

# Threatened Species of the Northern Territory

## ARNHEM ROCK-RAT

### Scientific name

#### Conservation status

Australia: Vulnerable

Northern Territory: Vulnerable

### Description

The Arnhem rock-rat is a moderately large (100-150 g) rat distinguished from most other Northern Territory rodents by its large whiskers, typically swollen tail (especially at the base), the long hairs towards the tip of the tail, and the characteristic roman nose. It shares these features with the co-occurring but much smaller (30-70 g) common rock-rat *Z. argurus*, from which it can be separated by its larger size, colour (typically more grey than brown), and higher density of long hairs on the tail.

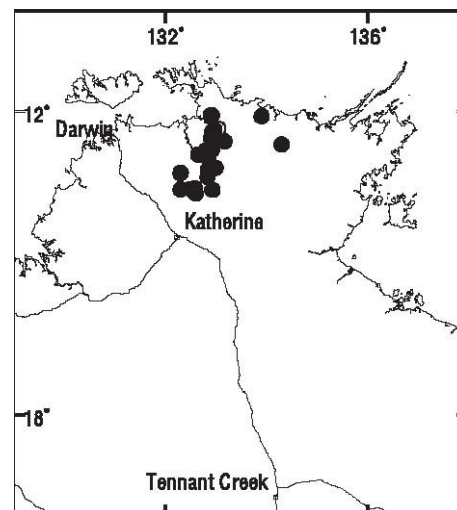
The rock-rats have fragile tails and fur, and many individuals may have no or greatly reduced tails, presumably as a consequence of predator attack.

### Distribution

The Arnhem rock-rat is endemic to the sandstone massif of western Arnhem Land. This area encompasses about 34,000 km<sup>2</sup>, but a very high proportion of this comprises habitat that is unsuitable for this species.

Until recently, it was considered conspecific with the Kimberley rock-rat *Z. woodwardi*, from the north Kimberley (Kitchener 1989).

Conservation reserves where reported:  
Kakadu National Park.



Known locations of the Arnhem rock rat.  
○ = pre 1970; ● = post 1970

### Ecology

The ecology of the Arnhem rock-rat is relatively well known from a series of studies at Little Nourlangie Rock (Nawurlandja) in Kakadu National Park (Begg and Dunlop 1980, 1985; Begg 1981; Begg *et al.* 1981). It is an entirely terrestrial, nocturnal species, restricted to areas with large sandstone boulders or escarpment with fissures and cracks. It occurs in these areas very patchily, being restricted mostly to monsoon rainforest patches, notably in gullies and along

creeklines, or in fire-protected refugia. This is a much narrower habitat than that occupied by the common rock-rat. The Arnhem rock-rat's diet comprises mainly seeds, fruit and some other vegetable matter. The seeds eaten include those from many species of rainforest tree. Large seeds may be cached, or at least moved to be eaten at relatively safe sites, resulting in distinctive piles of chewed hard seeds in rock fissures or under large overhangs (Begg and Dunlop 1980).

On the basis of its known response to a single large fire, the Arnhem rock-rat appears to be unusually fire-sensitive, with substantial decline for at least 1-2 years post-fire (Begg *et al.* 1981). A high frequency of fire will result in diminution of its preferred sandstone monsoon rainforests (Russell-Smith *et al.* 1993, 1998).

### Conservation assessment

Conservation assessment is hampered by the lack of precise information on range and population size. Decline can be presumed on the basis of the current high frequency of fire across much of the western Arnhem Land plateau (Russell-Smith *et al.* 1998), and resultant decline in its preferred habitat, monsoon rainforests, there (Russell-Smith and Bowman 1992; Russell-Smith *et al.* 1993, 1998). More explicitly, major declines of this species have been reported from all monitoring sites in Kakadu NP (Woinarski 2004): at Little Nourlangie Rock, from a mean trap success of 0.36 in 1977-79, 0.92 in 1980 to 0 in 2002; at Jabiluka from a mean of 0.48 in 1979-81 to 0.15 in 2003; and in the Mary River district of Kakadu (263 sites) from a mean of 0.24 in 1988-90 to 0.04 in 2001.

It best fits the status of **Vulnerable** (under criteria B2ab(ii,ii,iv,v)) based on:

- severely fragmented or known to exist at no more than 10 locations;
- area of occupancy estimated to be <2,000km<sup>2</sup> and
- continuing decline, observed, inferred or projected.

### Threatening processes

The major threatening process appears to be reduction in habitat suitability and/or extent due to increased frequency of extensive hot late dry season fires.

### Conservation objectives and management

There is no existing explicit recovery plan or management program for this species.

In the interim, management priorities are:

- i. to reduce the incidence of extensive, hot late dry season fires; and
- ii. to maintain a program for monitoring the status of at least one subpopulation, but preferably more, and preferably in association with a range of fire management practices, in order to help refine best management practice.

### Complied by

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