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Fossil *Uromys* (Rodentia: Murinae) from Central Queensland, with a Description of a New Middle Pleistocene Species

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Abstract. The first fossil species of *Uromys* (Giant Naked-tailed Rats) is described, as well as the southern-most records of the genus based on palaeontological data. *Uromys aplini* sp. nov. lived during the Middle Pleistocene in the area around Mount Etna, eastern central Queensland, but was probably driven extinct by climate-mediated habitat loss sometime after 205 ka but before c. 90 ka. A second species, the extant *U. caudimaculatus*, occurred in the area during the Late Pleistocene, but became locally extinct prior to the Last Glacial Maximum. These fossils indicate an unexpectedly high diversity of species of *Uromys* in Australia, suggesting a long occupation of the continent. Phylogenetic analysis places *U. aplini* together with other species of *Uromys* endemic to Australia, at the base of the radiation of the genus. This may indicate that the initial diversification of *Uromys* occurred in Australia rather than New Guinea, as has previously been thought. These new Quaternary records of *Uromys* occur approximately 550 km south of the southern-most modern record for the genus, indicating that *Uromys* was able to cross the southern St Lawrence biogeographic barrier, possibly twice during the Pleistocene.

Introduction

Uromys (commonly called "Giant Rats" or "Giant Naked-tailed Rats") is a genus of generally very large murine rodents whose species are found on mainland and continental islands of northern Sahul (Australia and New Guinea), and the Melanesian island archipelago (Fig. 1). They belong to the tribe Hydromyini, in a subclade called the Uromys division (colloquially known as the "Mosaic-tailed Rats"), that also includes four related genera: *Melomys*, *Paramelomys*, *Protochromys,* and *Solomys* (Musser & Carleton, 2005; Lecompte *et al*., 2008; Aplin & Helgen, 2010). The ecology and conservation status of extant species of *Uromys* was summarized by Flannery (1995a, 1995b), Breed & Ford (2007), Moore (2008), and Moore & Winter (2008). These authors noted that many species are presently endangered, critically endangered or presumed extinct.

Currently, 11 species of *Uromys* are recognized. Two widely distributed and morphologically variable species occur on mainland New Guinea (*U. anak* and *U. caudimactulatus*, the latter also occurring on several nearby islands), with a further four near threatened to critically endangered species that are endemic to the nearby islands of Biak (*U. boeadii*), Awai (*U. emmae*), New Britain (*U. neobrittanicus*) and Kai Besar (*U. siebersi*) (Flannery, 1995a, 1995b; Musser & Carleton, 2005). Four species are recorded from the Solomon Islands, namely *U. imperator*, *U. porculus*, *U. rex*, and *U. vika*, all of which are either endangered, critically endangered or presumed recently extinct (Flannery, 1995b; Lavery & Judge, 2017; taxonomic authorities listed below).

In Australia, two species of *Uromys* are currently recognized (Breed & Ford, 2007). *Uromys caudimaculatus* has a distribution stretching from Cape York to the most

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