

# Arid Zone Monitoring Species Profile

## Large kangaroos

Euro is *Macropus robustus* • Red kangaroo is *Macropus rufus*

### Language names

**Euro:** Arenge, Areyngeng, Arinenge, Jamarnti, Kanyala/ Kanyarla, Maraji, Nyatunya, Pikkarta

**Red kangaroo:** Aherre, Kulpira, Lulpira, Malu/ Marlu, Maunka, Mitimarlu, Wawirri, Yawirri

### Euro

National status: Not listed

IUCN Red List: Least concern



Euro.

Two large species of kangaroos are often recorded using track surveys in the deserts: the red kangaroo and the euro. It can be hard to tell these species apart, so this profile has information on both species. A third species, the western grey kangaroo, could be detected in the southern deserts, but there are no confirmed records in the AZM dataset.

### Euro description

Euros are also known as common wallaroo, eastern wallaroo or hill kangaroo. Their coat colour and texture changes in different types of country. They may be light tan, grey, brown, orange-brown or orange-red, with a rufous-brown neck and lighter belly. Adult males are much bigger and darker than females.

### Red kangaroo description

Red kangaroos have short, red-brown fur on the back, but are paler on the belly and limbs. Males can reach 85 kg. Females are about half the size, and can be more blue-grey than brown.

### Red kangaroo

National status: Not listed

IUCN Red List: Least concern



Red kangaroo.

### Scats

The three big roos have scats that look the same. They are usually shaped like uneven little balls that are about 1-3 cm across depending on the size of the kangaroo. Inside is dry and made of grass and leaves.



Euro scats (all large kangaroos have similar scats).



## Tracks

All big kangaroos either hop on two feet or walk on all fours. They sometimes use their tails for balance.

### Euro tracks



Image: Days on the Claise blog

Hopping and walking Euro tracks. Compared to the red kangaroo, the Euro's toe and foot pad are squarer, and the gap between the toe and foot pad is slightly larger (arrow shows which way it is going).

### Red kangaroo tracks



Image: R. Southgate

When the red kangaroo is hopping, the large fourth toe (with its strong claw) and the foot pad are the only parts of the foot to leave a track. Red kangaroo tracks have a round foot pad, a small gap between the fourth toe and foot pad, and the toe has a point at the end (arrow shows which way it is going).



Image: Sarah Legge

Kangaroo gait tracks. When the kangaroo moves slowly, its tail leaves a drag mark in the sand (arrow shows which way it is going).



Image: Sarah Legge

Kangaroo tracks (arrow shows which way it is going).

### Western grey kangaroo

In the tracks of the western grey kangaroo, you can see the larger fourth and smaller fifth toe. Sometimes they stagger their feet a bit when they hop. Western grey kangaroo tracks are like the red kangaroo, but the toe and foot pad are squarer, and the gap between the toe and foot pad is a bit larger.

## Things to think about when surveying for large roos

- Survey during good conditions (in the early morning is best, not too windy and not 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 roo tracks apart from other species, and practice telling euro and red roo tracks apart.
- 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 (such as right-way 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.



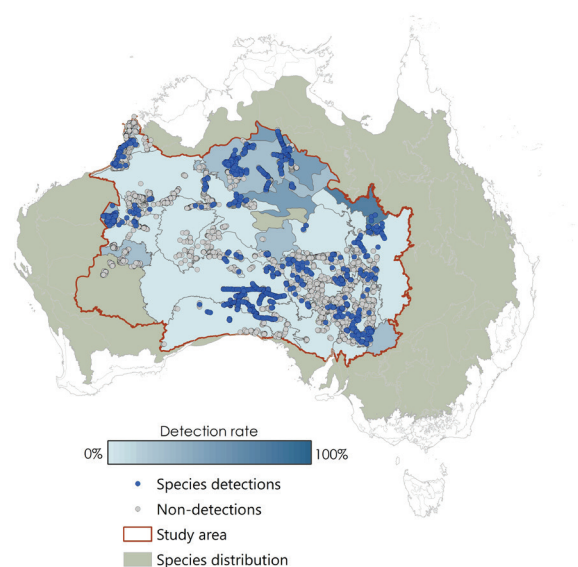
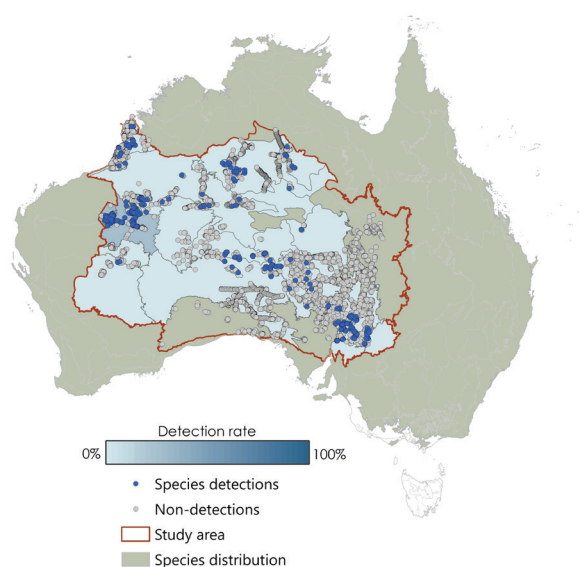
## Arid Zone Monitoring project findings

### Large roo distribution and detection rates

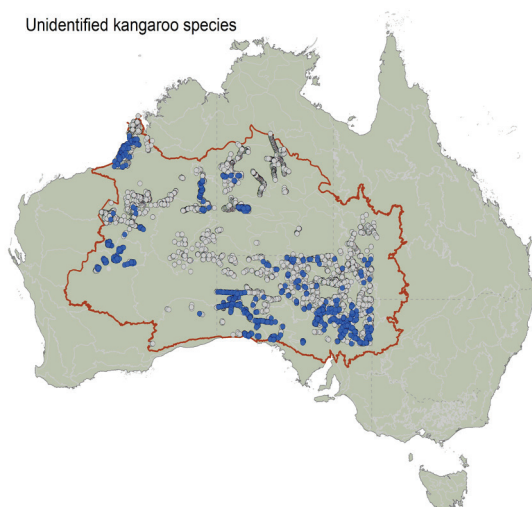
Each blue dot shows a survey site where a roo species was recorded. The grey dots show all the other sites that were surveyed, but where roo species were not recorded. These records were made by Indigenous Ranger groups, land councils, NGOs, government agencies and university researchers. Bioregions are shaded to show the detection rate of roo species across all surveys carried out in that bioregion, since the 1980s. The information about the overall distribution in the map background is drawn from The Mammal Action Plan<sup>1</sup> and The Australian Faunal Directory<sup>2</sup>.

Both species of large roo were detected throughout the deserts, but the red kangaroo was possibly more common in the north-eastern deserts. A more detailed analysis of roo detections at a subset of AZM sites that were revisited over five or more years, shows that roo detection rates don't vary consistently with time since fire nor the amount of green vegetation, suggesting they are able to thrive in many situations. It is hard to tell red kangaroos tracks apart from euros, so some of the records in the AZM database might be wrong.

The euro was detected at over 2% of all surveys in the AZM database. It was the 12th most commonly recorded animal, and the seventh most commonly recorded native mammal species. The red kangaroo was detected at over 8% of all surveys in the AZM database. It was the eight most commonly recorded mammal species, and the third most commonly recorded native mammal species.



Unidentified kangaroo species



As well as records of euros and red kangaroos, there are also many records of 'large kangaroo', which could belong to either species. This map summarises where all those records are (blue dots). The map also shows all where surveys took place but 'large kangaroos' were not recorded (grey dots).



The maps above are 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.

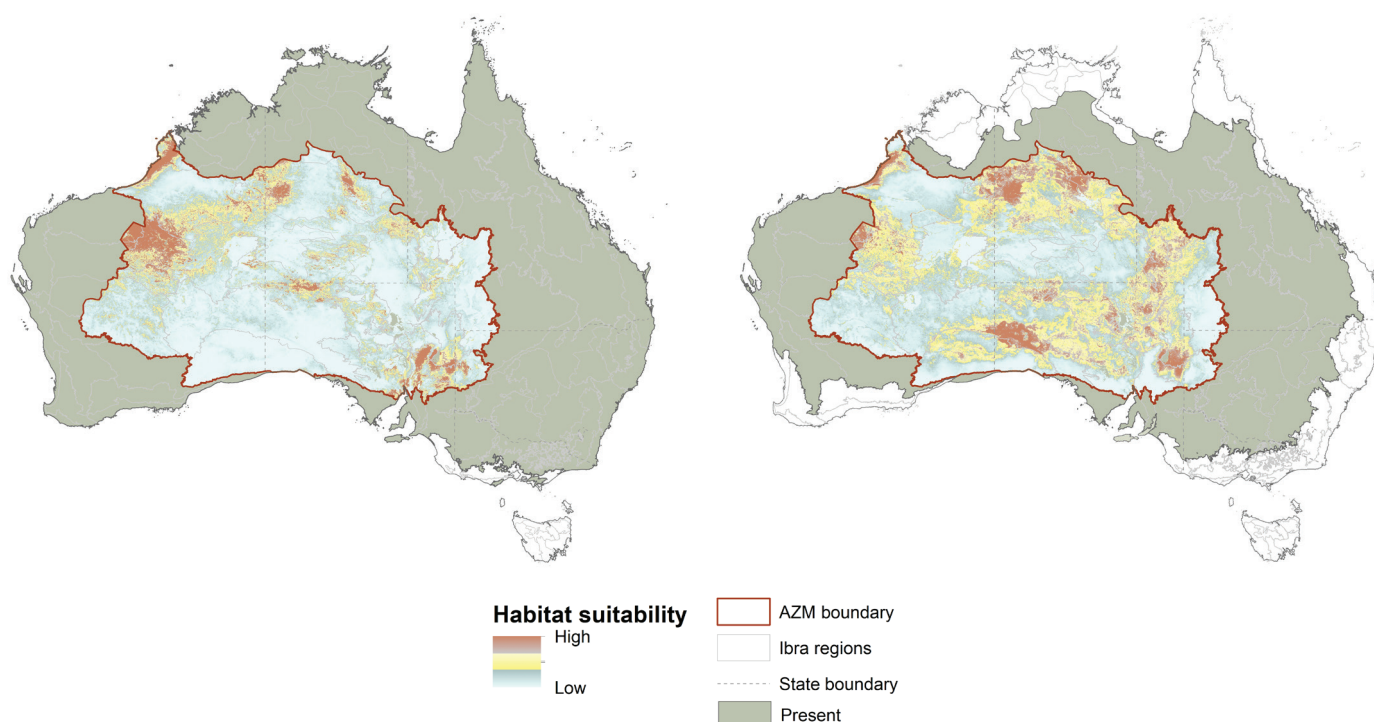
It is possible that extra surveys have been carried out over the past 40 years that have not yet been shared. If you see 'gaps' in the maps that you could fill by sharing your data, let us know.

## Large roo habitat suitability

The habitat suitability model can tell us about where a species is 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 for euros suggests that they are mostly found in hilly country and ranges, with moderate rainfall. The model for red kangaroos suggests this roo is widespread, without strong preferences for landform, soil, terrain, and fire frequency. These are the red-brown areas of the maps.

The map only shows habitat suitability inside the AZM project boundary, but roos are also found outside the project area. 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 or the Great Victoria 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

<sup>1</sup> Woinarski J.C.Z., Burbidge A.H., Harrison P.L. (2014). The Action Plan for Australian Mammals 2012. (CSIRO Publishing: Melbourne).

<sup>2</sup> Australian Faunal Directory: <https://biodiversity.org.au/afd/home> Accessed June, 2021.



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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