

# 5. Echidnas

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## 1 TAXONOMY, DISTRIBUTION AND BIOLOGY

The short-beaked echidna (*Tachyglossus aculeatus*) is native to Australia and New Guinea. The larger, rare long-beaked echidna (*Zaglossus bruijnii*) is confined to the New Guinea highlands. Together, these two species are the only extant representatives of their genera. Echidnas are well-represented in the Australian fossil record and, along with the platypus, are the only living remnants of the egg-laying monotremes, thought to represent the most ancient mammalian lineage surviving to the present day. Echidnas probably evolved from the platypus during the Cretaceous period (Augee & Gooden 1993) and it is possible that monotremes have been around for more than 50 million years. There are five recognised subspecies of *Tachyglossus aculeatus*: *T.a. acanthion* from the Northern Territory, northern Queensland, inland Australia and Western Australia, *T.a. aculeatus* from eastern New South Wales, Victoria and southern Queensland, *T.a. lawesii* from New Guinea, *T.a. multiaculeatus* from South Australia and *T.a. setosus* from Tasmania (Augee et al. 2006).

The name echidna derives from Ekhidna, a Greek goddess who was half woman and half reptile. Monotremes possess unique bones in their pectoral girdles: the epicoracoids and the interclavicle, both structural adaptations for digging. The monotreme pectoral girdle thus has similarities to the extinct cyanodonts and to living crocodylians. The echidna was initially identified as a relative of South America's

anteater (a placental mammal) simply through lifestyle similarity, and it was not until 1802 that its close relationship to the platypus was appreciated.

The earliest record of a short-beaked echidna in captivity was from Philadelphia Zoo in 1903, an individual that was still alive in 1953, 50 yr later. This represents the longest recorded lifetime of a short-beaked echidna (Augee et al. 2006).

The short-beaked echidna has been able to exploit all terrestrial habitats including those of Tasmania and many off-shore islands and is today the most widely distributed Australian mammal. In spite of its terrestrial nature the echidna is a strong swimmer and climber. The author once encountered a healthy specimen in fresh water 1 km from the nearest land, and a captive echidna at Healesville Sanctuary (Vic.) was observed to climb a tree in its enclosure to a height of 2 m or more on a regular basis. The species is currently secure throughout most of its present range.

## 2 ANATOMY AND PHYSIOLOGY

### 2.1 External features, sensory organs, skin and associated structures

The short-beaked echidna is rotund and furred with a small head terminating in a cylindrical beak or snout. Adults can grow to a body length of 40 cm and weigh up to 7 kg. The dorsum and flanks are covered by long quills. These quills are under neuromuscular control and can be erected in defence as well as being used to