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## Descriptions of three new species of *Glossogobius* (Teleostei: Gobiidae) from New Guinea

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### Abstract

Three new species of *Glossogobius* are described from New Guinea. *Glossogobius multipapillus*, n. sp. from northeastern New Guinea has a lobed mental fraenum and a distinctive papilla pattern unlike any other species in the genus. *Glossogobius sentaniensis*, n. sp. is described from Lake Sentani. The species is similar to *Glossogobius aureus* and *G. koragensis* differing in head pores and large dark spots on the body. *Glossogobius macrocephalus* n. sp. from Lake Tebera and surrounding rivers has a lobed mental fraenum and differs from other species in the *Glossogobius celebius* group in the combination of having a large head, head pore, fin-ray and predorsal scale counts.

**Key words:** taxonomy, *Glossogobius*, freshwater, New Guinea

### Introduction

*Glossogobius* is one of the most speciose genera of gobioid fishes. There are at least 29 species currently recognized (Hoese et al. 2015), although we estimate there are more than 50 species, including many undescribed taxa from fresh waters of New Guinea (Allen, 1991; Hoese & Allen, 2012). The status of some species from the highlands of Papua New Guinea have not fully been resolved. The group ranges widely in the tropical Indo-Pacific region, extending from East Africa to the Caroline Islands. Most species are restricted to fresh water as adults. Only one species (*Glossogobius circumspectus*) is restricted to mangrove estuaries. A few species are known from the lower reaches of freshwater streams and are sometimes found in estuaries as adults. The latter assemblage includes species that are often wide ranging across extensive sections of the Indian and Pacific oceans or have more limited regional distributions to part of one of these oceans. It is believed, although not well documented, that the species from lower reaches of the rivers are amphidromous, with a marine larval stage, which accounts for their dispersal (Hoese & Allen, 2012). The purely freshwater species typically found above 100 m elevation have far more restricted distributions, sometimes endemic to a single lake or drainage system. The New Guinea region is particularly noteworthy in this respect and is the home to a remarkable freshwater radiation within this genus. A similar phenomenon is also evident for plotosids and terapontids, which have successfully invaded freshwater throughout the region (Allen, 1991). Allen (1991) provided accounts of 26 *Glossogobius* from New Guinea including 14 undescribed taxa (some of these have now been described or placed in other genera, see Hoese & Allen, 2009 & 2012, Table 6). The present paper describes two new species confined to lakes of New Guinea and a species with an unusual papilla pattern from southeastern Papua New Guinea. Two of the species belong to the *Glossogobius celebius* complex with a prominent lobed mental fraenum and the other to the *Glossogobius giuris* complex, characterised by a poorly developed mental fraenum, which is normally covered by papillae (Allen & Hoese, 2012).

The genus *Glossogobius* Gill 1859 is characterized by a longitudinal papilla pattern, with at least 6 lines running longitudinally on cheek, 27–30 vertebrae, a bilobed tongue, gill opening reaching below a point just before to just behind posterior preopercular margin, a typically lobed mental fraenum and a long bony process extending from the preoperculum to the symplectic. In addition most species have a large mouth (10–15% SL) and depressed