Human Colonisation and Megafauna Extinction: global comparison of chronologies for islands and continents

This project by Dizzy Gillespie continues work to which he has contributed over several decades, beginning in 1978 with radiocarbon analysis of extinct megafauna bones from Lancefield Swamp, Victoria, and proceeding through European and American sites. The extinction of endemic large fauna on islands and continents has polarised researchers into two main camps: those favouring a climate change mechanism, and those favouring a direct human cause.

Dizzy’s recent research in this field has been a largely fruitless search for intact proteins (collagen or dentine) in the bones and teeth of large marsupials from sites on mainland Australia. Emphasis has now switched to Tasmania, where temperate environmental conditions often favour the preservation of organic materials suitable for carbon isotope analysis. With funding from AINSE grants 09/068 and 10/143, analyses are in progress for $^{14}$C, $^{13}$C and $^{15}$N isotopes on bones from Mt Cripps and Mowbray Swamp, both in northwestern Tasmania, with material obtained from Queen Victoria Museum and Art Gallery, Launceston. Further work will explore radiocarbon age and stable isotope measurements on single amino acids prepared from this well-preserved marsupial bone collagen.

Left: Femur of extinct Protemnodon from NW Tasmania, sampled for $^{14}$C dating courtesy of Annette Vains, QVMAG Launceston. Right: Decalcified collagen from rib of extinct Zygomaturus found at Mowbray Swamp, NW Tasmania, showing black contamination streaks (photos: Dizzy).

Main collaborators
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- The AMS radiocarbon team at ANSTO, Sydney
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- Annette Vains and Craig Reid, QVMAG, Launceston
Key publications