



## New Quaternary records of *Conilurus* (Rodentia: Muridae) from eastern and northern Australia with the description of a new species

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### Abstract

Since European arrival in Australia the murid genus *Conilurus* Ogilby has suffered severe decline, the causes of which are still uncertain. Knowledge of the distribution of the genus during the Quaternary may be useful in understanding why *Conilurus* has declined and thus inform efforts to conserve remaining populations.

The late Quaternary distribution of species of *Conilurus* is here revised with the extension of the known ranges of two species, *C. albipes* and *C. penicillatus*, to the north and east of their previously known ranges, respectively. An additional species, *C. capricornensis* **sp. nov.**, is described on the basis of Pleistocene and Holocene dental remains. *Conilurus capricornensis* is large for the genus and can be distinguished from *C. penicillatus* and *C. albipes* by molar dimensions, a posteriorly narrow anterior palatal foramina, the presence of a T3 and anterior cingulum on M<sup>1</sup>, and small or absent posterior cingula on M<sub>1-2</sub>. The southern-most occurrence of *C. capricornensis* overlaps the northern-most record of *C. albipes*. The temporal ranges of *C. capricornensis* and *C. penicillatus* overlap, but they have not been found in sympatry. Recently recovered fossil and subfossil specimens from the Broken River area, near Townsville, Queensland and Mount Etna (eastern Queensland) indicate that *C. capricornensis* had a temporal range from the late Pleistocene to very recent time. Preservation of some specimens from the Broken River area indicates that *C. capricornensis* may still be extant in that area.

**Key words:** Queensland, extinction, Pleistocene, ‘old endemic’ rodents, conservation

### Introduction

*Conilurus* (Muridae, Murinae; Musser and Carleton, 2005) is one of several rodent genera indigenous to Australia that has suffered decline since the arrival of Europeans in the eighteenth century (Breed & Aplin 2008; Johnson 2006; Smith & Quin 1996; Watts & Aslin 1981; Woinarski 2000). Of two described species, one (*C. albipes*) is extinct and the other (*C. penicillatus*) is currently declining for reasons that remain uncertain (Woinarski *et al.* 2007b). Here we describe a new species, *C. capricornensis* from late Pleistocene-Holocene cave sites in eastern Queensland and document the distribution of all three species during the late Quaternary in Queensland.

The two previously described species of *Conilurus* had allopatric geographical distributions, with *C. albipes* occurring in the south and *C. penicillatus* in the north (fig. 1). *Conilurus penicillatus* is also found in southern New Guinea, apparently dispersing there during intervals of low sea level during the Pleistocene (Flannery 1995; Kemper & Schmitt 1992; Simpson 1961; Tate 1951). Most authors propose that *Conilurus penicillatus* arose in Australia before dispersing to New Guinea (Kemper & Schmitt 1992; Musser and Carleton, 2005; Simpson 1961; Tate 1951), although Ford (2006) did not exclude the opposite possibility. Kemper and Schmitt (1992) were unable to support a dispersal route through Cape York owing to the lack of specimens from that area.