

ALCOOTA FOSSIL BEDS

Updated: 4th March, 2002

The Alcoota Fossil Beds, located on Alcoota Station in Central Australia, provide evidence of the evolution of the Northern Territory's fauna and climate. The Fossil Beds are a unique occurrence of well-preserved, often rare, Tertiary vertebrate fossils, the study of which will furnish a better understanding of the modern Australian fauna. The Alcoota Fossil Beds are also significant as a research and teaching site for palaeontology students and for containing the type locality of the Waite Formation.



Vertebrate fossils at Alcoota Fossil Beds

The Alcoota Fossil Beds are one of only three known vertebrate fossil sites in the Northern Territory. The others are Bullock Creek and the Kangaroo Wells site.

Although Aborigines and local graziers were aware of the fossils for some time, it was not until 1962 that the first serious investigation of the fossils was undertaken. Sporadic excavations were conducted until 1984, when the Museum and Art Gallery of the Northern Territory commenced an annual excavation program. In 1988 a permanent field station was erected on site in order to permit faster progress. The Alcoota Beds have been fenced in order to provide them with some measure of protection.

The Alcoota fauna, which is about 8 million years old, has a rich concentration of vertebrate fossils. The fossil deposit consists of a series of bone-bearing lenses on a single horizon. The individual lenses are about one metre across but extend for 170m. The back of this page illustrates the Alcoota fossil fauna found to date.

The fossils indicate the existence of a complex community of marsupials, birds and crocodiles in the Alcoota area. There are more species of Diprotodontidae (wombat-like marsupials) found together than in any other described local fauna.

The intermediate age of the Alcoota local fauna between the older faunas at Kutjamarpu (SA) and Bullock Creek (NT), and the younger faunas at Riverleigh (QLD) and Beaumaris (VIC), makes it interesting as the most remote ancestors of many of the well-known Pleistocene megafauna, as well as some living forms can be recognised. The Alcoota fauna is a transitional stage in the evolution of Australian mammal communities.

The Alcoota deposit represents a series of intermittently interconnected lakes within a large basin. Evidence points to dry periods during which animals concentrated in the immediate area of the spring-fed lake resulting in a crisis, termed 'waterhole-tethering', where large numbers of animals died as the waterhole became smaller. This led to the concentration of fossils.

The Alcoota and Bullock Creek fossil faunas provide evidence that aridification was in progress in northern Australia during the mid Miocene geological time period.

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Reconstruction of late Miocene Alcoota Fossil

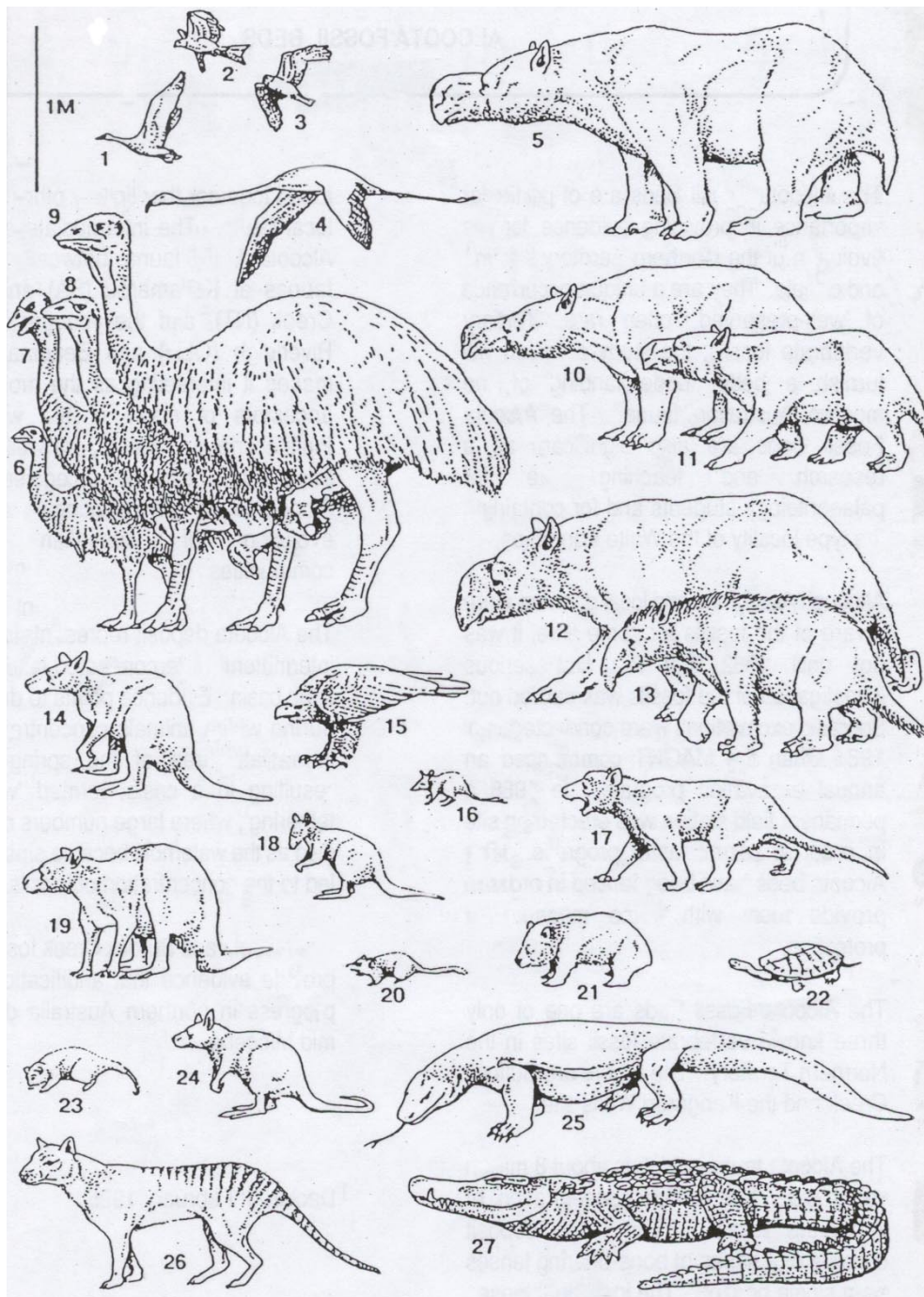


Fig.1. Reconstructions of the late Miocene Alcoota Local Fauna, drawn approximately to scale; 1, anatid (undetermined duck); 2-3, smaller accipiterids, at least two species; 4, phoenicopterid, undertermined flamingo; 5, zygomaticurine diprotodontid, *Plaisiodon centralis*; 6, casuariid, 7, dromornithid, *Ibandornis woodburnei*; 8, *Ibandornis lawsoni*; 9, *Dromornis stirtoni*; 10, zygomaticurine diprotodontid, *Alkwertatberium webbi*; 11, zygomaticurine diprotodontid, *Kolopsis torus*; 12, diprotodontine diprotodontid, *Pyramio alcootense*; 13, palorchestid, *Palorchestes painei*; 14, macropdid, ? *Protemnodon* (Woodburne 1967); 15, large accipiterid, possibly an eagle; 16, perameloid (undetermined genus); 17, thylacoleonid, *Wakaleo alcootaensis*; 18, macropodoid, *Dorcopsoides fossilis*; 19, macropdid, *Hadronomas puckeridgi*; 20, dasyurid (undetermined); 21, vombatid (Woodburne, 1967); 22, emydid (undetermined genus); 23, petaurid, *Pseudocheirops* sp.; 24, macropdid (undertermined genus); 25, varanid, cf. *Megalania*; 26, Thylacinid, *Thylacinus potens*; 27, crocodylid *Baru* cf. *Darroni*.

Source: Murray, P. and Megirian, D. 1992. Continuity and Contrast in middle and late Miocene Vertebrate Communities from the Northern Territory. *The Beagle* 9:195-218.