

## Cranial Anatomy of Two New Late Devonian Lungfishes (Pisces: Dipnoi) from Mount Howitt, Victoria

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**ABSTRACT.** Two new lungfishes are described from the Frasnian lacustrine sediments near Mount Howitt, eastern Victoria. *Howidipterus donnae* n.gen., n.sp. has toothplates with well-developed marginal teeth, and has a skull roof pattern similar to *Scaumenacia* but with a D bone present and large paired rostral bones anterior to the E bones. The cheek has moderately deep infraorbitals. The scales have a coarse ornament with widely spaced ridges. *Barwickia downunda* n.gen., n.sp. has a skull roof pattern characterised by a narrow, small D bone, narrow E bones as long as the C bones, and I bones which are indented well into the rear of the B bone and on occasion may contact each other. The dentition is denticulate as in *Fleurantia*. The cheek has a narrow, bar-like bone 6 + 7. The scales of *Barwickia* are finely ornamented.

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Lungfishes are one of the last groups of fishes to be studied from the diverse Mount Howitt fossil fish fauna which contains the following taxa: the placoderms *Bothriolepis gippslandiensis*, *B. cullodenensis* and *B. fergusonii* (Long, 1983a; Long & Werdelin, 1986), *Austrophyllolepis ritchiei*, *A. youngi* (Long, 1984) and *Groenlandaspis* sp. (Long, 1982); the acanthodians *Culmacanthus stewarti* (Long, 1983b) and *Howittacanthus kentoni* (Long 1986); the actinopterygian *Howqualepis rostridens* (Long, 1988a); the crossopterygians *Marsdenichthys longiocipitus* (Long, 1985) and *Beelarongia patrichae* (Long, 1987a), and the two new dipnoans described in this paper. In addition there are partial bodies of prolepipiforms with *Glyptolepis*-type

scales and a possible actinistian. The fauna represents one of the best preserved and diverse Late Devonian freshwater fish assemblages from a single site in the Southern Hemisphere, and is also significant in being the keystone for biostratigraphic correlations throughout eastern Victoria (Long, 1983a; Long & Werdelin, 1986).

This paper briefly describes the cranial anatomy of two new genera, based on examination of approximately 80 of the best preserved heads. The scales are described, as these are an important feature for distinguishing the two genera when the skulls are poorly preserved. Many additional specimens, now registered in the Museum of Victoria, would require further