal agreement on nomenclature. Fowler (1941) used the names *S. leichardti* Günther and *S. guntheri* Castelnau for the northern and southern forms respectively. Munro (1956) recognized these forms as being distinct only at the subspecific level, assigning the names *S. leichardti leichardti* and *S. leichardti guntheri*. Lake (1978) used *S. jardinii* (Kent) for the northern fish and *S. leichardti* for the southern one. Weber and de Beaufort (1913) recognized only one species from Queensland and New Guinea, *S. leichardti*, placing *S. jardinii* in its synonymy and failed to mention *S. guntheri*.

We have made direct comparisons at RMNH of similar-sized specimens (Figures 2 and 3) belonging to the two forms. They exhibit significant differences related to a number of features. Our findings are summarized in Table 1. The northern form is characterized by a sloping nape profile, a longer more gradually sloping jaw, a more forward directed mouth, and a much larger head. By contrast, the southern or Fitzroy system fish has a straight, non-sloping profile from the dorsal fin origin to the snout tip and a short jaw inclined upward at a very steep angle with the mouth directed more dorsally.

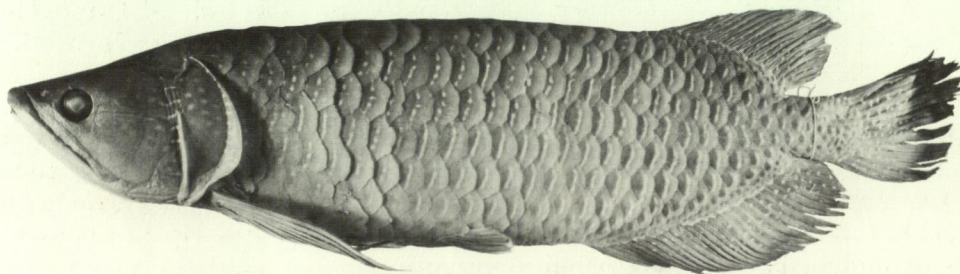


Figure 2 *Scleropages jardinii* (RMNH 28441), 55 cm SL, Digul River near Tanah Merah, Irian Jaya.

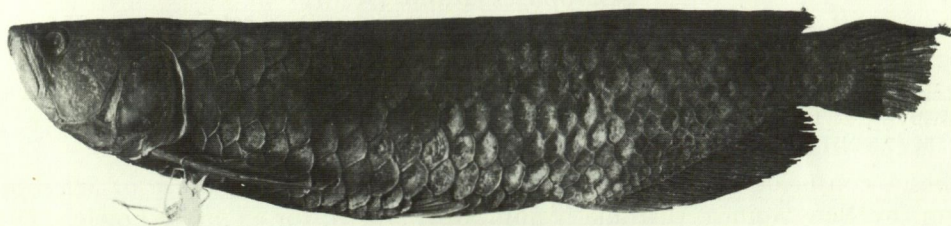


Figure 3 *Scleropages leichardti* (RMNH 28613), 56 cm SL, Fitzroy River system, Queensland, Australia.

Table 1 Comparison of certain characters of *Scleropages jardinii* and *S. leichardti* (based on two specimens of *S. jardinii*, 455 and 550 mm, Digul River, New Guinea and two specimens of *S. leichardti*, 470 and 553 mm, Fitzroy River system, Queensland.

Character	<i>S. jardinii</i>	<i>S. leichardti</i>
Body depth — % SL	26.8-27.5	24.0-24.2
Head length — % SL	28.7-30.5	22.3-24.4
Angle of mouth (in relation to horizontal axis of body)	41-45°	24-25°
Extent of maxillary	to well beyond eye	not beyond rear of eye
Dorsal profile	nape arched	flat
Colour pattern	crescentic mark at rear of most scales	1-2 spots at centre of most scales
Dorsal rays	20-21	15-16
Anal rays	28-29	25

The only name available for the northern form is *S. jardinii* described by Kent (1892) from the Batavia (now the Wenlock) and Gregory Rivers of far northern Queensland. This species is presently known from the northernmost section of Cape York Peninsula, the Gregory River flowing into the Gulf of Carpentaria, and the East Alligator system of the Northern Territory, all in the far north of Australia. New Guinea localities include the Fly and Digul Rivers.

The oldest name for the southern form is *S. leichardti* described by Günther (1864) from the Burdekin and Fitzroy Rivers. Castelnau (1876) failed to give exact locality data in his description of *S. guntheri*, but from the fin ray counts (D. 17; A. 26) and proportions which are given it is clearly referable to the synonymy of *S. leichardti*. Castelnau's type appears to be missing. It is neither in Paris or in the collections of Australian museums.

### Family Ariidae . . . Fork-tail Catfishes

#### *Arius carinatus* Weber

*Arius carinatus* Weber, 1913: 537 (Lorentz River, West New Guinea). TM (RMNH 28007), 210 mm SL.

Rivers of central-southern New Guinea; thus far recorded from the Purari, Digul, Lorentz, and Fly Rivers.

#### *Arius leptaspis* (Bleeker)

*Hexanematichthys leptaspis* Bleeker, 1862: 27 (south-east New Guinea). TM (RMNH 28442), 4: 275-370 mm; TM\* (RMNH 28385), 335 mm; TM (RMNH 28008), 2: 360 and 380 mm;

TM (RMNH 28009), 370 mm; TM (RMNH 28810), 2: 360 and 390 mm; JL (RMNH 28443), 7: 45-175 mm.

Widely distributed in fresh waters of northern Australia and New Guinea (both north and south of the central dividing range). The identification of this species is provisional pending further studies by P. Kailola.

*Arius* sp. A

JL (RMNH 28811), 2: 255 and 350 mm.

This species is presently under study by P. Kailola, who is revising the Ariidae of the Australia-New Guinea region. It is very similar to *A. australis* Günther, which is widely distributed in northern Australia.

*Arius* sp. B

TGG (RMNH 28812), 400 mm; TM (RMNH 28813), 320 mm.

According to Kailola, this species which is characterized by a strongly depressed, spatulate head, is closely related to a similar species inhabiting fresh waters of northern Australia.

*Arius* sp. C

TR (RMNH 28814), 89 mm.

According to Kailola this species, which occurs on the northern side of New Guinea's central dividing range, has been erroneously referred to as *Arius leptaspis* by previous authors. The northern population appears to represent a distinct species which is presently under study by Kailola.

*Arius* sp. D

SL (RMNH 28815), 6: 225-345 mm.

This is a new species which will be described by P. Kailola. It is characterized by a single ovate patch of teeth on each side of the palate. It also occurs in the Ramu and Sepik Rivers of northern Papua New Guinea.

*Cinetodus froggatti* (Ramsay and Ogilby)

*Arius froggatti* Ramsay and Ogilby, 1887: 14 (Strickland River, New Guinea). TM (RMNH 28816), 380 mm.



*Cinetodus*, a monotypic genus, was previously thought to be endemic to rivers of central-southern New Guinea. However, according to Kailola (pers. comm.) specimens have been collected in the Roper River, Northern Territory, Australia.

*Cochlefelis spatula* (Ramsay and Ogilby)

*Arius spatula* Ramsay and Ogilby, 1887: 15 (Strickland River, New Guinea). TGG (RMNH 28817), 540 mm.

Rivers of central-southern New Guinea; known thus far only from the Fly and Digul systems.

*Hemipimelodus macrorhynchus* Weber

*Hemipimelodus macrorhynchus* Weber, 1913. 549 (Lorentz River, New Guinea). TM (RMNH 28818), 6: 179-295 mm.

Rivers of central-southern New Guinea; known thus far only from the Purari, Fly, Digul, and Lorentz systems.

*Hemipimelodus taylori* Roberts

*Hemipimelodus taylori* Roberts, 1978: 40 (Fly River, Papua New Guinea). TM (RMNH 28444), 59 mm.

Recently described from the Fly River of Papua New Guinea.

*Hemipimelodus velutinus* Weber

*Hemipimelodus velutinus* Weber, 1908: 125 (northern New Guinea). SL (RMNH 28445), 250 mm.

Fresh water of northern New Guinea between the Tami and Tawarin Rivers.

*Hemipimelodus* sp.

TR (RMNH 28819), 3: 246-331 mm.

According to Kailola this species is possible undescribed. It is most closely related to *H. papillifer* of northern New Guinea but differs with regard to anal and pectoral ray counts, and proportional measurements related to the length of the

adipose fin base and eye diameter. The species is characterized by the following combination of characters (counts and measurements for *H. papillifer* indicated in parentheses): anal rays 20 to 21 (19); pectoral rays I, 11 (I, 10); adipose fin base in interdorsal space 1.6 to 2.0 (3.4 to 4.0); eye diameter in head length 8.6 to 9.4 (7.0 to 7.6).

Thus far known only on the basis of the three specimens collected in the Tami River near Jayapura.

*Nedystoma dayi* (Ramsay and Ogilby)

*Hemipimelodus dayi* Ramsay and Ogilby, 1886: 16 (Strickland River, New Guinea). TM (RMNH 28446), 9: 91-164 mm; TM (RMNH 28820), 5: 135-170 mm.

Rivers of central-southern New Guinea. Thus far reported from the Purari, Fly, Digul, and Lorentz systems.

Family Plotosidae . . . Eel-tail Catfishes

*Neosilurus ater* (Perugia)

*Lambertia atra* Perugia, 1894: 551 (Inawi, Papua). TM (RMNH 28447), 3: 308-375 mm; TM (RMNH 28138), 2: 335 and 395 mm; JL (RMNH 28139), 3: 345-375 mm; JL (RMNH 28821), 3: 315-333 mm.

Fresh waters of central southern New Guinea and northern Australia.

*Neosilurus brevidorsalis* (Günther)

*Copidoglanis brevidorsalis* Günther, 1867: 22 (Cape York, Australia). AJ (RMNH 28448), 2: 105 and 121 mm; JL (RMNH 28134), 2: 60 and 79 mm; AJ (RMNH 28135), 3: 81-115 mm; AT (RMNH 28136), 5: 68-110 mm; DU (RMNH 28137), 7: 62-94 mm.

Fresh waters of central southern New Guinea and northern Cape York Peninsula, Australia.

Family Belonidae . . . Needlefishes

*Strongylura krefftii* (Günther)

*Belone krefftii* Günther, 1866: 250 (Australia). JL (RMNH 24674), 180 mm; TM\* (RMNH 28449), 6: 395-575 mm.

Freshwater streams of New Guinea and northern Australia.

Family Hemirhamphidae . . . Halfbeaks

*Zenarchopterus novaeguineae* (Weber)

*Hemiramphus* (*Zenarchopterus*) *novae-guineae* Weber, 1913: 553 (Lorentz River, southern New Guinea). TGG (RMNH 27386), 163 mm.

Freshwater streams and estuaries of central southern New Guinea.

Family Melanotoeniidae . . . Rainbowfishes

*Chilatherina crassispinosa* (Weber)

*Rhombatractus crassispinosa* Weber, 1913: 567 (Buarin River, Sepik River, Begowre River, Sermowai River and Tawarin River, northern New Guinea). IR (RMNH 28427), 32 mm.

Streams of northern New Guinea between the Markham and Tawarin Rivers.

*Chilatherina fasciata* (Weber)

*Rhombatractus fasciatus* Weber, 1913: 565 (Sermowai River, river near Njao, and tributary of Sepik River, northern New Guinea). JV (RMNH 28424), 62 mm.

Streams of northern New Guinea between the Markham and Mamberamo Rivers.

*Chilatherina sentaniensis* (Weber)

*Rhombatractus sentaniensis* Weber, 1908: 235 (Lake Sentani, northern New Guinea). SL (RMNH 28426), 51: 43-78 mm; SL (RMNH 27809), 36: 48-72 mm; SL (RMNH 27810), 15: 59-86 mm; SL (RMNH 27814), 59 mm; SL (RMNH 27815), 3: 72-80 mm.

Lake Sentani and nearby Sekanto River, northern New Guinea.

*Glossolepis incisus* Weber

*Glossolepis incisus* Weber, 1908: (Lake Sentani, northern New Guinea). SL (RMNH 28410), 2: 41 and 49 mm; SL (RMNH 28428), 11: 50-78 mm; SL (RMNH 27812), 16: 39-56 mm; SL (RMNH 27813), 21: 38-56 mm; SL (RMNH 27816), 2: 78 and 86 mm; SL (RMNH 27818), 54 mm.

Lake Sentani, northern New Guinea.

*Glossolepis pseudoincisus* Allen and Cross

*Glossolepis pseudoincisus* Allen and Cross, 1980: 392 (Tami River, northern New Guinea). TR (RMNH 28072, holotype), 76 mm; TR (LBN 2489, paratypes), 4: 41-64 mm; TR

(RMNH 28073, paratypes), 41: 33-79 mm; TR (USNM 220907, paratypes), 4: 48-67 mm; TR (WAM P26793-001), 5: 60-77 mm.

Known only from an ox-bow lake next to the Tami River, 23 km SE of Jayapura, northern New Guinea.

*Melanotaenis affinis* (Weber)

*Rhombatractus affinis* Weber, 1908: 234 (Lake Sentani, Sekanto River, and Wagani Rivers, northern New Guinea). JV (RMNH 28412), 3: 25-37 mm; IR (RMNH 28413), 6: 9-18 mm; IR (RMNH 28420), 13: 25-75 mm; SL (RMNH 28411), 46 mm.

Streams and lakes of northern New Guinea between the Markham and Sermowai Rivers.

*Melanotaenia ajamaruensis* Allen and Cross

*Melanotaenia ajamaruensis* Allen and Cross, 1980: 348 (Ajamaru Lakes, western New Guinea). AJ (RMNH 28068, holotype), 78 mm; AJ (LBN 2488, paratypes), 4: 37-45 mm; AJ (RMNH 28069, paratypes), 46: 26-65 mm; AJ (RMNH 28070, paratypes), 6: 32-62 mm; AJ (RMNH 28071, paratype), 57 mm; AJ (USNM 220905, paratypes), 3: 43-59 mm; AJ (WAM P26792-001, paratypes), 6: 44-68 mm.

Ajamaru Lakes System in the central Vogelkop Peninsula of Western New Guinea.

*Melanotaenia boesemani* Allen and Cross

*Melanotaenia boesemani* Allen and Cross, 1980: 379 (Ajamaru Lakes, western New Guinea). AJ (RMNH 28061, holotype), 66 mm; AJ (LBN 2487, paratypes), 3: 50-63 mm; AJ (RMNH 28062, paratypes), 27: 35-63; AJ (RMNH 28063, paratypes), 9: 36-61 mm; DU (RMNH 28064, paratypes), 7: 32-53 mm; AJ (RMNH 28065, paratypes), 3: 27-49 mm; AT (RMNH 28066, paratypes), 3: 54-56 mm; AJ (RMNH 28067, paratypes), 6: 42-87 mm; AJ (USNM 220904, paratypes), 3: 47-53 mm; AJ (WAM P26791-001, paratypes), 3: 50-63 mm.

Ajamaru Lakes system and nearby Aitinjo Lake in the central Vogelkop Peninsula of western New Guinea.

*Melanotaenia goldiei* (Macleay)

*Aristeus goldiei* Macleay, 1883: 269 (Goldie River, southern New Guinea). TM (RMNH 28419), 77 mm; JL (RMNH 28414), 47 mm; JL (RMNH 28422), 41: 16-75; TM (RMNH 24561), 3: 88-97; TGG (RMNH 25263), 100 m; TM\* (RMNH 28450), 10: 21-99 mm.

Lowland and foothill streams of southern New Guinea and the Aru Islands.

*Melanotaenia japonensis* Allen and Cross

*Melanotaenia japonensis* Allen and Cross, 1980: 387 (Japan Island, off northern New Guinea).  
JI (RMNH 28140, holotype), 77 mm; JI (RMNH 28141, paratypes), 2: 57 and 60 mm.

Japan Island in the vicinity of Serui, off northern New Guinea.

*Melanotaenia splendida rubrostriata* (Ramsay and Ogilby)

*Nematocentrus rubrostriatus* Ramsay and Ogilby, 1887: 14 (Strickland River, southern New Guinea), MV (RMNH 28415), 9: 14-20 mm; TM (RMNH 28421), 6: 78-103 mm; TM (RMNH 24561), 3: 88-97 mm; TM (RMNH 25263), 100 mm.

Lowland streams of central southern New Guinea and the Aru Islands.

Family Atherinidae . . . Hardyheads

*Craterocephalus randi* Nichols and Raven

*Craterocephalus randi* Nichols and Raven, 1934: 3 (Kubuna, southern New Guinea). JL (RMNH 28451), 6: 16-60 mm.

Our specimens possess about seven longitudinal rows of distinctive dark spots on the sides and in this respect are very similar in appearance to *C. stercusmuscarum* of northern Australia. The *Craterocephalus* of New Guinea require further studies. Known from streams and lakes of central southern New Guinea.

Family Syngathidae . . . Pipefishes

*Doryichthys retzii* (Bleeker)

*Syngnathus retzii* Bleeker, 1856: 76 (Celebes). JI (RMNH 25235), 4: 68-102 mm; JI (RMNH 27531), 2: 53 and 59 mm; MN (RMNH 27591), 66 mm.

Freshwater streams, tidal creeks and brackish estuaries of the Indo-Australian Archipelago and Philippine Islands.

Family Ambassidae . . . Glassfishes

*Ambassis macleayi* (Castelnau)

*Pseudoambassis macleayi* Castelnau, 1878: 43 (Norman River, Queensland). TM (RMNH 28452), 3: 38-56 mm.

Fresh waters of central southern New Guinea and northern Australia.

*Ambassis reticulata* Weber

*Ambassis interruptus* var. *reticulatus* Weber, 1913: 574 (Merauke and Lorentz Rivers, southern New Guinea). JL (RMNH 25244), 7: 38-47 mm; JL (RMNH 28453), 4: 34-44 mm.

Munro (1967) placed *A. reticulata* in the synonymy of *A. macleayi*. We have examined the types of both species and find them to be distinct differing in gill rakers and fin-ray counts and coloration. *Ambassis reticulata* generally has 17-20 rakers on the lower limb of the first gill arch (25 or more in *macleayi*), 9½ soft rays in the second dorsal and anal fins (10½ in *macleayi*), and lacks a distinct black marking on the pectoral base which is characteristic for *macleayi*. There is a possibility that our specimens from Lake Majur represent an undescribed species. They have a higher lateral scale count (28-34, usually 30-31 v. 25-28) and a taller first dorsal fin (> than head length vs. < than head) than syntypes of *A. reticulata* examined at RMNH and ZMA.

Fresh waters of central southern New Guinea.

*Parambassis gullivera* (Castelnau)

*Acanthoperca gulliveri* Castelnau, 1878: 45 (Norman River, Queensland). TM (RMNH 25876), 203 mm; TM (RMNH 25879), 4: 78-174 mm.

Fresh waters of central southern New Guinea and northern Australia.

Family Centropomidae . . . Barramundi

*Lates calcarifer* (Bloch)

*Holocentrus calcarifer* Bloch, 1790: 100 (Japan). MV (RMNH 24691), 2: 69 and 75 mm; TM (RMNH 28454), 2: 420 and 460 mm.

Widely distributed in estuaries and freshwater streams from the Persian Gulf eastward to southern China and the Indo-Australian Archipelago.

Family Lobotidae . . . Tripletails

*Lobotes surinamensis* (Bloch)

*Holocentrus surinamensis* Bloch, 1790: 98 (Surinam), TR (RMNH 28455), 150 mm.

Circumtropical distribution in coastal and brackish water, occasionally in lower reaches of freshwater streams.

Family Teraponidae . . Grunters  
*Amniataba affinis* (Mees and Kailola)

*Therapon affinis* Mees and Kailola, 1977: 72 (Morehead and Fly River systems, southern New Guinea). TM (RMNH 28456), 4: 70-142 mm.

We follow the recent family revision of Vari (1978) in placing this species in the genus *Amniataba*. Known from the Fly, Morehead, and Digul River systems of central southern New Guinea.

*Hephaestus romeri* (Weber)

*Therapon romeri* Weber, 1910: 233 (Lorentz River). TM (RMNH 24936), 2: 117 and 143 mm; TM (RMNH 24941), 123 mm; TM\* (RMNH 25909), 88 mm; TM (RMNH 28457), 155 mm.

Known only from the Lorentz and Digul Rivers of central southern New Guinea.

*Pingalla lorentzi* (Weber)

*Helotes lorentzi* Weber, 1910: 236 (Lorentz River, southern New Guinea). TM\* (RMNH 25390), 2: 50 and 53 mm.

Streams of central southern New Guinea and northern portion of Cape York Peninsula, Australia.

*Terapon jamoerensis* (Mees)

*Therapon jamoerensis* Mees, 1971: 214 (Lake Jamur, western New Guinea). JL (RMNH 25225, holotype), 82 mm; JL (RMNH 25224, paratypes), 4: 63-71 mm.

Known only from Lake Jamur, western New Guinea.

Family Apogonidae . . . Cardinalfishes

*Glossamia aprion* (Richardson)

*Apogon aprion* Richardson, 1842: 16 (near Darwin, Australia). TM (RMNH 24562), 2: 112 and 120 mm; TM (RMNH 28386), 180 mm; TM\* (RMNH 28465), 2: 69 and 72 mm; TM (RMNH 28466), 5: 14-35 mm; JL (RMNH 28458), 12 mm; JL (RMNH 28459), 29 mm; JL (RMNH 28460), 54 mm.

Coastal streams of central southern New Guinea and northern and eastern Australia.

*Glossamia beauforti* (Weber)

*Apogon beauforti* Weber, 1908: 246 (Lake Sentani, northern New Guinea). SL (RMNH 28461), 24 mm.

Northern New Guinea between Lake Sentani and the Mamberamo River.

*Glossamia wichmanni* (Weber)

*Apogon wichmanni* Weber, 1908: 248 (Lake Sentani, Tawarin River, Moso River, Sekanto River — northern New Guinea). IR (RMNH 28462), 40 mm; SL (RMNH 28463), 2: 25 and 26 mm; SL (RMNH 28464), 81 mm.

Northern New Guinea between the Ramu and Tawarin Rivers.

Family Silliginidae . . . Sand Whitings

*Sillago sihama* (Forsskål)

*Atherina sihama* Forsskål, 1775: 70 (Arabia). TR (RMNH 24547), 150 mm.

Widely distributed in the tropical Indo-west Pacific. Generally a marine or estuarine fish, but occasionally entering the lower reaches of freshwater streams.

Family Sciaenidae . . . Croakers

*Johnius belengerii* (Cuvier)

*Corvina belengerii* Cuvier (in Cuvier and Valenciennes), 1830 (Malabar). TM (RMNH 28467), 147 mm; TGG (RMNH 27128), 325 mm; TM (RMNH 27129), 4: 135-203 mm.

Widely distributed in shallow seas of the Indo-west Pacific region, frequently entering estuaries and freshwater streams.

Family Toxotidae . . . Archerfishes

*Toxotes chatareus* (Hamilton)

*Coius chatareus* Hamilton, 1822: 101 and 370 (Ganges River, India). JL (RMNH 27808), 2: 50 and 71 mm; JL (RMNH 27811), 7: 23-108 mm; JL (RMNH 28468), 3: 20-24 mm; JL (RMNH 28469), 8: 10-24 mm; TM (RMNH 28384), 230 mm.

Estuaries and freshwater streams of South-East Asia (India to China), Malaysia, Indonesia, New Guinea, and northern Australia.



Gerald R. Allen and M. Boeseman

*Toxotes jaculatrix* (Pallas)

*Sciaenia jaculatrix* Pallas, 1767: 186 (Batavia Jakarta, Java), JL (RMNH 28470), 21 mm.

Widely distributed between India and the New Hebrides. Usually found in salt or brackish conditions, seldom entering pure fresh water.

Family Scatophagidae . . . Scats

*Scatophagus argus* (Linnaeus)

*Chaetodon argus* Linnaeus, 1766: 464 (Indies), MV (RMNH 28471), 11 mm.

Widely distributed in coastal seas of the Indo-west Pacific region, frequently in fresh or brackish water, particularly juveniles.

Family Mugilidae . . . Mulletts

*Liza dussumieri* (Valenciennes)

*Mugil dussumieri* Valenciennes (in Cuvier and Valenciennes), 1836: 147 (Bombay and Coromandel), SL (RMNH 28472), 146 mm.

Widely distributed in the tropical Indo-west Pacific, frequently found in estuaries and fresh water.

*Liza macrolepis* (Smith)

*Mugil macrolepis* Smith, 1849: pl. 28 (South Africa). TM (RMNH 28473), 2: 158 and 162 mm; TM (RMNH 28474), 4: 355-390 mm.

Widely distributed in the tropical Indo-west Pacific, frequently found in estuaries and rivers.

*Valamugil seheli* (Forsskål)

*Mugil seheli* Forsskål, 1775: 73 (Lohajac, Red Sea), SL (RMNH 28475), 3: 227-240 mm.

Widely distributed in the tropical Indo-west Pacific, frequently found in estuaries and fresh water.

Family Gobiidae . . . Gobies

*Glossogobius aureus* Akihito and Meguro

*Glossogobius aureus* Akihito and Meguro, 1975: 128 (Okinawa, Japan). JL (RMNH 28476), 4: 35-106 mm; SL (RMNH 28477), 127 mm; SL (RMNH 28478), 5: 31-69 mm; SL (RMNH

28479), 14: 26-41 mm; SL (RMNH 28480), 103 mm; JL (RMNH 28481), 68 mm; TR (RMNH 28482), 142 mm; TM (RMNH 28483), 149 mm; SL (RMNH 25233), 5: 35-74 mm; JL (RMNH 25240), 73 mm; SL (RMNH 28485), 2: 87 and 150 mm; SL (RMNH 28486), 6: 24-43 mm; TM\* (RMNH 28487), 2: 74 and 82 mm.

Widely distributed in the western tropical Pacific including Okinawa, Taiwan, Philippine Islands, Thailand, Malaysia, Singapore, Indonesia, New Guinea, and northern Australia. Usually found in fresh water.

### *Glossogobius celebius* (Valenciennes)

*Gobius celebius* Valenciennes (in Cuvier and Valenciennes, 1837: 69 (Celebes). TM\* (RMNH 28488), 2: 61 and 71 mm.

Widely distributed in the western tropical Pacific including Okinawa, Philippine Islands, Indonesia, New Guinea and northern Australia. Usually found in fresh or brackish water.

### *Glossogobius hoesei* sp. nov.

Figures 4 and 5; Table 2

#### Holotype

RMNH 28560, 63.2 mm, Jow Lake in vicinity of Ajamaru, Vogelkop Peninsula, Irian Jaya, Indonesia (approximately 1°21'S, 132°16'E), M. Boeseman, 3-7 March 1955.

#### Paratypes

AJ (RMNH 28489), 20: 36-65 mm; AJ (RMNH 28490), 41: 29-71 mm; AJ (RMNH 28491), 54: 36-70 mm; DU (RMNH 28492), 16: 28-50 mm; AJ (RMNH 28493), 35: 43-67 mm; AJ (WAM P27387-001), 10: 50-65 mm.

#### Diagnosis

A species of *Glossogobius* which closely resembles *G. concavifrons*, but differs in lacking a branched pit-organ canal below the eye, in possessing a slightly shorter head (about 26 to 28% of standard length v. 28 to 32%), and usually 16 pectoral rays (17 or 18 in *concavifrons*).

#### Description

Dorsal rays VI-I,11 (9 to 12); anal rays, I,9 (9 or 10); pectoral rays 16 (14 to 17); gill rakers poorly developed, about 5 or 6 low rudiments on lower limb of first branchial arch; scales in lateral series 31 (31 or 32); horizontal scale rows between anal fin origin and dorsal fin base 10; predorsal scales 15 (15 to 17).

Body elongate, laterally compressed in posterior portion, more cylindrical anteriorly; maximum depth 5.2 (4.8 to 5.4) in standard length. Head blunt with moderately produced, rounded snout; maximum depth of head about equal to its maximum width or 1.9 (1.7 to 2.0) in standard length; length of head 3.6

(3.5 to 3.7) in standard length. Interorbital narrow, its width 11.6 (9.8 to 11.2) in head length. Snout 3.6 (3.4 to 3.9), eye 4.4 (4.2 to 5.2), both in head length.

Lower jaw slightly produced; teeth canine-like arranged in several rows in both upper and lower jaws, those of outer row enlarged; palate endentulous; tongue notched (sometimes not apparent if tongue folded); maxillary extends to level of front of eye or slightly anterior to this point. Gill opening extends to level of posterior preopercular margin. A series of six horizontal pit organ canals on cheek, each canal composed of a single row of pit organs (see Figure 5 for arrangement of cephalic sensory canals). A prominent, rounded bony protrusion on lower jaw on side of isthmus.

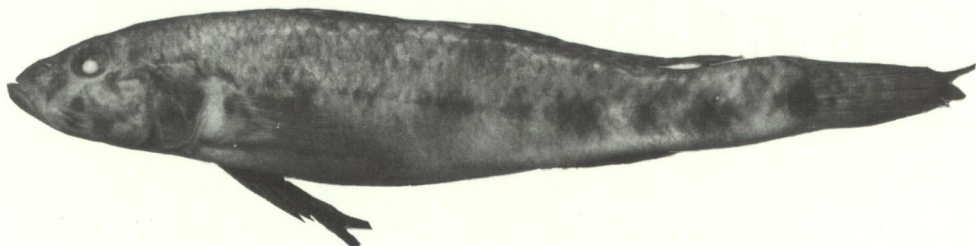


Figure 4 *Glossogobius hoesei*, holotype, 63.2 mm, Ajamaru Lakes.

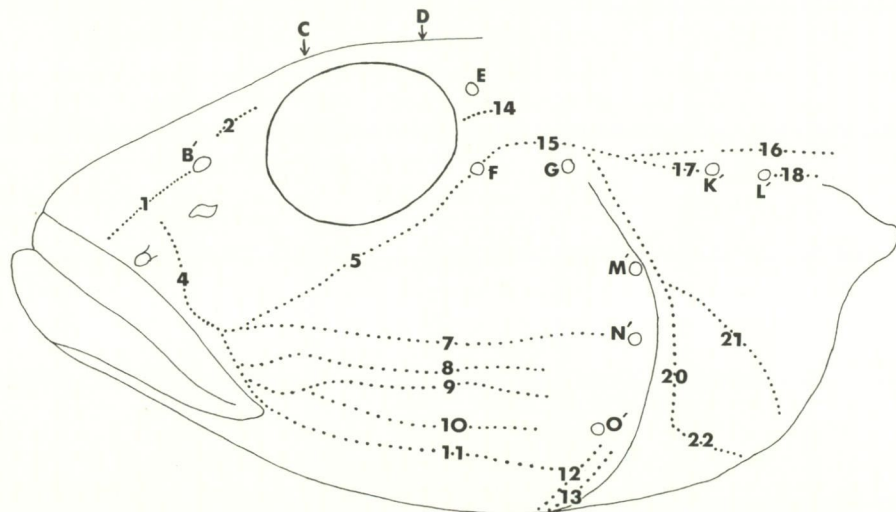


Figure 5 Cephalic sensory canals and pores of *Glossogobius hoesei*. The numbering system follows that of Akihito and Meguro (1975).

Table 2 Proportional measurements of selected type specimens of *Glossogobius hoesei* (expressed as a percentage of the standard length).

	Holotype		Paratypes					
	RMNH	28560	RMNH	28489	RMNH	28489	RMNH	28489
Standard length (mm)	63.2	67.9	60.3	58.5	58.0	50.0		
Body depth	19.0	18.4	19.9	20.6	19.1	19.1		
Head length	27.6	28.1	28.2	28.5	27.3	27.5		
Head depth	14.7	13.8	16.6	14.9	15.9	16.0		
Head width	15.8	16.5	15.9	14.5	16.4	14.8		
Snout length	7.6	7.2	8.3	7.9	7.6	7.6		
Eye diameter	6.3	6.2	6.6	5.5	6.2	6.4		
Interorbital width	2.4	2.5	2.7	2.9	2.8	2.6		
Pectoral fin length	23.7	22.8	25.7	23.1	26.2	24.6		
Pelvic fin length	21.4	23.0	24.2	22.6	23.3	23.8		
Caudal fin length	24.5*	28.7	31.5	28.0	29.3	30.7		

\* fin damaged

Scales of head and body cycloid or finely ctenoid. Preopercle, opercle, interorbital, snout, lips, chin, and lower jaw scaleless.

Pectoral and pelvic fins relatively elongate, their lengths 1.2 (1.0 to 1.2) and 1.3 (1.2 to 1.3) respectively in head length. Pelvic fins united. Caudal fin oblong, its posterior margin rounded, its length 1.1 (0.9 to 1.1) in head length.

Colour in alcohol: generally light tan, scales on upper back dusky brown; a series of 5 or 6 diffuse brown blotches, about twice size of eye on middle of side; a distinct, circular brown spot, about eye size or slightly larger at base of caudal fin; head with dusky brown band from lower, anterior corner of eye to premaxillary; a large brown spot on lower half of opercle; first dorsal fin pale tan basally with broad dark brown to blackish band across middle portion, outer margin of fin pale tan; second dorsal fin with faint alternating dark and light stripes; caudal fin with series of faint, vertical brown bands; anal fin whitish on basal half, brownish distally; pelvic fins mainly dark brown; pectoral fins pale tan with brown bar across base of uppermost rays.

### Remarks

*Glossogobius hoesei* is thus far known only from the vicinity of the Ajamaru Lakes which are located near the centre of the Vogelkop Peninsula at the western extremity of Irian Jaya. The lakes are situated at the headwaters of the Ajamaru River which drain into the Kais River, eventually flowing southward to the Ceram Sea. Boeseman (1963) gave further details for the area in which the type specimens were collected. He recorded an elevation of about 250 m for the main system of lakes and a pH of 6.4. Two species of rainbowfishes (Melanotaeniidae),

which are possibly endemic to the Ajamaru Lakes system, have been described by Allen and Cross (1980).

*Glossogobius hoesei* is very similar in many respects to *G. concavifrons* (Ramsay and Ogilby) previously known only from the Fly River system of southern New Guinea, but recently collected by D. Hoese and the senior author from several streams near the northern extremity of Cape York Peninsula, Australia. The important difference between these species are indicated in the diagnosis section above. Both *G. concavifrons* and *G. hoesei* share a modal count of 11 soft dorsal rays, which is relatively high for the genus. Akihito and Meguro (1975) presented brief diagnoses, cephalic sensory canal diagrams, and a key to the species of *Glossogobius*.

The species is named *hoesei* in honour of Dr Douglass F. Hoese, Curator of Ichthyology at the Australian Museum, Sydney, in recognition of his contributions to the knowledge of gobiid taxonomy. According to the second author's field notes the local name for this species is 'buseek'.

### *Glossogobius koragensis* Herre

*Glossogobius koragensis* Herre, 1935: 419 (Sepik River, New Guinea). SL (RMNH 28484), 3: 96-142 mm.

Known only from northern New Guinea between the Sepik River and Lake Sentani. Inhabits fresh water.

### *Mugilogobius* sp.

TR (RMNH 28494), 15: 10-23 mm.

Counts of 5 specimens as follows: dorsal rays VI-I,8; anal rays I,8; pectoral rays 16; vertical scale rows from upper corner of gill cover to caudal fin base 33 or 34; horizontal scale rows from anal fin origin to base of dorsal fin 9 or 10; predorsal scales 14-16, extending to rear of interorbital. Colour pale tan with series of about 10 irregular branched brown bars along sides and a pair of distinctive dark brown spots at base of caudal fin. There is a black blotch on the distal portion of the first dorsal fin.

### *Stiphodon elegans* (Steindachner)

*Sicydium elegans* Steindachner, 1880: 152 (Society Islands). JV (RMNH 28495), 31 mm.

Widely distributed in freshwater streams of islands in the tropical western Pacific from Sumatra eastward to the Marquesas and Society Islands.

Family Eleotridae . . . Gudgeons

*Bostrychus strigogenys* Nichols

*Bostrychus strigogenys* Nichols, 1937: 1 (Fly River, southern New Guinea). TM\* (RMNH 28496), 12: 26-113 mm; TM\* (WAM P27388-001), 4: 35-90 mm.

Freshwater streams of central southern New Guinea.

*Hypseleotris cyprinoides* (Valenciennes)

*Eleotris cyprinoides* Valenciennes (in Cuvier and Valenciennes), 1837: 248 (Mauritius). JV (RMNH 28497), 8: 17-38 mm.

Generally similar to *Hypseleotris guntheri* (Bleeker) as described in Koumans (1953), but lacking a dark longitudinal band on the body and having about 19 predorsal scales instead of 15. Most of our specimens show distinct spotting on both dorsal fins, caudal fin, and anal fin. Other distinctive markings include a blackish eye-size spot at the middle of the caudal fin base and a narrow blackish bar on the pectoral fin base.

Widely distributed in the Indo-West Pacific. Inhabits streams and estuaries.

*Mogurnda mogurnda* (Richardson)

*Eleotris mogurnda* Richardson, 1844: 4 (vicinity of Darwin, Australia). JL (RMNH 28498), 3: 55-72 mm; JL (RMNH 28499), 3: 35-50 mm; JL (RMNH 28500), 83 mm; JL (RMNH 25251), 4: 62-97 mm; TM\* (RMNH 25908), 3: 78-97 mm; TM\* (RMNH 28501), 242: 18-110 mm; TM (WAM P27388-002), 35: 32-115 mm.

Freshwater streams and lakes of southern New Guinea and northern Australia.

*Ophieleotris aporos* (Bleeker)

*Eleotris aporos* Bleeker, 1854: 59 (Halmahera). JL (RMNH 28502), 31 mm; JL (RMNH 28503), 3: 69-97 mm; JL (RMNH 28504), 6: 58-93 mm; JL (RMNH 28505), 3: 49-109 mm; JL (RMNH 25212), 50 mm; JL (RMNH 25231), 2: 70 and 83 mm; JL (RMNH 28506), 3: 27-40 mm; SL (RMNH 28507), 7: 42-72 mm; SL (RMNH 28508), 156: 11-46 mm; SL (RMNH 28509), 17: 16-42 mm; SL (RMNH 24530), 3: 135-168 mm; SL (RMNH 25081), 2: 102 and 135 mm; SL (RMNH 28510), 4: 111-127 mm; SL (RMNH 28511), 30: 9-40 mm; TR (RMNH 28512), 3: 66-82 mm; TR (RMNH 25110), 140 mm; JI (RMNH 28513), 110 mm.

Widely distributed in the tropical Indo-West Pacific from Madagascar eastward to Melanesia. Commonly found in brackish estuaries, streams, and lakes.

***Oxyeleotris fimbriata* (Weber)**

*Eleotris fimbriatus* Weber, 1908: 254 (Etna Bay, southern New Guinea). AJ (RMNH 28514), 20: 57-113 mm; AJ (WAM P27387-002), 7: 78-93 mm; AJ (RMNH 28515), 11: 54-110 mm; AJ (RMNH 28516), 43 mm; AJ (RMNH 28517), 123 mm; AT (RMNH 28518), 3: 99-142 mm; AT (RMNH 24576), 3: 77-110 mm; AJ (RMNH 28519), 3: 41-45 mm; DU (RMNH 28520), 18: 31-84 mm; JL (RMNH 25219), 3: 73-114 mm; JL (RMNH 28521), 83: 24-112 mm; JL (WAM P27390-001), 10: 33-112 mm; JL (RMNH 28522), 2: 44 and 66 mm; JL (RMNH 28523), 23: 12-52 mm; JL (RMNH 24557), 7: 41-107 mm; TM\* (RMNH 28528), 150 mm; TM\*(RMNH 28524), 49: 24-143 mm; TM (WAMP P27388-003), 11: 30-111 mm.

We concur with Roberts (1978) who mentioned that the New Guinea *Oxyeleotris* are in need of systematic revision, particularly the members of the 'fimbriata complex'. The material we have identified as *O. fimbriata* is probably divisible into at least two species. Specimens from the Ajamaru Lakes region of the Vogelkop Peninsula possess smaller scales (about 70-80 in lateral series and 36-42 predorsal scales) than those from Lake Jamur and Tanah Merah on the Digul River. Specimens from the latter area generally have 55 to 65 scales in lateral series and about 28 to 35 predorsal scales. In addition, the colour pattern lacks the extensive blotching characteristic of much of our Ajamaru Lakes material.

Reported from fresh waters of both northern and southern New Guinea by Koumans (1953), but further investigations may indicate that *fimbriata* is restricted to southern drainages.

***Oxyeleotris lineolatus* (Steindachner)**

*Eleotris lineolatus* Steindachner, 1867: 13 (Rockhampton, Queensland). SL (RMNH 28529), 114 mm; SL (RMNH 28530), 11: 32-57 mm; SL (RMNH 28531), 156 mm; JI (RMNH 28532), 2: 78 and 79 mm; JV (RMNH 28533), 2: 54 and 63 mm; JV (RMNH 28534), 5: 31-49 mm; JV (RMNH 25099), 105 mm; JL (RMNH 28525), 4: 19-51 mm; TM (RMNH 28526), 2: 30 and 33 mm; TM (RMNH 28527), 3: 283-390 mm.

Freshwater streams and lakes of both northern and southern New Guinea.

***Oxyeleotris nullipora* Roberts**

*Oxyeleotris nullipora* Roberts, 1978: 67 (Fly River, southern New Guinea). TM (RMNH 28535), 3: 23-27 mm; TM (WAM P27388-004), 2: 22 and 23 mm.

Recently described from lacustrine and semi-lacustrine habitats of the Middle Fly River.

***Oxyeleotris paucipora* Roberts**

*Oxyeleotris paucipora* Roberts, 1978: 67 (Fly River, southern New Guinea). TM (RMNH 28536), 10: 28-33 mm; TM (WAM P27388-005), 2: 25 and 41 mm.

Recently described from riverine habitats of the Upper Fly River.

*Oxyeleotris wisselensis* sp. nov.

Figures 6 and 7; Table 3

**Holotype**

RMNH 28541, 111.0 mm, small streams in vicinity of Tigi Lake, Wissel Lakes, Irian Jaya, Indonesia (approximately 4°09'S, 136°13'E), M. Boeseman, 11-17 January 1955.

**Paratypes**

TA (RMNH 28537), 16: 18-92 mm; PL (RMNH 28532), 10: 27-91 mm; TI (RMNH 28539), 10: 32-68 mm; JR (RMNH 28540), 5: 85-96 mm; TI (RMNH 28541), 12: 73-109 mm; TA (RMNH 28542), 32: 17-85 mm; DA (RMNH 28543), 53: 20-90 mm; DA (RMNH 28544), 43: 54-95 mm; PL (RMNH 28545), 68 mm; JR (RMNH 28546), 51 mm; TA (WAM P27389-001), 17: 26-82 mm.

**Diagnosis**

A species of *Oxyeleotris* which is allied to *O. fimbriata*, but differs from it on the basis of a less depressed head shape and a much shorter snout (Figure 7). In addition, *O. wisselensis* is considerably darker in overall coloration and lacks the 3-4 lines which radiate from the eye of *O. fimbriata*. The fins of the latter species are pale in vivid contrast to the dark fins of *O. wisselensis*. Moreover, *O. fimbriata* has distinct spotting which covers the entire second dorsal fin, whereas in *O. wisselensis* there are wavy brown lines interspersed with white and this feature is restricted to the basal half of the fin. Finally, the dark spot at the upper caudal fin base is more clearly evident in the adults of *O. fimbriata*.

**Description**

Dorsal rays VI-I,11 (10 to 12); anal rays I,9 (8 to 11); pectoral rays 17 (16 to 18); gill rakers on first branchial arch 1 + 8 (1 or 2 + 7 to 9); scales in lateral series 66 (63 to 70); predorsal scales 26 (25 to 30).

Body elongate, laterally compressed in posterior portion, more or less cylindrical anteriorly; maximum depth 6.0 (4.9 to 6.1) in standard length. Head blunt with rounded snout; maximum depth of head 1.9 (1.9 to 2.2), maximum width 1.9 (1.5 to 1.9), both in length of head, which is equal to 3.1 (3.1 to 3.3) of the standard length. Interorbital convex, its width 4.0 (3.6 to 4.6) in head length. Snout 4.3 (3.1 to 4.0), eye 5.3 (5.5 to 7.1), both in head length.

Mouth terminal; edge of lips fimbriate; jaw teeth numerous in dense bands, teeth of outer row somewhat enlarged; palate endentulous; maxillary extends to level of below middle of eye. A series of 6 or 7 vertical pit organ canals below eye and area between anterior and posterior nares liberally covered with pit organs. Several conspicuous sensory pores on each side of head as follows: 2 nasal pores; 1 supraorbital pore; 5 preopercle pores; 2 pores slightly above and anterior to upper limit of opercle opening; and a single pore in middle of interorbital.

Scales of head and body cycloid. Head entirely scaled except for lips, tip of snout, preorbital region, lower jaw, and chin. Scales of interorbital and cheeks generally smaller than body scales and tend to be embedded.



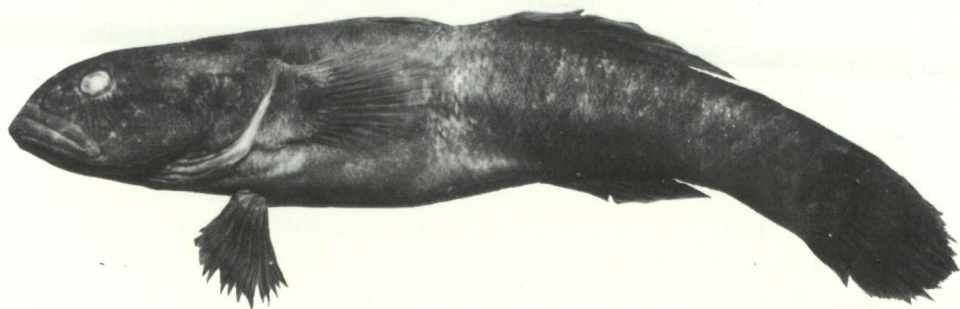


Figure 6 *Oxyeleotris wisselensis*, paratype (RMNH 28541), 85.0 mm, Tigi Lake.

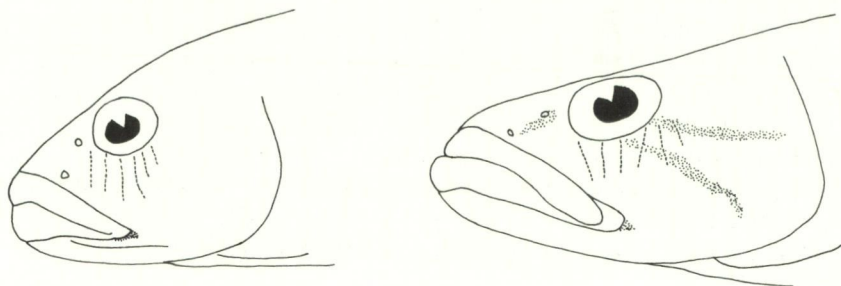


Figure 7 Comparison of head shapes of *Oxyeleotris wisselensis*, 62 mm (left) and *O. fimbriata*, 67 mm. Drawings made at same magnification with aid of camera lucida.

Table 3 Proportional measurements of selected type specimens of *Oxyeleotris wisselensis* (expressed as a percentage of the standard length).

	Holotype RMNH 28541	Paratypes				
Standard length (mm)	111.0	103.0	93.7	89.6	84.2	74.4
Body depth	20.4	18.7	20.4	16.7	20.1	18.8
Head length	31.9	32.3	31.5	32.5	32.1	31.6
Head depth	15.3	17.4	14.1	17.0	16.0	16.1
Head width	20.4	21.8	18.7	17.4	21.0	20.2
Snout length	8.4	10.3	8.2	7.5	8.3	7.7
Eye diameter	4.5	4.7	4.8	6.1	4.8	5.4
Interorbital width	9.0	8.9	7.5	8.0	8.6	6.9
Pectoral fin length	18.9	20.8	20.5	18.4	21.5	20.0
Pelvic fin length	16.0	15.8	16.0	16.7	15.2	17.5
Caudal fin length	20.7	21.2	21.3	20.8	20.3	20.8

Pelvic fins relatively small compared to fan-like pectoral fins; pelvic fin length 1.9 (1.8 to 2.1) and pectoral fin length 1.8 (1.5 to 1.8), both in head length. Bases of pelvic fins widely separated. Pectoral and caudal fins rounded, length of caudal fin 1.6 (1.5 to 1.6) in head length.

Colour in alcohol: generally dark brown on upper half grading to light brown on ventral portion; dorsal fins dark brown, second dorsal with faint wavy brown lines interspersed with white on lower half; anal fin light brown basally, dark brown on outer half; second dorsal and anal fins with narrow white margin; remaining fins dark brown. Juvenile specimens generally light brown with dark brown head and series of dark chevron markings along side of body; a vague ocellus-like marking at base of upper caudal rays, this mark less evident with increasing size, but visible in adults.

Colour in life: according to field notes the general colour is greyish-brown or occasionally yellowish with shades of green or gold. Chevron markings on young are brown to light brown or greyish.

### Remarks

*Oxyeleotris wisselensis* appears to be restricted to the Wissel Lakes and their tributary streams. These lakes are situated in the central mountain chain of Irian Jaya at elevations ranging from 1640 to 1750 m. Paniai Lake is the largest with a length of 16 km and width of 9 km, and a maximum depth of at least 50 m. The other two lakes, Tage and Tigi have a combined area about equal to half that of Paniai Lake. Additional details of the environment of this region were provided by Boeseman (1963).

*Oxyeleotris wisselensis* is most closely allied and perhaps derived from *O. fimbriata*, a widely distributed species occurring in lowland areas of New Guinea on both sides of the central dividing range. Koumans (1949) discussed the great variability in fin ray and scale counts found in this species. He noted a tendency for Wissel Lakes specimens to have an additional ray in the second dorsal and anal fins compared with specimens of *O. fimbriata* from other localities. There is also a pronounced difference in the maximum size attained by the two species. The largest of our type series of 201 specimens is 111 mm SL compared with a maximum standard length of 143 mm for 258 specimens of *O. fimbriata*. Koumans (1949) recorded maximum standard lengths of 115 mm and 225 mm for the Wissel Lakes fish and lowland populations of *O. fimbriata* respectively. Additional studies are required to properly assess the taxonomic status of the many lowland populations of *O. fimbriata*. It is conceivable that this 'species' may be divisible into several distinct taxa (see Discussion section for this species). We have compared the specimens from the Wissel Lakes with 258 specimens of *O. fimbriata* from lowland streams of southern New Guinea.

The species is named in reference to the type locality.

*Prionobutis microps* (Weber)

*Pogoneleotris microps* Weber, 1908: 258 (Tawarin River and Merauke River, New Guinea). TR (RMNH 24546), 150 mm; JV (RMNH 28547), 170 mm.

Fresh and brackish waters of New Guinea (north and south), and northern Australia.

Family Periophthalmidae . . . Mud Skippers

*Periophthalmus novaeguineae* Eggert

*Periophthalmus cantonensis novaeguineae* Eggert, 1935: 67 (Merauke River, southern New Guinea). MV (RMNH 28548), 2: both 32 mm.

Fresh and brackish waters of central southern New Guinea.

Family Kurtidae . . . Nurseryfishes

*Kurtus gulliveri* Castelnau

*Kurtus gulliveri* Castelnau, 1878: 233 (Norman River, Queensland). TM (RMNH 28549), 3: 260-305 mm.

Fresh and brackish rivers of central southern New Guinea and far northern Australia.

Family Anabantidae . . . Labyrinthfishes

*Trichogaster pectoralis* (Regan)

*Trichopodus pectoralis* Regan, 1910: 784 (Siam). DU (RMNH 28550), 2: 93 and 105 mm; AJ (RMNH 28551), 12: 84-118 mm; AJ (RMNH 28552), 30: 93-114 mm; SL (RMNH 28553), 4: 105-161 mm.

An introduced species native to fresh waters of South-East Asia.

Family Soleidae . . . Soles

*Aseraggodes klunzingeri* (Weber)

*Pardachirus klunzingeri* Weber, 1908: 250 (Merauke River, southern New Guinea). TM\* (RMNH 28554), 104 mm; TM (RMNH 28555), 3: 75-102 mm.

Fresh and brackish waters of central southern New Guinea and northern Australia.

*Brachirus villosa* (Weber)

*Synaptura villosa* Weber, 1908: 251 (Wagani River, western New Guinea). MV (RMNH 24695), 13: 38-57 mm.

Fresh and brackish waters of central southern New Guinea.

Family Cynoglossidae . . . Tongue Soles

*Cynoglossus heterolepis* Weber

*Cynoglossus heterolepis* Weber, 1910: 237 (Lorentz River, southern New Guinea). TGG (RMNH 28556), 88 mm; TM\* (RMNH 28557), 139 mm.

Fresh and brackish waters of central southern New Guinea.

Discussion

The freshwater fishes of New Guinea continue to provide a fertile area for study. Recent collecting activity by Roberts (1978) and that of the senior author between 1977 and 1981 have revealed a wealth of both undescribed and poorly known species. Large tracts remain totally uncollected. For example, there have been no ichthyological explorations on the north coast between the Mamberamo River mouth and the western extremity of the island, an expanse of more than 800 km. Likewise, only a small number of collections have been made on the Vogelkop Peninsula, and in the central highlands of Irian Jaya. Only two previous authors, Weber (1913) and Munro (1964) have assembled comprehensive faunal lists. Both of these lists contain 145 species, but if fishes which are not strictly fresh water dwellers are eliminated, as well as various junior synonyms, the Weber list is reduced to 66 species, and that of Munro to 92 species. On the basis of our research for the present paper and also from consultation with various specialists (particularly for the Ariidae, Plotosidae, Gobiidae, and Eleotridae) we present a list of the freshwater fishes of New Guinea (Appendix Table 1). The list contains 158 species. We include only those fishes which appear to be restricted to freshwater habitats. We have eliminated various widely distributed forms, which although frequently found in pure fresh water, have a marine stage for dispersal. Therefore we include only species whose distribution is restricted to the New Guinea-northern Australia region. Thus, we have excluded approximately 80 species which regularly penetrate fresh water. A number of the excluded fishes have their main populations in tidal creeks or estuaries, for example the archerfish *Toxotes jaculatrix* (Toxotidae), the spotted scat *Scatophagus argus* (Scatophagidae), and several species of gobiids and eleotrids. Others such as the eleotrid *Ophieleotris aporos*, certain gobiids of the genus *Glossogobius*, and the eel genus *Anguilla* may spend the greater part of their life cycle in fresh water, but are evidently dependent on the sea for larval dispersal or as a breeding site.

The central dividing range of New Guinea includes a number of peaks with elevations in excess of 4 000 m and represents a formidable faunal barrier. Only 11 species of the 158 purely freshwater forms occur on both sides of the central mountains. The southern and northern populations of some of these species will no doubt prove to be specifically distinct when studied in more detail. Kailola (pers. comm.) has recently verified this phenomenon for the ariid catfish *Arius leptaspis*. Aside from the relatively few shared species the respective fish faunas of the south and north are very distinctive. The southern fauna appears to be the richest with 106 species thus far recorded compared to 61 species from the north. However, part of this difference is no doubt related to the greater amount of collecting activity in the south. Twenty-eight species or approximately 26% of the southern fishes are also found in northern Australia, primarily Arnhem Land and Cape York Peninsula. The latter area was linked to southern New Guinea by a land bridge as recently as 6 500-8 000 years ago (Allen and Hoese 1980). Thus, the faunal similarity of these regions is not surprising. Allen and Hoese (1980) reported that at least 63% of the fishes collected in the Jardine River at the northern extremity of Cape York Peninsula are also found in southern New Guinea.

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## Appendix Table

### List of the Freshwater Fishes of New Guinea

Species	Known distribution (SNG = S New Guinea NNG = N New Guinea)
Family Clupeidae (3 spp.)	
1 <i>Clupeoides papuensis</i> (Ramsay and Ogilby)	Digul and Fly Rivers (SNG)
2 <i>C. venulosus</i> Weber and de Beaufort	Lorentz and Fly Rivers (SNG)
3 <i>Nematalosa erebi</i> (Günther)	Jamur Lake, Digul and Fly Rivers (SNG); N Australia
Family Engraulidae (2 spp.)	
4 <i>Thryssa rastrosa</i> Roberts	Fly River (SNG)
5 <i>T. scratchleyi</i> (Ramsay and Ogilby)	Digul and Fly Rivers (SNG); N Australia
Family Osteoglossidae (1 sp.)	
6 <i>Scleropages jardinii</i> Günther	Digul and Fly Rivers (SNG); N Australia
Family Ariidae (27 spp.)	
7 <i>Arius acrocephalus</i> (Weber)	Digul, Fly, Purari and Laloki Rivers (SNG)
8 <i>A. augustus</i> Roberts	Fly River (SNG)
9 <i>A. berneyi</i> (Whitley)	Fly River (SNG); N Australia
10 <i>A. carinatus</i> (Weber)	Lorentz, Digul, Fly and Purari Rivers (SNG)
11 <i>A. kanganamanensis</i> (Herre)	Ramu and Sepik Rivers (NNG)
12 <i>A. latirostris</i> (Macleay)	Lorentz, Purari and Laloki Rivers (SNG)



- |                             |  |  |
|-----------------------------|--|--|
| 13                          | <i>A. leptaspis</i> Bleeker                    | Widespread SNG and N Australia                                   |
| 14                          | <i>A. solidus</i> (Herre)                      | Ramu and Sepik Rivers (NNG)                                      |
| 15                          | <i>A. stirlingi</i> (Ogilby)                   | Widespread SNG and N Australia                                   |
| 16                          | <i>A. sp. A</i>                                | Jamur Lake (SNG)   |
| 17                          | <i>A. sp. B</i>                                | Digul River (SNG)  |
| 18                          | <i>A. sp. C</i>                                | Widely distributed in NNG  |
| 19                          | <i>A. sp. D</i>                                | Sentani Lake, Sepik and Ramu Rivers (NNG)                        |
| 20                          | <i>Brustiarius nox</i> (Herre)                 | Ramu and Sepik Rivers (NNG)                                      |
| 21                          | <i>Cinetodus froggatti</i> (Ramsay and Ogilby) | Digul, Merauke, Fly, Kikori and Purari Rivers (SNG); N Australia |
| 22                          | <i>Cochlefelis danielsi</i> (Regan)            | Lorentz, Fly and Kikori Rivers (SNG)                             |
| 23                          | <i>C. spatula</i> (Ramsay and Ogilby)          | Digul and Fly Rivers (SNG)                                       |
| 24                          | <i>Doiichthys novaeguineae</i> Weber           | Lorentz River (SNG)  |
| 25                          | <i>Hemipimelodus bernhardi</i> Nichols         | Mamberamo River (NNG)  |
| 26                          | <i>H. crassilabrus</i> Ramsay and Ogilby       | Fly and Purari Rivers (SNG)                                      |
| 27                          | <i>H. macrorhynchus</i> Weber                  | Lorentz, Digul, Fly and Purari Rivers (SNG)                      |
| 28                          | <i>H. papillifer</i> Herre                     | Ramu and Sepik Rivers (NNG)                                      |
| 29                          | <i>Nedystoma dayi</i> (Ramsay and Ogilby)      | Lorentz, Digul, Fly and Purari Rivers (SNG)                      |
| 30                          | <i>Netuma microstoma</i> (Nichols)             | Mamberamo River (NNG)  |
| 31                          | <i>Tachysurus kanganamanensis</i> (Herre)      | Ramu and Sepik Rivers (NNG)                                      |
| 32                          | <i>T. solidus</i> (Herre)                      | Ramu and Sepik Rivers (NNG)                                      |
| 33                          | <i>Tetranesodon conorhynchus</i> Weber         | Lorentz River (SNG)  |
| Family Plotosidae (10 spp.) |  |  |
| 34                          | <i>Neosilurus ater</i> (Perugia)               | Widespread SNG and NNG; N Australia                              |
| 35                          | <i>N. brevidorsalis</i> (Günther)              | Widespread SNG and N Australia                                   |
| 36                          | <i>N. equinus</i> (Weber)                      | Widespread SNG and NNG   |
| 37                          | <i>N. idenburgi</i> (Nichols)                  | Mamberamo, Sepik, Ramu and Markham Rivers (NNG)                  |
| 38                          | <i>N. meraukensis</i> (Weber)                  | Merauke, Fly and Nami Nami Rivers (SNG)                          |
| 39                          | <i>N. novaeguineae</i> (Weber)                 | Lake Sentani (NNG)   |
| 40                          | <i>Oloplotosus luteus</i> Gomon and Roberts    | Fly River (SNG)  |
| 41                          | <i>O. mariae</i> Weber                         | Lorentz River (SNG)  |
| 42                          | <i>Plotosus papuensis</i> Weber                | Lorentz and Fly Rivers (SNG)                                     |
| 43                          | <i>Porochilus obbesi</i> (Weber)               | Lorentz, Oriomo and Laloki Rivers (SNG); N Australia             |
| Family Anguillidae (1 sp.)  |  |  |
| 44                          | <i>Anguilla interioris</i> Whitley             | Widespread SNG and NNG   |
| Family Beloni               |  |  |
| Family Belonidae (2 spp.)   |  |  |
| 45                          | <i>Strongylura kreftti</i> (Günther)           | Widespread SNG and N Australia                                   |
| 46                          | <i>S. perornatus</i> Whitley                   | Sepik River (NNG)  |

Freshwater Fishes from Western New Guinea

Family Hemirhamphidae (5 spp.)

- |    |                                       |  |
|----|---------------------------------------|--|
| 47 | <i>Zenarchopterus alleni</i> Collette | Mamberamo River (NNG)                                |
| 48 | <i>Z. caudovittatus</i> (Weber)       | Merauke River (SNG)                                  |
| 49 | <i>Z. kampeni</i> (Weber)             | Mamberamo, Sepik and Ramu Rivers (NNG)               |
| 50 | <i>Z. novaeuguineae</i> (Weber)       | Lorentz, Oriomo, Fly, Purari and Laloki Rivers (SNG) |
| 51 | <i>Z. robertsi</i> Collette           | Kumusi River (NNG)                                   |

Family Melanotaeniidae (41 spp.)

- |    |   |   |
|----|---|---|
| 52 | <i>Chilatherina axelrodi</i> Allen      | Pual River (NNG)  |
| 53 | <i>C. campsi</i> (Whitley)              | Upper Sepik and Purari systems, and Markham River (SNG and NNG) |
| 54 | <i>C. crassispinosa</i> (Weber)         | Mamberamo River to Markham River (NNG)                          |
| 55 | <i>C. fasciata</i> Regan                | Mamberamo River to Markham River (NNG)                          |
| 56 | <i>C. lorentzi</i> (Weber)              | Mamberamo River to Vanimo vicinity (NNG)                        |
| 57 | <i>C. sentaniensis</i> (Weber)          | Lake Sentani and Sekanto River (NNG)                            |
| 58 | <i>Glossolepis incisus</i> Weber        | Lake Sentani (NNG)  |
| 59 | <i>G. maculosus</i> Allen               | Omsis River (NNG)   |
| 60 | <i>G. multisquamatus</i> (Weber)        | Mamberamo and Sepik Rivers (NNG)                                |
| 61 | <i>G. pseudoincisus</i> Allen and Cross | Tami River (NNG)  |
| 62 | <i>G. wanamensis</i> Allen and Kailola  | Lake Wanam (NNG)  |
| 63 | <i>Triatherina werneri</i> Meinken      | Merauke River to Fly River (SNG); N Australia                   |
| 64 | <i>Melanotaenia affinis</i> (Weber)     | Sermowai River to Markham River (NNG)                           |
| 65 | <i>M. ajamaruensis</i> Allen and Cross  | Ajamaru Lakes (SNG)   |
| 66 | <i>M. boesemani</i> Allen and Cross     | Ajamaru Lakes (SNG)   |
| 67 | <i>M. catherinae</i> de Beaufort        | Waigeo Island (NNG)   |
| 68 | <i>M. corona</i> Allen                  | Sermowai River (NNG)  |
| 69 | <i>M. goldiei</i> (Macleay)             | Widespread SNG and Aru Islands                                  |
| 70 | <i>M. herbertaxelrodi</i> Allen         | Lake Tebera (SNG)   |
| 71 | <i>M. japonensis</i> Allen and Cross    | Japen Island (NNG)  |
| 72 | <i>M. lacustris</i> Munro               | Lake Kutubu (SNG)   |
| 73 | <i>M. maccullochi</i> Ogilby            | Bensbach River to Fly River (SNG); N Australia                  |
| 74 | <i>M. misoolensis</i> Allen             | Misool Island (SNG)   |
| 75 | <i>M. monticola</i> Allen               | Upper Purari system (SNG)                                       |
| 76 | <i>M. ogilbyi</i> Weber                 | Lorentz River (SNG)   |
| 77 | <i>M. oktediensis</i> Allen and Cross   | Oktedi River (SNG)  |
| 78 | <i>M. papuae</i> Allen                  | Port Moresby vicinity (SNG)                                     |
| 79 | <i>M. parkinsoni</i> Allen              | Port Moresby to Alotau (SNG)                                    |
| 80 | <i>M. pimaensis</i> Allen               | Pima River (SNG)  |
| 81 | <i>M. praecox</i> Weber and de Beaufort | Mamberamo River (NNG)   |

- |                               |  |   |
|-------------------------------|--|---|
| 82                            | <i>M. splendida rubrostriata</i> (Ramsay and Ogilby) | Digul River to Purari River and Aru Islands (SNG)           |
| 83                            | <i>M. sexlineata</i> (Munro)                         | Fly River (SNG)   |
| 84                            | <i>M. vanheurni</i> (Weber and de Beaufort)          | Mamberamo River (NNG)                                       |
| 85                            | <i>Popondetta connieae</i> Allen                     | Vicinity of Popondetta (NNG)                                |
| 86                            | <i>P. furcatus</i> (Nichols)                         | Musa River and Wanagela vicinity (NNG)                      |
| 87                            | <i>Pseudomugil gertrudae</i> Weber                   | Digul River to Fly River and Aru Islands (SNG); N Australia |
| 88                            | <i>P. inconspicuus</i> Roberts                       | Fly River (SNG)   |
| 89                            | <i>P. novaeguineae</i> Weber                         | Etna Bay to Fly River and Aru Islands (SNG)                 |
| 90                            | <i>P. paludicola</i> Allen and Moore                 | Morehead River to Binaturi River (SNG)                      |
| 91                            | <i>P. sp. no. 1</i>                                  | Misool Island (SNG)   |
| 92                            | <i>P. sp. no. 2</i>                                  | Cape Ward Hunt (NNG)  |
| Family Atherinidae (4 spp.)   |  |   |
| 93                            | <i>Craterocephalus lacustris</i> Trewavas            | Lake Kutubu (SNG)   |
| 94                            | <i>C. nouhuysi</i> (Weber)                           | Lorentz River (SNG)   |
| 95                            | <i>C. randi</i> Nichols                              | Jamur Lake to Balimo (SNG)                                  |
| 96                            | <i>C. sp.</i>  | Upper Purari system (SNG)                                   |
| Family Ambassisidae (12 spp.) |  |   |
| 97                            | <i>Ambassis agrammus</i> Günther                     | Bensbach River to Fly River (SNG); N Australia              |
| 98                            | <i>A. macleayi</i> (Castelnau)                       | Digul River to Balimo (SNG); N Australia                    |
| 99                            | <i>A. reticulata</i> Weber                           | Lake Jamur to Merauke River (SNG)                           |
| 100                           | <i>Denarius bandata</i> Whitley                      | Bensbach River to Fly River (SNG); N Australia              |
| 101                           | <i>Parambassis altipinnis</i> Allen                  | Mamberamo River (NNG)                                       |
| 102                           | <i>P. confinis</i> (Weber)                           | Mamberamo and Sepik Rivers (NNG)                            |
| 103                           | <i>P. gulliveri</i> (Castelnau)                      | Lorentz River to Purari River (SNG); N Australia            |
| 104                           | <i>Synechopterus caudovittatus</i> Norman            | Kokoda vicinity (NNG)                                       |
| 105                           | <i>Tetracentron apogonoides</i> Macleay              | Laloki and Kemp Welsh Rivers (SNG)                          |
| 106                           | <i>Xenambassis honessi</i> Schultz                   | Buna vicinity (NNG)   |
| 107                           | <i>X. lalokiensis</i> Munro                          | Laloki River (SNG)  |
| 108                           | <i>X. simoni</i> Schultz                             | Buna vicinity (NNG)   |
| Family Lobotidae (1 sp.)      |  |   |
| 109                           | <i>Dantinoides campbelli</i> Whitley                 | Sepik River (NNG)   |
| Family Teraponidae (11 spp.)  |  |   |
| 110                           | <i>Amniataba affinis</i> (Mees and Kailola)          | Morehead and Fly Rivers (SNG)                               |
| 111                           | <i>Hephaestus adamsoni</i> (Trewavas)                | Lake Kutubu (SNG)   |

Freshwater Fishes from Western New Guinea

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| 112                         | <i>H. fuliginosus</i> (Macleay)              | Fly and Purari Rivers (SNG); N Australia                   |
| 113                         | <i>H. obtusifrons</i> (Mees and Kailola)     | Mamberamo and Sermowai Rivers (NNG)                        |
| 114                         | <i>H. raymondi</i> (Mees and Kailola)        | Morehead River (SNG)                                       |
| 115                         | <i>H. roemeri</i> (Weber)                    | Lorentz and Digul Rivers (SNG)                             |
| 116                         | <i>H. transmontanous</i> (Mees and Kailola)  | Sepik and Ramu Rivers (NNG)                                |
| 117                         | <i>H. trimaculatus</i> (Macleay)             | Mimika River to Laloki River (SNG)                         |
| 118                         | <i>Pingalla lorentzi</i> (Weber)             | Lorentz, Digul, Morehead and Fly Rivers (SNG); N Australia |
| 119                         | <i>Terapon jamoerensis</i> (Mees)            | Lake Jamur (SNG)   |
| 120                         | <i>T. lacustris</i> (Mees and Kailola)       | Morehead River to Balimo (SNG)                             |
| Family Apogonidae (8 spp.)  |  |  |
| 121                         | <i>Glossamia aprion</i> (Richardson)         | Oriomo River to Balimo (SNG)                               |
| 122                         | <i>G. beauforti</i> (Weber)                  | Mamberamo River, Lake Sentani (NNG)                        |
| 123                         | <i>G. gjellerupi</i> (Weber and de Beaufort) | Mamberamo and Sepik Rivers (NNG)                           |
| 124                         | <i>G. heurni</i> (Weber and de Beaufort)     | Mamberamo River (NNG)                                      |
| 125                         | <i>G. narindica</i> Roberts                  | Fly River (SNG)  |
| 126                         | <i>G. sandei</i> (Weber)                     | Wagami River to Purari River (SNG)                         |
| 127                         | <i>G. trifasciata</i> (Weber)                | Lorentz and Fly Rivers (SNG)                               |
| 128                         | <i>G. wichmanni</i> (Weber)                  | Tawarin River to Markham River (NNG)                       |
| Family Lutjanidae (1 sp.)   |  |  |
| 129                         | <i>Lutjanus goldiei</i> (Macleay)            | Fly, Purari and Laloki Rivers (SNG)                        |
| Family Toxotidae (2 spp.)   |  |  |
| 130                         | <i>Toxotes lorentzi</i> Weber                | Merauke River and Balimo vicinity (SNG); N Australia       |
| 131                         | <i>T. oligolepis</i> Bleeker                 | Jamur Lake (SNG); Molucca Islands and N Australia          |
| Family Gobiidae (8 spp.)    |  |  |
| 132                         | <i>Acentrogobius bulmeri</i> (Whitley)       | Upper Sepik system (NNG)                                   |
| 133                         | <i>Aloricatogobius asaro</i> (Whitley)       | Upper Purari system (SNG)                                  |
| 134                         | <i>Ctenogobius tigrellus</i> (Nichols)       | Mamberamo River (NNG)                                      |
| 135                         | <i>Glossogobius brunnoides</i> (Nichols)     | Upper Kikori and Purari systems (SNG)                      |
| 136                         | <i>G. concavifrons</i> (Ramsay and Ogilby)   | Fly River (SNG); N Australia                               |
| 137                         | <i>G. hoesei</i> Allen and Boeseman          | Ajamaru Lakes (SNG)  |
| 138                         | <i>G. koragensis</i> Herre                   | Lake Sentani and Sepik River (NNG)                         |
| 139                         | <i>Mugilogobius fuscus</i> (Nichols)         | Distribution unknown                                       |
| Family Eleotridae (16 spp.) |  |  |
| 140                         | <i>Bostrychus strigogenys</i> (Nichols)      | Digul River to Balimo (SNG)                                |
| 141                         | <i>Hypseleotris moncktoni</i> (Regan)        | Agarambo vicinity (SNG)                                    |

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| 142 | <i>Mogurnda mogurnda</i> (Richardson)    | Widespread SNG and NNG; N Australia      |
| 143 | <i>M. variegata</i> Nichols              | Lake Kutubu (SNG)                        |
| 144 | <i>M. sp. A</i>                          | Widespread SNG and NNG                   |
| 145 | <i>M. sp. B</i>                          | Kemp Welsh River (SNG)                   |
| 146 | <i>M. sp. C</i>                          | Bulolo River (NNG)                       |
| 147 | <i>Odonteleotris nesolepis</i> (Weber)   | Widespread NNG                           |
| 148 | <i>Oxyeleotris fimbriata</i> (Weber)     | Widespread SNG and NNG                   |
| 149 | <i>O. herwerdeni</i> (Weber)             | Widespread SNG and NNG; N Australia      |
| 150 | <i>O. lineolatus</i> (Steindachner)      | Widespread SNG and NNG; N Australia      |
| 151 | <i>O. novaeguineae</i> Koumans           | Widespread SNG and NNG                   |
| 152 | <i>O. nullipora</i> Roberts              | Digul and Fly Rivers (SNG)               |
| 153 | <i>O. paucipora</i> Roberts              | Digul and Fly Rivers (SNG)               |
| 154 | <i>O. wisselensis</i> Allen and Boeseman | Wissel Lakes (SNG)                       |
| 155 | <i>Tateurndina ocellicauda</i> Nichols   | Popondetta vicinity and Musa River (NNG) |

Family Soleidae (2 spp.)

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| 156 | <i>Aseraggodes klunzingeri</i> (Weber) | Widespread SNG; N Australia     |
| 157 | <i>Brachirus villosus</i> (Weber)      | Wagani River to Fly River (SNG) |

Family Cynoglossidae

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| 158 | <i>Cynoglossus heterolepis</i> Weber | Oetoemboewe, Lorentz, Digul and Fly Rivers (SNG); N Australia |
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