Arid Zone Monitoring
Species Profile

Brush-tailed mulgara

Dasycercus blythii

Language names

Jajina, Kakati, Langamarlu, Minyiminyi, Murtja, Nyalurti

National status in the EBPC Act: Not listed

IUCN Red List: Least concern

Brush-tailed mulgara.

Brush tailed mulgara scats.

Fresh tracks from a brush-tailed mulgara (arrow shows which way the mulgara is moving).

Brush tailed mulgara burrow (note scat in front of burrow).

Animal Description

The mulgara is 15-20 cm long. Its fur is sandy-brown on the back and greyish on the underparts. The tail is black and bushy, and is short and pointed at the end. Mulgara are mostly active at night, and they hunt insects and other small animals.

Habitat

Brush-tailed mulgaras are mostly found in areas with mature hummock (spinifex) grasslands. They also use other vegetation types next to hummock grasslands, or paleo-drainage systems or drainage lines in sandplain or sand dune habitats.

Threats

- Predation by cats and foxes
- Habitat change from too much grazing by feral herbivores (cattle, rabbits and mice)
- Wrong-way fire
- Climate change (changing rainfall, temperature, droughts)

Brush-tailed mulgara scat

Brush-tailed mulgara scats are 20–30 mm long and 5mm wide. They are sometimes curved and can be different shapes and sizes. Their scats usually contain insect, fur and lizard parts.

Brush-tailed mulgara tracks

Mulgara move by bringing the back feet forward together in front of the front feet. Back feet imprints are rectangular, and sometimes clear toe marks can be seen.

Brush-tailed mulgara diggings and burrows

During the day mulgara rest in burrows at the base of grass clumps or bushes. Burrows can have many tunnels, and usually have scats at the entrance. Burrows have a rounded base and are the same size as some reptile burrows (such as small goannas).

Animals that might be confused with the brush-tailed mulgara during survey

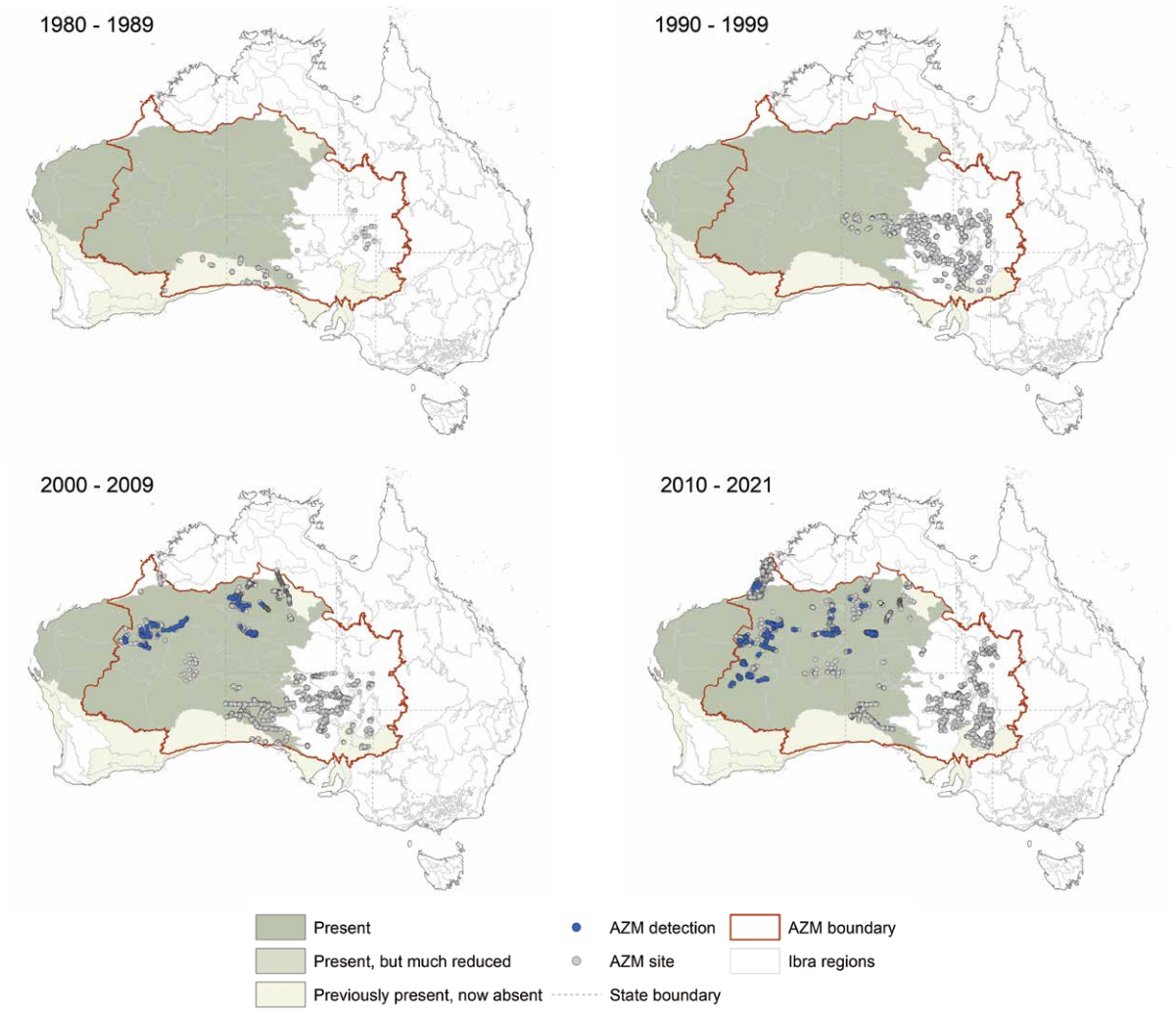
- Bilby
- Rabbit

Unlike brush-tailed mulgara, rabbits do not leave a distinct outline of their foot pads, because rabbits have fluffy feet. Mulgara tracks are smaller than both rabbit and bilby tracks and their back and front feet are the same size. It is very difficult to tell the difference between crest-tailed mulgara and brush-tailed mulgara tracks. Their distributions overlapped in the past, but the two species of mulgara now live in different regions: brush-tailed mulgara are found in the northwestern deserts, and crest-tailed mulgara are found in the border area of South Australia, Queensland and NSW. They also prefer different habitats: crest-tailed mulgaras like cane grass dunes whilst the brush-tailed mulgara prefers spinifex country.

Arid Zone Monitoring project findings

Brush-tailed mulgara distribution

The maps below summarise the detections of brush-tailed mulgara over time in the AZM dataset. They show that brush-tailed mulgaras have been recorded in northern and western deserts. Each blue dot shows a survey site where brush-tailed mulgaras were recorded in that decade. The grey dots show all the other sites that were surveyed, but where brush-tailed mulgaras were not recorded in that decade. These records were made by Indigenous Ranger groups, land councils, NGOs, government agencies and university researchers. Mulgaras are also found outside the AZM project area, in Western Australia (dark shading on map). We can't tell exactly where their distribution ends in the east, as there has long been confusion between this species and its close relative species, the crest-tailed mulgara. The information about the overall distribution in the map background is taken from the Mammal Action Plan[1].



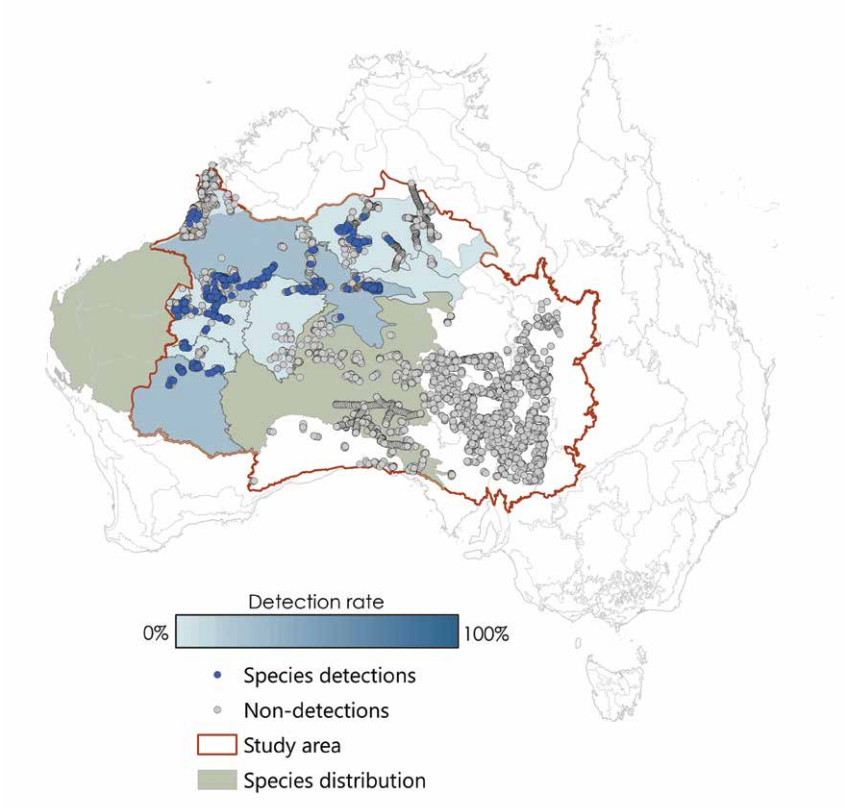
The maps above show data shared by data providers with the AZM project. The data are from track and sign surveys. This method is great for detecting species that live in sandy deserts, but not as good for species that prefer rocky habitats, or species with distributions that are mostly outside the central deserts. The method also works best for larger-bodied animals with tracks that are easily identified.

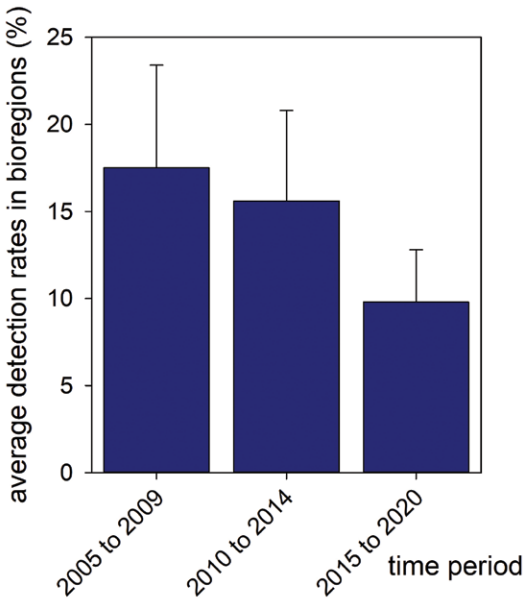
It is possible that extra surveys have been carried out that have not yet been shared. If you see 'gaps' in the maps that you could fill by sharing your data, let us know.

Brush-tailed mulgara detection rates

Brush-tailed mulgaras were detected over 4% of all surveys in the AZM dataset. It was the eighteenth most commonly recorded species, and the eighth most commonly recorded native mammal.

The map below shows the average brush-tailed mulgara detection rate across all surveys carried out in each bioregion. Detection rates have been similar across the northern and western bioregions. The graph shows the detection rates for brush-tailed mulgara, averaged across the bioregions where they have been detected, since 2005. Brush-tailed mulgara were detected at 10 – 20% of all surveys carried out in the northern and western bioregions. They often live in small populations scattered around their distribution, so sometimes surveys may miss them. This means that if you want to track changes in the mulgara population, it is good to sample many sites over time. The graph also suggests that detection rates may be decreasing. A more detailed analysis of mulgara detections at a subset of AZM sites that were revisited over five or more years, shows that brush-tailed mulgaras are usually detected less soon after fire, and detected more as the amount of green vegetation increases.





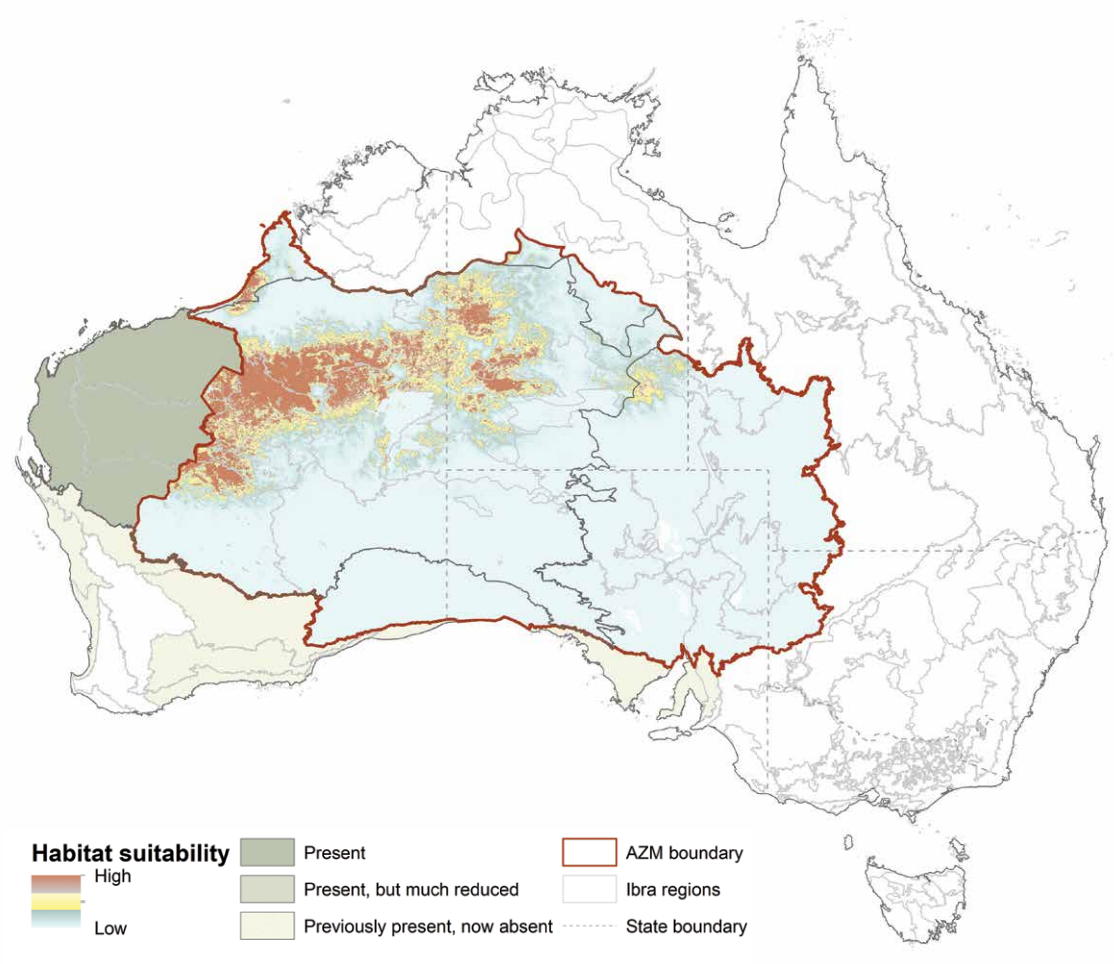
Things to think about when surveying for brush-tailed mulgara

- Survey during good conditions (in the early morning is best, not too windy or straight after rain).
- Organise to do surveys at regular times every year – for example, before the wet or hot season (October) and in the early dry season or early cool time (April).
- Follow advice of experienced trackers - know how to tell tracks apart from other species such as rabbits and bilbies before you go to survey.
- Brush-tailed mulgara sign is more likely in country that they like – spinifex grasslands, near paleo-drainage lines (underground water). It is still important to survey in other areas. You might learn more about the types of habitat that mulgara prefer, or that mulgara are rarer when there are plenty of cats, or wrong way-fires.
- If you want to see changes over time, you will need to go back to the same areas to sample over several years. If you want to see if management actions (feral animal culling or fire) are working, you need to sample many different sites, before and after the action. You might need help from a scientist to make the sampling design strong.

Brush-tailed mulgara habitat suitability

The habitat suitability model can tell us about where brush-tailed mulgaras are most likely to be found. The analysis considered climate factors like annual, seasonal and daily temperature and rainfall; landform factors like elevation and slope; soil factors; and habitat factors like the amount of vegetation (NDVI) and fire frequency.

The model suggests that mulgaras prefer places with high average temperatures (24-27 degrees Celsius) that are 300 m above sea level. The map only shows habitat suitability inside the AZM project boundary, but brush-tailed mulgaras are also found further west, in the darker shaded part of the map, and might be common there too. The habitat suitability model does not predict well in large areas where there has not been any sampling, for example in parts of the Great Sandy Desert; getting more survey data from these areas would improve the model.



Further information

Arid Zone Monitoring project:
https://www.nespthreatenedspecies.edu.au/projects/arid-zone-monitoring-surveys-for-vertebrates-across-arid-and-semi-arid-zones

References

[1] Woinarski, J.C.Z & Burbidge, A.A. & Harrison, P.L. (2014). The Action Plan for Australian Mammals 2012. (CSIRO Publishing: Melbourne.)

Threatened Species Recovery Hub
National Environmental Science Programme

This project received support from the Australian Government's National Environmental Science Program.

The Arid Zone Monitoring project is a collaboration between the NESP TSR Hub and over 30 Indigenous ranger groups and Indigenous organisations, 8 NGOs and NRM groups, 5 government agencies institutions, and many individual researchers and consultants. The project has gathered track and sign data from across Australia's deserts, using it to map the distributions of desert species and their threats. The national database includes almost 50,000 species presence records from over 5300 unique sites and almost 15,000 site visits, over the period from 1982 to 2020. The project area was defined by using IBRA subregional boundaries - the project boundary captures Australia's desert subregions where track and sign-based surveys are commonly used. The project showcases the collective work carried out by all groups working across the arid zone, and lays the groundwork for creating ongoing, national-scale monitoring for desert wildlife.

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