

Marsupial Fossils from Wellington Caves, New South Wales; the Historic and Scientific Significance of the Collections in the Australian Museum, Sydney

LYNDALL DAWSON

School of Zoology, University of New South Wales,
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ABSTRACT. Since 1830, fossil vertebrates, particularly marsupials, have been collected from Wellington Caves, New South Wales. The history of these collections, and particularly of the collection housed in the Australian Museum, Sydney, is reviewed in this paper. A revised faunal list of marsupials from Wellington Caves is included, based on specimens in museum collections. The provenance of these specimens is discussed. The list comprises 58 species, of which 30 are extinct throughout Australia, and a further 12 no longer inhabit the Wellington region. The deposit also contains bones of reptiles, birds, bats, rodents and monotremes.

On the basis of faunal correlation and some consideration of taphonomy in the deposits, the age range of the fossils represented in the museum collections is suggested to be from the late Pliocene to late Pleistocene (with a possible minimum age of 40,000 years BP). Data from new collections indicate that at least three distinct periods of deposition are represented in the cave system.

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The Wellington Caves are about 8 km south of the town of Wellington on the Central Western Slopes of New South Wales (longitude 148° 51' 30E, latitude 32° 31'S) in limestones belonging to the Devonian Garra Formation, at an altitude of approximately 300 m (Fig. 1). They occur in low hills 1 km east of the Bell River, at an elevation of about 50 m above the present stream. They comprise at least five natural caves which have been expanded and much disturbed in historic times by phosphate mining and fossil collection (Fig. 2). Vegetation of the area is tall open forest and the average annual precipitation for the area is about 630 mm, with a slight winter maximum.

These caves were the first known source of marsupial fossils in Australia and have proved to be one of the most prolific. Their significance stems from two main sources. The first is historic; early scientific descriptions of fossil bones constitute an essential background to taxonomic and phylogenetic studies of several groups of Australian marsupials. The second source of significance develops from the large quantity

of fossil bones available, the great diversity of extinct species represented, and the likelihood that they represent at least three periods of deposition (Osborne, 1983).

Historical Background

The history of investigation of Wellington Caves and the fossils found in them, illustrates the philosophical development of the science of vertebrate palaeontology in Australia from its origins at the time of Cuvier, early in the 19th century, to the present day.

The discovery of the caves in the very early days of settlement of the western districts of New South Wales has been documented by Lane & Richards (1963). They give the earliest authenticated reference to the caves as that made by the explorer Hamilton Hume in December 1828. It is probable that they were known to Europeans several years before 1828. Augustus Earle, a colonial artist, who had travelled with Charles Darwin on the *Beagle*, visited the Wellington Valley in