

Threatened species of the Northern Territory

Black-footed tree-rat (Melville Island)

Mesembriomys gouldii melvillensis

Conservation status

Australia: Vulnerable

Environment Protection and Biodiversity Conservation Act 1999

Northern Territory: Vulnerable

Territory Parks and Wildlife Conservation Act 1976

Description

The Black-footed Tree-rat is one of 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. The fur on the body is characteristically long and shaggy.

Three subspecies of the Black-footed Tree-rat are recognised. *Mesembriomys gouldii melvillensis* is distinguished from the other two by the medium-grey fur on the underside, wholly black hindfeet and overall darker fur.

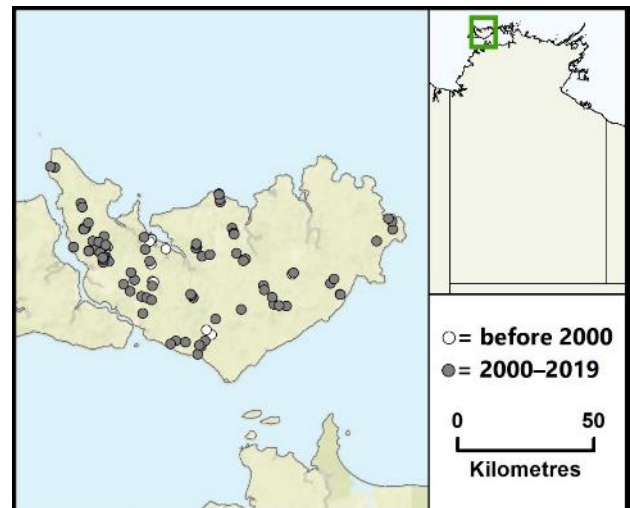
Distribution

The Black-footed Tree-rat (Melville Island) is restricted to the Tiwi Islands, where it occurs on Melville Island (5,788 km²), but not on the adjacent Bathurst Island (1,693 km²)¹.

NT conservation reserves where reported: None.



Credit: K. Brennan



Caption: Known localities of the Black-footed Tree-rat (Melville Island) in the NT (nrmaps.nt.gov.au)

Ecology and life-history

The Black-footed Tree-rat (Melville Island) occurs primarily in open forests and savanna woodlands dominated by eucalypts¹. The subspecies is less common in coastal vegetation, swamplands and shrublands, and is rare or absent in rainforests, mangroves, dunes and forestry plantations.

The ecology of the subspecies has not been studied in detail, but it is likely to be similar to that of other subspecies. Black-footed Tree-rats on the mainland are nocturnal and forage 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*) and occasionally buildings.

On the mainland, Black-footed Tree-rats may breed at any time of year, but more commonly do so in the dry season. 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 years².

Threatening processes

The most significant threats to the Black-footed Tree-rat (Melville Island) are habitat loss and fragmentation, inappropriate fire regimes and predation by feral cats *Felis catus*. The impacts of these threats, including any synergistic effects, are poorly understood³. Invasive grasses, which can facilitate frequent, extensive and/or intensive fires, are a possible additional threat.

Large areas of open eucalypt forests, the preferred habitat of the subspecies, have been cleared in recent decades for forestry plantations. Further expansion of the forestry industry on Melville Island is likely to heavily impact the subspecies^{1,4}.

Conservation objectives and management

The primary conservation objective for the Black-footed Tree-rat (Melville Island) is to halt declines and promote recovery through ameliorating existing threats. High-priority conservation management actions include: maintaining large native forest blocks supporting sizeable subpopulations; maintaining, enhancing or re-establishing habitat connectivity; developing or maintaining fire regimes that reduce the frequency and intensity of fire; implementing cost-effective control of feral Cats; seeking to constrain further encroachment of invasive grasses; and implementing a monitoring program

that incorporates assessing the effectiveness of management⁴.

References

- ¹ Firth, R.S.C., Woinarski, J.C.Z., Brennan, K.G., Hempel, C., 2006. Environmental relationships of the brushtailed rabbit-rat, *Conilurus penicillatus*, and other small mammals on the Tiwi Islands, northern Australia. *J. Biogeogr.* 33, 1820–1837.
- ² Woinarski, J.C.Z., Burbidge, A.A., Harrison, P.L. (Eds), 2014. *The Action Plan for Australian Mammals 2012*. CSIRO Publishing, Canberra.
- ³ Davies, H.F., McCarthy, M.A., Firth, R.S.C., Woinarski, J.C.Z., Gillespie, G.R., Andersen, A.N., Rioli, W., Puruntatameri, J., Roberts, W., Kerinauia, C., Kerinauia, V., Womatakimi, K.B., Murphy, B.P., 2018. Declining populations in one of the last refuges for threatened mammal species in northern Australia. *Austral Ecol.* 43, 602–612.
- ⁴ Threatened Species Scientific Committee, 2015. *Conservation Advice Mesembriomys gouldii melvillensis Black-footed tree-rat (Melville Island)*. Department of the Environment, Canberra.