

Threatened Species of the Northern Territory

BRUSH-TAILED RABBIT-RAT

Conilurus penicillatus

Conservation status

Australia: Vulnerable

Northern Territory: Endangered



Photo: K. Brennan

Description

The brush-tailed rabbit-rat is a moderately large (about 150 g) partly arboreal rat, with long brush-tipped tail (with the distal third either black or white), and long ears. The fur colour is relatively uniformly brown above, and cream below. It is distinctly smaller than the two other long-tailed tree-rats in the Northern Territory (NT).

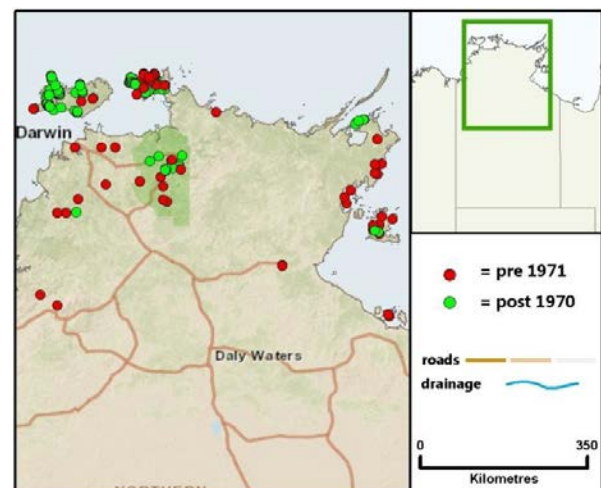
Distribution

In the NT, this species has been recorded from near-coastal areas from near the mouth of the Victoria River in the west to the Pellew Islands in the east, and including Bathurst, Melville, Inglis and Centre Islands and Groote Eylandt (Parker 1973; Kemper and Schmitt 1992; Woinarski 2000). There are no recent records from much of this historically recorded range, and it is currently known to persist in the NT only on Cobourg Peninsula, Bathurst, Melville and Inglis Islands, and Groote Eylandt.

Two weakly-defined subspecies are recognised from the NT: *C. p. melibius* from the Tiwi Islands, and *C. p. penicillatus* from all other Australian areas (Kemper and Schmitt 1992). Beyond the NT, the species also occurs from higher rainfall, near-coastal areas of the

north Kimberley, Bentinck Island (Queensland) and a small area of southern New Guinea.

Conservation reserves where reported: Garig Gunak Barlu National Park and Kakadu National Park.



Known locations of the brush-tailed rabbit-rat

Ecology

The preferred habitat of the brush-tailed rabbit-rat is eucalypt tall open forest (Firth *et al.* 2006a). However, at least on Cobourg Peninsula, it also occurs on coastal grasslands (with scattered large *Casuarina equisetifolia* trees, beaches, and stunted eucalypt woodlands on stony slopes (Frith and Calaby 1974; PWCNT 2001)).

It shelters in tree hollows, hollow logs and, less frequently, in the crowns of pandanus or sand-palms (Firth *et al.* 2006b). Most foraging is on the ground, but it is also partly arboreal. The diet comprises mainly of seeds (especially of grasses), with some fruits, invertebrates and leaves and grass (Firth *et al.* 2005).

Conservation assessment

Conservation assessment is hampered by lack of knowledge concerning the timing, extent and currency of geographic decline. However, considerable survey effort over the past ten years has recorded declines. Its range and population size in the NT has declined by well over 50 per cent since European settlement, with considerable localized declines within the last ten years (Firth *et al.* 2011, Woinarski *et al.* 2011). Certainly, its current status no longer matches that reported more than 100 years ago: “in Arnhem Land is everywhere common in the vicinity of water” (Dahl 1897), “numerous all over Arnhem Land, and in great numbers on the rivers of the lowlands” (Collett 1897).

Evidence suggests that brush-tailed rabbit-rats no longer occur on Centre Island (Woinarski *et al.* 2011). Recent surveys on Groote Eylandt (2005-10) caught relatively very few animals, leading to the conclusion that the population on Groote may now be quite small (Woinarski *pers comm.*). Surveys of previously unsampled islands off the coast of the NT failed to detect any new populations.

Recent monitoring of a known population within Kakadu National Park failed to capture any animals (Firth *et al.* 2010) and on-going monitoring of the population at Cobourg Peninsula has reported declines (Firth *et al.* 2010 and NRETAS *unpublished data*).

Its status best fits **Endangered** (under criterion A4) based on:

- population reduction over ten year period >50 per cent; and
- causes of reduction have not ceased and are not fully understood.

The current status of brush-tailed rabbit-rats on Bathurst and Melville Islands are not known. Given the recent declines in other populations, these islands need re-surveying.

Threatening processes

No single factor has been demonstrated to have caused the decline of brush-tailed rabbit-rats, but the extent of loss on the mainland and the maintenance of some island populations suggests that it is probably not due to land-use factors but rather to either disease or exotic predators. The most likely causal factor is predation by feral cats.

However, it is possible that broad-scale habitat change may have contributed to the apparent decline. Changed fire regimes, weeds and grazing by livestock and feral animals may have changed the availability of preferred or vital food resources (e.g. seeds or stems from particular grass species), and more frequent hot fires may have reduced the availability of hollow logs, tree hollows and the tall fruit-bearing understorey shrubs, and unfavourably changed the composition of grass species (Woinarski *et al.* 2004, 2011; Firth *et al.* 2005, 2006b, 2010).

The population on the Tiwi Islands has been substantially reduced by clearing for plantation forestry of about 30 000 ha of its prime habitat (Firth *et al.* 2006a).

Conservation objectives and management

There is a recovery plan currently under development that outlines regional priorities for management for this species. Actions in the plan vary in relevance and priority for each region but briefly the management priorities are to:

- i. increase awareness of the conservation significance of the species in areas where remnant populations occur and it is not well known;
- ii. establish whether species persists in areas where it is historically reported;
- iii. establish/maintain monitoring programs for key populations;
- iv. enhance cat control including quarantine procedures to keep islands cat free;
- v. manage fire for the benefit of the species;
- vi. include assessments of impacts on this species in development proposals; and
- vii. consider the feasibility of translocation/reintroductions

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