Affinities, Generic Classification and Biogeography of the Australian and New Zealand Mudfishes
(Salmoniformes: Galaxiidae)

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ABSTRACT. The Australian mudfish, Galaxias cleaveri, resembles the three New Zealand mudfishes (Neochanna spp.) in general external morphology. It is the least specialised of a transformation series that includes all four mudfishes, in which the body is elongated, eyes are small, anterior nostrils long, tubular and forward directed, dorsal and anal fins low and long, flanges on the caudal peduncle well developed, pectoral fins small, paddle-shaped, and high on sides behind head, and pelvic fins reduced or lost. Unique specialisations in the vomerine-ethmoid region of the cranium and in the form of the pectoral girdle support the view that these four species are a monophyletic group. The Australian species is therefore included in Neochanna. The presence of a marine larval and juvenile life stage in the Australian species (diadromy) probably explains the distribution of the genus, with New Zealand species together derived from the Australian one or their common ancestor by dispersal across the Tasman Sea in prevailing ocean currents. The biogeography of the Australian and New Zealand species is consistent with post-Oligocene geology, and in particular with events during and since the Pleistocene.