

Taphonomy and palaeoecology of the White Hunter Local Fauna

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The White Hunter (WH) Local Fauna (LF) is one of the oldest assemblages from the Riversleigh World Heritage Area, belonging to Faunal Zone A and tentatively dated at approximately 24 Ma. The mammalian fauna has many plesiomorphic taxa and a wide range of body sizes are represented, although it is depauperate in medium to large arboreal mammals and over-represented by small to medium-sized macropodoids, vombatomorphians and carnivores. The non-mammalian vertebrate fauna also covers a wide body size range.

The palaeoenvironmental conditions at the time of deposition have been contentious, ranging from hypotheses of cold and dry woodland to warm, wet rainforest, and many climatic and vegetation combinations in between. The autecologies of various species provide only equivocal support for palaeoenvironmental conclusions.

Taphonomic and palaeoecologic data were tested herein to further illuminate palaeoenvironmental understanding. Mammalian post-cranial elements were examined for degree of weathering, abrasion, fragmentation, taxonomic bias and susceptibility to transport. No obvious bias against small vertebrates was observed. The fauna does not appear to represent a mixed-assemblage. Animals most likely died within close proximity to the site of deposition, although the absence of scavenger/carnivore damage militates against predation as the main source of accumulation. Trampling of elements may have been significant.

Results suggest that WH may have been a moderately large ephemeral water body, subject to periodic drying and fed by a slow-moving creek. The climate was cooler than the early Miocene, with a distinct wet and dry season. Surrounding vegetation may have been a type without modern analogue combining structural, but not floristic, equivalents of open dry forest and closed rainforest. There is no evidence for gradational wet open forest types, but this may represent a rapid move to closed forest. These results are reinforced by palaeocommunity analysis of Riversleigh LFs which unite WH LF with a suite of early Miocene Lfs as a *similar* palaeocommunity type, perhaps antecedent to them.