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REVISIONAL NOTES ON SOME SPECIES OF THE GENUS THERAPON (PISCES, THERAPONIDAE)

by

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With 6 text-figures

Very soon after publication of a description of a new species of *Therapon* from Western Australia (Mees, 1963), I became aware that I had misidentified one of the species mentioned in the discussion of the affinities of the new species. Originally I intended to write only a short supplementary paper, to rectify the error, but as more material became available, my notes expanded, until it appeared to me that longer postponement of their publication would not be likely to add much of significance. The paper as now published falls far short of a revision; rather, it contains a number of scattered notes on various species, adding, I hope, a little to knowledge of their distribution and affinities, and for that reason I have given it its somewhat vague title.

For the loan or donation of material, I am indebted to Dr. E. K. Barth (Zoologisk Museum, Oslo), Mr. B. Campbell (Queensland Museum, Brisbane), Dr. R. Gibbs (United States National Museum, Washington), Dr. P. Kähsbauer (Naturhistorisches Museum, Wien), Mr. J. S. Lake (University of Sydney, Sydney), Mr. R. J. McKay (Western Australian Museum, Perth, W.A.), Dr. H. Nijssen (Zoölogisch Museum, Amsterdam), Mr. S. Parker (Northern Territory Museum, Alice Springs), Dr. D. E. Rosen (American Museum of Natural History, New York), Dr. Greta Vestergren (Naturhistoriska Riksmuseet, Stockholm), Mr. A. C. Wheeler (British Museum (Natural History), London), Dr. J. T. Woods (Queensland Museum, Brisbane) and Dr. J. V. Yapchiongco (University of the Philippines, Diliman, Quezon City).

In the lists of material and tables the following abbreviations have been used: AMNH (American Museum of Natural History), BM (British Museum (Natural History)), MV (Naturhistorisches Museum, Wien), NRS (Naturhistoriska Riksmuseet, Stockholm), NTM (Northern Territory Museum), QM (Queensland Museum), RMNH (Rijksmuseum van Natuurlijke Historie), USNM (U.S. National Museum), WAM (Western Australian Museum), ZMA (Zoölogisch Museum, Amsterdam), ZMO (Zoologisk Museum, Oslo).

Many authors have divided the genus *Therapon* as here understood, and recognise a whole array of small genera. Whitley (1964), for example, has twelve: *Leiopotherapon, Eutherapon, Terapon* (s.s.), *Amniataba, Amphitherapon, Madigania, Bidyanus, Pelsartia, Mesopristes, Hephaestus, Papuservus* and *Scortum*. In a previous publication (Mees, 1963: 3) I mentioned that, although agreeing that subdivision of the large genus *Therapon* might be useful, at that time I saw no reason to do so. See Ogilby & McCulloch (1916: 100) for a similar opinion. As far as I am concerned, the situation has not altered: the affinities between the species are so insufficiently known, that a division into smaller genera on the basis of supposed relationships can be hardly more than guess-work. An example I can mention is Whitley (1964: 42) who listed in different genera *Mesopristes alligatoris* and *Hephaestus bancrofti*: now we know that one is a synonym of the other. I am fully aware that I have contributed to this misunderstanding of relationships.

In published diagnoses of genera and species, and in speculations about their affinities, much importance has been attached to numbers of fin-rays and spines. Usually, however, insufficient account has been taken of individual variation in this character: in species which normally have XII dorsal spines, the figures XI and XIII are not rare (cf. *T. fuliginosus, T. bancrofti, T. brevipinnis, T. plumbeus*); in *T. jamoerensis*, in which XIII is apparently the normal figure, XII and XIV occur, etc. From this it is apparent that a classification based exclusively on numbers of dorsal spines, does not have even practical value.

Another character which has been given much emphasis is the supracleithrum (= suprascapular bone), which has been described as either: "exposed" or "not exposed, concealed by skin and scales". The character is indeed useful, but attention must be drawn to the fact that in the species with an "exposed" supracleithrum, this bone is not really exposed, but covered by usually thick and well-pigmented skin (without scales). Only when one removes the skin does it become exposed. In the species which

Fig. 1. The known distribution of *Therapon aheneus* (triangles), *T. fuliginosus* (dots), *T. bancrofti* (circles), and *T. brevipinnis* (cross). Localities are: 1, Nicholl's Spring. 2, Millstream. 3, Beverley Springs. 4, Hann River. 5, Kalumburu. 6, Ivanhoe. 7, McKinley River. 8, South Alligator River. 9, Deaf Adder Creek. 10, Wenlock Crossing. 11, Daintree River. 12, Eureka Creek. 13, Mulgrave River. 14, Tully River. 15, Charters Towers.

have been described as having the supracleithrum not exposed, concealed by scales, it is indeed just that, and is therefore not externally visible.

Therapon aheneus Mees

Therapon aheneus Mees, 1963, J. Roy. Soc. W. Aust. 46: 2 — Millstream Pool and Fortescue River at Millstream.

Mesopristes aheneus; Whitley, 1964, Proc. Linn. Soc. N.S.W. 89: 42 (no locality).

Material. — Nine specimens, 25 July 1964, Nicholl's Spring, Upper Ashburton River, Western Australia (J. R. Ford, WAM no. P 8402-8410), standard length 67-88 mm.

Characters. — D XII.8½ or 9½, A III.8½ to 9½, P 13 (ii.10.i, once i.11.i), gill-rakers 6 + 1 + 10 or 11, scales under lateral line 38-43. These counts agree well with those of the type series.

Discussion. — This species was previously known from the type-locality only. The main importance of this additional material is that it points to *T. aheneus* being widely distributed in the Pilbara District of Western Australia. The fact that both localities from which the species is now known are springs, with permanently running water, may be significant.

Contrary to the opinion expressed on a previous occasion (Mees, 1963), I do not now regard *T. aheneus* as closely related to any other species of the genus. It is certainly not close to the "black bream" group of northern Australia (see the discussion of *T. fuliginosus* for an explanation of my change of opinion).

Therapon fuliginosus Macleay

Therapon fuliginosus Macleay, 1883, Proc. Linn. Soc. N.S.W. 8: 201 — Upper Burdekin, at or near Charters Towers.

Hephaestus tulliensis De Vis, 1885, Proc. Linn. Soc. N.S.W. 9: 399 — Tully and Murray (Queensland) Rivers.

Mesopristes jenkinsi Whitley, 1945, Aust. Zool. 11: 26 — Ivanhoe Station, Ord River, North-western Australia.

Therapon fuliginosus; Macleay, 1884, Proc. Linn. Soc. N.S.W. 9: 13 (Burdekin River); Weber, 1913, Nova Guinea 9: 585 (Burdekin-Fluss); Ogilby & McCulloch, 1916, Mem. Qd. Mus. 5: 117, pl. XII fig. 2 (Upper Burdekin River); McCulloch & Whitley, 1925, Mem. Qd. Mus. 8: 153 (Upper Burdekin River, Tully and Murray Rivers); (pt.) Fowler, 1928, Mem. B. P. Bishop Mus. 10: 212 (Upper Burdekin, Queensland); Grant, 1965, Guide Fish. (Qd.): 223 (Queensland).

Terapon fuliginosus; McCulloch, 1929, Aust. Mus. Mem. 5: 163 (Queensland); Fowler, 1931, U.S. Nat. Mus. Bull. 100 (11): 352 (no locality).

Mesopristes jenkinsi; Whitley, 1947, W. Aust. Nat. 1: 53 (Western Australia: Leichhardtian Fluvifaunula); Whitley, 1948, W. Austr. Fish. Dept., Fish. Bull. 2: 19 (Western Australia); Whitley, 1955, Proc. Roy. Zool. Soc. N.S.W. for 1953/54: 45, fig. 2 (Ord River); Whitley, 1956, Proc. Roy. Zool. Soc. N.S.W. for 1954/55: 41 (Australia); Whitley, 1960, Nat. Freshw. Fish. Aust.: 76 (North-western Australia).

Hephaestus fuliginosus; Whitley, 1956, Proc. Roy. Zool. Soc. N.S.W. for 1954/55: 41 (Australia); Whitley, 1960, Nat. Freshw. Fish. Aust.: 75 (Queensland: Burdekin and Tully Rivers); Whitley, 1964, Proc. Linn. Soc. N.S.W. 89: 42 (no locality).

Therapon alligatoris; (pt.) Mees, 1963, J. Roy. Soc. W. Aust. 46: 3 (Ivanhoe Station, Kalumburu, Beverley Springs).

Material. — Two specimens, before 1883, Upper Burdekin at or near Charters Towers (collector unknown, QM no. I 2384), syntypes of the species. Two specimens, 11 August 1931, Mulgrave River, N.Q. (H. Dyson, QM no. I 4752, I 4754). One specimen, May-June 1944, Ivanhoe Station, Ord River, W. A. (C. F. H. Jenkins, WAM no. P 2763), type of *Mesopristes jenkinsi*. Two specimens, 26 June 1960, Kalumburu, W. A. (A. M. Douglas and G. F. Mees, WAM no. P 5384). Two specimens, June 1960, Kalumburu, W. A. (A. M. Douglas and G. F. Mees, WAM no. P. 5385). Two specimens, July 1960, Beverley Springs, W. A. (A. M. Douglas and G. F. Mees, WAM no. P. 5386). Three specimens, June 1967, Daintree River, N.Q. (J. S. Lake, RMNH no. 26397). One specimen, 17 July 1967, Mulgrave River, N. Q. (S. Midgley, QM no. I 9091). Measurements are given in Table I.

TABLE I

Measurements of *Therapon fuliginosus*

locality	standard length	longest dorsal spine	longest dorsal ray
Daintree River	92	15	16
Ivanhoe, Ord River 1)	113	17.5	15.5
Mulgrave River	113	17	20
„	121	18	24
„	124	19.5	—
Daintree River	134	21	25
„	148	23	28
Kalumburu	151	20	26
„	159	21	27
„	182	28	25
Upper Burdekin 2)	184	23	30
Kalumburu	187	25.5	28.5
Beverley Springs	249	25.5	42
„	268	30	45.5
Upper Burdekin 2)	277	27	46

1) Holotype of *Mesopristes jenkinsi* Whitley.
2) Syntype of *Therapon fuliginosus* Macleay.

Characters. — The species was well described and figured by Ogilby & McCulloch (1916) and Whitley (1945), and as my specimens agree in every detail with these descriptions, there is no need to give extensive notes. I would like, however, to draw attention to a few characters which may assist in identification. *Therapon fuliginosus* may be diagnosed as a rather heavily-bodied member of its family, blackish in colour, D XII (sometimes XI or XIII).11½ or 12½, A III.8½ or 9½ (once 7½, once 10½), P 15-16, V I.5, C i.15.i (ignoring rudiments), gill-rakers 6 or 7 + 1 + 15-19, scales in a longitudinal series below the lateral line 44-53, tips of teeth brownish. An additional character I find useful is the shape and size of the mouth, with fleshy lips, which, however, are not very thick (fig. 2). The change in proportions with growth will be referred to below; large specimens are also relatively deeper bodied than smaller ones and while in the small type of *M. jenkinsi* the upper profile of the head is straight, in large specimens it becomes concave, the anterior part of the

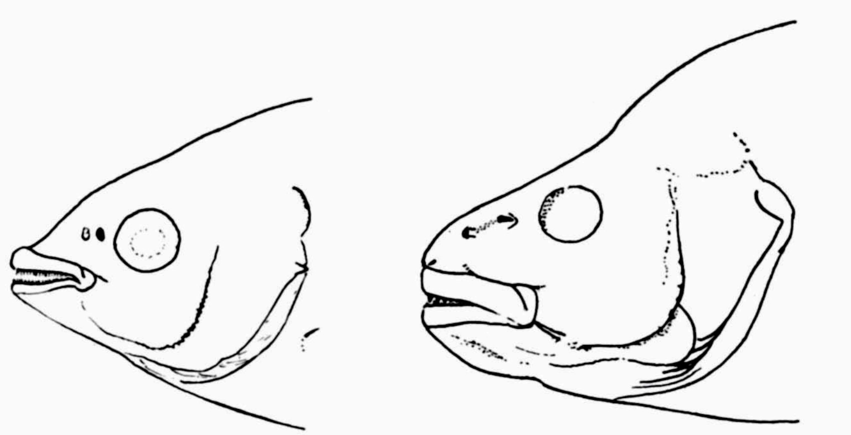

Fig. 2. Heads of *Therapon fuliginosus* (left, WAM no. P 5384) and *T. bancrofti* (right, QM no. 123, syntype). Note difference in shape and size of the mouth and in position of the nostrils, 0.75 ×

back being humped. The beginning of this is shown in Ogilby & McCulloch's plate.

Distribution (fig. 1). — Upper Burdekin, Tully, Murray (near Tully), Mulgrave and Daintree Rivers, Queensland, and Ivanhoe Station (Ord River), Kalumburu (King Edward River and tributaries), and Beverley Springs (Plains Creek), Western Australia. Perhaps widely distributed in northern Australia (see discussion).

Discussion. — In a previous paper (Mees, 1963) I discussed briefly some specimens of a *Therapon* from the Kimberley Division of Western Australia which I identified as *T. alligatoris* Rendahl, a nominal species that had been known from its type material only. The name *Mesopristes jenkinsi* Whitley, based on a single individual from the Ord River, was relegated to the synonymy. Following other authors (Rendahl, 1922; Whitley, 1945, 1960), I continued to regard *T. alligatoris* as closely related to *T. argenteus*, near which species it comes in Ogilby & McCulloch's (1916) key.

Zoogeographic considerations have led me to re-examine the status of the material in the Western Australian Museum. The freshwater fauna of northern Australia has always been regarded as fairly homogeneous; one would therefore expect its species to be widely ranging, rather than confined to certain small areas. Contrary to expectation, however, since Ogilby & McCulloch's (1916) revision, very few extensions of range of known species have been published, but several additional species, known from at most a few localities, have been described.

With the possibility in mind that they might be identical with some well-known Queensland species, I re-examined the specimens from Western

Australia, and studied again the excellent paper by Ogilby & McCulloch (1916). Fairly soon it became apparent that I and previous authors had gone astray. When I tried to identify my specimens with the key, everything went smoothly until number h2, where a division in two groups is made as follows: "Dorsal and anal spines very strong, longest dorsal spine longer than the rays, and second anal spine much longer than third" (species *T. interruptus* and *T. argenteus)*, and: "Dorsal and anal spines weaker, the longest dorsal spine not longer than the rays, second anal spine not or but a little longer than the third" (species *T. carbo*, *T. fuliginosus* and *T. bancrofti*). Notwithstanding the paucity of my material, it is clear that the key characters used here are subject to alteration with growth (Tables I, II). It is apparent that in larger specimens the spines are relatively shorter: while spines as well as soft rays increase in length with growth, the increase in size of the soft rays is relatively greater. In this connection it is interesting to note that Ogilby & McCulloch (1916: 118) state of *T. fuliginosus*: "Dorsal spines moderately strong, the sixth the longest, almost as long as the median rays in young specimens, but much shorter than them in adults . . .".

In the light of this knowledge it appears at once that the specimens from Western Australia are not particularly close to *T. argenteus*, but that they belong among the relations of *T. fuliginosus*, from which species I am unable to separate them. My previous identification of these specimens with *T. alligatoris* is erroneous.

Although my line of investigation has been fruitful in this particular instance, it has to be pointed out that the premise from which it started (that this group of "black bream" was oversplit and further investigations would lead to a reduction in the number of nominal species) has proved to be false.

The distribution of *T. fuliginosus* as it appears now (streams running east from the Great Divide in North Queensland, not in western Queensland or the Northern Territory, but again in Western Australia), is not easy to accept from the zoogeographical viewpoint. It is possible that further investigations, based on more adequate material than was available to me, will lead to the discovery of morphological differences between the two widely separated populations. As, however, I have been unable to find any differences, I am obliged to unite them under one name. On the other hand, knowledge of the ichthyofauna of northern Australia is so incomplete, that *T. fuliginosus* may still be found to range right through from Western Australia to Queensland, a pattern of distribution shared by many other freshwater fishes, including *T. unicolor* and *T. percoides*.

Therapon bancrofti Ogilby & McCulloch

Therapon bancrofti Ogilby & McCulloch, 1916, Mem. Qd. Mus. 5: 119, pl. XI fig. 2 — Eureka Creek, Stannary Hills, N. Q.

Terapon alligatoris Rendahl, 1922, Nyt Mag. Naturv. 60: 185 — S. Alligator River (type) and McKinley River.

Therapon bancrofti; McCulloch & Whitley, 1925, Mem. Qd. Mus. 8: 153 (Eureka Creek, Stannary Hills, North Queensland); Grant, 1965, Guide Fish. (Qd.): 223 (Queensland).

Terapon Alligatoris; Dahl, 1926, In Savage Aust.: 229 (South Alligator River).

Terapon alligatoris; McCulloch, 1929, Aust. Mus. Mem. 5: 161 (North-Western Australia); Fowler, 1931, U.S. Nat. Mus. Bull. 100 (11): 351 (North-West Australia); Taylor, 1964, Rec. Amer.-Aust. Exp. Arnhem Land 4: 185 (McKinley River, South Alligator River, Northern Territory); Pethon, 1969, Rhizocrinus 1 (1): 1, 7 (McKinley River, NW Australia).

Terapon bancrofti; McCulloch, 1929, Aust. Mus. Mem. 5: 163 (Queensland); Fowler, 1931, U.S. Nat. Mus. Bull. 100 (11): 353 (Eureka Creek, Stannary Hills, North Queensland).

Therapon bidyana; Nichols, 1949, Amer. Mus. Novit. 1433: 3 (Archer River (Gulf drainage), Wenlock Crossing, elevation 400 feet).

Hephaestus bancrofti; Whitley, 1956, Proc. Roy. Zool. Soc. N.S.W. for 1954/55: 41 (Australia); Whitley, 1960, Nat. Freshw. Fish. Aust.: 75 (Norman and Mitchell River systems, North Queensland); Whitley, 1964, Proc. Linn. Soc. N.S.W. 89: 42 (no locality).

Mesopristes alligatoris; Whitley, 1956, Proc. Roy. Zool. Soc. N.S.W. for 1954/55: 41 (Australia); Whitley, 1960, Nat. Freshw. Fish. Aust.: 76 (North-western Australia); Whitley, 1964, Proc. Linn. Soc. N.S.W. 89: 42 (no locality).

Therapon alligatoris; (pt) Mees, 1963, J. Roy. Soc. W. Aust. 46: 3 (South Alligator River and McKinley River, Northern Territory).

Pelates romeri; (pt.) Munro, 1964, Papua New Guinea Agricult. J. 16: 147 (Tropical Australia).

Material. — One specimen, August 1895, McKinley River, N.T. (K. Dahl, ZMO no. J 5230), paratype of *Terapon alligatoris*. One specimen, August 1895, McKinley River, N.T. (K. Dahl, NRS no. 10439), paratype of *Terapon alligatoris*. One specimen, before 1916, Eureka Creek, N.Q. (T. L. Bancroft, QM no. I 2318), syntype of the species, figured by Ogilby & McCulloch (1916: pl. XI fig. 2). Nine specimens, 30 July 1948, Wenlock Crossing, Archer River, N.Q. (Archbold Cape York Exp., AMNH no. 18540). One specimen, 16 September 1969, Camp 3, Deaf Adder Creek, N.T. (F. Chalauplia, NTM no. 5051). One specimen, 18 September 1969, Camp 3, Deaf Adder Creek, N.T. (D. R. Stephens, NTM no. 5061). Measurements are given in Table II.

Characters. — D XI.12½ (one), XII.11½ (one), XII.12½ (five), XII. 13½ (seven), A III.8½, P 15-16, V I.5, C i.15.i (ignoring rudiments); gill-rakers 6 or 7 + 1 + 15 to 17, scales under lateral line 47-54. This species is in all its characters, including numbers of scales, fin-rays and gill-rakers, extremely similar to *T. fuliginosus*, but the mouth appears bigger, in particular with thicker lips; the posterior border of the preoperculum is more evenly rounded, and the position of the nostrils is different:

TABLE II

Measurements of *Therapon bancrofti*

locality	standard length	longest dorsal spine	longest dorsal ray
McKinley River 1)	60	11.5	9.5
Wenlock Crossing	60	10.5	8.5
„ „	65	11	10
„ „	71	12.5	10.5
„ „	72	11.5	10.5
„ „	72	12.5	11
„ „	72	12.5	12
„ „	75	12.5	10.5
McKinley River 1)	80	14	12
Wenlock Crossing	86	15	13
„ „	104	15	12
Deaf Adder Creek	157	22	28
Eureka Creek 2)	204	20	27
Deaf Adder Creek	233	23	32

1) Paratype of *Terapon alligatoris* Rendahl.
2) Figured syntype of *Therapon bancrofti* Ogilby & McCulloch.

they are farther apart, and the first one has a more anterior position (fig. 2).

Distribution (fig. 1). — At present known from Eureka Creek and Archer River, Queensland and South Alligator River (with its tributary Deaf Adder Creek) and McKinley River, Northern Territory. Probably widely distributed in northern Australia.

Discussion. — The only difference between *T. fuliginosus* and *T. bancrofti* given by Ogilby & McCulloch, is that the former has 46-50 series of scales below the lateral line, and 51-58 above it, whilst in the latter these numbers would be 51-55 and 57-61. However, it is easy to make an error, or just a difference in judgement in counting scales, and in two syntypes of *T. fuliginosus* I found a number of scales under the lateral line of 49 and 53, respectively. In the other material I found a variation from 44 to 53, which covers most of the range given by Ogilby & McCulloch for their different species. It appears therefore that the difference in numbers of scales is no more than an average one, and that on the basis of the character given by Ogilby & McCulloch, the species *T. fuliginosus* and *T. bancrofti* are not always separable. Though in general appearance, including meristic data, the two species are very similar, they can be distinguished by the shape of the mouth, the position of the nostrils and the shape of the preoperculum, as indicated under the heading Characters.

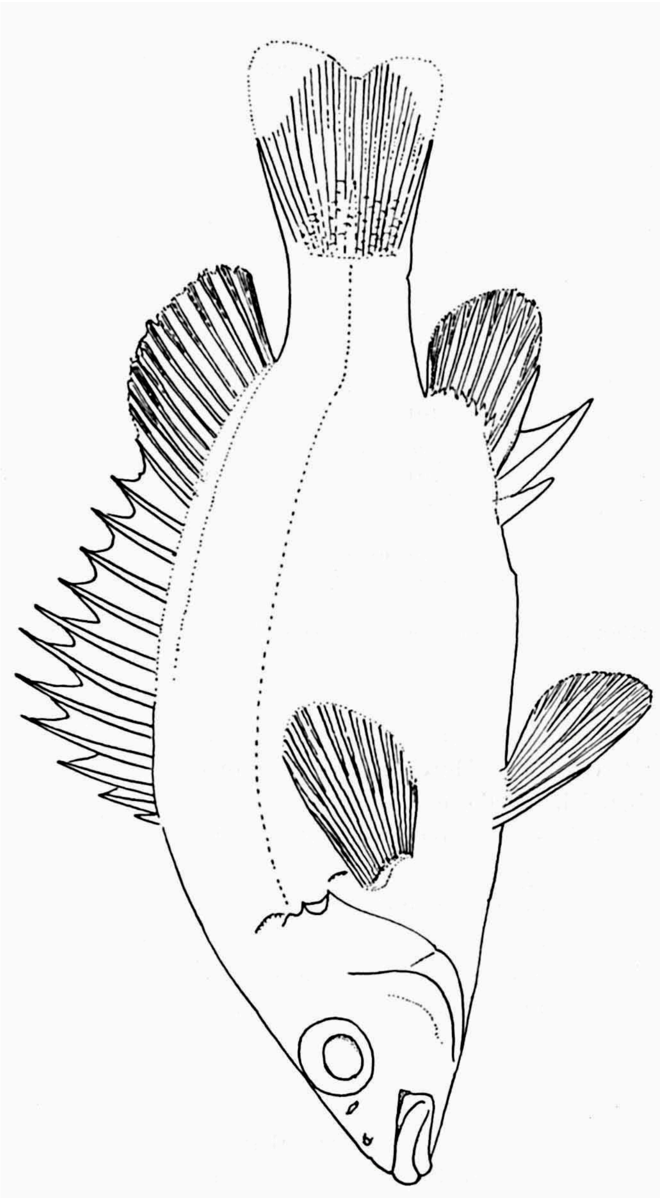

Fig. 3. Outline drawing of *Therapon bancrofti* (NRS no. 10439, paratype of *T. alligatoris*), 1.5 ×.

The two NTM-specimens, received just before I completed this report, have the anterior and posterior nostrils closer together than the other material of the species, although not as close as in *T. fuliginosus*. Only examination of additional material could reveal if this character is always as reliable as in the specimens studied by me. A further comparative study of the species *T. fuliginosus* and *T. bancrofti*, on the basis of more material than was available to me, remains to be done.

T. alligatoris appears to be nothing but the young of *T. bancrofti* (Table II). *T. alligatoris* was based on three specimens, a holotype and two paratypes, but at present the holotype is missing (Barth, in litt., 28.XI. 1963; also Pethon, 1969).

Nichols (1949) recorded a series of small fishes from the Archer River, Cape York Peninsula, under the name *Therapon bidyana*. He gave the following statement: "I identify these with *Pelates römeri* from New Guinea, and they are presumably *T. bidyana* as recognized elsewhere in Australia". I have received these specimens on loan, and they belong to *T. bancrofti*. It may be remarked that *T. bidyana* is a quite different species, which is confined to the extra-tropical part of Australia. *T. bidyana* has been recorded from south Queensland, New South Wales, Victoria, and South Australia; it is apparently plentiful in the Murray River system (Lake, 1959; Whitley, 1960; Scott, 1962). Western Australia is traditionally included in the range of *T. bidyana*, because Richardson (1848) described as *Datnia elliptica* a species from "Rivers in Western Australia", which has generally been recognized as a synonym of *T. bidyana*. Subsequent to the original description, specimens were recorded by de Castelnau (1873) from Swan River, and by Woodward (1900, 1903) from Broome. Whitley (1943, 1948, 1956) referred to it as *Bidyanus bidyanus elliptica* and *Bidyanus ellipticus*, and therefore apparently accepted the existence of a separate subspecies or species in Western Australia. I can only say that there is no material in the collection of the Western Australian Museum, and that during five years of fairly intensive collecting of freshwater fishes by myself and others, no evidence of the existence of the species in Western Australia has been found. It is reasonable to suspect that the early records for Swan River and Broome (a coastal town distant from any river) are based on confusion with some marine species.

As late as 1937 *Therapon bidyana* has been included in the ichthyofauna of the Philippines, on the basis of an evident misidentification (Roxas & Martin, 1937).

It is tempting to try and find if perhaps more nominal species can be united with the present one. *T. carbo* comes to mind in this connection.

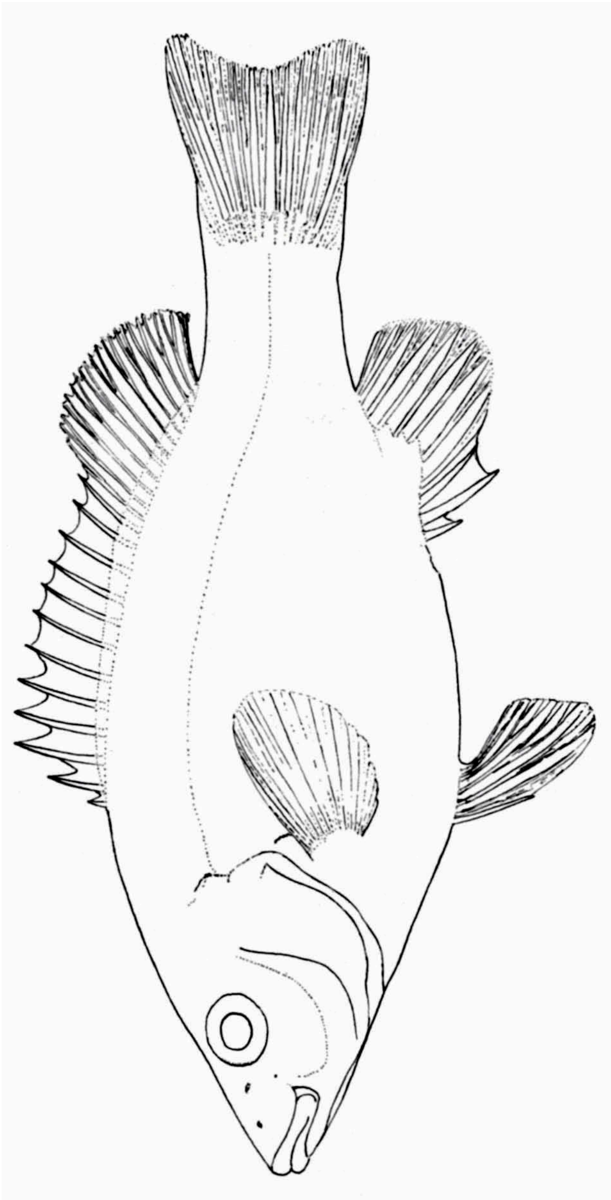

Fig. 4. Outline drawing of *Therapon brevipinnis* (RMNH, Pisces no. 26398, holotype), 2 ×.

But *T. carbo* according to its description differs by having a definitely higher number of anal rays, and fewer and shorter gill-rakers, characters which are unlikely to be dependent on size.

Therapon brevipinnis species nova

Material. — One specimen, 8 August 1968, Hann River, near crossing of the road to Gibb River Homestead, Kimberley Division, Western Australia (G. F. Mees, RMNH, Pisces no. 26398), total length 75 mm, standard length 61 mm, holotype. 52 specimens, same data (RMNH, Pisces no. 26399), total length 37-77 mm, standard length 31-62 mm, paratypes (some of these to be presented to WAM).

Diagnosis. — Very similar to *T. bancrofti*, but dorsal, anal and ventral fins conspicuously shorter in specimens of comparable size. The difference in length is about 30%.

Description. — D XII.11½ to 12½, once XIII.11½, A III.7 to 8½, P 15-16, once 17, V I.5, C i.15.i (ignoring rudiments), gill-rakers on outer branchial arch 5 or 6 + 1 + 15 or 16, branchiostegals 6, scales under lateral line 48-52 in a longitudinal series, transverse 8/1/15 or 16. In all characters, including numbers of fin-rays and scales, position of nostrils, and shape of operculum, this species agrees with *T. bancrofti*, but as mentioned in the diagnosis, the dorsal, anal and ventral fins are much shorter, see Table III. The small size of the fins is not only apparent in their

TABLE III

Measurements of *Therapon brevipinnis*

locality	standard length	longest dorsal spine	longest dorsal ray
Hann River	32	3	4½
"	34	3½	4
"	34	4	5
"	38½	4	5
"	41	4¾	5
"	43	5	6
"	50	6	7
"	51	6	7
"	52	6	7
"	53	7	7
"	53	6	7
"	54	6½	7
"	55	7½	8
"	57	6½	7½
"	61	7	9
"	62	7	7

measurements, but also in proportions: in the smaller specimens of *T. bancrofti*, D and A, in a normal position, reach nearly to a vertical through the base of the caudal fin, and the ventrals reach four-fifths of the distance from their implantation to the anus. In *T. brevipinnis*, D and A fall considerably short of a vertical through the base of the caudal fin, leaving a large part of the caudal peduncle free and in the largest specimens, the ventrals reach only two-thirds of the distance from their implantation to the anus. In small specimens, however, the ventrals are relatively longer. A further character is that, in specimens of comparable size, there is little difference in length between the longest and the last dorsal spine in *T. brevipinnis*, whereas in *T. bancrofti* this difference is considerable.

Colours in life. In colour the fishes were not uniform; the most frequent colour was sepia with a slight metallic gloss, and golden-yellow eyes, but there were also light brown individuals, with a few irregular, large blotches of black, especially on back and fins.

Colours in a preserved condition (one year after collecting). The specimens have bleached out; some retain the original colours, but others are pale yellowish brown, and it may be assumed that all will ultimately attain this colour. Soft dorsal and anal have basally a black blotch. In a preserved condition *T. bancrofti* shows similar blotches, but in a slightly more posterior position.

Size. Although all specimens collected were small (standard length 31-62 mm), there is no reason to assume that *T. brevipinnis* would not grow to the same size as the related species *T. bancrofti* and *T. fuliginosus*. I dissected some of the larger specimens of the series but found no trace of developed gonads which supports the view that they are juveniles.

Distribution (fig. 1). — At present known from the type-locality only.

Habitat. — At and near the place of collecting, the Hann River was about ten metres wide, but nowhere more than a metre deep, and usually much less. The water was clear and fast-running, and there was plenty of it. There were no stagnant pools. The surrounding country was open savanna, with along the river a narrow fringe of *Eucalyptus* and *Pandanus*.

Discussion. — One of the purposes of my visit to the Kimberley Division of Western Australia in 1968, was to collect small specimens of *T. fuliginosus*. As shown in Table I, I lacked, and still lack with one exception, specimens of under 113 mm standard length, and the evidence for a change in relative dimensions with growth would become much stronger when small specimens of less than 100 mm standard length could be added to the series.

As *T. fuliginosus* was the only "black bream" known from Western

Australia, and as from my own experience I knew it to be a common species at Kalumburu and in the Plains Creek at Beverley Springs, I naturally expected the fishes obtained in the Hann River, a locality more or less between Kalumburu and Beverley Springs, to belong to *T. fuliginosus*. After my return home it came as a great and originally not entirely pleasant surprise that according to my own notes and sketches the series from the Hann River agreed better with *T. bancrofti* than with *T. fuliginosus*, and moreover that the measurements of their spines and fin-rays did not agree with either of these species as given in Tables I and II. First this caused me to doubt my earlier work, and as neither species (*T. fuliginosus* and *T. bancrofti*) was then represented in our collection, I again borrowed specimens of both. With material of these species at hand it became evident that the specimens from the Hann River could not be assigned to either of them, and I have reluctantly concluded that they represent a new species [1]).

I have considered the possibility that *T. brevipinnis* is a juvenile stage of *T. bancrofti* and that with growth the spines and rays would become relatively longer and stronger, but reject this hypothesis for two reasons. The first is that specimens of *T. bancrofti* of similar size have been available, and have much larger fins; the second is that in both *T. bancrofti* and *T. fuliginosus* the fins, at least the dorsal spines, are shorter, relative to the standard length, in large specimens than in small specimens. It appears very unlikely that there would be an opposite development in *T. brevipinnis* and in the material available, ranging from 31 to 62 mm in standard length, there is no suggestion of a relative increase of fin-length with an increase of overall length; on the contrary, the evidence, although not conclusive, suggests rather that in this species too the relative length of the dorsal fin decreases as the body-length increases.

Geographically, the occurrence of a distinct species of the *T. fuliginosus*-group in the Hann River is not as unlikely as it seems at first sight, for the Hann River is a tributary of the Fitzroy River, the most isolated of the rivers of the Kimberley Division. On present evidence it is not unlikely that the very similar species *T. fuliginosus*, *T. bancrofti* and *T. brevipinnis* replace each other geographically, and will eventually have to be regarded as races of one species.

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1) My visit to the Kimberley Division yielded one other freshwater fish new to Western Australia: *Ambassis agrammus* Günther, of which I collected a series in the Lennard River, in July 1968. The species, originally described from Queensland, is common and widely distributed in the Northern Territory (cf. Taylor, 1964: 145). Its occurrence in the Western Kimberley Division means a considerable extension of its known range.

Therapon roemeri Weber

Therapon Römeri Weber, 1910, Notes Leyden Mus. 32: 233 — Lorentz-Fluss.
Therapon Römeri; Weber, 1913, Nova Guinea, Zool. 9: 584, fig. 35 (Lorentz-Fluss, bei "Van Weelskamp", Lorentz-Fluss bei Sabang, Lorentz-Fluss bei der Regeninsel).
Therapon fuliginosus; (pt.) Fowler, 1928, Mem. B. P. Bishop Mus. 10: 212 (Lorentz River at Van Weelskamp, Sabang and Regeninsel).
Pelates römeri; Weber & de Beaufort, 1931, Fish. Indo-Aust. Arch. 4: 163 (New Guinea (Lorentz River)); Hardenberg, 1941, Treubia 18: 227 (Tanah Merah, Digoel river).
Pelates romeri; Fowler, 1934, Mem. B. P. Bishop Mus. 11: 416 (distribution); Munro, 1958, Papua New Guinea Agricult. J. 10: 169 (Lorentz R., Digul R.); (pt.) Munro, 1964, Papua New Guinea Agricult. J. 16: 147 (Southern New Guinea); Munro, 1967, Fish. New Guinea: 320 (south West New Guinea).

Material. — See Table IV.

Characters. — Similar to *T. fuliginosus* and *T. bancrofti*, but scales smaller, 55-62 rows longitudinally below the lateral line and 9½ to 10½ transverse above the lateral line.

Distribution. — Southern New Guinea, where hitherto only known from the Lorentz River, and the Digoel River at Tanah Merah.

Discussion. — Only a few years after its description, Weber (1913) suggested that *Therapon roemeri* might be identical with *T. fuliginosus* and subsequently Fowler (1928) synonymized it with that species. Weber & de Beaufort (1931), though they did refer to Fowler's work, failed to comment on this and retained Weber's name, now in the combination *Pelates römeri*. Fowler (1934), equally without comment, restored *roemeri* to validity, now even placing it, as *Pelates romeri*, in a genus different from *T. fuliginosus*.

From the Zoölogisch Museum, Amsterdam, I received on loan two of the three syntypes of *T. roemeri* and two smaller almost topotypical speci-

TABLE IV

Data on *Therapon roemeri*

locality	date	museum	standard length	scales below lateral line	D	A	gill-rakers
Tanahmerah	11.IX.1959	RMNH	88	60	XII.13½	III.9½	6+1+16
Bivakeiland	25.IX.1912	ZMA	100	61	XII.14½	III.9½	x+1+16
Tanahmerah	14/17.IV.1955	RMNH	117	58	XII.13½	III.9½	7+1+17
Bivakeiland	25.IX.1912	ZMA	118	60	XII.13½	III.9½	x+1+17
Tanahmerah	13.IV.1955	RMNH	123	55	XII.13½	III.9½	x+1+17
Tanahmerah	14/17.IV.1955	RMNH	143	55	XII.14½	III.9½	x+1+14
Regeneiland	30.IX.1909 [1]	ZMA	271	62	XII.12½	III.9½	5+1+17
Van Weel's Kamp	29.V.1909 [1]	ZMA	304	58	XII.14½	III.9½	4+1+16

1) Syntype of *Therapon roemeri* Weber.

mens. I also examined four specimens collected in more recent years. Particulars of these eight specimens are given in Table IV.

From these figures it is apparent that *T. roemeri* does differ from *T. fuliginosus* in its slightly higher number of scales and also perhaps in averaging one or two more dorsal rays, the comparative figures being: *T. roemeri*, scales 55-62, D XII.12½ to 14½, and *T. fuliginosus*, scales 44-53, D XI to XIII.11½ to 13½. The smaller size of the scales is also apparent in the transverse count, *T. fuliginosus* having 7½ rows above the lateral line and *T. roemeri* 9½ to 10½. Moreover, on direct comparison I found that the posterior angle of the preoperculum is more rounded in *roemeri*, and that there is a difference in position of the nostrils. In *T. fuliginosus* the nostrils are close together, and the anterior nostril is definitely closer to the orbit than to the tip of the snout, whereas in *T. roemeri* the nostrils are farther apart, and the anterior one is about midway between the orbit and the tip of the snout. The higher scale count also distinguishes *T. roemeri* from *T. bancrofti*. *T. carbo* cannot be identical either, for it was described as having gill-rakers 5 + 11, rather short and stout (fairly slender in *T. roemeri*), and A III.11 or III.12.

Therapon adamsoni Trewavas

Therapon adamsoni, Trewavas, 1940, Ann. Mag. Nat. Hist. (11) 6: 284 — Lake Kutubu, 3000 ft, British New Guinea.

Therapon adamsoni; Munro, 1958, Papua New Guinea Agricult. J. 10: 170 (Lake Kutubu).

Madigania adamsoni; Munro, 1964, Papua New Guinea Agricult. J. 16: 174-175 fig. 16 (Lake Kutubu).

Madagania adamsoni; Munro, 1967, Fish. New Guinea: 324 (Lake Kutubu).

Material. — Two specimens from Lake Kutubu (J. C. Adamson, British Museum (Natural History), London), total length 136, 161 mm, standard length 116, 132 mm, paratypes.

Discussion. — In its description, Trewavas (1940) compared this species with *T. habbemai* in the following words: "This species appears to be related to *T. habbemai* Weber (1910), of the Lorentz and Mimika Rivers, New Guinea, but differs in the more slender form, larger mouth, shorter spines and weaker scaly sheaths for dorsal and anal fins". Subsequent to the original description only Munro (1958, 1964, 1967) has mentioned this species: the first time in a bibliographical reference only, but later on the basis of material. This caused him to comment as follows: "In common with *M. unicolor* (Günther 1859), a fresh water species from tropical Australia, it has the suprascapular bone hidden beneath scales and skin, 12 spines in the dorsal fin and plain body colouration. For this reason it is placed in the genus *Madigania* Whitley 1945. Its nearest relatives in New Guinea are *Amphitherapon habbemai* (Weber, 1910) and *A. caudavittatus* (Richardson 1845) but these have relatively deeper bodies and 13 spines in the dorsal fin" (Munro, 1964: 175).

On the basis of a direct comparison of two paratypes of *T. adamsoni* with type material of *T. habbemai*, I agree with the two authors cited that these two species are very close, and that the former differs from the latter only in the characters mentioned by Trewavas, the main difference being found in the shorter dorsal spines. I have also a strong suspicion that *T. habbemai* does not differ from *T. trimaculatus*, but lacking material of *T. trimaculatus* I have been unable to verify this. I am not aware that these two nominal species, which judging by descriptions are very similar, have ever been critically compared. Anyway, it is apparent that *T. trimaculatus* is also close to *T. adamsoni*, and it is perhaps justified to assume that the latter has been derived recently from the former, of which it may be no more than a subspecies.

Reference to Trewavas (1940) shows that small specimens of *T. adamsoni* have a pattern of longitudinal stripes similar to that figured and described from a small specimen of *T. trimaculatus* by Ogilby & McCulloch (1916: 121, pl. XIII).

From the preceding remarks it will be evident that I do not share Munro's opinion that *T. adamsoni* is particularly close to *T. unicolor*. *T. caudavittatus* is also very different. It appears to me that Munro has overestimated the phylogenetic value of certain characters (supracleithrum concealed or exposed, number of dorsal spines), a point to which I have drawn attention in the introduction to this paper.

Therapon jamoerensis species nova

Material. — One specimen, between 7 and 13 December 1954, Lake Jamoer, western New Guinea (M. Boeseman, RMNH, Pisces no. 25225), total length 105 mm, standard length 82½ mm, holotype. Four specimens, same data (RMNH, Pisces no. 25224), total length 80, 82, 84, 91 mm, standard length 62, 65, 66, 71 mm, paratypes.

Diagnosis. — D XII to XIV.10½ or 11½, A III.8½ or 9½, P 14 (ii.11.i), V I.5, C i.15.i (ignoring some simple rays on each side, less than one third of the length of the longest ray), gill-rakers on outer branchial arch 5 or 6 + 1 + 10 or 11, branchiostegals 6, scales under lateral line 60-65 in a longitudinal series, transverse 9 or 10/1/20 to 22. Further characterized by a comparatively deep body, large eye and strongly serrated preoperculum.

Description. — A fairly normal, though rather deep-bodied and large-eyed representative of the genus. Depth of body 2.4 to 2.5 in standard length; head 2.9 to 3.0 in standard length, profile of snout almost straight, with orbits just protruding; eye large, 3.0 in head; length of snout 0.8 to 0.9 of eye-diameter, bony interorbital about 0.75 of eye-diameter; nostrils well separated, the anterior one about one-third of the distance from tip of snout to eye, with an elevated rim, the posterior larger one in front of middle of eye; mouth moderate, maxillary just reaching to below anterior border of eye; each jaw with an outer row of fairly strong, pointed teeth, largest and strongest being those on the anterior part of the jaw, about 10 in the upper jaw, and 10 in the lower jaw, the lateral teeth are smaller; behind the outer row there are two irregular series of smaller teeth; all teeth with brown tips; no teeth on tongue, vomer or palatines; posterior border of preoperculum free, strongly serrated; operculum with two flat spines which do not protrude beyond the border of the soft operculum; branchiostegals six, postcleithral process covered with silvery skin and a few scales, but its posterior border exposed, strongly serrated; supra-cleithrum concealed by scales, not externally visible.

Lateral line complete, with an arch which follows the dorsal profile.

Body scaled, with the exception of the upper surface of snout and head, and chin; scales small, on the flanks somewhat larger.

Dorsal fin with twelve to fourteen strong spines; the first very short, the subsequent ones gradually increasing in length to the sixth, which is longest, equal in length to snout with eye, the following ones gradually decreasing in length to the penultimate spine which is about half the length of the longest spine, the last spine is very slightly longer. Soft dorsal well developed, evenly rounded, with eight or nine divided rays, the last one of which is double; longest ray about three-quarters length of longest spine; base of soft dorsal about half length of base of spiny dorsal; dorsal fin with a basal sheath of small scales. Individual fin-formulae: D XII.11½, XIII.10½, XIII.10½, XIII.10½, XIV.10½.

Anal fin with three strong spines and eight or nine divided rays, the last one of which is double. Of the spines the second is the largest, it equals in length the longest dorsal spine, and is much thicker; the first spine is much smaller, less than half the length of the second spine; the third spine is only slightly shorter than the second spine, but much weaker. The largest rays are almost of the same length as the second spine; there is a basal sheath of small scales, which is especially well developed at the base of the second and third rays.

Pectorals comparatively narrow, evenly rounded at their tips, with fourteen rays of which the first, second and last are simple, the others divided, their length 1.5 to 1.6 in head.

Ventral fins with one strong spine and five divided rays; the spine equals in length the postorbital part of the head, the first ray is much longer, 1.3 to 1.4 in head; the following rays become successively shorter, and the last one is about 1.5 in the first.

Caudal fin distinctly lunate with fifteen divided rays, on each side one fully developed simple ray and rudiments.

Colour of preserved specimens light brown; upper surface of head and back dark grey-brown, chin, chest and belly white (unpigmented), operculum and flanks with a silver gloss; fins light brownish, weakly pigmented, except the soft part of the ventrals, which is dark grey-brown.

Distribution. — At present only known from the type material, collected in Lake Jamoer, in western New Guinea.

Discussion. — The only species from which *Therapon jamoerensis* cannot be separated on the basis of simple finray- and scale-counts is *Therapon hilli*. I have not examined specimens of *Therapon hilli*, but the excellent description and the figures published by Ogilby & McCulloch (1916) indicate that that species differs by its lesser body-depth, smaller head, smaller eye, different shape of, and larger number of rays in, the pectoral fin (P 15-17, against 14), and conspicuously by the finely serrated posterior edge of the preoperculum, and the scaled, not serrated postcleithral process. Whereas some of these characters might vary with size (the two specimens of *T. hilli* are much larger than the material of *T. jamoerensis*), those of pectoral fins, preoperculum and postcleithral process are evidently independent of it. On zoogeographical grounds it is of course unlikely that the two species are closely related, and the agreement in finray- and scale-numbers is probably fortuitous.

Therapon argenteus (Cuvier) 1)

Datnia argentea Cuvier, 1829, in Cuvier & Valenciennes, Hist. Nat. Poiss. (8° ed.) 3: 139, pl. 54 — Java.

Material. — One specimen, 1909/1910, river near Ilmedo, Wettar (J. Elbert, RMNH, Pisces no. 10606), standard length 103 mm. Two specimens, December 1923, river Wae Memi, Haroekoe (F. Kopstein, RMNH, Pisces no. 11838), standard lengths 71, 73 mm.

Characters. — Even in small specimens a deep-bodied species. D XII.10½, A III.8½, P 14, V I.5, C i.15.i (ignoring rudiments), gill-rakers on outer

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1) The extensive synonymy of this species has been compiled repeatedly (Fowler, 1931; Weber & de Beaufort, 1931) and therefore I refrain from giving it here.

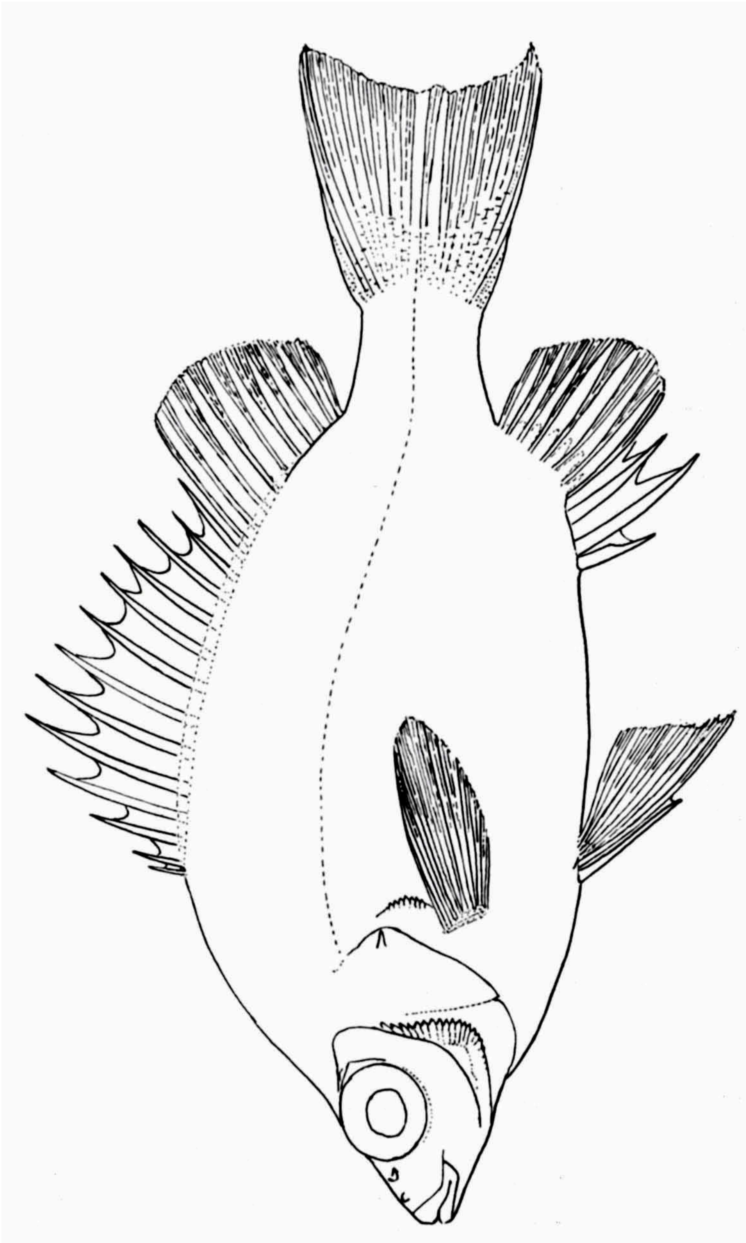

Fig. 5. Outline drawing of *Therapon jamoerensis* (RMNH, Pisces no. 25225, holotype), 1.5 ×.

branchial arch 7 or 8 + 1 + 15 or 16, branchiostegals 6, scales under lateral line 52-56 in a longitudinal series, transverse 6 or 7/1/21; depth of body 2.4 to 2.6 times in standard length, head 2.75 to 2.9 times in standard length, ventrals reaching to beyond anus; D with a high basal sheath of small scales; edge of preoperculum strongly serrated; postcleithral process covered with skin, but its posterior margin free and strongly serrated; supracleithrum covered with skin, but not by scales, and therefore externally visible; caudal peduncle short, distance from base of last dorsal ray to middle of hypural joint about equal to length of snout; second anal spine much stronger and longer than third. The species reaches a fair size; Ogilby & McCulloch (1916: 116) examined specimens of up to 262 mm in total length, Fowler (1931: 349) to 267 mm, and Weber & de Beaufort (1931: 151) to 275 mm.

Distribution. — This species is partly marine, although freely entering brackish and fresh water. It has a very wide distribution, from East Africa and Madagascar to the Philippines, Australia and the South-West Pacific.

Discussion. — Fowler (1931: 326) stated that the generic name *Datnia* used by Cuvier for *T. argenteus*, was by tautonomy based on *Coius datnia* Hamilton-Buchanan, hence a synonym of *Sparus*. Fowler's opinion finds support in art. 68(d) of the International Code, but there is more: Cuvier described *Datnia argentea* from material collected in Java by Kuhl and van Hasselt, which he subjectively identified with *Coius datnia*. The way the synonymy is quoted shows clearly that *Datnia argentea* is only a nomen novum for *Coius datnia*, given to avoid tautonomy. Fowler should not have stopped reasoning at the generic level, but should also have rejected *Datnia argentea* as an objective synonym of *Coius datnia*. At this late date, I feel no urge to change the familiar name *Therapon argenteus*. If the name is retained, however, it would be inconsistent not to accept *Datnia* as being based on the same species. Perhaps art. 70 of the Code would provide an avenue for validating both names.

Therapon micracanthus (Bleeker)

Datnia micracanthus Bleeker, 1860, Act. Soc. Indo-Neerl. 8: 55 — Lagusi, in fluviis.
Therapon (*Datnia*) *micracanthus*; Bleeker, 1873, Ned. Tijdschr. Dierk. 4: 388 (Lagusi); Bleeker, 1876, Atlas Ichth. 7: 117, pl. 340 (Lagusi).
Therapon micracanthus; Weber, 1894, Zool. Erg. Reise Nied. Ost-Indien 3: 408, 434, 447 (Celebes: Amparang Fluss, südlich von Balangnipa; Fluss Minralang bei Tempe; Fluss Tjenrana bei Pampanua); Weber & de Beaufort, 1931, Fish. Indo-Aust. Arch. 6: 153 (Celebes: River Lagusi, River Amparang near Balangnipa, River Minralang near Tempe, River Tjenrana near Pampanua).

Material. — Three specimens, before 1860, Lagoesi, Tjinrana, Celebes (J. T. van

Bloemen Waanders, RMNH, Pisces no. 5632), standard length 40½, 43, 81 mm, syntypes of *Datnia micracanthus*.

Characters. — D XIII.8½, 9, or 9½ [1]), A III.8½, P 15 (ii.12.i), V I.5, C i.15.i (twice), i.14.i (once), not counting rudiments, gill-rakers 6 + 1 + 10, scales under lateral line 34-36 in a longitudinal series, 6/1/12 in a vertical series. Besides other characters, this species may be distinguished from all other species of the genus, except the very different *T. percoides*, by its large scales.

Size. The species is little-known, but the largest specimen recorded has a standard length of 115 mm (Weber & de Beaufort, 1931).

Distribution. — Known from a restricted area in fresh water on the eastern side of the southern peninsula of Celebes.

Discussion. — This species appears to have been collected but twice: the type material, obtained about 1859 and the fourteen specimens listed by Weber (1894), obtained in October 1888.

Fowler (1934: 416) has, without any explanation, synonymized *T. habbemai* with this species, and thus extended its range to New Guinea; he has been followed by Munro (1958). To me the grounds on which Fowler based his opinion are quite obscure, as *T. habbemai*, which may well be identical with *T. trimaculatus*, is entirely different; it has 52 to 55 rows of scales, as against 34-36 in *T. micracanthus*. Munro (1967) has realised his mistake.

Therapon plumbeus (Kner)

D[atnia] plumbea Kner, 1864, Sitzb. Akad. Wiss. Wien, Math.-Naturw. Cl. 49 (1): 484 — Vom Kap oder der Insel S. Paul.

Therapon brevispinis Peters, 1868, Mber. Akad. Wiss. Berlin: 256 — Quingoafluss, Provinz Bulacan, Luzon.

Therapon brachycentrus Peters, 1869, Mber. Akad. Wiss. Berlin: 705 — nomen novum for *Therapon brevispinis* Peters, 1868, preoccupied by *Datnia brevispinis* Steindachner, 1867, which is a synonym of *Therapon unicolor* Günther, 1859.

Datnia plumbea; Kner, 1865, Reise Novara, Fische: 48 (Fundort unsicher, angeblich von Java); Herre, 1930, Copeia: 76 (Laguna de Bay); Herre, 1934, Notes Fish. Zool. Mus. Stanford 1: 53 (Laguna de Bay; Bauang Sur; San Fabian, Pangasinan Province; Unisan); Herre, 1953, Check List Phil. Fish.: 432 (bibliography).

Therapon (Datnia) plumbeus; Bleeker, 1873, Ned. Tijdschr. Dierk. 4: 383 (fort douteux ...... de l'île de Java); Bleeker, 1876, Atlas Ichth. 7: 115 (fort douteux ...... de l'île de Java).

Therapon (Datnia) brevispinis; Bleeker, 1873, Ned. Tijdschr. Dierk. 4: 384 (Quingoa flum., Provinc. Bulacan, Luzon).

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1) In the largest specimen, the 4th soft dorsal ray is split right down to its base; I have counted it as a single ray as this situation is evidently aberrant.

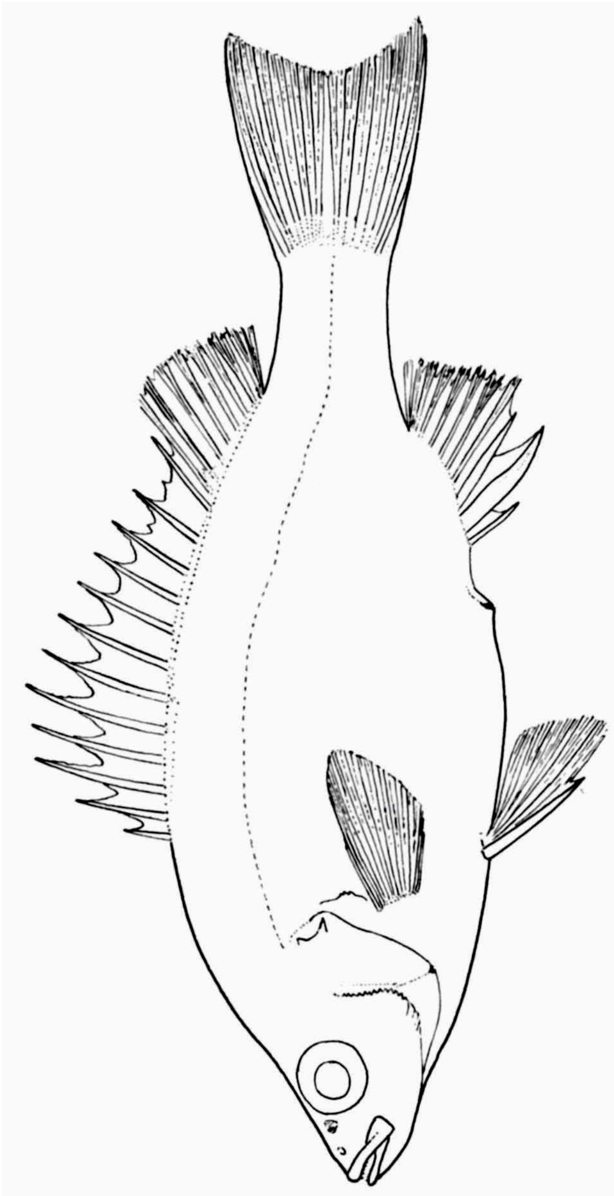

Fig. 6. Outline drawing of *Therapon plumbeus* (RMNH, Pisces no. 25782), 1.5 ×.

Therapon (Datnia) brachycentrus; Bleeker, 1876, Atlas Ichth. 7: 115 (Quingoa flum., Provinc. Bulacan, Luzon).

Therapon brevispinis; Meyer, 1885, An. Hist. Nat. Madrid 14: 7, 13 (Laguna de Bay).

Pristipoma hasta; Seale, 1908, Phil. J. Sci. (A) 3: 528 (Philippine waters).

Mesopristes plumbeus; Fowler, 1918, Proc. Acad. Nat. Sci. Philad. 70: 36 (Philippine Islands); Fowler, 1918, Copeia: 63 (Philippine Islands).

Therapon plumbeus; Fowler, 1927, Proc. Acad. Nat. Sci. Philad. 79: 281 (Santa Maria, Bangui, San Fernando, Orani, Philippines); Roxas & Martin, 1937, Phil. Dept. Agricult. Comm., Techn. Bull. 6: 139 (Philippine Islands); Weber & de Beaufort, 1931, Fish. Indo-Aust. Arch. 6: 158 (doubtful species); Yapchiongco & Enriquez, 1963, Phil. J. Sci. 92: 265-289 (Laguna de Bay).

Therapon argenteus; Aldaba, 1931, Phil. J. Sci. 45: 2 (Laguna de Bay).

Terapon plumbeus; Fowler, 1931, U.S. Nat. Mus. Bull. 100 (11): 357 (Dangalil, Laguna de Bay, Malabon Harbor, Manila market, Santa Cruz River, Buka Buka Island, Gulf of Tomini, Celebes, Lucon).

Mesopristes plumbea; Mane, 1934, Phil. Agricult. 23: 502-515 (Laguna de Bay).

Material. — One specimen, 1857/58, locality uncertain (Novara Exp., MV), total length 106 mm, standard length 85½ mm, syntype of *Datnia plumbea*. One specimen, 17 June 1908, purchased in Manila market ("Albatross" no. 10631, USNM no. 184802), standard length 112 mm. One specimen, 20 September 1909, Buka Buka Island, Gulf of Tomini, Celebes ("Albatross", original tag no. A 1010, USNM no. 184803), standard length 102 mm. 135 specimens, 21 May 1964, Tanay, Rizal, shore of Laguna Lake, Luzon (J. V. Yapchiongco, RMNH, Pisces no. 25782), standard length 61-91 mm.

Characters. — A small and slender species, silver grey in colour. D XII (sometimes XI or XIII) .9½ (once 8½), A III.8½, P 14 (sometimes 15), V I.5, C i.15.i (ignoring rudiments), gill-rakers on outer branchial arch 9 or 10 + 1 + 16 to 20, branchiostegals 6, scales under lateral line 46 to 50 in a longitudinal series, transverse 6 or 7/1/15 or 16; depth of body 2.7 to 3.1 times in standard length, head 3.1 to 3.4 times in standard length, ventrals usually not reaching to anus, occasionally almost reaching to anus; D with a low basal sheath of small scales, margin of preoperculum finely serrated; postcleithral process covered with skin and inconspicuous, but its posterior margin free and serrated; supracleithrum not externally visible, covered with scales; caudal peduncle long, distance from base of last dorsal ray to middle of hypural joint about equal to length of snout and eye; second anal spine not much longer and stronger than third. The preceding counts and measurements were taken from 20 specimens; of these specimens 16 have twelve, three have eleven and one has thirteen dorsal spines. The pectoral fin-counts are 14, 14 in 17, 14 left and 15 right in two, and 15, 15 in one. The species is small: the largest specimen recorded, in a material of over 2500 specimens, measured 156 mm in total length (Yapchiongco & Enriquez, 1963: 284). Mane (1934), in a material of several thousands, did not find any specimen of over 135 mm standard length; females attain apparently a slightly larger size than males.

Distribution. — Although the species has repeatedly been recorded from the Philippines in a general way, all exact records (with one awkward exception discussed below) are from Luzon, where it appears to be abundant in fresh water.

Discussion. — *Therapon plumbeus* has been confused with several other species, in particular with *T. argenteus*; even though Fowler (1918) and Herre (1930) redescribed it and confirmed its validity, as recently as 1931, Weber & de Beaufort were in doubt about its identity, and Aldaba (1931) still referred it to *T. argenteus*. The main reason that doubt could remain is probably because neither of the two authors mentioned above gave adequate differential characters from *T. argenteus*, although Fowler (1931: 327-328) did. Therefore I have stressed in the diagnoses of these two species the characters by which they differ. There are so many differences, that there is no reason to assume a close relationship.

Herre (1930) mentioned that Kner (1865) gave an excellent description and figure of the species, and that is true, but the specimen figured shows a much deeper body than any I have examined, with a depth only about 2.5 in standard length. A syntype received on loan from the Vienna Museum, with a total length of 106 mm, standard length 85½ mm, on the other hand, agrees perfectly with my material in all characters, including body-depth, and fully confirms the identity of the species.

Fowler (1931) recorded a specimen of this species from near Buka Buka Island, Gulf of Tomini, Celebes: a most unlikely marine habitat for a species otherwise not known to occur outside freshwater of Luzon. I borrowed the specimen (see above under material), and found contrary to expectation that it had not been misidentified. It does definitely belong to *T. plumbeus* and it has an (original?) "Albatross" metal tag with the number A 1010 on it. In November 1909 the "Albatross" was in the Gulf of Tomini, and it appears impossible to prove the record erroneous; nevertheless I am most reluctant to accept it. There is also a specimen of *T. plumbeus* bought in the Manila market in the "Albatross" collection.

Fowler (1931: 353) made *T. plumbeus* the type of a new subgenus *Leiopotherapon,* based on the sole character of: "having the suprascapula not exposed, hidden by scales". In this subgenus he placed four species. *T. percoides, T. caudavittatus, T. unicolor* and *T. plumbeus*. As these four species differ in numerous characters inter se, it is evident that they do not form a natural group; the phylogenetic significance of the supracleithrum character appears to have been overestimated.

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