

Arid Zone Monitoring Species Profile

Small mammals

Language names

Athakwere, Alepey, Ilkwenge, Jilku, Kilu, Mingkiri, Minini, Thakey, Thukia

The profile includes 10 types of small carnivorous marsupials and small rodents with tracks that are very hard to tell apart. It does not include hopping mice, as these animals have tracks that can be identified (see separate profile). Most of these species are not listed as threatened by either the EPBC Act, nor by the IUCN, except for the plains mouse.

Key threats

- Predation by cats and foxes
- Habitat change due to grazing by feral livestock, camels and rabbits
- Wrong-way fire
- Climate change (more drought could reduce good quality habitat)

Fat-tailed pseudantechinus

Pseudantechinus macdonnellensis

Animal description

It has grey-brown fur, very large ears and a sharp pointy muzzle. It has carrot-shaped tail swollen with fat which serves as a food reserve. It is 9.5-10.5cm long with a 7.5-8.5cm tail; it weighs 20-45g.

Habitat

Rocky country; in desert country they live in and near termite mounds.



Fat-tailed pseudantechinus.

Fat-tailed dunnart

Sminthopsis crassicaudata

Animal description

Large black eyes, large ears, a pointy snout and a fat tail. It has fawn to brown grey fur, with darker patches around the eyes and head. Some can have white patches around the ears. The belly and legs are light grey to white. It has a head and body length of 6.0-9.0cm, tail 4.5-7.0cm in length and weighs 10-20g.

Habitat

Widespread in different types of country, including grassland, gibber plans, saltbush and blue bush, claypans, pasture.



Fat-tailed dunnart.

Stripe-face dunnart

Sminthopsis macroura

Animal description

Large black eyes, large ears, a pointy snout and a fat tail. The fur is pale grey-brown on the upperparts, and whitish on the underparts. There is a dark stripe running down the front of its face, with a darker line of fur. It weighs 15-25g, and its tail (8-10cm) is longer than the head-body (7.5-9.5cm), unlike the fat-tailed dunnart (which has a short tail).

Habitat

Grasslands, shrublands, more common near drainage lines. They shelter in soil cracks, or under grass, logs and rocks.



Stripe-face dunnart.

Image: Ian Morris

Central pebble-mound mouse

Pseudomys johnsoni

Animal description

The central pebble-mound mouse has a pale yellow-brown to rufous brown back, with black guard hairs, and white belly. It is the same size as a mouse, weighing about 12-15g.

Habitat

This species is found in rocky country with open woodland, valleys and grassland. It likes pebble-covered ridges and plains with pebble mounds and grasses. It lives in burrows and makes mounds of pebbles close to the entry hole. It is easy to detect this species if you see their mounds, but their tracks and other signs are very similar to other small mammal species.



Central pebble-mound mouse.

Image: Ian Morris



Western pebble-mound mouse mounds; the central pebble-mound mouse builds similar mounds

Image: Boundary Rider

Forrest's short-tailed mouse

Leggadina forresti

Animal description

They have light grey to yellowish brown fur. They have some darker hairs above, and a white belly. It has small ears and eyes, and a short, broad muzzle. They are small (15-25g) and have a short tail.

Habitat

Forrest's short-tailed mouse is found in different types of country: sandy plains, spinifex, shrubland, mulga woodland, savanna woodland, claypan, tussock grassland.



Forrest's short-tailed mouse.

Image: Tim Bawden

Long-haired rat

Rattus villosissimus

Language names

Kurtangi, Kwetang, Nyemale, Rraarrtja, Yamputura

Animal Description

The long-haired rat has long pale grey-brown fur with very long black guard hairs that stick out past the main coat. The ears and tail are dark grey. The tail (12-18cm) is shorter than the head and body (13-22.5cm), and they weigh 60-280g.

Habitat

The long-haired rat is a nocturnal, terrestrial species of semi-arid or arid areas. They often shelter during the day in complex burrow systems or in a shallow temporary burrow. In dry times, populations shrink to refuges within the arid landscape where food and water are always available. Following extended periods of above average rainfall or flood this species can breed rapidly - populations increase in size disperse widely, then die away abruptly as food is reduced and water dries.



Image: Anders Zimny

Long-haired rat.

Plains mouse

Pseudomys australis

National status in the EPBC Act: **Vulnerable**

IUCN Red List: **Not listed**

Animal description

It has grey fur on the back, and a cream or white belly. It has a stocky build, rounded snout and long ears.

Habitat

The plains mouse lives on plains and gibber stony plains. It likes country with cracking clay soils and creeks.

Distribution

Now only known from country west of Lake Eyre, and a small area west of Lake Torrens.

Burrow/Diggings

This species forms colonies which can cover large areas and create runways connecting many burrows and cracks.



Image: Ryan Francis, Arid Recovery

Plains mouse.



Image: Arid Recovery

Plains mouse burrow.

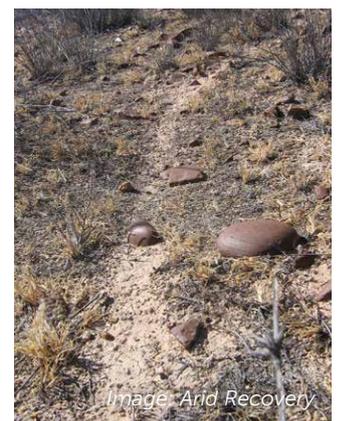


Image: Arid Recovery

Plains mouse 'runway'.

Sandy inland mouse

Pseudomys hermannsburgensis

Animal description

It has greyish-brown to sandy-brown fur and an off-white belly. It looks similar to the introduced house mouse but is more slender, with longer ears and tail and bigger eyes, and not as smelly as house mouse.

Adults weigh 9-15g, head and body length is 5.5-8cm and tail length 7-9cm.

Habitat

Open country, with sandy soils on plains and dunes. It eats spinifex seeds so likes lots of spinifex grasses. It is one of the few types of small mammal whose numbers don't go strongly down after fire.



Image: David Nelson

Sandy inland mouse.

Desert Mouse

Pseudomys desertor

Animal description

This mouse is medium-sized, and has orangey-brown fur, with long dark guard hairs, and distinctive pale rings around its eyes. The tail is about the same length as the body, or shorter (7-10cm). It weighs 12-35g. It eats mostly leaves, with small amounts of invertebrates and grass seed. It makes nests in grass tussocks, or in shallow burrows.

Habitat

Sand dunes or sand plains with spinifex. The desert mouse likes long-unburnt spinifex – it disappears from areas that have been recently burnt, or that are burnt often.



Image: David Nelson

Desert mouse

House mouse

Mus musculus

Introduced species

Animal description

Yellowish-brown to blackish above, white to pale yellow below. House mice have a musty smell. House mice also have a notch on the inner surface of upper teeth and females have 5 pairs of teats.



Image: Anders Zimny

House mouse.

Small mammals tracks

Small mammals have tracks that are not always clear and they can be difficult to tell apart. There are some differences to look out for. For example, tracks of small dunnarts are similar in size to small rodents. However, dunnarts have five forward-pointing, evenly spaced toes. In comparison, a rodent's front foot leaves four toe prints; two pointing forward and one on each side, and the hind feet have five toe prints, three pointing forward and one on each side. This configuration means each rodent foot imprint leaves a flower-like pattern, usually with a raised ridge of sand across the centre of each hind foot imprint. This is not as obvious in dunnart tracks. Tracks of the sandy inland mouse are difficult to distinguish from the similarly-sized house mouse (*Mus musculus*). Plains mouse tracks are similar, but larger.



Image: Jonah Wy (NatureTracking <http://www.naturetracking.com>)

Mouse tracks in sand. Note the flower shape with four toe prints, typical of rodents.



Image: Sarah Legge

Small mammal tracks.

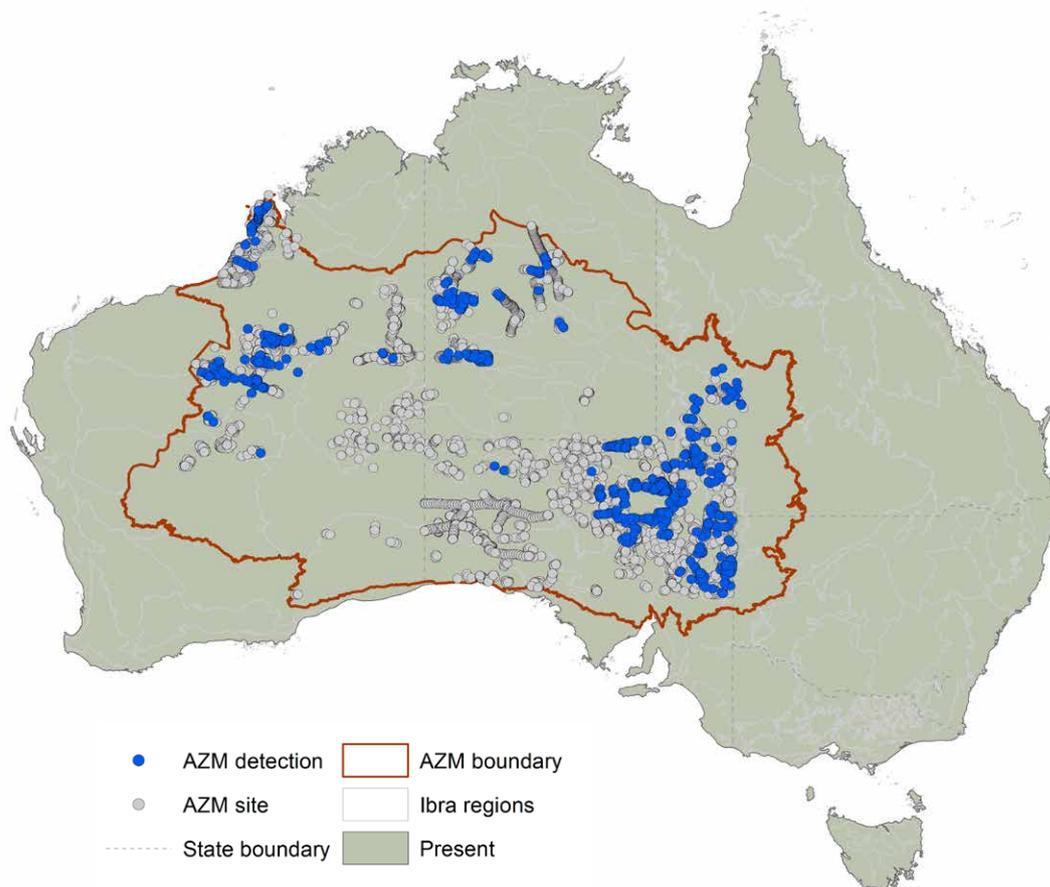
Things to think about when surveying for small mammals

- 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 cool time (April).
- 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.

Arid Zone Monitoring project findings

Small mammal detection

The map is based on 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 over the past 40 years that have not yet been shared. If you see 'gaps' in the maps that you could fill by sharing your data, please let us know.



The map shows where small mammal detections in the AZM dataset over time. It shows that small mammals occur all over desert country. Each blue dot shows a survey site where small mammals were recorded. The grey dots show all the other sites that were surveyed, but where small mammals were not recorded. Tracks and signs that could not be identified to a species level make up all of the records in this group.

Small mammal detection rates

Small mammals were detected at over 9% of all surveys in the AZM dataset. It is possible their tracks are more common, but trackers do not consistently record the presence of small mammals, because it is hard to identify them to species level.

Further information

Arid Zone Monitoring project:

<https://www.nespthreatenedspecies.edu.au/projects/arid-zone-monitoring-surveys-for-vertebrates-across-arid-and-semi-arid-zones>



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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