

the small marine bully designated as *Grahamichthys radiatus* (Cuv. and Val.) by Whitley (1956). The species to which Stokell (1941) had applied Valenciennes' name (i.e. *E. radiata* Val.) became *Gobiomorphus huttoni* (Ogilby, 1894). The marine bully is thus *Grahamichthys radiatus* (Val.) and the freshwater red-finned bully *Gobiomorphus huttoni* (Ogilby). The use of the name as *Grahamichthys radiata* by McDowall (1962) was incorrect.

Because of the confusion in the use of Valenciennes' name *E. radiata*, and the brevity of the descriptions of the fishes the name has been applied to, many of the early descriptions of "*Eleotris radiata*" cannot now be assigned to either of the fishes with any certainty. It is not possible to recognise definite reference to the marine bully after its original description by Valenciennes, until Whitley (1956) questioned the application of the name in Stokell's revision of the genus *Gobiomorphus* (1941). Whitley disagreed with Stokell's opinion, and redescribed the marine eleotrid as *Grahamichthys radiatus* (Cuv. and Val.).

The name *Eleotris radiata* as used by Dieffenbach (1843), Gunther (1861), Richardson (1842), Hutton (1872, 1890, 1895, 1904), Waite (1907), and Phillipps (1927), could refer to either species.

Graham (1928, 1953, 1956) recorded *Eleotris radiata* from the rock pools of Otago Harbour. In 1953 he used Hutton's figure of *E. radiata* (Hutton, 1872), but in 1956 used Whitley's figure, indicating agreement with Whitley's use of the name. Since Whitley redescribed *G. radiatus*, it has proved to be quite common and further description is possible. It has been re-examined and is here described.

Specimens of *G. radiatus* were examined from Wellington Harbour, Kaipara Harbour, Long Beach, Otago and Westport. Proportional measurements were taken from specimens after which they were cleared in KOH and stained in alizarin for counting fin rays, vertebrae etc. The methods of measurement used were those outlined by Hubbs and Lagler (1947) and discussed by McDowall (1962).

Stokell (1959) recorded the count for the second dorsal as a "fine spiniform ray from half to two-thirds the height of the fin, a long single segmented ray and 9-10 branched rays". This gives a total count of I-10-11. Stokell (1959) thus suggested that Valenciennes' count of I-9 for the second dorsal fin of the type specimen could not apply to the marine species. Figures obtained from counting fin rays of 27 *G. radiatus* (see description) included both Stokell's and Valenciennes' figures, and Stokell's objection is now not valid.

The genital papilla of *G. radiatus* differs from that observed in other New Zealand Eleotridae. In *G. radiatus* the papilla arises out of a distinct depression immediately behind the anus. The papilla projects from the depression, which is only large enough in diameter to contain it. It is well developed, and in the female is fimbriated, the tip carrying a number of quite long papillules (fig. 3). These are less well developed in the male.

### *Grahamichthys* Whitley, 1956

Vertebrae 24-25; ventral fin I-5; first dorsal VI-VII, second dorsal I-9-11. Head smooth, naked, no spines on operculum; teeth on mandibles and pre-maxillae in narrow band, with enlarged outer row of canines, and fangs present in both jaws of male. Scales restricted to posterior half of trunk, ciliated. Rows of sensory papillae on head and in vertical rows on trunk and abdomen. Genital papilla present in both sexes.

HABITAT: New Zealand coastal waters.

TYPE SPECIES: *Grahamichthys radiatus* (Val.).