A NEW FRESHWATER GOBY (TELEOSTEI: GOBIIDAE) FROM THE PONGOLO FLOODPLAIN, ZULULAND, SOUTH AFRICA

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ABSTRACT

A new freshwater goby, *Mugilogobius pongolensis* sp. n. is described and figured as a species new to southern and eastern Africa. This record extends the zoogeographical distribution of *Mugilogobius* Smitt, 1899, from the Indonesian archipelago and South Australia to the Indian Ocean and the eastern coast of Africa.

INTRODUCTION

The Pongolo floodplain, comprising the Pongolo River and 25 major associated pans, lies to the east of the Lebombo Mountains in northern Zululand between latitudes 26°51'S and 27°25'S along the 32°15'E longitude co-ordinate. Specimens of an apparently new goby were first collected from Nsimbu pan during August 1974 and then later in Tete pan.

After checking Barnard's (1927, 1943), Smith's (1959, 1960) and Jubb's (1967) publications concerning South African gobioid fishes, a male specimen (HK770) was sent to the J. L. B. Smith Institute of Ichthyology, Grahamstown for further examination. Mrs. Smith of the Institute confirmed that the specimen was new to southern and eastern Africa.

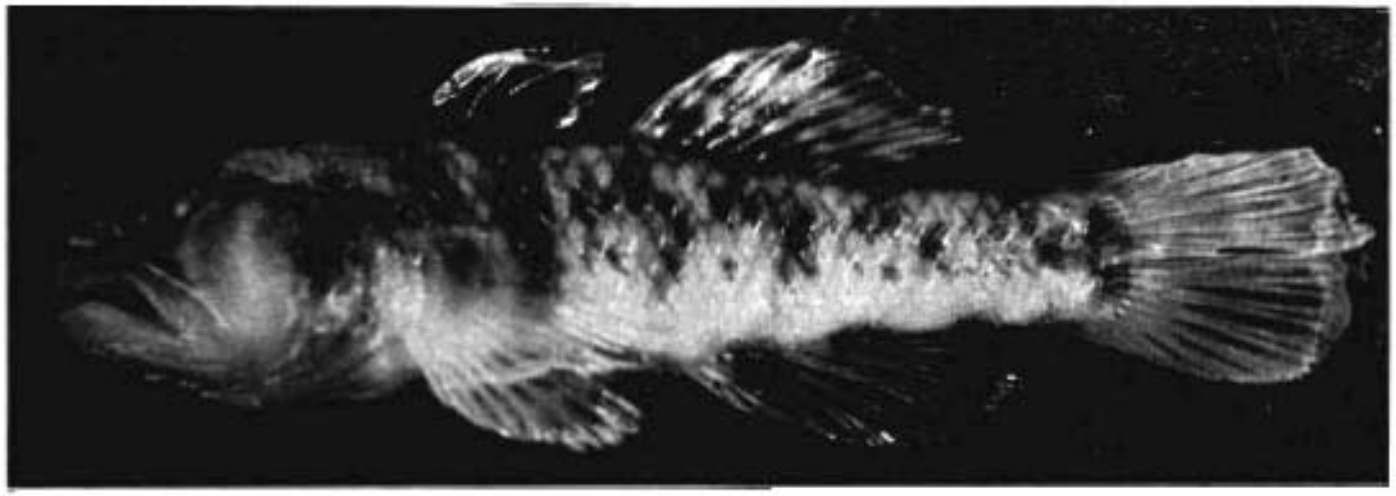
We checked Indo-pacific literature and keyed the fish to *Vaimosa* Jordan & Seale, 1905; in Jordan and Seale (1905), Herre (1927), and Koumans (1931). It differs from all species described and/or illustrated by Jordan & Seale (1905), McCulloch & Waite (1918), Herre (1927), Koumans (1931, 1940), Roxas & Ablan (1940) and Scott (1962). Jordan, Tanaka & Snyder (1913) consider *Vaimosa* to be a synonym of *Mugilogobius* Smitt, 1899, and this was agreed to by Koumans (1940). Therefore we have described the goby as a new species of the Indo-pacific genus *Mugilogobius*.

Mugilogobius pongolensis sp.n.

Figures 1–2

Common name: Blue-spot goby.

Holotype: 27 mm SL, RUSI 807, male, Nsimbu Pan, Pongolo floodplain, Zululand, South



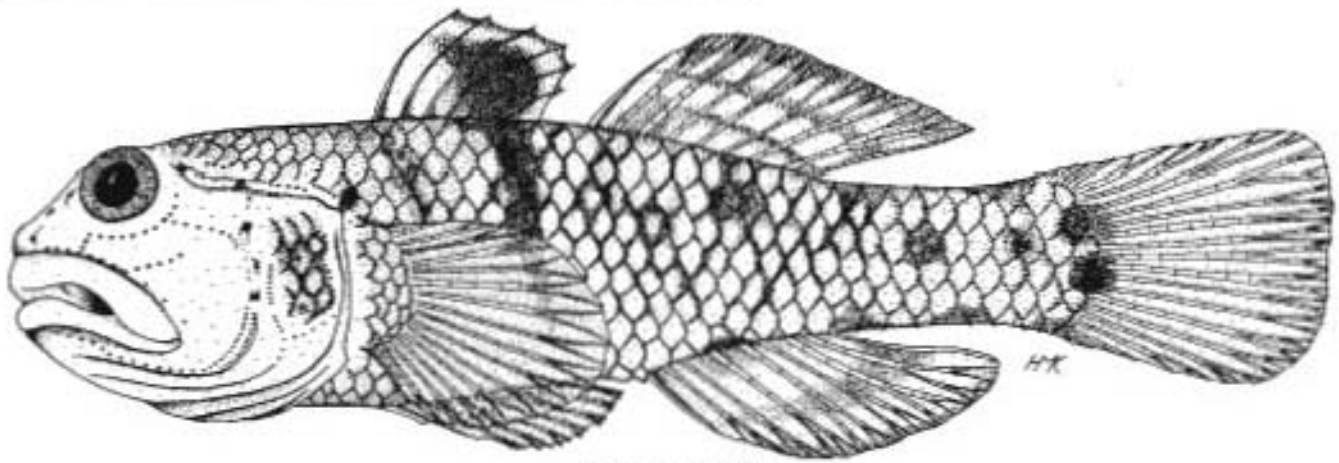


FIGURE 1 (above)
Mugilogobius pongolensis sp.n. holotype (RUSI 807) ♂, 27 mm standard length. (Photo. R. Stobbs).
FIGURE 2 (below)
Mugilogobius pongolensis sp.n. holotype (RUSI 807) ♂, 27 mm standard length.

Africa. Coll. H. Kok, 30 August 1974 (field number HK 770), fry net.

Paratypes: 8: 14,5–25 mm SL (2 males; 4 females; 2 juveniles), RUSI 808 to 811 and 814 to 817, Nsimbu Pan, Pongolo floodplain, Zululand, South Africa. Coll. H. Kok, 22 October 1974, fry net.

1: 23 mm SL, RUSI 812, male, locality as above. Coll. H. Kok, 27 September 1974, fry net.

1: 22 mm SL, RUSI 813, male, locality as above. Coll. H. Kok, 22 September 1974, fry net.

Description (Paratypes in parenthesis)

D VI + 8. AI 8. Dorsal fins well separated, D2 origin anterior to vent, reaches back to base of caudal fin. Pectorals have base scaled, no loose silk-like rays, reach vent (from before vent to insertion of anal). Ventral fin totally united, reaches vent (from vent to first anal ray), fraenum strong. Caudal fin shorter than head, rounded, with dorsal rays slightly longer than ventral rays.

Scales ctenoid throughout; lateral series (measured from the margin of the shoulder girdle): 29 (28–30; $\bar{x}$ 29,1; S.E. 0,18); transverse series from vent to D2: 11 (10–12; $\bar{x}$ 11,2; S.E. 0,31); caudal peduncle series: 11 (11–12; $\bar{x}$ 11,3; S.E. 0,30); predorsal series: 11 all normal size (10–12; $\bar{x}$ 11,2; S.E. 0,29); opercular series: 11 (11–14; $\bar{x}$ 11,9; S.E. 0,35), with snout, preopercule and anterior isthmus the only parts naked.

Body cylindrical with head somewhat compressed and triangular in cross-section, apex dorsally, 3,2 in SL (3,2–3,6; $\bar{x}$ 3,39; S.E. 0,05). Snout shortened, strongly convex, 5,8 into head (4,3–7,0; $\bar{x}$ 5,49; S.E. 0,27), with preorbital depth very narrow, 9,8 into head (8,0–11,0; $\bar{x}$ 8,93; S.E. 0,34). Eyes large, rounded, slightly protruding, subdorsal, subadjacent, 3,5 into head (2,7–3,5; $\bar{x}$ 3,29; S.E. 0,11). Nares paired and separated, anterior tube-like, adjacent to maxillary labium, directed latero-ventrally; posterior a raised simple pore adjacent to anterior margin of eye. Sensory pores and papillae are as depicted in Figure 2.

Mouth terminal, oblique, maxilla reaches back beyond eye to ventral margin of preopercule (in females maxilla only reaches to below eye). Labia slightly pronounced, fleshy. Jaws marginally subequal, dentary protruding slightly anteriorly. Tongue, as far as ascertained, rounded, subadnate.

Teeth, same in both jaws, simple recurved spikes, four rows (3–5 rows) anteriorly, inner rows minute, single row laterally embedded in fleshy gums, multiple canines (only in males), no vomerine teeth.

Gill opening wide, from above dorsal base of pectoral down onto posterior isthmus.

Males with genital papilla narrow, acutely conical and elongate; female genital papilla short, very broadly conical; some females ovigerous, eggs round, 0,25–0,425 mm, heavily yoked.

Colour

Live fish semi-transparent, spinal column darkened, viscera reflective, with general body colouring a faint golden-green with markings of dark brown. Markings usually five or six broken diagonal bands with two dark spots on the base of the caudal. Pectorals, ventral and

caudal clear, D1 has dark blue iridescent spot on posterior half, and is margined with red; D2 has three bands along its length, the outermost tinted red; anal is reddish. Most dorsal and lateral scales reticulate in appearance with darkened extremities. Eyes are dark with circular pupils.

DISCUSSION

Mugilogobius pongolensis differs from the type species of *Vaimosa, Vaimosa fontinalis* Jordan & Seale, 1905, from Samoa in not having any cycloid scales and in the number of lateral scales; 28–30 in the former and 37 in the latter.

Herre (1927) gives a key for nine species of *Vaimosa* from the Philippines and China Sea. *M. pongolensis* does not fit this key. Jordan, Tanaka & Snyder (1913), however, considered *Vaimosa* a junior synonym of *Mugilogobius* Smitt, 1899. *M. pongolensis* fits with the following characters in the description of this genus as given by Koumans (1931), and Roxas & Ablan (1940): D VI + I8; AI8; body elongate; 27–37 ctenoid scales laterally. Head scaled above behind eyes and on upper parts of opercles. Eyes on anterior half of head. Anterior nostril in a short tube. Mouth oblique, jaws equal. No barbels on head. Isthmus broad, inner edge of shoulder girdle without fleshy flaps. Dorsal fins separate. Ventrals united. Pectorals without silk-like rays. Caudal rounded.

The type species for *Mugilogobius* is *M. abei* (Jordan & Snyder, 1901) from Japan and is described by Jordan, Tanaka & Snyder (1913: 345, figure 296). *M. pongolensis* differs from this species by having all scales of equal size and not reduced anteriorly as in the latter; by having the opercle scaled, depicted as being naked on *M. abei*; and by having the first dorsal spines not free of membrane, whereas in *M. abei* the dorsal parts of these spines are free and extended.

The Australian species *M. galwayi* described by McCulloch & Waite (1918) closely resembles *M. pongolensis* in fin and scale counts but differs in being far less contracted anteriorly, having a wider preorbital depth, smaller eyes and maxillae that do not extend beyond the eye.

Roxas & Ablan (1940) describe and illustrate *Mugilogobius luzonensis*, a new species of Philippine gobioid fish. This fish differs from *M. pongolensis* in having D VI + 17; A 17 as in the description (but the authors illustrate and refer to D 15 + 17); and the first dorsal fin 'rays' reaching beyond base of second ray of second dorsal. In *M. pongolensis* the first dorsal spines do not reach back to the soft dorsal. In *M. luzonensis* also the maxilla extends only to below the eye, whereas in males of *M. pongolensis* it extends beyond the eye.

There are three species of freshwater gobies in southern Africa, *Glossogobius giuris* (Hamilton-Buchanan, 1822), *Platygobius aeneofuscus* (Peters, 1852) and *Silhouettea sibayi* (Farquharson, 1970). The first two are Indo-pacific and occur in rivers draining to the east coast (Smith 1960), while the last-named is restricted to Lake Sibaya (Allanson *et al.* 1974). Jubb (1967) records the first two species as being present in the Pongolo River system although we have only collected *G. giuris* and *M. pongolensis* in the floodplain pans. We consider both these gobies to be truly freshwater species since ovigerous females as well as fry have been

taken in disconnected pans. However, although the ubiquitous *G. giuris* is spread throughout the floodplain, *M. pongolensis* has been taken only in the two adjacent floodplain pans, namely the Nsimbu/Mtigi complex and Tete.

The genus *Mugilogobius* has previously been recorded from Japan, Indonesia, the Philippines, South Australia and the eastern Pacific, but not from the Indian Ocean proper. The distribution of the genus *Mugilogobius* seems to be similar to that of *Pandaka*, another goby genus. The latter also occurs in the Philippines and southern Africa but has not been found elsewhere in the Indian Ocean (Penrith & Penrith, 1972). The apparently restricted freshwater distribution of *M. pongolensis* agrees with findings for other *Mugilogobius* species of the Indo-pacific region. Jordan & Seale (1905) state that *M. fontinalis* occurs in isolated streams of Samoa. Herre (1927: 142), writing of *Vaimosa* states, "Species numerous in the Philippines, most of them confined to a single lake, river system or watershed". As no further distribution records exist for *M. pongolensis* it is probable that it is endemic to the Pongolo River floodplain.

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ADDENDUM

Since going to press *Mugilogobius pongolensis* has been captured in Namanini, Nhlolo, Nhlanjane, Tete and Nyamiti pans of the Pongolo floodplain and in the Pongolo River. It was also found in the Lake St. Lucia system after a period of heavy flooding.