

Approved conservation advice
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

Approved Conservation Advice for
***Zygomys maini* (Arnhem Rock-rat)**

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

Description

Zygomys maini, Family Muridae, also known as the Arnhem Rock-rat or Arnhem Land Rock-rat, is a rodent 12–17 cm long weighing 100–150 g. It is grey-brown above and white below, with large whiskers, a typically swollen tail (especially at the base), long hairs towards the tip of the tail and a roman nose. These features are similar to the much smaller (30–70g) Common Rock-rat (*Zygomys argurus*), from which it can be separated by size, colour (typically more grey than brown), and higher density of long hairs on the tail (Fleming, 1995). The Arnhem Rock-rat has a fragile tail and fur, and the tail may be missing or damaged, presumably due to predator attack (Woinarski et al., 2007). Arnhem Rock-rats become sexually mature at five to six months, and may live for two years, although few survive a second breeding season. The diet comprises fruits and seeds collected from the ground (Fleming, 1995; TSSC, 2006; Woinarski, 2006).

The Arnhem Rock-rat was previously known as the Large Rock-rat and included the Kimberley Rock-rat (*Zygomys woodwardi*) until a revision in 1989 separated the two species.

Conservation Status

The Arnhem Rock-rat is listed as **vulnerable**. This species is eligible for listing as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, in 2006, the Minister considered the Threatened Species Scientific Committee's (TSSC) advice under section 189 of the EPBC Act and amended the list under section 184 to include the Arnhem Rock-rat. The TSSC determined that this species met criteria 1 and 2 of their eligibility criteria (TSSC, 2006). The Arnhem Rock-rat is also listed as vulnerable under the *Territory Parks and Wildlife Conservation Act 2000* (Northern Territory).

Distribution and Habitat

The Arnhem Rock-rat inhabits the sandstone massif of western Arnhem Land. Extensive surveys have failed to show any evidence of Arnhem Rock-rat populations outside of the sandstone massif. The preferred habitat of this species is monsoon rainforest associated with rocky scree slopes and boulders. It may also be found in sandstone heathlands and hummock grasslands adjoining rainforest. These habitats are patchily distributed throughout the area and the distribution of the species is highly fragmented. Where present, the Arnhem Rock-rat can be locally common. There are no estimates of total population size (Fleming, 1995; TSSC, 2006). This species occurs within the Northern Territory Natural Resource Management Region.

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological communities.

Threats

The main identified threat to the Arnhem Rock-rat is inappropriate fire regimes (Woinarski et al., 2007).

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It is possible that Arnhem rock-rats may be taken by feral cats (*Felis catus*), but the severity of this impact upon populations is unknown. The exotic black rat (*Rattus rattus*) has recently been reported at several sites within the range of the Arnhem Rock-rat. It is possible that this species may compete and/or introduce exotic diseases to Arnhem Rock-rats (Woinarski, 2008, pers. comm.).

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Continue with and expand the existing monitoring program in Kakadu NP (Woinarski, 2004) and the neighbouring IPAs – Djelk and Wardekker.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.
- Assess the distribution and abundance of feral cats in the region, and their impact upon this species.
- Examine the disease status of this species, and incursions and impacts of black rats within its range.

Regional and Local Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of the Arnhem Rock-rat.

Habitat Loss, Disturbance and Modification

- Monitor known populations.
- Monitor the extent and condition of its preferred habitat.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Develop and implement management plans on private land.
- Identify populations of high conservation priority, and clarify the extent of population fragmentation and dispersal between sub-populations.

Animal Predation or Competition

- Implement the Threat Abatement Plan for feral cats in the region (EA, 1999).
- Attempt to eradicate isolated populations of the exotic black rat within the known range of this species and develop improved prevention measures for the ongoing spread of the exotic black rat.

Fire

- Implement a suitable fire management strategy for the Arnhem Rock-rat as outlined in the Arnhemland Plateau Draft Fire Management Plan (KNP, 2007).
- Provide maps of known occurrences to rangers and others charged with fire management and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

Conservation Information

- Raise awareness of the Arnhem Rock-rat within the local community.

This list does not necessarily encompass all actions that may be of benefit to the Arnhem Rock-rat, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Arnhemland Plateau Draft Fire Management Plan (KNP, 2007),
- Threat Abatement Plan for Predation by Feral Cats (EA, 1999),

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- Threatened plants and animals in Kakadu National Park: a review and recommendations for management (Woinarski, 2004), and
- Kakadu National Park Management Plan 2007–2014 (KNP, 2006).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

Information Sources:

Environment Australia (EA) 1999, *Threat Abatement Plan for Predation by Feral Cats*, Biodiversity Group, Environment Australia, viewed 30 March 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/tap/cats/index.html>>.

Fleming, MR 1995, 'Arnhem Land rock-rat *Zyromys maini*', in Strahan, R (Ed), *The Mammals of Australia*, Reed, Sydney, pp. 621-622.

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Woinarski, J 2004, *Threatened plants and animals in Kakadu National Park: a review and recommendations for management*, Report to Parks Australia North, Parks and Wildlife Commission of the Northern Territory, Darwin.

Woinarski, J, Pavey, C, Kerrigan, R, Cowie, I & Ward, S 2007, *Lost from our landscape: threatened species of the Northern Territory*, NT Government Printer, Darwin.

Woinarski, J (NT Department of Natural Resources Environment and The Arts). Personal Communication. 1 May 2008