Science for Saving Species

Research findings factsheet

Project 2.1

Threatened Species Recovery Hub

National Environmental Science Programme

Mammal Red Hot List:
The Australian mammals most at risk of extinction

Key Messages

This project seeks to identify those Australian species at greatest risk of extinction in the near to medium future (about 20 years), and to identify priority actions that may most effectively reduce the risks of such extinctions.

On average, one to two Australian mammal species have become extinct per decade since the 1850s. At least 30 species of Australia's highly distinctive mammal fauna have been lost in the last 200 years, with two of these extinctions occuring in the last decade.

Most of these extinctions could have been prevented had conservation managers and our community been more aware of the extent of risk that these species faced, and if managers had been able to respond more effectively and rapidly to the threats driving their decline. We want to avoid further losses, a sentiment and commitment that underpins Australia's recent Threatened Species Strategy. To reduce the likelihood of future extinctions, it is necessary to be more aware of those species that are at most acute risk, and to identify priority actions for those species that reduce such risk.

This research project has garnered, integrated and analysed the knowledge of Australian researchers expert in mammal conservation, to derive a first-ever estimate of the likelihood of extinction over the next 20 years for Australia's most imperilled mammals.

Pooling such extinction-likelihoods across species, the project also estimates that the long-established rate of mammal extinctions is likely to continue – indeed, to accelerate (to about 3-4 mammals). New estimates suggest we'll lose about 7 mammals in the next 20 years under current management.

The mammals at highest risk of extinction are spread widely: several are restricted to islands (reinforcing the conservation need and challenge of island biodiversity), but many of the mammals at highest risk of extinction are from northern Australia, an area currently witnessing a rapid and severe decline in mammal fauna generally.

No. 1: Central rock rat.
Photo: Peter McDonald

No. 11: Western ringtail possum.
Photo: Kaori Yokochi, Roberta Bencini
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No. 10: Brush tailed Rabbit Rat.
Photo: Hugh Davies

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No. 14: Kangaroo Island Dunnart
Photo: Jody Gates

Table 1. The 20 Australian mammals most at risk of extinction over the next 20 years.

Note that these estimates are based on an assumption of continuation of the level and effectiveness of current management.

The 20 Australian mammals most at risk of extinction over the next 20 years

Rank	Species or sub-species	Mean likelihood of extinction within 20 years (%)
1	Central rock-rat *Zyzomys pedunculatus**	65
2	Northern hopping-mouse *Notomys aquilo**	48
3	Carpentarian rock-rat *Zyzomys palatalis*	44
4	Christmas Island flying-fox *Pteropus natalis**	41
5	Black-footed tree-rat (Kimberley and mainland NT) *Mesembriomys gouldii gouldii*	39
6	Gilbert's potoroo *Potorous gilbertii**	36
7	Leadbeater's possum *Gymnobelideus leadbeateri**	29
8	Nabarlek (Top End) *Petrogale concinna canescens*	29
9	Brush-tailed phascogale (Kimberley) *Phascogale tapoatafa kimberleyensis*	28
10	Brush-tailed rabbit-rat (Kimberley, Top End) *Conilurus penicillatus penicillatus**	25
11	Western ringtail possum *Pseudocheirus occidentalis**	25
12	Northern brush-tailed phascogale *Phascogale pirata*	23
13	Mountain pygmy-possum *Burramys parvus**	22
14	Kangaroo Island dunnart *Sminthopsis griseoventer aitkeni**	22
15	Brush-tailed rabbit-rat (Tiwi Islands) *Conilurus penicillatus melibius**	21
16	Silver-headed antechinus *Antechinus argentus*	20
17	Southern bent-winged bat *Miniopterus orianae bassanii*	18
18	Black-tailed antechinus *Antechinus arktos*	17
19	Northern bettong *Bettongia tropica*	14
20	Tasman Peninsula dusky antechinus *Antechinus vandycki*	14

Australia's Threatened Species Strategy (2016) includes ten mammals from Table 1 as priority species (marked*).

Locations of the 20 Australian mammals at greatest risk of extinction

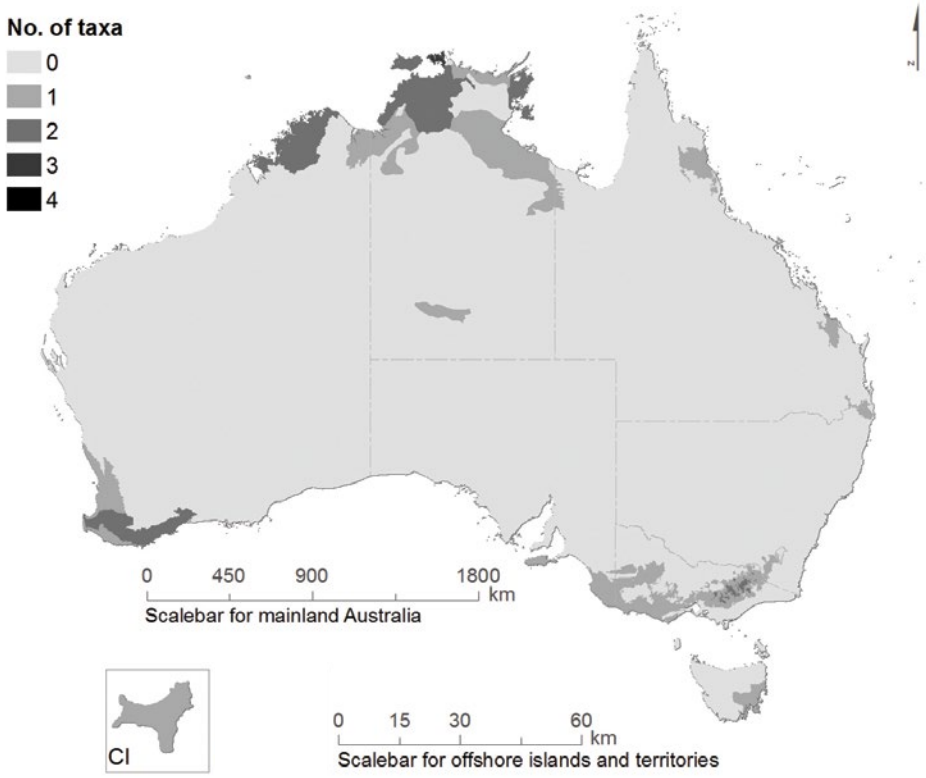


Figure 1. Locations of the 20 Australian mammals at greatest risk of extinction

This map shows the number of mammals occurring in each Interim Biogeographic Regionalisation for Australia (IBRA) subregion.

A consistent method to identify species at most risk of extinction

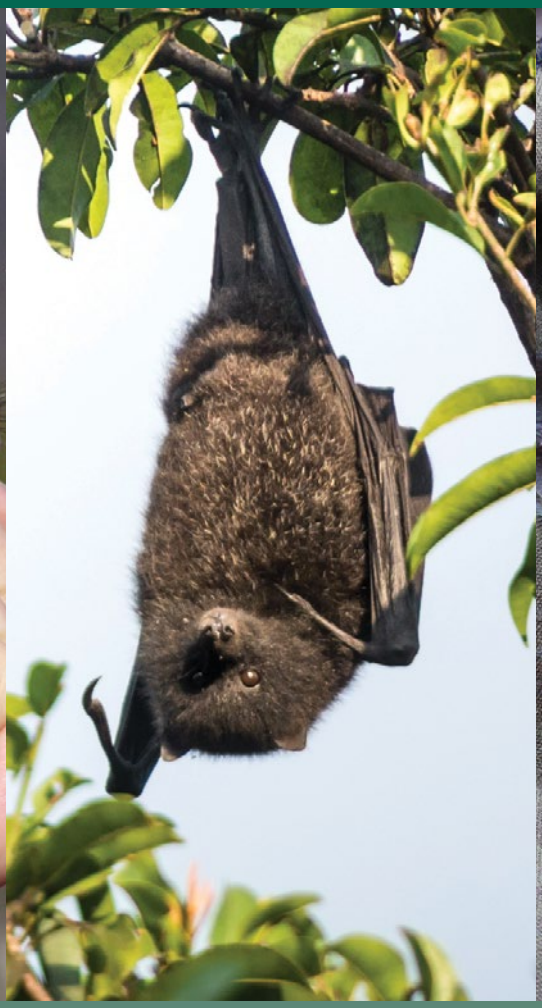
The methods developed in this project are being applied to identify extinction risk for species in many other taxonomic groups.

In this project, we have obtained estimates of likelihood of extinction through an expert elicitation process. We have complemented this approach with estimates derived from the application of existing global protocols for conservation status assessment. These approaches provide broadly comparable estimates, although all approaches have their constraints and sets of assumptions, such that the use of several complementary approaches is most likely to provide a robust assessment of extinction risk: the future of any species is not always straightforward to predict.

To date, this project has provided estimates of extinction risk for Australian birds and mammals. In general, the information available for threatened species in these groups is more substantial than for threatened species in other groups (such as fish or spiders). However, even for the relatively well-known groups such as birds and mammals, there are significant information gaps – in knowledge of population size and trajectories, the threatening factors that are most imperilling the species, and the effectiveness of management actions that seek to control such threats – that markedly constrain our ability to predict the future for these species. It is difficult to predict the future if we don't know well the past or the present.

No. 17: *Southern bentwing bat*
Photo: Steve Bourne CC BY-SA 4.0 Wikimedia

No. 13: Mountain Pygmy Possum
Photo: Australian Alps collection - Parks Australia



No. 4: Christmas Island flying-fox.
Photo: Welbergen CC BY-SA 3.0 Wikimedia

No. 7: Leadbeaters Possum
Photo: Dan Harley

On average, one to two Australian mammal species have become extinct per decade since the 1850s. Future extinctions are more likely to be avoided if we can identify the mammals at greatest risk.

Further Information

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