

Threatened species of the Northern Territory

Black-footed tree-rat (Kimberley and mainland Northern Territory)

Mesembriomys gouldii gouldii

Conservation status

Australia: Endangered

Environment Protection and Biodiversity Conservation Act 1999

Northern Territory: Endangered

Territory Parks and Wildlife Conservation Act 1976

Description

The Black-footed Tree-rat is one Australia's largest rodents, weighing up to 880 g. It has a distinctive long black tail with a white terminal brush and large blackish ears. The head and upperbody are grizzled medium grey and black, while the underside is paler. The fur on the body is characteristically long and shaggy.

Three subspecies of the Black-footed Tree-rat are recognised. *Mesembriomys gouldii gouldii* is distinguished from the Tiwi sub-species *Mesembriomys gouldii melvillensis* by white fur on the underside, usually mottled black-and-white hindfeet and paler overall colour. *Mesembriomys gouldii rattoides* is only known from northern Queensland.

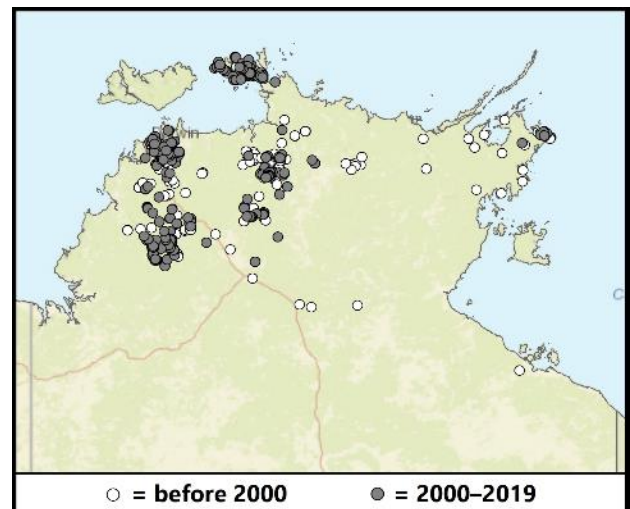
Distribution

The Black-footed Tree-rat (Kimberley and mainland Northern Territory) is restricted to higher rainfall regions of the Top End in the Northern Territory (NT) and northern Kimberley region in Western Australia.



Credit: B. Rankmore

Contemporary records of the subspecies in the NT have been collected only in the western Top End and far-east Arnhem Land. The subspecies has been recorded only once in the southeastern extremity of its range: along the Glyde and McArthur Rivers in the early 1900s. In the Kimberley region, the subspecies was not recorded after the 1980s¹ until it was detected on camera traps in 2017.



Caption: Known localities of the Black-footed Tree-rat (Kimberley and mainland Northern Territory) in the NT (nrmmaps.nt.gov.au)

NT conservation reserves where reported:
Kakadu National Park, Litchfield National Park,
Gunak Gurig Barlu National Park, Charles Darwin

National Park, Berry Springs Nature Park and Manton Dam Recreation Area.

Ecology and life-history

The Black-footed Tree-rat (Kimberley and mainland NT) occurs mostly in lowland open forests and woodlands, particularly those dominated by *Eucalyptus miniata* and/or *E. tetradonta* with well-developed shrubby understoreys. The subspecies is nocturnal and forages in trees and on the ground. Hard fruits and seeds are a major component of their diet, which is supplemented by grass, invertebrates and nectar-rich flowers. Individuals are generally solitary. During the day they shelter in large tree hollows, or if these are unavailable in dense foliage (such as *Pandanus*)² and occasionally buildings. These den sites can be distributed over an area of >15 ha.

Breeding can occur throughout the year, though peaks may occur in the dry season³. Females can produce one to three young every nine months. Young grow quickly, are weaned at about one month of age, and reach sexual maturity when about three months old. Generation length is estimated to be 2 years¹.

Threatening processes

Inappropriate fire regimes is the most significant threat to the Black-footed Tree-rat (Kimberley and mainland NT) across its range. Frequent, intense and/or extensive fires alter vegetation structure and can reduce the availability of important food resources and tree hollows. Habitat loss and fragmentation due to urban and industrial development is a key threat in parts of the range of the subspecies, particularly in the Darwin region. Other threats include predation by feral Cats *Felis catus*, habitat degradation due to introduced herbivores and livestock, and habitat modification resulting from invasive grasses.

Conservation objectives and management

The primary conservation objective for the Black-footed Tree-rat (Kimberley and mainland NT) is to halt declines and promote recovery through ameliorating existing threats. High-priority conservation management actions include: developing or maintaining fire regimes that have a reduced frequency and intensity of fires; maintaining the integrity of habitat remnants and increasing habitat connectivity; implementing cost-effective control of feral cats; investigating the impacts of threats and their management on the Black-footed Tree-rat; resolving uncertainties regarding distribution; and implementing a monitoring program that incorporates assessing the effectiveness of management⁵.

References

- ¹ Woinarski, J.C.Z., Burbidge, A.A., Harrison, P.L. (Eds), 2014. The Action Plan for Australian Mammals 2012. CSIRO Publishing, Canberra.
- ² Griffiths, A.D., Koenig, J. Carrol, F., Price, O., 2002. Activity area and day-time tree use of the Black-footed Tree-rat *Mesembriomys gouldii*. *Aust. Mammal.* 23, 181–183.
- ³ Friend, G.R., 1987. Population ecology of *Mesembriomys gouldii*. *Aust. Mammal.* 23, 181–183.
- ⁴ Woinarski, J.C.Z., Armstrong, M., Brennan, K., Fisher, A., Griffiths, A.D., Hill, B., Milne, D.J., Palmer, C., Ward, S., Watson, M., Winderlich, S., Young, S., 2010. Monitoring indicates rapid and severe decline of native small mammals in Kakadu National Park, northern Australia. *Wildl. Res.* 37, 116–126.
- ⁵ Threatened Species Scientific Committee, 2015. Conservation Advice *Mesembriomys gouldii gouldii* Black-footed Tree-rat (Kimberley and mainland Northern Territory). Department of the Environment, Canberra.