

Threatened Species of the Northern Territory

CARPENTARIAN ROCK-RAT

Zyzomys palatalis

Conservation status

Australia: Endangered

Northern Territory: Critically Endangered



Description

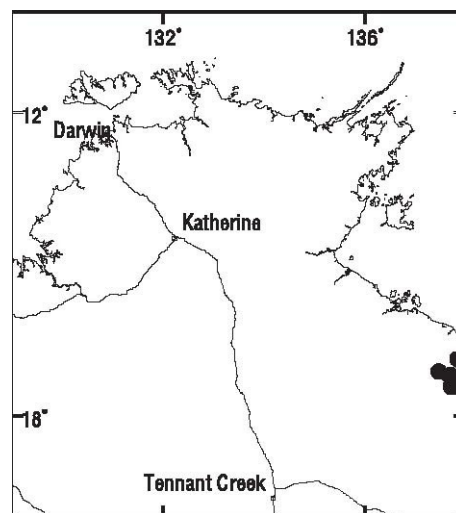
The Carpentarian rock-rat is a moderately large rock-rat (average weight 120 g) with distinctly fattened tail base. The tail is generally longer than the head-body length but is often broken off to form a stump. Its fur is brown above and pale to white below. The feet are white above.

Distribution

The Carpentarian Rock-rat is known only from Wologorang Station in the Gulf of Carpentaria hinterland where it was discovered in 1986 (Kitchener 1989). Nothing is known of its former distribution. It is known from five locations (gorges and escarpments) on Wologorang (Banyan Gorge, Camel Creek, Moonlight Gorge, McDermott Springs and Redbank Mine) and all are within a radius of 35 km (Churchill 1996; Puckey 2003). Extensive surveys (including in 47 additional monsoon rainforest patches) in apparently suitable habitat in the region have not expanded its known range (Trainor *et al.* 2000).

Conservation reserves where reported:

None



Known locations of the Carpentarian rock-rat.

• = post 1970

Ecology

The species is restricted to sandstone gorges and escarpments containing a core of dry or wet rainforest vegetation, mixed with broadleaf woodland, scree slopes and permanent water, surrounded by savanna woodlands.

Carpentarian rock-rats may breed all year round with a peak in the early to mid dry season when their dietary items of large fleshy or woody fruits and seeds are most abundant (Trainor 1996a).

Based on a radio-tracking study of 21 individuals, Puckey *et al.* (2004) calculated a mean home range size of 1.1 ha, found that individuals may move up to 2 km in one night, and showed that while most activity occurred within monsoon rainforests, at least some individuals would also forage within nearby areas of savanna woodland, although no animals moved more than 80 m away from the rainforest edge.

Conservation assessment

The population of Carpentarian Rock- rats has been estimated to be 696 at Moonlight Gorge and 450 at Banyan Gorge (Trainor 1996b). No estimates for the other two sites have been made but it is expected that the total population is fewer than 2000 individuals. Based on modeling of home range sizes, home range overlaps and availability of putatively suitable habitat, Bowman *et al.* (2006) estimated that there may be 782 home ranges for Carpentarian rock-rats across their known sites.

The species qualifies as **Critically Endangered** (under criteria B1ab(iii)+2ab(iii)) based on:

- extent of occurrence <100 km² ;
- area of occupancy estimated to be less than 10 km²;
- severely fragmented; and
- continuing decline, observed, inferred or projected.

Note that information relevant to the last criterion is limited and inconclusive. Until the very recent (2005) establishment of a monitoring program, there was no information available to assess trends in population. Until recently, it was considered that suitable habitat for Carpentarian rock-rats was probably declining and limited by fire (Puckey *et al.* 2001; Brook *et al.* 2002). Recent analysis of current and historic imagery

instead suggests that monsoon rainforests and their margins may be increasing on this property (Bowman *et al.* 2006), however, the extent, if any, to which Carpentarian rock-rats have increased in range in association with such vegetation change remains unknown.

Threatening processes

The major conservation problem for the Carpentarian rock-rat is its extremely limited range (and hence population), and its apparent dependence upon a core monsoon rainforest habitat.

Population modeling (Brook *et al.* 2002) has indicated that fire is a major threat, as it may degrade, diminish or alter the composition of its core monsoon rainforest patches (Trainor *et al.* 2000), a general concern for monsoon rainforest patches throughout the Northern Territory (Russell-Smith and Bowman 1992).

Cattle grazing may also detrimentally affect rainforest patches and their associated springs and creeks. However, the known sites are currently in areas of the property that are not stocked.

Feral cats are known to occur in the areas supporting Carpentarian Rock- rat populations. However their impact is unknown.

Conservation objectives and management

A management program has been developed for Carpentarian Rock-rats with the aim of improving the long-term conservation status of the species and its habitat in the Northern Territory. The program has been implemented under a recently revised national Recovery Plan (Trainor and Woinarski 1996; Puckey *et al.* 2001).

Priorities of the current management plan are:

- i. to declare known sites as areas of essential habitat under section 73 of the *Northern Territory Parks and Wildlife Conservation Act 2000* and to manage these sites to eliminate threatening processes;
- ii. to continue to maintain a captive breeding colony at the Territory Wildlife Park as a safeguard against the decline of wild populations;
- iii. to carry out an experimental release program using individuals from the captive breeding colony; and
- iv. to continue scientific research to improve our understanding of the species ecology and its management.

Two trial translocation programs have been attempted recently, in apparently suitable habitat at Limmen National Park, but neither was successful. Brook *et al.* (2002) used population viability models to prioritise management actions for this species, and considered that the most effective conservation action would be to enhance fire management, with some further potential gain from strategic translocations.

Complied by

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