

Bramble Cay *Melomys rubicola* Thomas 1924: Specimens in the Macleay Museum

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Four specimens and a lower mandible in spirit of the Bramble Cay *Melomys rubicola* were recently found in the Macleay Museum. These specimens were collected during the *Chevert* Expedition in 1875 and were not published as part of the mammals obtained. The species is now considered extinct. An old newspaper article written by the ship's captain, Charles Edwards, provided the clue that this extinct species was extant in the Macleay Museum. The DNA of surviving specimens may yet provide the answer to the origin of the endemic Bramble Cay *Melomys*.

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DISCUSSION

Bramble Cay is a small vegetated sand cay of about 5 ha surrounded by a coral reef and located in north Torres Strait (9°08'31.1"S 143°52'29.9"E), approximately 50km from the mouth of Papua New Guinea's Fly River. Bramble Cay falls within the provenance of the Erubam Le people. The High Court of Australia, in 2004, granted the Erubam Le native title rights over Bramble Cay (Latch 2008). The Bramble Cay *Melomys rubicola* was endemic to the Cay and to Australia (Limpus et al. 1983). Its population on the Cay was given at "several hundred individuals" in 1978 (Limpus et al. 1983) and subsequently with an estimated population of 93 in July 1998 (Dennis and Storch 1998). Further declines were recorded leading to an extensive but unsuccessful search in 2014, which found that oceanic inundation associated with human-induced climate change was the root cause of its extirpation from the Cay (Woinarski et al. 2015a, 2015b; Kim and Pressey 2015; Gynther et al. 2016). The Bramble Cay *Melomys* is thus probably the first mammalian extinction recorded due to anthropogenic climate change (Gynther et al. 2016).

The holotype of *Melomys rubicola* (BMNH 46.8.26.7 ♂ skin & skull) was collected by John MacGillivray in 1845 during the voyage of the H.M.S. *Fly*. Other specimens were collected on the same voyage by Joseph Beete Jukes. The species itself, however, was not formally described until nearly 80 years later in 1924 (Thomas 1924). In the meantime, William Macleay's *Chevert* Expedition had collected four more specimens on the Cay. Alas, these were not reported in the scientific literature along with other mammals collected (e.g., Ramsay 1877a, 1877b). Had they been described at that time they would represent the type specimens of this species. William Macleay did not record collecting this species in his private journal, although he recorded the *Chevert* stopping there and collecting generally on August 13, 1875. The Captain, who was not one of the collectors, supplied a brief narrative of the voyage to a Sydney newspaper later that year. He wrote, "On the 13th, at 7 20, we sailed for New Guinea, touching at Bramble Bay en route. We anchored at 11 in 22 fathoms fair holding ground, and good shelter, with bay bearing S.E. by E. two cable lengths distant. Here we got great numbers of birds and amongst other things, large centipedes, and a rat peculiar to the island"

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(Edwards 1875). In fact, based on the Macleay Museum's current collection data they collected four individuals. The four specimens in ethanol: M738 unsexed, one female M739, two males M740 and M471 and a lower mandible labelled M741.

The origin of the Bramble Cay Melomys, in terms of the source population, remains unknown even after its extinction. There are currently two competing theories regarding its origin. One theory suggests that due to the close proximity of the Fly River the Bramble Cay Melomys may have travelled from Papua New Guinea to Bramble Cay on driftwood (Smith 1994). Alternatively, it may be a relict persisting from an earlier the time when Australia was joined to Papua New Guinea by a land bridge (Dennis and Storch 1998). Whatever its origin the DNA preserved in surviving museum specimens may help establish its closest relatives and hence the possible origins of this elegant but little understood species.

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