

McCoy's Mammals

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Introduction

Although Frederick McCoy was principally a geologist and palaeontologist (Pescott 1954; Darragh 1992), he was a true generalist, interested in and knowledgeable about a wide range of both invertebrate and vertebrate fauna, modern and fossil. As Professor of Natural Science at The University of Melbourne and Director of the embryonic National Museum of Victoria (now Museum Victoria) he recognised the necessity for such institutions to be able to demonstrate the diversity of life-forms to the community and was therefore at great pains to develop both teaching and exhibition collections. For whatever reasons – lack of time, lack of collecting opportunities or perhaps because the field had been so well covered by his contemporary and friend John Gould (whose singular publication *The Mammals of Australia* (Gould 1845-1863) was completed during McCoy's time as Professor) – McCoy did not specifically pursue the study of the contemporary mammals of Victoria. In an essay on the natural history of Victoria, written to accompany the catalogue of the 1861 Victorian Exhibition, McCoy observed that 'the Recent mammalia ... are so fully known from the admirable works [of Gould] that I shall not allude at all to them ...' (McCoy 1861: 170). However, when the opportunity arose for him to investigate something new, he did so with appropriate professional skill, and he investigated and described a number of mammal species, both contemporary and fossil. In this contribution we will examine these in their several categories.

Descriptions of new, contemporary mammals

McCoy described and named two modern terrestrial mammal species, *Halmaturus wilcoxi* in 1866 (McCoy 1866), and *Gymnobelideus leadbeateri* in 1867 (McCoy 1867a). *Halmaturus wilcoxi* was described from two specimens collected by J.F. Wilcox at Richmond River, New South Wales. Iredale and Troughton (1934) placed the species in *Thylogale stigmatica*, subspecies *wilcoxi* Red-legged Pademelon. Dixon (1970) confirmed this nomenclature and noted that the type specimens, a female and a male, are held by Museum Victoria. According to Strahan (1995) the subspecies still stands.

Gymnobelideus leadbeateri Leadbeater's Possum was described from two specimens collected from the Bass River, and named after the skilled taxidermist at the National Museum, John Leadbeater. The original description, in the *Annals and Magazine of Natural History*, was illustrated with an uncoloured lithograph of a mounted specimen, fore- and hind-feet and teeth. The drawing was relatively crude and simplistic, but clearly recognisable (Fig. 1). The description, accompanied by a redrawn, coloured plate showing the animal, fore- and hind-feet and the skull and teeth, was re-published as Plate 91, in Decade X of the *Prodromus of the Zoology of Victoria* (McCoy 1878-1885). The genus and species still stand and Leadbeater's Possum is now one of Victoria's two State faunal emblems (the other being the Helmeted Honeyeater).

A third species of modern mammal was described in 1867, *Physalus grayi*, a 'new species of the genus *Physalus*, or "Finner"', from a specimen that washed up on the coast at Jan Juc in August 1866 (McCoy 1867b). Although this 'species' was subsequently synonymised within *Balaenoptera physalus* Fin Whale by Iredale and Troughton (1934), their deter-

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Fig. 1. First illustration of Leadbeater's Possum *Gymnobelideus leadbeateri* McCoy. Lithograph by J. Basire. Published in *Annals and Magazine of Natural History*, Series 3, 1867, 20, Plate 5, 287-88.

mination was in error, and Brazenor (1950) and later Wakefield (1967) recognised that the specimen was in fact *Balaenoptera musculus*, the Blue Whale. The full skeleton was articulated and displayed at The University of Melbourne until 1899, when it was apparently dismantled and disposed of rather than being reconstructed at the new Museum. A photograph of the skeleton, incorrectly captioned Black Right-Whale (Southern Right Whale, *Eubalaena australis*) is opposite p. 66 in Pescott (1954). All that remains are the right tympanic bulla and four baleen plates (Dixon and Frigo 1994).

Comments on, and descriptions of, contemporary mammals

McCoy was concerned with ensuring that the National Museum established its role as one of the essential cultural institutions of the increasingly sophisticated society that Melbourne was becoming. One way to demonstrate its value was by publishing scholarly and readily accessible accounts of the natural history of the colony, as had been already done for the geology and palaeontology. The publication of the *Prodromus of the Zoology of Victoria* (McCoy 1878-1885) was to be the precursor to a more detailed and comprehensive documentation of the natural history of Victoria. The *Prodromus* included descriptions and figures of three contemporary mammal species apart from *Gymnobelideus* – all are marine mammals, and one of them was featured twice. The species were the Sea Leopard (Leopard Seal), *Stenorhynchus* (= *Hydrurga*) *leptonyx* Plate 21, Decade III; Yellow-sided (= Common) Dolphin, *Delphinus novae zealandiae* (= *delphis*) Plate 22, Decade III; and Australian Sea-bear or Fur-seal (Australian Fur-seal), *Euotaria cinerea* (= *Arctocephalus pusillus*) Plate 31, Decade IV and Plate 71, Decade VIII.

Leopard Seals are not infrequent visitors to the Victorian coastline. The specimen illustrated was drawn from life by Ludwig Becker, the artist who died on the Burke and Wills expedition, and it became one of several specimens in the Museum collection. Interestingly, Gould himself figured this species, one of only two marine mammals that he included in *The Mammals of*

Australia (the other being the Australian Sea Lion, *Neophoca cinerea*). Despite their vernacular name, Common Dolphins are not now at all common in Port Phillip Bay. The most abundant dolphin in the bay is the Bottlenose Dolphin *Tursiops truncatus* – McCoy (1878-1885: 10) noted that sailors called the dolphin the 'Bottle-nose'. The Australian Fur-seal rookery at Seal Rocks was visited by McCoy, where he collected an adult male and female, and a young one. The account accompanying Plate 71 provides a very detailed picture of the colony that today remains a major stronghold for the species.

In his 1861 essay, McCoy offered comment about the mainland existence of the Spot-tailed Quoll *Dasyurus maculatus*, which had hitherto been understood to be restricted to Tasmania. Several specimens had reached the Museum from the forests close to Melbourne. He also announced his recognition that the Dingo was indigenous, an issue that had been in debate at the time (McCoy 1861). In addition, he discussed the mammal fossil record in Victoria – but more of that later.

Five years later, Victoria hosted the Intercolonial Exhibition, and McCoy wrote another essay, titled *On the Recent Zoology and Palaeontology of Victoria*. By way of introduction, he explained that he would only refer 'to those species of animals affording economically useful materials, or of some special present interest in relation to unsettled scientific questions' (McCoy 1867b: 309); thus his comments did not set out to include observations on all the mammals known for the State. Indeed, he began by stating that 'very few of the Victorian quadrupeds are economically useful', and most of the notes were concerned with the value of the skin (as leather or fur) or the animal as food. It was an important part of colonial life to make use of the available natural resources, and McCoy may well have seen it as part of his educational role to give such advice as he could to the man in the street – and, hopefully, to the man in the bush as well. Marine mammals such as stranded large whales could and did provide oil and whalebone, both of which were extracted and sold.

Despite this somewhat narrow consideration of the State's mammal fauna, McCoy

Table 1. Mammals listed in McCoy's essay for the Intercolonial Exhibition, 1866-67.

Species, as reported in McCoy	McCoy's vernacular names	Present scientific name	Present vernacular
<i>Dasyurus viverrinus</i>	Native Cat	<i>Dasyurus viverrinus</i>	Eastern Quoll
<i>Perameles obesula</i>	Bandicoot	<i>Isodon obesulus</i>	Southern Brown Bandicoot
<i>Perameles fasciata</i>	Bandicoot	<i>Perameles gunnii</i>	Eastern Barred Bandicoot
<i>Phascodomys</i>	Wombat	<i>Vombatus ursinus</i>	Common Wombat
<i>Phalangista vulpina</i>	Opossum	<i>Trichosurus vulpecula</i>	Common Brushtail Possum
<i>Phalangista Viverrina</i> var <i>Victoriae</i>	Ring-tail Opossum	<i>Pseudocheirus</i> <i>peregrinus</i>	Common Ringtail Possum
<i>Hypsiprymnus</i>	Kangaroo Rat	<i>Potorous tridactylus</i>	Long-nosed Potoroo
<i>Lagorchestes</i>	Hare-Kangaroo	<i>Lagorchestes leporides</i>	Eastern Hare-wallaby
<i>Macropus fuliginosus</i>	Sooty Kangaroo	<i>Macropus fuliginosus</i>	Western Grey Kangaroo
<i>Macropus major</i>	Old Man, Boomer Kangaroo	<i>Macropus giganteus</i>	Eastern Grey Kangaroo
<i>Macropus ocydromus</i>		<i>Macropus fuliginosus</i>	Western Grey Kangaroo
<i>Halmaturus bennetti</i>		<i>Macropus rufogriseus</i>	Red-necked Wallaby
<i>Osphranter rufus</i>	Red Kangaroo	<i>Macropus rufus</i>	Red Kangaroo
<i>Halmaturus Brachyurus</i>		<i>Thylogale billardierii</i>	Tasmanian Pademelon
<i>Halmaturus uallabatus</i>	Wallabi	<i>Wallabia bicolor</i>	Black Wallaby
<i>Molossus australis</i>		<i>Tadarida australis</i>	White-striped Freetail Bat
	Native Dog or Dingo	<i>Canis lupus dingo</i>	Dingo
<i>Arctocephalus lobatus</i> *	Eared Seal	<i>Arctocephalus pusillus</i>	Australian Fur-seal
<i>Stenorhynchus leptonyx</i>	Sea Leopard	<i>Hydrurga leptonyx</i>	Leopard Seal
<i>Physalus Grayi</i>	Finner	<i>Balaenoptera musculus</i>	Blue Whale

* In the later *Prodromus of Zoology* (1878-1885), McCoy referred to this species as *Euotaria cinerea*, a combination apparently derived from J.E.Gray's 1866a, 1866b and 1871 reviews of fur seal and sea lion taxonomy. However, as Gray (1866b, 1871) erected *Euotaria* as a sub-genus of *Arctocephalus* including [South] American species, and *Gypsophoca* for Australian species, McCoy seems to have erred.

did list some of the species found in Victoria. It is a pity that he did not choose to provide a list of all the mammals known, as he did for the birds. Table 1 lists the species reported. Of interest are comments about the biogeography of the large kangaroos. McCoy believed that there were four species present and commented on the differences in appearance and distribution. Two species that he reported are now recognised to be conspecific – *Macropus fuliginosus* and *M. ocydromus* – but the taxonomy of the grey kangaroos was not sorted out until the 1970s (Kirsch and Poole 1972). McCoy was not just a narrowly focussed academic. He was very much alert to the ecological consequences of fencing pastoral land, which had resulted in a large increase in numbers of kangaroos, often necessitating the killing of 'hundreds ... on the squatters runs merely to save the grass for the sheep' (McCoy 1867b: 309). The increase in kangaroo numbers was also attributed to the extensive poisoning of Dingoes. Somewhat sur-

prisingly, McCoy made errors of identification of the wallabies found in Victoria and Bass Strait, believing that the Black Wallaby (now *Wallabia bicolor*) was present on Bass Strait islands as well as in southern Victoria, and attributing the name of the Quokka *Setonix brachyurus* of Western Australia to the Tasmanian Pademelon *Thylogale billardierii* which, in his time, was still present in coastal eastern Victoria. McCoy's confusion was possibly a reflection of the very limited reference material available to him in Australia and his unavoidable reliance on taxonomic reviews published in Europe, where most of the significant collections of birds and mammals were held. Many years were to pass before adequate geographically representative reference material was available in Australia for such comparative zoology.

Furs from possums and 'native cats' (*Dasyurus viverrinus*, Eastern Quoll and possibly also Spot-tailed Quoll) were also seen as desirable products, and McCoy urged the promotion of them into the

Table 2. Fossil mammals named by McCoy, with their present-day taxonomic standing. Date: Date of description.

Species, as named by McCoy	Date	Modern status of nomenclature	Authority
<i>Dasyurus affinis</i>	1865	<i>Dasyurus maculatus</i>	Mahoney 1964
<i>Thylacoleo oweni</i>	1876	<i>Thylacoleo carnifex</i>	Archer and Dawson 1982
<i>Phascologomys pliocenus</i>	1866	<i>Vombatus ursinus</i>	Wilkinson 1978
<i>Diprotodon annextans</i>	1861	Uncertain – possibly <i>D. australis</i>	Archer <i>et al.</i> 1984
<i>Diprotodon longiceps</i>	1865	Uncertain – was to replace <i>annextans</i> , and therefore possibly <i>D. australis</i>	Archer <i>et al.</i> 1984
<i>Bettongia cuniculoides</i>	1868	Uncertain – but most probably <i>B. gaimardi</i> , given the locality (Loddon River)	This paper; Archer <i>et al.</i> 1984 considered that the 'distinction of this taxon is unclear'
<i>Hypsiprymnus trisulcatus</i>	1865	<i>Potorous tridactylus</i>	Mahoney 1964
<i>Arctocephalus williamsi</i>	1866	<i>Neophoca cinerea</i>	Fordyce and Flannery 1983
<i>Cetotolites baileyi</i>	1879	<i>Nomen nudum*</i>	Fordyce 1984
<i>Cetotolites leggei</i>	1879	<i>Nomen nudum</i>	Fordyce 1984
<i>Cetotolites pricei</i>	1879	<i>Nomen dubium**</i>	Fordyce 1984
<i>Cetotolites nelsoni</i>	1879	<i>Nomen dubium</i>	Fordyce 1984
<i>Cetotolites nelsoni</i> var <i>rugosa</i>	1879	Ditto	Fordyce 1984
<i>Parasqualodon wilkinsoni</i>	1866	Possibly conspecific with <i>Prosqualodon davidis</i>	Fordyce 1984
<i>Ziphius (Dolichodon) geelongensis</i>	1882	<i>Nomen dubium</i>	Fordyce 1984
<i>Physetodon baileyi</i>	1879	Genus and species still stand, but possibly <i>nomen dubium</i>	Fordyce 1984

* *Nomen nudum*: A name that fails to conform to certain Articles in the International Code of Zoological Nomenclature (1985). It is not an available name and therefore the same name may be made available later, from which time the authority would date.

** *Nomen dubium*: A name of unknown or doubtful application.

European fur trade. 'So abundant and easily obtained are these skins ...' (McCoy 1867b: 309). Would that it were still so! The fur from the Fur Seal was reckoned to be 'of good quality when properly dressed' (McCoy 1867b: 309). However, these seals had been heavily exploited for many decades prior to McCoy's comments, and while there remained a sporadic and low-level trade in seal skins, the industry had effectively finished many years prior, so that despite the quality of the skins, there was not much profit to be made from the species by McCoy's time.

Descriptions of mammal fossils

McCoy's palaeontological expertise was at the forefront in most of his mammalian investigations. Between 1861 and 1882 he described 16 taxa of fossil mammals (Archer *et al.* 1984; McCoy 1874-1882; Table 2). Nine of these descriptions appeared in the *Prodromus of Palaeontology*, 1874-1882.

He described *Diprotodon annextans* in 1861 and *D. longiceps* in 1865 (Archer *et al.* 1984 considered that this was a replacement name for *D. annextans*). He examined a collection of fossil bones found by A.R.C. Selwyn in a cave at Gisborne during the early 1860s, commenting on the species present in his 1861 essay. In a note that was present on some printings of a Geological Survey of Victoria map (GSV Quarter Sheet 7 NW, 1865), McCoy (1865) listed the following species of mammals as being present (we have reproduced the names as given): *Canis Dingo*; new Genus of Carnivorous animal; *Diabolus (Sarcophilus) Ursinus*; *Dasyurus viverrinus*; *Dasyurus affinis*; *Phalangista vulpina*; *Phalangista* New Species; *Perameles obesula*; *Hypsiprymnus trisulcatus*; *Macropus* nearly allied to *M. ualabatus*. He thus described two new species of marsupial – *Dasyurus affinis*, a 'new species nearly as large as *D. maculatus* but differing in proportions', and *Hypsi-*

prymnus trisulcatus, a new species a little smaller than the living *H. minor* and having only 3 sulci [grooves] on the large premolar in the lower jaw.

Mahoney (1964) reviewed the identities of the two new species and concluded that *Dasyurus affinis* was in fact *D. maculatus*, measurements and morphology of the syntypes falling within the normal range of that species. Gill (1953b) figured the syntypes, which appear to be typical *D. maculatus*. *Hypsiprymnus trisulcatus* was, similarly, relegated to a junior synonym of *Potorous tridactylus* by Mahoney, who pointed out that variation in the number of sulci was apparent within that species and thus was not a discriminating character. Mahoney considered that the fauna described in McCoy's note was representative of the modern fauna of the area. That is true, with the exception of *Sarcophilus*. Several records of that species in cave deposits in Victoria have been reported (Mahoney 1912; Gill 1953a, c) and it is likely that it was present on the mainland until fairly recently (in geological terms).

Mahoney (1964) was unable to identify McCoy's 'new Species of Carnivorous animal', noting that one possibility was *Hydromys chrysogaster* Water Rat. McCoy himself (1861) mentioned that *Hydromys* was present in the 'Mount Macedon caverns' (= Gisborne) deposits, but made no further reference to the species. *Hydromys* seems unlikely. Mahoney quotes Selwyn's description, which likens the skull to that of 'a domestic cat, but not more than half the size'; perhaps a kitten? The conundrum will remain unless the specimen is found.

McCoy was enthusiastic about fossil marine mammals and described nine species — one otariid seal, the remainder cetaceans. Fordyce (1984, 1991) has assessed these species and concluded that most are invalid. Further review may reveal that those names still standing are indeed synonyms.

It is a somewhat sad reflection of McCoy's diligent and knowledgeable descriptive zoology, then, that only one species of mammal, modern or fossil, has truly stood the test of time and review. It is, however, a pleasing legacy that that species should be Leadbeater's Possum, Victoria's only endemic mammal and one of its State Faunal Emblems.

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Comments on the Ostracod Genus *Bairdia* M'Coy, 1844

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Concerning the initial description of the crustacean/ostracod genus *Bairdia* M'Coy, 1844 from the Carboniferous of Ireland, Malz (1988) commented that 'McCoy was not aware of the importance of his discovery then, for as often happens great discoveries are evaluated much later.' Malz (1988) also mused that it was not until a lifespan later that the full importance of M'Coy's description of *Bairdia* became apparent (with the erection of the family Bairdiidae Sars 1888).

Interestingly, the original lateral view diagram in M'Coy, 1844 of *Bairdia curtus* (type species for genus) illustrates this species in an upside down fashion with respect to its probable original orientation in life (Fig. 1A).

Fossil specimens attributed to *Bairdia* range back in geological time to the

Ordovician, with species of this genus becoming common in open shallow marine palaeoenvironments from the mid Palaeozoic (Fig. 1B). For many years the *Bairdia* generic concept was applied to younger post-Palaeozoic fossil and living ostracods with similar morphology – and some taxonomists still utilise this generic name for modern species. However, Cainozoic specimens of *Bairdia s.l.* have been split into a number of different genera by Maddocks (1966). In particular, the genera *Neonesidea* Maddocks, 1966 and *Paranesidea* Maddocks, 1966 (Fig. 1C) most closely resemble *Bairdia* – so much so that it may be argued that using the carapace as morphological grounds for distinguishing the former two from the latter are still questionable. This is largely a consequence of one of the most salient features of *Bairdia s.l.* ostracods – their sub-trapezoid shaped carapace – which has

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