

A CATALOGUE OF FOSSIL FISH IN QUEENSLAND

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The first one hundred years of palaeoichthyology in Queensland are over and yet the state of the science is still discovery. Very little is known of the fossil fish faunas and very few complete descriptions of those found have been made. There has never been a full-time palaeoichthyologist employed in the state even though fossil fish are of use in stratigraphical correlation and palaeogeographical studies.

This paper is a summary of the present knowledge of fossil fish faunas in Queensland taken principally from the literature. Records are laid out chronologically, with synonymies where possible, after the style of the Fossilium Catalogus. Reference is made to Queensland specimens only, so full synonymies of some species well known outside the state e.g. *Lamna appendiculata*, are not given. In a few cases where only preliminary notice of forms has been made e.g. some placoderms, I have made only a chronological list. Otherwise classification follows various authors e.g. Nelson, 1976; Romer, 1966. This review is probably complete for most species but all references to merely 'fish fragments' or the like in the literature are not necessarily included. To do this would entail a more thorough review of all Geological Survey reports etc. If known to the author, the location of type, figured and other material is given.

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PALAEOZOIC

The first agnathan remains to be found in the Southern Hemisphere were discovered in Queensland (Jones, in Pritchard & Reynolds 1964). These are microvertebrate remains, scales of thelodonts of Early Devonian age (see e.g. Turner et al. 1981). In the last 15 years, study of such

microvertebrate remains has become important for biostratigraphical work, especially in the Siluro-Devonian. New material, including thelodonts, acanthodians, sharks, placoderms and bony fishes are now being investigated principally from two areas, the Toko Syncline of the Georgina Basin and the Broken River embayment.

As yet no Silurian or Ordovician fish have been found in the state, whereas the latter are known from the Amadeus Basin, NT (Ritchie & Gilbert-Tomlinson 1977) and might be expected in Queensland.

Upper Palaeozoic faunas are even less well known. Not one proper description of a fauna has been made, and there is doubt about the age of some of the fish-bearing rocks. The Telemon Formation, for example, has been referred to both Upper Devonian and Lower Carboniferous. Detailed study of the fish in these rocks should help to resolve this point. An interesting fauna of bony fishes from the Permian is to be described in the near future by K.S.W. Campbell and Lee Duy Phuoc of ANU, Canberra (Campbell 1981).

DEVONIAN

AGNATHA
THELODONTI
O. THELODONTIDA
F. TURINIIDAE

Turinia cf. *T. pagei* (Powrie, 1870)

1973 *Turinia pagei*: Jones in Turner, p. 573.

1981 *Turinia* cf. *pagei*: Turner et al., p. 54, Figs. 6-8.

1981 *Turinia* cf. *pagei*: Young & Gorter, p. 90.

MATERIAL: scales BMR CPC200979 Loc. GEO 65/28 Toomba Range, Toko Syncline, Georgina Basin.

AGE: Early Devonian, Emsian or older, Cravens Peak Beds.

Turinia australiensis Gross, 1971

1965 coelolepidid scales: Jones in Reynolds and Pritchard.

1965 fish scales: Reynolds, p. 13.

1967 coelolepidids: Johnstone et al., p. 610.

1967 isolepid fish scales: Hill, p. 615.

1968 Coelolepididae: Gilbert-Tomlinson, p. 201.

1972 *Turinia*: Strusz, p. 499.

1973 *Turinia* sp?: Jones in Halstead and Turner, p. 74.

1973 *Turinia pagei* in pars: Turner, p. 573.

1975 fish scales: Talent et al., p. 22.

1981 *Turinia australiensis*: Turner et al., p. 58–59, figs. 9–12.

1981 *Turinia australiensis*: Young & Gorter, p. 90.

MATERIAL: scales BMR CPC20071, 20080–85
Loc. shot point samples, W of Toko Range,
Georgina Basin.

AGE: Early Devonian, Emsian or older, Cravens
Peak Beds.

F. NIKOLIVIIDAE

Gampsolepis? sp.

1981 *Gampsolepis*? sp. undet.: Turner et al., p.
60, fig. 14.

MATERIAL: scale BMR CPC20086 Loc.
GE065/28, Toomba Range, Georgina Basin.

AGE: Early Devonian, Emsian or older, Cravens
Peak Beds.

PLACODERMI

O. ANTIARCHI

F. BOTHRIOLEPIDAE?

Bothriolepis? sp.

1936 Antiarch: Hills, p. 163, fig. 3.

1958 *Asterolepis*: Hills, p. 89.

1960 antiarchan fish remains: Hill and
Denmead, p. 154.

1962 *Antiarchan*: White, p. 7.

1967 antiarchan fish: Hill, p. 615.

1967 *Asterolepis*?: Hill et al., p. d30, pl. DXV,
fig. 1.

1968 *Asterolepis*: Gilbert-Tomlinson, p. 207.

1973 Antiarchan fish remains: Smart, p. 7.

1981 *Bothriolepis*? sp.: Young & Gorter, p. 90.

MATERIAL: median d. plate UQF13909 Loc.
Gilberton distr.

AGE: Late Devonian, Gilberton Fm.

O. ARTHRODIRA

F. WUTTAGOONASPIDAE

Wuttagoonaspis sp.

1968 cf. *Coccosteus*: Gilbert-Tomlinson, p. 203.

1973 *Wuttagoonaspis* sp.: Ritchie, p. 70.

1981 *Wuttagoonaspis* sp.: Turner et al., p. 60.

1981 *Wuttagoonaspis* sp.: Young & Gorter, p.
90.

MATERIAL: BMR Loc. Toomba Range incl.
GE065/28, Georgina Basin.

AGE: Early Devonian, Emsian or older, Cravens
Peak Beds.

Placodermi various

1980 antiarch placoderm, and ? arthrodire:
Wyatt & Jell, p. 211.

1981 pterichthyodid antiarch: Turner et al., p.
60; Young & Gorter, p. 90.

1981 phlyctaeniids: Turner et al., p. 60; Young
& Gorter, p. 90

1981 large placoderms: Young & Gorter, p. 90.

1981 large brachythoracid: Young & Gorter, p.
90.

1981 antiarchs: Young & Gorter, p. 90.

MATERIAL: BMR, UQF Loc. Toomba Range,
Georgina Basin, Burdekin — Star shelf and
Broken River embayment. Colls. G.C. Young,
J.S. Jell, and D.H. Wyatt.

AGE: L/M/U Devonian, incl. Cravens Peak Beds
& Vanneck Fm.

ACANTHODII

O. ISCHNACANTHIDA

F. ISCHNACANTHIDAE

Gomphonchus sp.

1981 *Gomphonchus*: sp.: Turner et al., p. 60,
fig. 14A–C.

MATERIAL: scales BMR CPC20087 Loc.
GE065/28, Toomba Range, Georgina Basin.

AGE: Early Devonian, Emsian or older, Cravens
Peak Beds.

O. CLIMATHIDA

F. CLIMATHIDAE

Nostolepis sp.

1981 *Nostolepis* sp.: Turner et al., p. 60, fig. 14D.

MATERIAL: scale BMR CPC20088 Loc. SP799, west of Toko Syncline.

AGE: Early Devonian, Emsian or older, Cravens Peak Beds.

Acanthodii various

1981 acanthodian spines: Turner et al., p. 60.

1981 acanthodian spines: Young & Gorter, p. 90.

MATERIAL: BMR Loc. Toomba Range, Georgina Basin.

AGE: Early Devonian, Emsian or older, Cravens Peak Beds.

'CROSSOPTERYGII'

O. STRUNIIFORMES (ONYCHODONTIFORMES)

Onychodontid undet.

1981 onychodontid scales: Young & Gorter, p. 90.

MATERIAL: BMR, UQF Loc. Toomba Range, Georgina Basin, also present in Broken River embayment (S.T.).

AGE: L/M. Devonian, incl. Cravens Peak Beds.

Crossopterygian undet.

1967 *Crossopterygian* dermal plate & dentary: Wyatt & Jell, p. 103.

MATERIAL: GSQ. Loc. nr Payne's Lagoon, Burdekin Basin.

AGE: Upper Devonian, nr base Dotswood Fm.

CARBONIFEROUS

ACANTHODII

O. CLIMATIIDA?

F. GYRACANTHIDAE

Gyracanthides murrayi Woodward, 1906

1890 spines: Musson in Etheridge, p. 72. (?)

1892 ?*Ctenacanthus*: Jack & Etheridge, p. 84. (?)

1892 ichthyodorulite fin spines: Jack & Etheridge, p. 138, 139.

1958 *Gyracanthides* type spine: Hills, p. 91.

1960 *Gyracanthides murrayi*: Hill & Denmead, p. 176.

1972 *Gyracanthides murrayi*: Olgers, p. 42.

MATERIAL: spines QMF6663, GSNSW? GSQ Locs. Bogantungan and Hannam's Gap; Lockington nr Springsure; N. Smithfield shaft, Deep Ck. Gympie distr. Colls incl. C.T. Musson, W.H. Rands, James Smith and A. Bartholomai.

AGE: L. Carboniferous, Star Beds, Ducabrook Fm.

ACTINOPTERYGII

O. PALAEONISCIFORMES

Palaeoniscidae gen. et sp. undet. and various

1890 *Palaeoniscid*: Etheridge, p. 72.

1891 *Palaeoniscus*: Rands, p. 16.

1892 ?*Palaeoniscus*: Jack & Etheridge, p. 136, 296.

*1892 *Palaeoniscus Randsi* Eth. fil. nom. nud.: Jack & Etheridge, p. 186.

1925-30 *palaeoniscid*: Howchin, p. 170.

1929 *palaeoniscid* fish scales: Reid.

1930 *palaeoniscid* fish scales: Reid.

1930 *Palaeoniscid* fish: Whitehouse, p. 31.

1952 *Elonichthys*: Hills.

1958 *Palaeoniscid* fish: Hills, p. 91.

1960 *palaeoniscids*: Hill & Denmead, p. 176, 177.

1964 *Elonichthys?* sp.: Hill & Woods, p. c26, pl. CXIV, figs. 14-15.

1964 ?*Elonichthys*: Woods, p. 68.

1964 *Elonichthys*: Veevers et al., p. 15.

1968 rhomboid scales: Gilbert-Tomlinson, p. 207.

1969 fish remains: Mollan et al., p. 13.

1969 *Palaeoniscidae*: Laseyron, p. 117.

1972 *palaeoniscid* fish: Olgers, p. 42.

MATERIAL: GSNSW? GSQ incl. F8616, & L292 Loc. Bogantungan; rail cut, Hannam's Gap; Lornesleigh Stn; Springsure distr.; Ducabrook Hmstd, SE of Emerald; Mt Wyatt & Ukalunda. Colls. incl. C.T. Musson, W.H. Rands, James Smith.

AGE: L. Carboniferous, Ducabrook Fm., Star Beds; Telemon Fm. (U. Devonian?).

REMARKS: The type specimen of *P. randsi* is thought to be GSQ1522 but, as no description was given, all *palaeoniscids* have been placed together here.

PERMIAN

BRADYODONTI

F. COCHLIODONTIDAE

Deltodus? australis Etheridge fil., 1892.

*1892 *Deltodus? australis* Etheridge, in Jack & Etheridge, p. 93, 296, pl. 39, fig. 11.

1914? *Deltodus australis*: Chapman, p. 261

1958 *Deltodus australis*: Hills, p. 93.

MATERIAL: tooth plate QMF?, specimen not found. Loc. Rockhampton distr. Coll. de Vis

AGE: Permian, Gympie Series.

ACTINOPTERYGII

O. PALAEONISCIFORMES

Palaeoniscidae gen. et spp. undet.

1981 palaeoniscids: Campbell, p. 41.

MATERIAL: ANU?, QMF Loc. Utah Corp. Blackwater Mine.

AGE: Permian.

1972 fish scales: Exon et al., p. 28.

MATERIAL: scales GSQ Loc. small creek 1.5 km ENE of Alpha Hmstd. S of Alpha.

AGE: Permian, Peawaddy Fm.

Summary Species list

DEVONIAN

Acanthodii undet.
antiarchs
brachythoracid
Bothriolepis? sp.
Gampsoplepis? sp.
Gomphonchus? sp.
Nostolepis sp.
onychodont
Placodermi undet.
phlyctaenid
pterichthyodid
Turinia australiensis Gross, 1971
Turinia cf. *T. pagei* (Powrie, 1980)
Wuttagoonaspis sp.

CARBONIFEROUS

Elonichthys? sp.
Gyracanthides murrayi Woodward, 1906
Palaeoniscus randsi Etheridge fil., 1892
Palaeoniscids undet.

PERMIAN

Deltodus? australis Etheridge fil., 1892
Palaeoniscids undet.

MESOZOIC

Our knowledge of these vertebrates in Queensland is somewhat better than that of the Palaeozoic. Even so, most of the work has been restricted to the early Cretaceous Rolling Downs Group of central and northern Queensland. Triassic fishes are described from only one site and no Jurassic fishes have been described to date.

TRIASSIC

DIPNOI

F. CERATODONTIDAE

Dipnoan gen. et sp. undet.

1970 dipnoan tooth plates: Bartholomai & Howie, p. 1063.

1972 dipnoan tooth plates: Howie, p. 51.

1972 lungfish: Warren, p. 279, fig. 1.

1979 lungfishes: Thulborn, p. 340.

1979 dipnoan tooth plates: Bartholomai, p. 225.

1980 tooth plates: Warren, p. 25.

1982 lungfish tooth plates: Turner, p. 545.

MATERIAL: QM Loc. L78 The Crater, Rewan.

AGE: L. Triassic, Arcadia Fm, Rewan Gp.

ACTINOPTERYGII

F. SAURICHTHYIDAE

Saurichthys cf. *S. gigas* (Woodward, 1890)

1982 *Saurichthys* cf. *S. gigas*: Turner, p. 545, pl. 1 A-B.

MATERIAL: portion of skull QMF11942 Loc. The Crater, Rewan

AGE: L. Triassic, Rewan Gp., Arcadia Fm.

Actinopterygian gen. et spp. undet.

1958 fragmentary remains: Hills, p. 94.

1972 actinopterygian scales in coprolites: Howie, p. 51.

1979 actinopterygian fishes: Thulborn, p. 341.

1980 patches of fish scales: Warren, p. 25.

1982 actinopterygian scales: Turner, p. 547.

MATERIAL: QM Loc. L78 The Crater, Rewan.

AGE: L. Triassic, Rewan Gp., Arcadia Fm.

CRETACEOUS

ELASMOBRANCHII

O. HYBODONTIFORMES?

F. HYBODONTIDAE?

Hybodus? incussidens De Vis, 1911

*1911 *Hybodus incussidens*: de Vis, p. 18, pl. II, fig. 3.

1931 *Hybodus incussidens*: Wade, p. 121, 142.

1958 *Hybodus incussidens*: Hills, p. 99.

MATERIAL: incomplete tooth, QMF12194. Loc. O'Connell Creek, nr Richmond, Coll. F.L. Berney of Wyangarra.

AGE: L. Cretaceous, Albian, Rolling Downs Gp., in 'molluscan conglomerate'.

REMARKS: This tooth probably belongs to a modern shark genus.

Hybodus? sp.

1870 *Hybodus?*: Moore, p. 238, 240.

1892 *Hybodus*: Etheridge & Woodward, p. 2.

1925-30 *Hybodus*: Howchin, p. 317.

MATERIAL: teeth and scales, whereabouts unknown Loc. Wallumbilla, N. of Condamine R.

AGE: L. Cretaceous, Albian, Rolling Downs Gp.

REMARKS: Sent by Rev. W.B. Clarke, with *Lepidotes* (see p. 604), for display at the 1862 Exhibition but delayed at sea. Possibly with Moore's collection at Bristol City Museum (U.K.)

O. GALEIFORMES (LAMNIFORMES)

F. CARCHARIIDAE (ODONTASPIDIDAE)

Carcharias sp.

1967 *Carcharias sp.*: Hill et al., p. k26, pl. KXII, fig. 4.

MATERIAL: tooth QMF2265 Loc. Aramac.

AGE: L. Cretaceous, Albian, Toolebuc Lst?

F. ISURIDAE

'*Corax*' *australis* Chapman, 1909

*1909 *Corax australis*: Chapman, p. 435, 1 fig.

1914 *Corax australis*: Chapman, p. 267, fig. 124C.

1925-30 *Corax australis*: Howchin, p. 317.

1931 *Corax*: Wade, p. 121, 144.

1958 *Corax australis*: Hills, p. 99.

MATERIAL: tooth NMVP10974 Loc. Hamilton R., abt 40 mls from Boulia Coll. H.A.C. Webb, pres. G.H. Roche.

AGE: L. Cretaceous, Albain, Rolling Downs Gp.

Lamna appendiculata (Agassiz, 1843)

1885 *Otodus appendiculatus*: Etheridge, p. 8.

1888 *Otodus appendiculatus*: Etheridge, p. 157, 158, pl. 4, fig. 1.

1889 *Otodus appendiculata*: Woodward, p. 393.

1892 *Otodus appendiculatus*: Etheridge & Woodward, p. 2.

1892 *Lamna appendiculata*: Jack & Etheridge, p. 503.

1894 *Lamna appendiculata*: Woodward, p. 144.

1909 *Lamna appendiculata*: Chapman, p. 452.

1914 *Lamna appendiculata*: Chapman, p. 267.

1925-30 *L. appendiculata*: Howchin, p. 317.

1930 *Lamna*: Whitehouse, p. 37.

1931 *Lamna appendiculata*: Wade, p. 121.

1958 *Lamna appendiculata*: Hills, p. 99.

MATERIAL: tooth GSQ? Loc. Kamilaroy, Leichhardt distr. Coll. R.L. Jack.

AGE: L. Cretaceous, Albian, Rolling Downs Gp.

Lamna daviesi Etheridge fil., 1888

*1888 *Lamna daviesii*: Etheridge jun., p. 159, pl. 4, figs. 2-3.

1889 *Lamna daviesii*: Woodward, p. 410.

1892 *L. daviesii*: Etheridge & Woodward, p. 2.

1892 *Lamna daviesii*: Jack & Etheridge, p. 503.

1894 *L. daviesii*: Woodward, p. 444.

1909 *Lamna daviesii*: Chapman, p. 452.

1914 *Lamna daviesii*: Chapman, p. 267.

1914 *Lamna daviesii*: David, p. 284.

1925-30 *L. daviesii*: Howchin, p. 317.

1931 *Lamna daviesii*: Wade, p. 121.

1958 *L. daviesii*: Hills, p. 99.

1968 *Lamna daviesii*: Hill et al., p. k26, pl. KZII, fig. 5.

MATERIAL: Holotype QMF1021 Loc. Flinders R., Richmond Downs. Coll. de Vis.

AGE: Cretaceous, Albian, Toolebuc Lst?

Lamna sp.

1892 *Lamna*: Jack & Etheridge, p. 397.

1892 *Otodus*: Jack & Etheridge, p. 404.

MATERIAL: GSQ? Locs. on the Leichhardt R, 9 mls from mouth Gunpowder Ck; at 'Stone Hut' on Rockwood Ck.

AGE: L. Cretaceous, Albian, Rolling Downs Gp.

DIPNOI

F. CERATODONTIDAE

Ceratodus wollastoni Chapman, 1914

1981 *Ceratodus wollastoni*: Kemp & Molnar, p. 212, fig. 6.

MATERIAL: upper toothplate QMF10313 Loc. Winton

AGE: L. Cretaceous

ACTINOPTERYGII

O. ASPIDORHYNCHIFORMES

F. ASPIDORHYNCHIDAE

Aspidorhynchus sp.

1872 *Aspidorhynchus* sp.?: Etheridge, p. 346.

1888 *Aspidorhynchus*: Etheridge, p. 156.

1892 *Aspidorhynchus*: Etheridge & Woodward, p. 2.

1892 *Aspidorhynchus* sp.: Jack & Etheridge, p. 412, 504.

1914 *Aspidorhynchus* sp.: David, p. 284.

1925-30 *Aspidorhynchus*: Howchin, p. 318.

1931 *Aspidorhynchus*: Wade, p. 142.

1932 *Aspidorhynchus*: Longman, p. 96.

1958 *Aspidorhynchus*: Hills, p. 99.

MATERIAL: original, probably QMF5663-5 Loc. Hughenden Stn. Coll. R. Daintree.

AGE: L. Cretaceous, Albian, Rolling Downs Gp.

REMARKS: This material may belong to *Belonostomus sweeti* and the two genera may, in fact, be synonymous.

Belonostomus sweeti Eth. fil. & Woodward, 1892.

*1892 *Belonostomus sweeti*: Etheridge jun. & Woodward, p. 3, pl. 1, figs. 1-7.

1892 *Belonostomus sweeti*: Jack & Etheridge, p. 407, 504.

1894 *Belonostomus sweeti*: Woodward, p. 444.

1895 *Belonostomus sweeti*: Woodward, p. 437.

1914 *Belonostomus sweeti*: Chapman, p. 267, fig. 124D.

1914 *Belonostomus sweeti*: David, p. 284.

1925-30 *Belonostomus sweeti*: Howchin, p. 317.

1928 *Belonostomus sweeti*: Wilkins, p. 284.

1929 *Belonostomus sweeti*: Chapman, p. 10.

1931 *Belonostomus sweeti*: Wade, p. 133.

1932 *Belonostomus*: Longman, p. 96.

1958 *Belonostomus sweeti*: Hills, p. 99.

1968 *Belonostomus sweeti*: Hill et al., p. k26, pl. XXII, fig. 3.

MATERIAL: holotype NMVP12988 George Sweet coll. 1889 Loc. Marathon Stn., Flinders R., C. Qld; BMNH P.7539 Geo. Sweet pres. 1895;

GSQ, D.P. Ryan coll. Loc. Hughenden; QMF5660 Loc. Pelican, 30 mls NW of Hughenden.

AGE: L. Cretaceous, Albian, Tambo Fm., Toolebuc Lst. Rolling Downs Gp.

O. SEMIONOTIFORMES

F. SEMIONOTIDAE

Lepidotus sp. (?)

1870 *Lepidotus*: More, p. 238, 240.

1892 *Lepidotus*: Etheridge & Woodward, p. 2.

1925-30 *Lepidotus*: Howchin, p. 318.

MATERIAL: scales, whereabouts unknown Loc. Wallumbilla.

AGE: L. Cretaceous, Albian, Rolling Downs Gp.

TELEOSTEI

O. CLUPEIFORMES

F. ICHTHYODECTIDAE

Cladocyclus? sweeti Woodward, 1894.

*1894 *Cladocyclus sweeti*: Woodward, p. 445, pl. X, figs. 2-6.

1901 *Cladocyclus sweeti*: Woodward, p. 111.

1905 *Cladocyclus sweeti*: Etheridge, p. 7.

1931 *Cladocyclus sweeti*: Wade, p. 142.

1958 *Cladocyclus sweeti*: Hills, p. 99.

1965 *Cladocyclus sweeti*: Bardack, p. 54.

MATERIAL: scales, holotype NMVP15571, also P15572-5. Loc. Marathon Stn., Flinders R. Qld. Coll. George Sweet.

AGE: L. Cretaceous, Rolling Downs Gp?

REMARKS: Bardack (1965) doubts this is *Cladocyclus*, which appears to be restricted to the U. Cretaceous of S. America.

Xiphactinus australis (Woodward, 1894)

*1894 *Portheus australis*: Woodward, p. 444, pl. X, figs. 1, 1a.

1901 *Portheus australis*: Woodward, p. 97.

1905 *Portheus australis*: Etheridge, p. 7-8.

1913 *Portheus australis*: Longman, p. 94.

1914 *Portheus*: Chapman, p. 268.

1925-30 *Portheus*: Howchin, p. 318.

1928 (?) *Portheus australis*: Wilkins, p. 284.

1930 *Portheus*: Whitehouse, p. 37.

1931 *Portheus australis*: Wade, p. 142.

1932 *Portheus*: Longman, p. 96.

1958 *Portheus australis*: Hills, p. 99.

1962 *Xiphactinus*: Bardack, p. 387.

1965 *Xiphactinus australis*: Bardack, p. 10, 54.

1968 *Xiphactinus australis*: Hill et al., p. k26, pl. KXII, fig. 1.

1977 *Xiphactinus*: Patterson & Rosen, p. 89.

MATERIAL: Holotype GSQ F2445 Loc. Gidgery Creek, Clutha Stn., nr Hughenden. Pres. J. Burkitt, 2 specimens QMF, Flinders R., nr Hughenden. coll. S. Dunn; QMF1016, 6 mls NE of Richmond; MCZ 5402, Stewart's Creek, nr Hughenden.

AGE: L. Cretaceous, Albion, Rolling Downs Gp.

Ichthyodectid gen. et sp. indet.

1885 vertebrae of small teleost: Etheridge, p. 8.

1894 Teleostean vertebrae, *Cladocycclus sweeti*? Woodward, p. 447, pl. X, fig. 7.

1911 chirocentridian: de Vis, p. 11.

1932 unnamed vertebrae: Longman, p. 95.

MATERIAL: 5 caudal vertebrae QMF6139 Loc. Station Ck. Afton Downs.

AGE: L. Cretaceous, Rolling Downs Gp?

REMARKS: Woodward compares them with *Cladocycclus gardneri* but states that vertebrae of this form are met with in *Portheus* and *Ichthyodectes*.

F. PACHYRHIZODONTIDAE

Pachyrhizodus marathonsensis (Eth. fil., 1905)

*1905 *Ichthyodectes marathonsensis*: Etheridge, p. 8, pls. I, II.

1913 *Ichthyodectes marathonsensis*: Longman, p. 94.

1931 *Ichthyodectes marathonsensis*: Wade, p. 133.

1932 *Ichthyodectes*: Longman, p. 96.

1958 *Ichthyodectes marathonsensis*: Hills, p. 99.

1962 *Pachyrhizodus marathonsensis*: Bardack, p. 387, fig. 1.

1965 *Pachyrhizodus*: Bardack, p. 10.

1968 *Pachyrhizodus marathonsensis*: Hill et al., p. k26, pl. KXII, fig. 2.

1969 *Pachyrhizodus marathonsensis*: Bartholomai, p. 249-63, figs. 46-9, pls. 14, 15.

1977 *Pachyrhizodus marathonsensis*: Forey, p. 178, fig. 33.

MATERIAL: original now in AM, Plastotype AM cast L504 (also AMNH cast 7940) Loc. Flinders R., nr Marathon Stn. Coll. P.G. Black; QMF355 Flinders R., nr Hughenden; QMF3349 14 mls N of Springvale Stn., SE of

Boulia; QMF5705, F5687-90, & UQF10210 Boree Park Stn., nr Richmond; QMF5691 Sylvania Stn., nr Hughenden; QMF5692 Dinga Ding Stn., nr McKinlay; BMNH P55858.

AGE: L. Cretaceous, Albion, Rolling Downs Gp, Toolebuc Lst.

O. ELOPIFORMES

F. ELOPIDAE?

Flindersichthys denmeadi Longman, 1932.

*1932 *Flindersichthys denmeadi*: Longman, p. 89, figs. 1-3, pls X-XI, figs. 1-3.

1958 *Flindersichthys denmeadi*: Hills, p. 99.

1962 *Flindersichthys denmeadi*: Bardack, p. 388.

MATERIAL: Holotype QMF2210, pres. H.W. Denmead 1931 Loc. 1 ml E of Richmond on Flinders R.; QMF986(?) vertebrae, Robert Poole, Alderley.

AGE: L. Cretaceous, U. Albion, Tambo Series.

SUP. O. ACANTHOPTERYGII

Acanthopterygian gen. et sp. indet.

1911 Acanthopterygian vertebrae: de Vis, p. 11.

MATERIAL: QMF? 4 abdominal vertebrae Coll. F.L. Berney of Wyangaria.

AGE: L. Cretaceous

Fish remains indet.

1870 small teeth of fishes: Moore, p. 234.

1870 enamelled spine-like bodies: Moore, p. 238.

1892 vertebrae teleostean: Jack & Etheridge, p. 397.

1909 indet. fish remains: Chapman, p. 452.

1960 fish remains: Hill & Denmead, p. 323.

1976 fish, ganoid scales: Day, pp. 138, 143.

MATERIAL: Loc. Wallumbilla (whereabouts unknown); NMV, Hamilton R., 40 mls from Boulia, coll. H.A.C. Webb; also probably in GSQ (1892) Kamlaroy; N of Roma, Mt. Lonsdale Hmstd & Burgagary Creek.

AGE: L. Cretaceous, Rolling Downs Gp, incl. Toolebuc Lst Member, also Doncaster & Minmi Members.

Summary Species list

- TRIASSIC actinopterygians undet.
Ceratodus sp?
Saurichthys sp. cf. *S. gigas*
 (Woodward, 1890)
- CRETACEOUS acanthopterygian indet.
Aspidorhynchus?
Belonostomus sweeti Eth. &
 Woodward, 1892
Carcharias sp.
Ceratodus wollastoni Chapman,
 1914
Cladocycclus sweeti Woodward,
 1894
Corax australis Chapman 1909
Flindersichthys denmeadi Long-
 man, 1932
Hybodus? sp.
Hybodus? incussidens de Vis,
 1911
 ichthyodectid indet.
Lamna appendiculata Ag., 1834
Lamna daviesi Eth., 1888
Lamna sp.
Lepidotes sp?
Pachyrhizodus marathonensis
 (Eth., 1905)
Xiphactinus australis (Wood-
 ward, 1894)

CAENOZOIC

The scientific literature on Tertiary fishes in Queensland was written almost exclusively by E. Sherborn Hills. However new work is being undertaken and there are several localities with fish material to be described. As in the Palaeozoic so in the Tertiary the study of microvertebrate remains has become important in recent years and such aspects as scale details and otoliths can be employed in stratigraphical work. The need for a good comparative collection of modern bony fish material is being met by the Queensland Museum.

DIPNOI

F. CERATODONTIDAE

Neoceratodus palmeri (Kreffft, 1874)

? = *N. forsteri* (Kreffft, 1870)

- *1874 *Ceratodus palmeri*: Krefft, p. 292 or 293.
 1884 *Ceratodus forsteri*: de Vis, p. 43, 2 pls.
 1891 *Ceratodus forsteri*: Woodward, p. 274.
 1892 *Ceratodus forsteri*: Jack & Etheridge, p.
 635, 638, 647, 740.
 1928 *Epiceratodus forsteri*: Longman, p. 170.

- 1928 *Epiceratodus palmeri*?: Longman, p. 171.
 1940 *Neoceratodus*: Whitehouse, p. 24.
 1958 *E. palmeri*: Hills, p. 103.
 1960 *Neoceratodus*: Hill & Denmead, p. 393.
 1970 *Neoceratodus forsteri*: Hill et al., p. cz14,
 pl. CzVII, fig. 4.
 1981 *Ceratodus palmeri*: Kemp & Molnar, p.
 211, figs. 2-3.

MATERIAL: original dental plate MF10537, also
 F1146-7, F10540 Loc. Darling Downs;
 QMF6564 3 mls SE of Chinchilla, Museum
 Colls 1883; QMF1148, 70 ft down well, Eight
 Mile Plains; Gregory R, Riversleigh.

AGE: Early Miocene? Pliocene — Recent, incl.
 Chinchilla Sand & Carl Creek Lst.

REMARKS: Dr. A. Kemp is currently studying
 these two forms which may be separate
 species.

Neoceratodus denticulatus (Hills, 1934)

1932 *Epiceratodus*: David, table 1.

*1934 *Epiceratodus denticulatus*: Hills, p. 157,
 figs. 1-2.

1943 *Epiceratodus*: Hills, p. 95.

1958 *E. denticulatus*: Hills, p. 103.

1960 *Epiceratodus*: Hill & Denmead, p. 346.

MATERIAL: 5 specimens, holotype QMF2347 Loc.
 Redbank Plains.

AGE: U. Eocene/Oligocene?, Redbank Plains
 Series, concretionary limonitic mudst.

REMARKS: Dr. A. Kemp after studying compara-
 tive material from S. Australia, believes that
N. denticulatus is synonymous with *N.*
gregorii (Anne Kemp, pers. comm. 1981).

'Epiceratodus'

1943 *Epiceratodus* sp.: Hills, p. 96, pl. IX, fig.
 1.

1958 *Epiceratodus* sp.: Hills, p. 103.

1960 *Epiceratodus*: Hill & Denmead, p. 353.

MATERIAL: 'scale' GSQF1971 Loc. Bore 3,
 Munduran, The Narrows, Gladstone

AGE: Miocene?

REMARKS: Both Dr. Kemp and myself agree that
 this identification is suspect and that the
 'scale' may be plant remains.

TELEOSTEI

F. OSTEOGLOSSIDAE

Phareoides queenslandicus (Hills, 1934)

AGE: Pleistocene?

*1934 *Phareodus queenslandicus*: Hills, p. 160, pls. XVII–XIX, figs. 3–7.

1943 *Osteoglossid*: Hills, p. 95.

1958 *Phareodus queenslandicus*: Hills, p. 100.

1960 *Phareodus*: Hill & Denmead, p. 346.

1970 *Phareodus queenslandicus*: Hill et al., p. cz14, pl. CzVII, fig. 2.

1973 *Phareoides queenslandicus*: Taverne, p. 497.

MATERIAL: 13 specimens, holotype QMF2357, also QMF2358–9, F2917, also GSQF1960 and UQF14960 Loc. Redbank Plains, and Cooper's Plains? Coll. F.W. Whitehouse.

AGE: U. Eocene/Oligocene?, Redbank Plains Series.

Scleropages aff. *leichardti* Gunther

1943 *Scleropages* aff. *leichardti*: Hills, p. 96, pl. IX, fig. 2.

1958 *Scleropages*: Hills, p. 101.

1960 *Scleropages*: Hill & Denmead, p. 346.

MATERIAL: operculum GSQF1969 Loc. Bore 1, Munduran, The Narrows, Gladstone.

AGE: Miocene/Oligocene?

F. GONORHYNCHIDAE

Notogoneus parvus Hills, 1934.

*1934 *Notogoneus parvus*: Hills, p. 164, pl. XX, figs. 8–9.

1958 *Notogoneus parvus*: Hills, p. 100.

1960 *Notogoneus*: Hill & Denmead, p. 346.

1970 *Notogoneus parvus*: Hill et al., p. cz14, pl. CZVII, fig. 3.

MATERIAL: 5 specimens, holotype QMF2364 also QMF2362, 63, 65. Loc. Redbank Plains Coll. F.W. Whitehouse.

AGE: U. Eocene/Oligocene?, Redbank Plains Series.

F. PLOTOSIDAE

Tandanus sp.

1929 *Tandanus* sp. cf. *tandanus*: Longman, p. 249.

MATERIAL: ant. d. spine cf. recent 'Dewfish' QMF2120 Loc. Brigalow, Darling Downs Coll. Zeller Bros., 1929 well sinking; QMF1180 Chinchilla.

REMARKS: Woods (in Hill & Denmead 1960, p. 394) mentions 3 species of fish from Fluvialite (Pleistocene?) deposits but does not elaborate.

F. PERCICHTHYIDAE (Moronidae)

Maccullochella macquariensis (?)

1929 *Oligorus* sp.: Longman, p. 249

1929 *Oligorus macquariensis*: Longman, p. 249.

MATERIAL: ant. d. spine QMF2122 Loc. Brigalow, Darling Downs Coll. Zeller Bros., 1929 well sinking; QM old collections Darling Downs.

AGE: Pleistocene?

REMARKS: This species may be the same as the Recent Murray Cod.

'*Percalates*' *antiquus* Hills, 1934

*1934 *Percalates antiquus*: Hills, p. 166, pls. XXI–XXIV, figs. 10–13.

1943 *Percalates*: Hills, p. 95.

1959 *Percalates antiquus*: Hills, p. 100

1960 *Percalates*: Hill & Denmead, p. 346.

MATERIAL: 19 specimens, holotype QMF2370 also QMF2366, F2374–2380, Loc. Redbank Plains Coll. F.W. Whitehouse.

AGE: U. Eocene/Oligocene?, Redbank Plains Series.

REMARKS: The generic status is uncertain: modern species of *Percalates* are now referred to *Macquaria*.

'*Percalates*' sp.

1970 *Percalates* sp.: Hill et al., p. cz14, pl. CZVII, fig. 1.

MATERIAL: QMF6565 Loc. Brittain's Q., Darra.

AGE: L. Tertiary, Darra Fm.

'*Percalates*' sp.

1943 *Percalates* sp.: Hills p. 97, pl. IX, fig. 4.

1958 *Percalates*: Hills, p. 101.

1960 *Percalates*: Hill & Denmead, p. 353.

MATERIAL: 2 scales GSQF1968 Loc. Bore 1, Munduran, The Narrows, Gladstone.

AGE: Miocene? (Oligocene?)

'Percalates'? sp.

1934 *Percalates* (?) Ramsay and Ogilby 1887: Hills, p. 168.

MATERIAL: fragmentary remains QM? or GSQ Loc. W. of Strathpine, and E of Bald Hills nr edge Bald Hills Basin Coll. L.C. Ball.

AGE: Oligocene?, oil shales.

'Percalates'?

1934 Genus indet./young *Percalates*?: Hills, p. 169, pl. XXV, fig. 14.

MATERIAL: half small fish GSQF1961 Loc. well, Portion 122, Parish of Bundamba. Coll. F.W. Whitehouse.

AGE: Oligocene?

Percoid indet.

1943 Indeterminate Percoid fish: Hills, p. 97, pl. IX, fig. 5.

MATERIAL: scale GSQF1974 Loc. Parish of Wallbury; GSQF1970 220 ft, Bore 3, Munduran, The Narrows, Gladstone; GSQF1973 256 ft, Bore 3, Munduran.

AGE: Miocene? (Oligocene?)

F. THERAPONIDAE

Theraponid gen et sp. undet.

1981 theraponid: Turner, p. 40.

MATERIAL: otolith QMF12060 Loc. Rundle, E. Qld.

AGE: Oligocene?, Rundle Oil Shale Fm.

REMARKS: Identified by Dr R. Mackay.

F. LUTJANIDAE

Lutjanus sp. cf. *L. erythropterus* Bloch

1943 *Lutjanus* sp.: Hills, p. 97, pl. IX, fig. 3.

1958 (?) *Lutjanus*: Hills, p. 101.

1960 *Lutjanus*: Hill & Denmead, p. 353.

MATERIAL: preoperculum GSQF1967 Loc. Bore 1, Munduran, The Narrows, Gladstone.

AGE: Miocene?

REMARKS: Hills (1943) states this form to be comparable though larger than the Recent *L. erythropterus*.

Teleost Order indet.

1934 Order indet.: Hills, p. 170.

MATERIAL: fragments axial skeleton and fin spines QM? Loc. Redbank Plains.

AGE: U. Eocene/Oligocene?, Redbank Plains Series.

Fish Remains Indet.

1900 fish remains: Dunstan, p. 16-17.

1901 fish remains: Dunstan, p. 20.

1916 fish remains: Dunstan, p. 9.

1934 fish remains: Hills, p. 155.

1943 fish remains: Hills, p. 95.

1960 fish: Hill & Denmead, p. 354.

MATERIAL: GSQ? Locs. between NW of Duaringa and Wallaroo; Darra.

AGE: L. Tertiary, Duaringa shales; Darra Fm.

REMARKS: Hills (1934) states that Dunstan's material was 'no longer available'.

SUMMARY SPECIES LIST

EOCENE/ OLIGOCENE	<i>Neoceratodus denticulatus</i> (Hills, 1934)
	<i>Notogoneus parvus</i> Hills, 1934 Order indet.
MIOCENE	<i>Phareoides queenslandicus</i> (Hills, 1934)
	' <i>Percalates</i> ' <i>antiquus</i> Hills, 1934
	' <i>Percalates</i> ' sp.
	' <i>Percalates</i> '? sp.
	theraponid
	<i>Lutjanus</i> sp.
	<i>Neoceratodus</i> sp.
	' <i>Percalates</i> ' sp.
	percoid
	<i>Scleropages</i> aff. <i>S. leichardti</i>
PLIOCENE/ PLEISTOCENE	<i>Maccullochella macquariensis</i> ?
	<i>Neoceratodus forsteri</i> (Kreffft, 1870)
	<i>Neoceratodus palmeri</i> (Kreffft, 1874)
	<i>Tandanus</i> sp.

Abbreviations

Fossil collections: AM – Australian Museum, AMNH – American Museum of Natural History, ANU – Australian National University Geology Dept., BMNH – British Museum (Natural History), BMR – Bureau of Mineral Resources, GSNSW – Geological Survey New South Wales, GSQ – Geological Survey Queensland, MCZ –

Museum of Comparative Zoology, NMV – National Museum of Victoria, QM – Queensland Museum, UQ – University of Queensland Geology Dept.

abt – about, ant. – anterior, Ck – creek, Coll. – collector, d. – dorsal, distr. – district, Fm – Formation, ft – feet, Gp. – Group, Hmstd – homestead, incl. – including, L. – Lower, Loc. – locality, mls. – miles, nr – near, Pres. – presenter, Q. – quarry, R. – river, Stn. – station, U. – Upper, * denotes new taxon.

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