

Did megafaunal extinction or climate change cause increase in erosion post-40 ka BP in Tasmania? - The evidence from studies in the forest estate

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There is strong evidence that the Tasmanian megafauna became extinct at about 40 ka BP, at the same time as the oldest dated human habitation in the state. Evidence from Australian mainland sites indicates that ecological change followed megafaunal extinction rather than preceding it. The erosion record in Tasmania shows a large increase in the number of fluvial, colluvial and aeolian deposits after 40 ka BP, and especially after 35 ka BP. Two possible reasons to account for these observations are: (1) climate became more droughty and possibly more windy after 40 ka BP; or (2) extinction of the megafauna caused shrublands to flourish and fires were more intense after 40 ka BP, inducing massive erosion. The semiarid zone in Tasmania certainly had much greater extent in the Last Glacial, and included areas that now have 'wet' eucalypt forest and rainforest; evidence from several sites indicates landscape instability and weak vegetation cover down to present-day sea level; and wind speeds were high enough to move 60 mm diameter Pecten valves in aeolian sands dated 30 ka BP south of Hobart. The lack of a definitive Last Glacial pollen record from eastern Tasmania (likely to be more sensitive to environmental change than wetter sites in the west) makes it difficult to judge which hypothesis best explains the data. Obtaining a deep core and pollen record from Last Glacial peaty deposits in eastern Tasmania should be a priority for sorting out influences on the Last Glacial ecology of the state.