

Threatened species of the Northern Territory

Carpentarian rock-rat

Zyzomys palatalis

Conservation status

Australia: Endangered

Environment Protection and Biodiversity Conservation Act 1999

Northern Territory: Endangered

Territory Parks and Wildlife Conservation Act 1976

Description

The Carpentarian Rock-rat is a small grey-brown rodent, measuring 120-160 mm long and weighing on average 125 g. The carrot-shaped tail is furred, with longer hairs at the tip, and is used to store fat. As with other rock-rats, the Carpentarian Rock-rat is known to easily lose its tail, fur and skin, which is presumably an antipredator defence mechanism. Indeed, individuals are often found with a broken-off tail that has healed to form a stump.

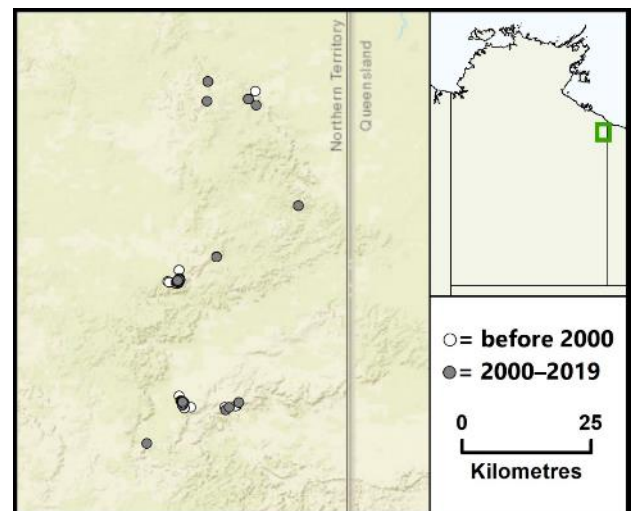
Distribution

The Carpentarian Rock-rat is endemic to the Northern Territory (NT), where it is known only from Wollongorang Station in the Gulf of Carpentaria hinterland. Extensive surveys in seemingly suitable habitat across the broader region failed to locate additional localities in the 1990s¹. However, in 2017 a different survey method (camera trapping), detected the species at four new localities on Wollongorang Station. The species is now known from nine localities, all within a radius of 35 km, including Banyan Gorge, Camel Creek, Moonlight Gorge, McDermott Springs, Redbank Mine, Aquarium Springs and Rocky Creek².



Credit: K. Brennan-Wollongorang

NT conservation reserves where reported: None.



Caption: Known localities of the Carpentarian Rock-rat in the NT (nrmmaps.nt.gov.au)

Ecology and life-history

The Carpentarian Rock-rat occurs in isolated rainforest thickets and broad-leaved vegetation within rugged and extensive gorge systems. Individuals shelter among rocks during the day, and forage within dry monsoon rainforests and adjacent broadleaf woodland at night. Average home range size is ~1 ha, but individuals occasionally make forays up to 1.5 km from a gorge³.

Breeding can occur throughout the year, but commonly coincides with an increase in

abundance of large fleshy or woody fruits and seeds in the dry season⁴. Like other rock-rats, fecundity is low, with litter sizes generally comprising only 1-2 pups⁴. Although larger litters have been recorded during good conditions. Generation length is estimated to be 2 years⁵.

Threatening processes

Due to its highly restricted distribution and habitat specialisation, the species is particularly vulnerable to fires that may degrade, diminish or alter patches of fire-sensitive monsoon rainforest^{1,6}. Grazing by feral herbivores and livestock, and disturbance by feral Pigs (*Sus scrofa*), may also degrade rainforest patches and their associated springs and creeks. While there is no direct evidence that feral Cats (*Felis catus*) have an appreciable negative impact on Carpentarian Rock-rat, predation by Cats is a plausible threat. Climate change may pose a significant threat to the long-term persistence of the species, primarily by reducing the extent and/or quality of habitat.

Conservation objectives and management

Priorities for the conservation management of the Carpentarian Rock-rat include continuing monitoring the species at appropriate intervals; controlling and monitoring feral animals in a number of gorges at Wollogorang Station; investigating the influence of fire on habitat quality to formulate optimal fire management strategies; and implementing fire management to reduce wildfire occurrence and increase habitat complexity.

Population viability models were used to prioritise management actions for this species⁶. Enhanced fire management was identified as the most effective conservation action, with some further potential gain from strategic translocations. Two trial translocation programs attempted to introduce the species to seemingly suitable habitat at Limmen National Park, but neither was successful.

References

- ¹ Trainor, C. R., Fisher, A., Woinarski, J., Churchill, S., 2000. Multiscale patterns of habitat use by the Carpentarian Rock-rat (*Zyomys palatalis*) and the Common Rock-rat (*Z. argurus*). *Wildl. Res.* 27, 319–332.
- ² Threatened Species Scientific Committee, 2019. Conservation advice *Zyomys palatalis* Carpentarian Rock-rat. Department of the Environment, Canberra.
- ³ Puckey, H., Lewis, M., Hooper, D., Michell, C., 2004. Home range, movement and habitat utilisation of the Carpentarian rock-rat (*Zyomys palatalis*) in an isolated habitat patch. *Wildl. Res.* 31, 327–337.
- ⁴ Trainor, C., 1996. Habitat use and demographic characteristics of the endangered Carpentarian Rock-rat *Zyomys palatalis*. Master Thesis, Northern Territory University, Darwin.
- ⁵ Woinarski, J.C.Z., Burbidge, A.A., Harrison, P.L. (Eds), 2014. The Action Plan for Australian Mammals 2012. CSIRO Publishing, Canberra.
- ⁶ Brook, B.W., Griffiths, A.D., Puckey, H.L., 2002. Modelling strategies for the management of the critically endangered Carpentarian rock-rat (*Zyomys palatalis*) of northern Australia. *J. Environ. Manage.* 65, 355–368.
- ⁷ Bowman, D.M.J.S., McIntyre, D.L., Brook, B.W., 2006. Is the Carpentarian rock-rat (*Zyomys palatalis*) critically endangered? *Pac. Conserv. Biol.* 12, 134–140.