

Arid Zone Monitoring Species Profile

Donkey and horse

Donkey is *Equus asinus* • Horse is *Equus caballus*

Language names

Donkey: Kumppu, Kuwarta, Kwertengele, Mankirikirrijuwal, Tangkeye, Tangkiyi, Tungki, Rtangkeye

Horse: Naantja, Nanthwe, Nyanytju, Nantuwu, Purni, Timana, Yawarta

Donkey: Introduced species

An invasive herbivore, noted in the key threatening process (Novel biota and their impact on biodiversity) listed under national environmental law (the EPBC Act).

Horse: Introduced species

An invasive herbivore, noted in the key threatening process (Novel biota and their impact on biodiversity) listed under national environmental law (the EPBC Act).



Image: Jaana Dielenberg

Feral donkeys in the Kimberley.



Image: Cumberland Island NPS

Feral horses.



Image: Good Samaritan Donkey Sanctuary

Donkey tracks in soft sand. Arrow shows the direction the donkey is moving.



Image: J. Triepke

Horse tracks in wet sand. Arrow shows the direction the horse is moving.

Impacts

- Damage to plants (curly pod wattle, bean tree, quandong, plumbush and supplejack) and wetlands.
- Damage to cultural sites.
- Compete with wildlife for food.

Animal Description

Donkeys usually weigh around 300 kg and have different coat colours.

Horses are a bit larger than donkeys, and can weigh about 500 kg. They also have many different coat colours.

Habitat

Feral donkeys prefer hilly country. They can eat rougher vegetation than horses, and don't need water holes quite as much. Feral horses live in grasslands and shrublands with plenty of water. Both can travel further away from water than cattle.

Tracks

Donkeys and horses walk on one toe – their hoof is like the end of our middle finger. Donkey tracks are longer and narrower than horse tracks.

Donkey and horse scats

Donkey scats are roughly oval shaped pellets, which are green and moist when fresh. They are smaller than horse scats, and are usually around 5cm wide.

Horse scats are usually in a pile of roughly round firm balls with a glossy shine. Fresh scats are olive green and consist of grassy material. Horse scats are quite large (12-18cm across).



Image: Sandy Kokas-Magnussen

Donkey scat.



Image: Nina (Flickr)

Horse scat.



Robert Ashdown, Queensland Government

Erosion caused by horses in central Queensland.



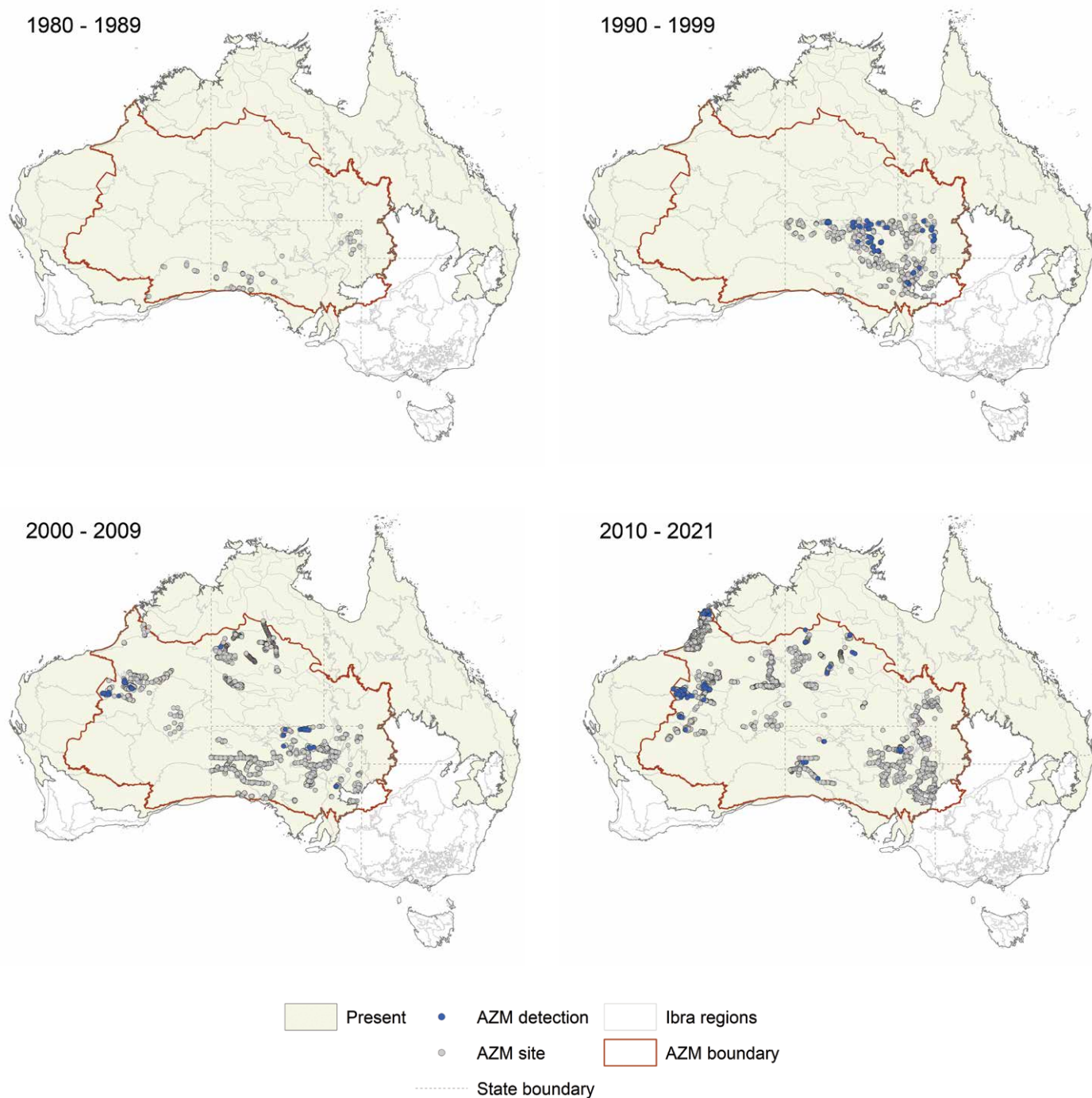
Image: Bill Stilwell CC-BY-SA 2.0

Damage (removal of native plants and tracks through country) caused by horses in central Australia.

Arid Zone Monitoring project findings

Donkey distribution

The maps below summarise the detections of feral donkeys in the AZM dataset. They show that donkeys are found scattered throughout central Australia. Each blue dot is a survey site where donkey were recorded in that decade. The grey dots show all the other sites that were surveyed in that decade, but where donkeys were not recorded. These records were made by Indigenous Ranger groups, land councils, NGOs, government agencies and researchers. The information about the overall distribution in the map background is taken from the Australian Faunal Directory¹.

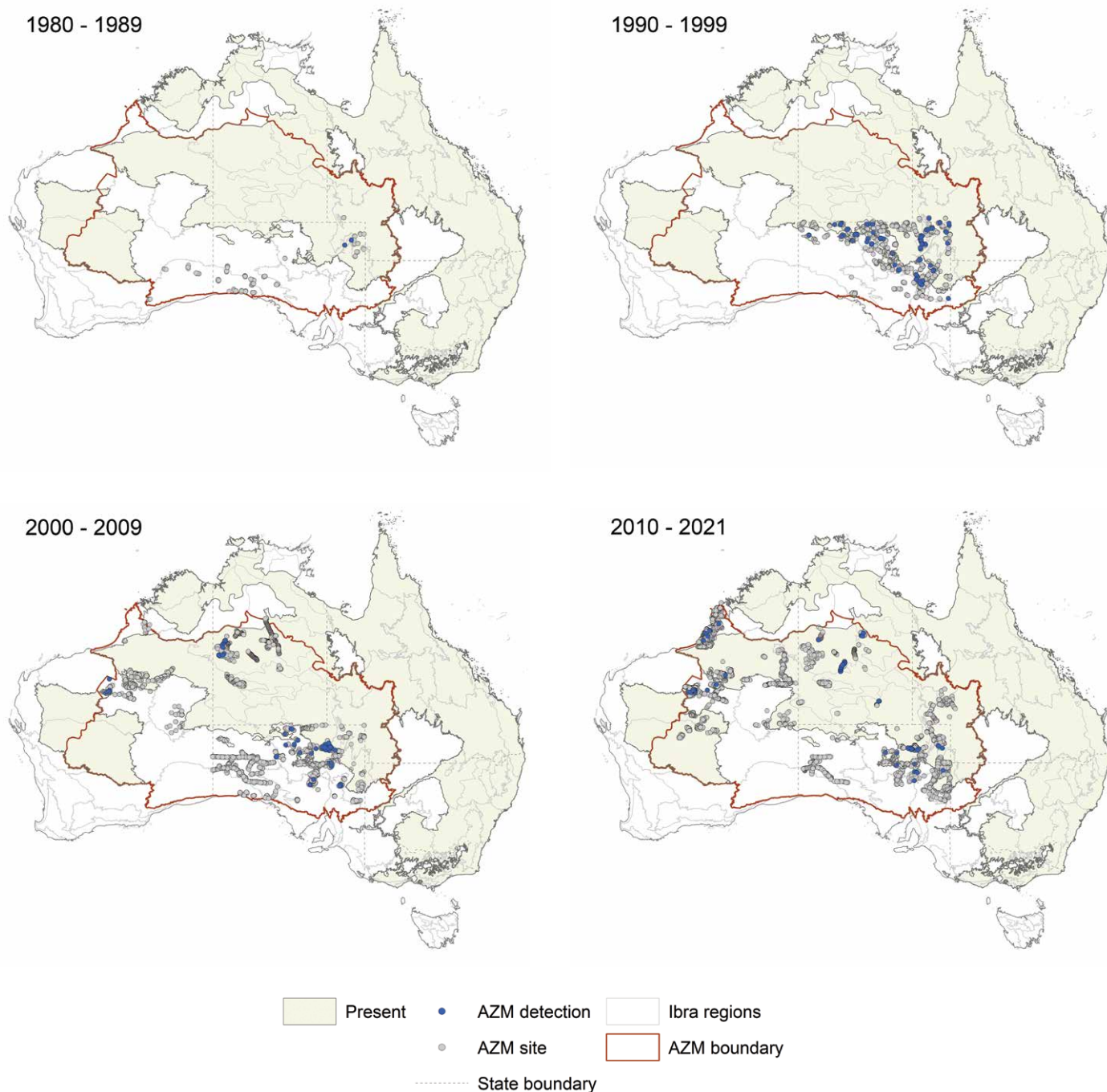


The maps below are based on data shared by data providers with the AZM project. The data are from track and sign surveys. This method is great for detecting species that live in sandy deserts, but not as good for species that prefer rocky habitats, or species with distributions that are mostly outside 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.

Horse distribution

The maps below summarise detections of feral horses in the AZM dataset. They show that horses are found scattered throughout central Australia and have been detected wherever people have surveyed since the 1980s. Each blue dot is a survey site where horses were recorded in that decade. The grey dots show all the other sites that were surveyed in that decade, but where horses were not recorded. These records were made by Indigenous Ranger groups, land councils, NGOs, government agencies and researchers. The information about the overall distribution in the map background is taken from the Australian Faunal Directory¹, and the AZM data suggests that the horses are found more widely than suggested by the Australian Faunal Directory.



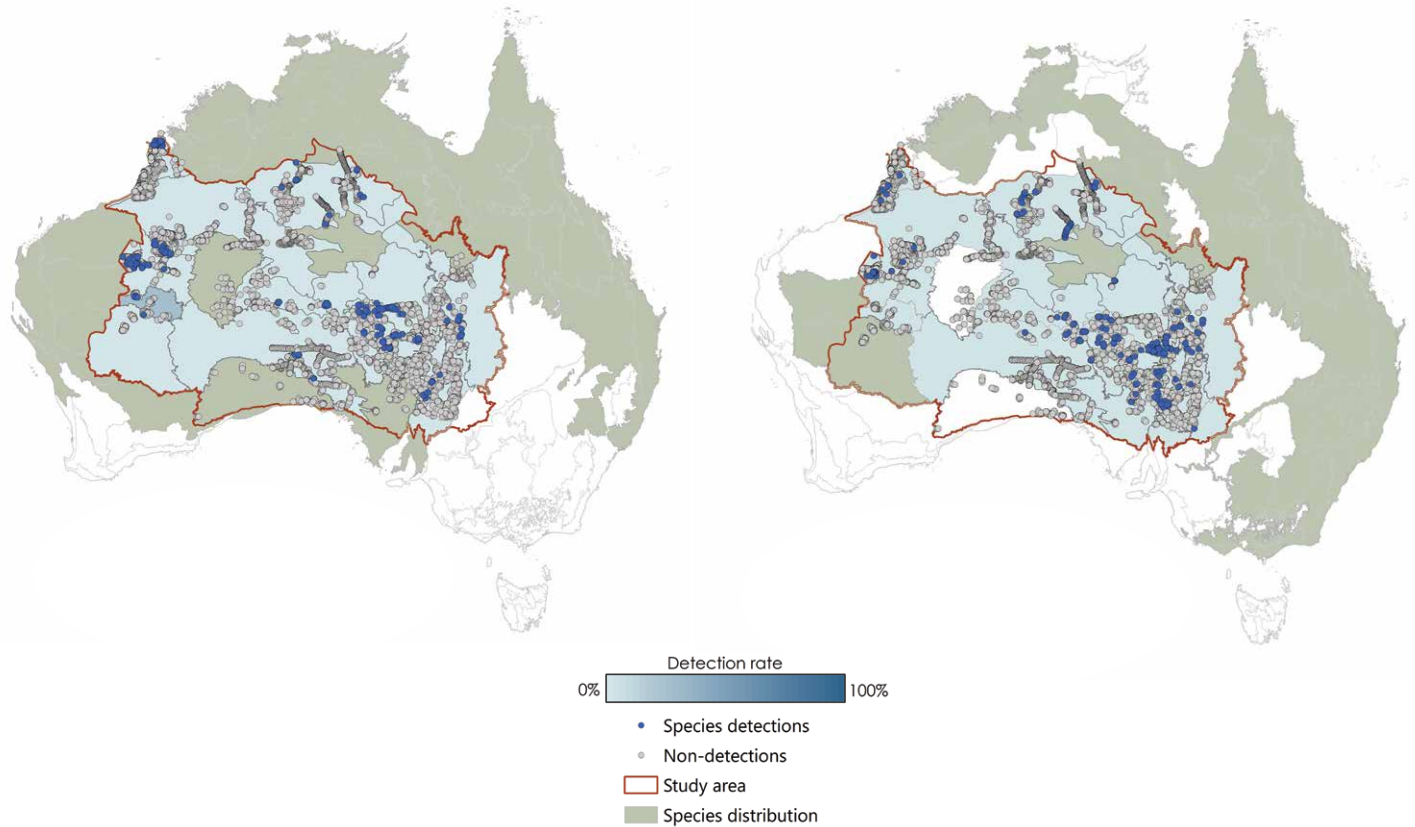
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Donkey and horse detection rates

Horses and donkeys were each detected in almost 2% of all surveys in the AZM dataset. Horses were the 16th most commonly recorded mammal species, and the 6th most frequently recorded introduced mammal species. Donkeys were the 17th most commonly recorded mammal species, and the 7th most frequently recorded introduced mammal species.

The maps below show the average detection rate of donkeys (left) and horses (right) across all surveys carried out in each bioregion, since the 1980s. Detection rates for both species are similar throughout the project area.



Average detection rate of donkeys (left) and horses (right) across all surveys since the 1980s

Things to think about when surveying for donkeys and horses

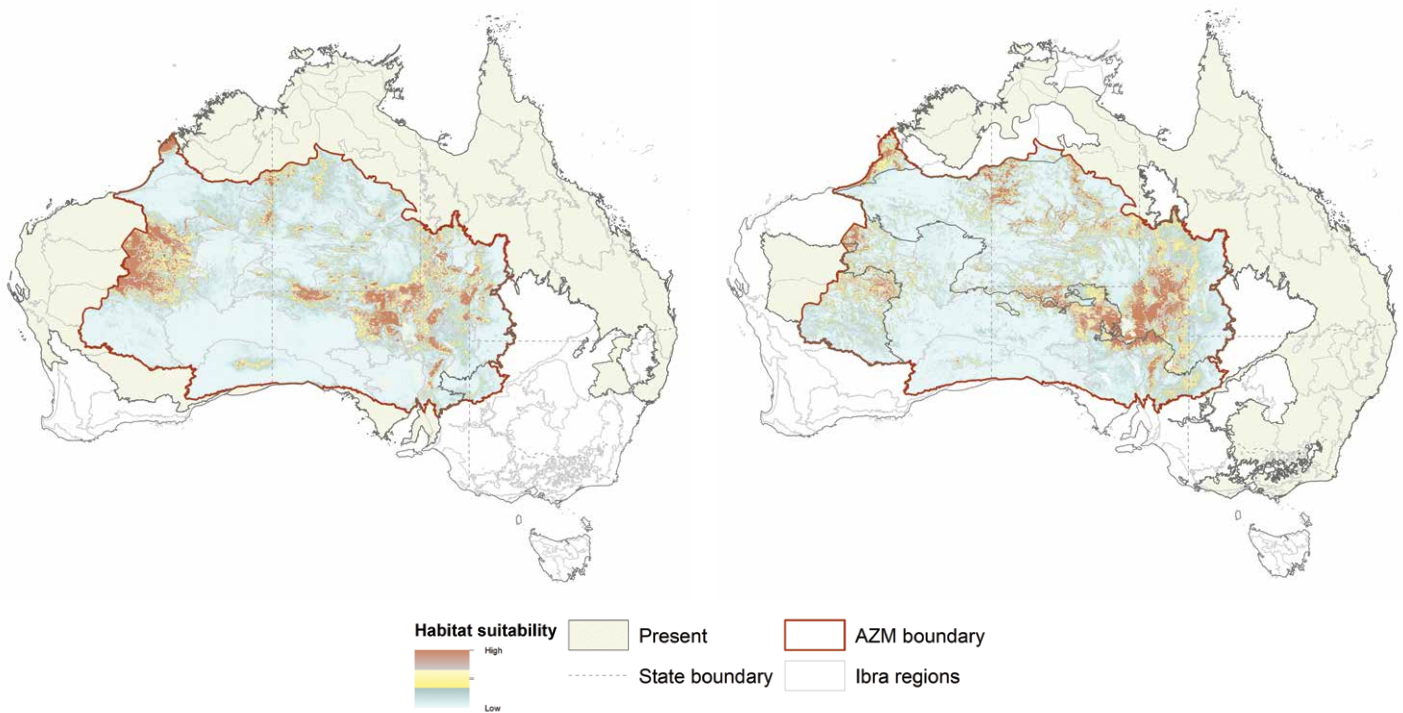
- Survey during good conditions (not too windy or straight after rain).
 - Organise to do surveys at regular times every year – for example, before the wet or hot season (October) and in the early dry season or early cool time (April).
 - Follow advice of experienced trackers - know how to tell donkey and horse tracks and scats apart from those of camels and other animals before you go to survey.
 - Donkey and horse tracks and scats are easy to see, and last a long time on the sand surface. It's important to record the age of sign (e.g. less than a week old, older than a week) to help understand changes in detection rates.
 - Pay attention to finding signs around water sources as donkey and horses will gather for a drink.
 - 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 if management actions (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.

Donkey and horse habitat suitability

Habitat suitability models can tell us about where donkeys and horses 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 models suggest that both donkeys and horses are more common in areas with a more monsoonal climate, as well as areas of low elevation close to water. The maps below show us where we can expect to find donkeys (left) and horses (right), where the map shading is reddish brown.

The maps only show habitat suitability inside the AZM project boundary, but donkeys and horses are also found outside the project area, in the pale beige part of the map and might be common in these places 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 or the Great Victoria Desert; getting more survey data from these areas would improve the model.



Habitat suitability model for donkeys (left) and horses (right).

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 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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