Arid Zone Monitoring
Species Profile

Gould's goanna, sand goanna

Varanus gouldii

Language names

Alewatyerre, Tingka, Jalkarna, Kurrkardi, Warlkan, Rumiya, Parnajalpa

National status: Not listed

IUCN Red List: Least concern

Gould's goanna, or sand goanna.

Animal Description

This is a large goanna reaching well over 1 metre in length. It is light yellow to blackish brown with dense dark speckling and pale spots. It has a dark stripe that runs from the eye down the back. There are narrow bands down the tail, with a pale yellow tip. Gould's goanna is sometimes confused with the yellow-spotted goanna (*Varanus panoptes*), but Gould's is less stocky than the yellow-spotted goanna.

Key threats

Foxes may eat young goannas in parts of their range. In the tropics and sub-tropics, Gould's goannas can be poisoned by eating cane toads. Despite these issues, the overall population of Gould's goanna is not under great threat.

Habitat

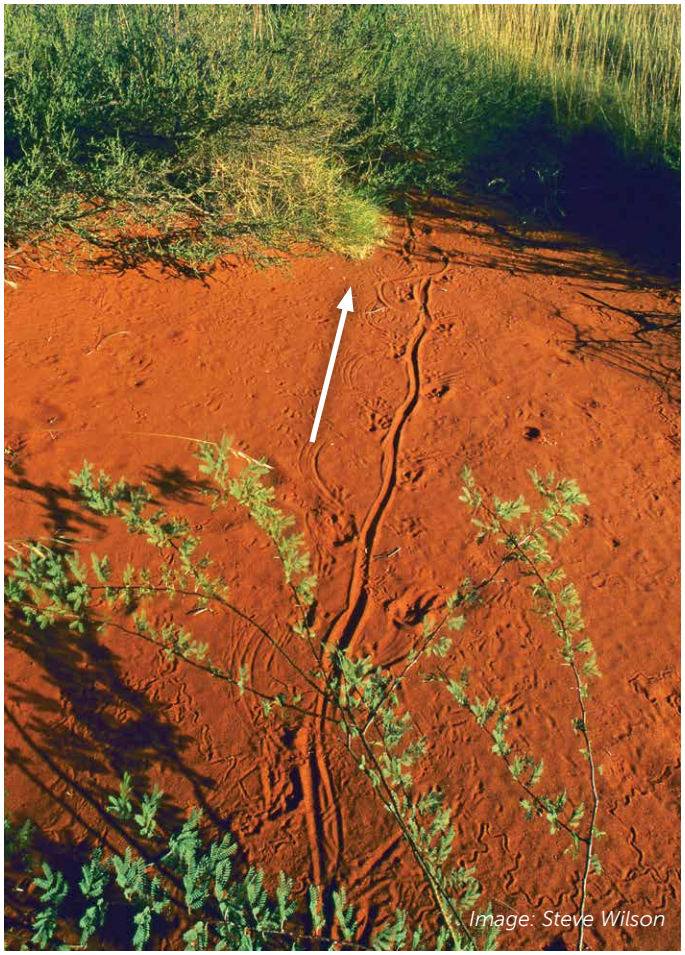
Gould's goannas are found in many different habitats of arid and semi-arid Australia. They dig large burrows for shelter, and can also use rock crevices and hollow logs or dense litter for sheltering. They eat other animals, alive or dead (carrion).

Gould's goanna tracks

A young Gould's goanna tracks (arrow shows which way it is going).

Goanna scat

Goanna scat.



Monitor and Lerista tracks.

Reptile scats contain uric acid and usually have a small white hard section.

Animals that might be confused with the sand goanna during survey

- Yellow-spotted goanna
- Perentie

It can be hard to tell these species of large goanna apart from their tracks, but these larger goannas tend to leave a straighter tail mark, and their footprints are larger than the Gould's goanna.

Gould's goanna diggings and burrow

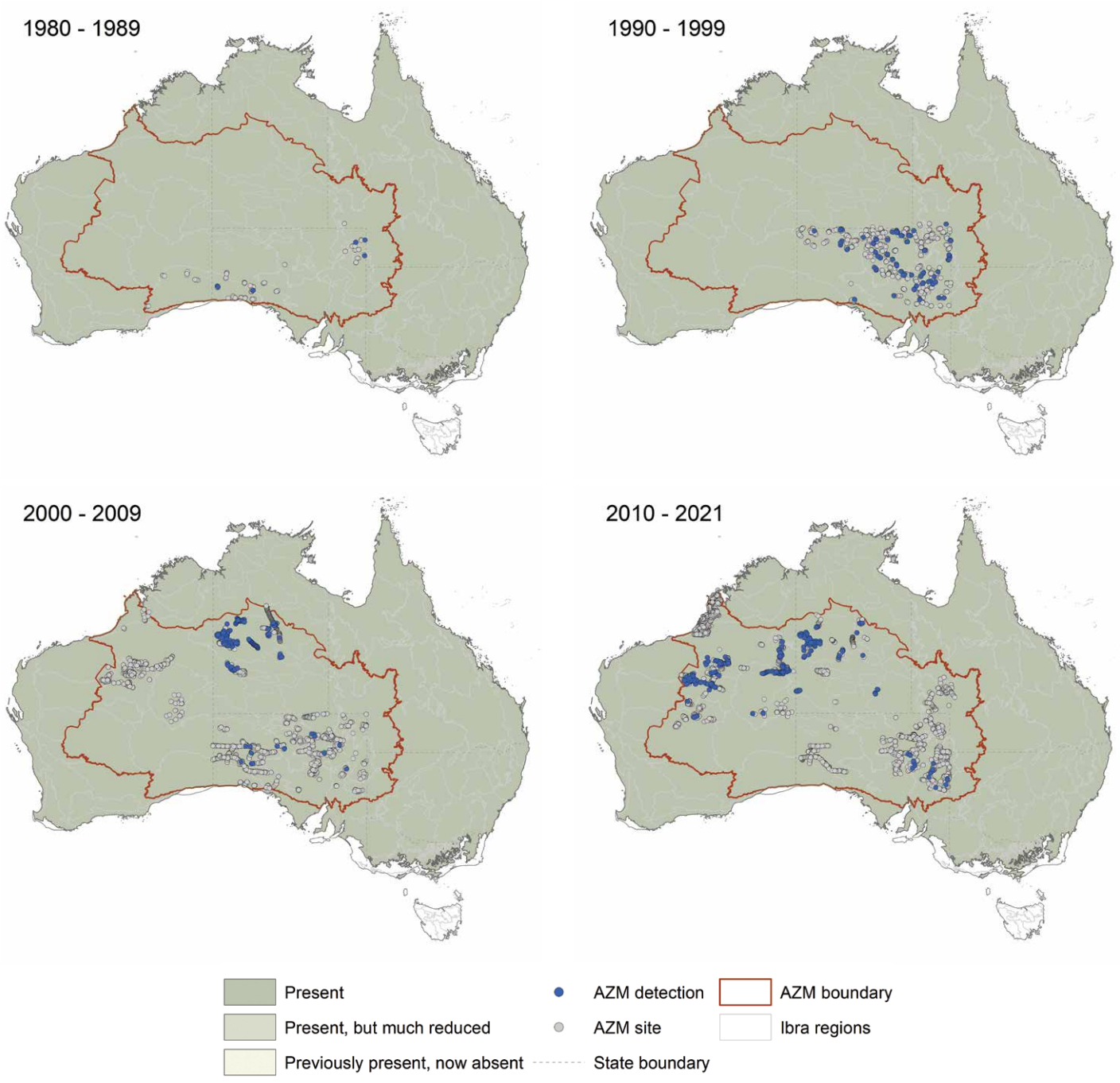
Diggings of a young Gould's goanna.

Tracks of a young Gould's goanna, leading to a burrow.

Arid Zone Monitoring project findings

Gould's goanna distribution

The maps summarise detections of Gould's goanna over time in the AZM database. Gould's goannas were detected right across the project area. Each blue dot shows a survey site where Gould's goannas were recorded in that decade. The grey dots show all the other sites that were surveyed in that decade, but where Gould's goannas were not recorded. These records were made by Indigenous Ranger groups, land councils, NGOs, government agencies and university researchers. The information about the overall distribution in the map background is taken from IUCN[1].



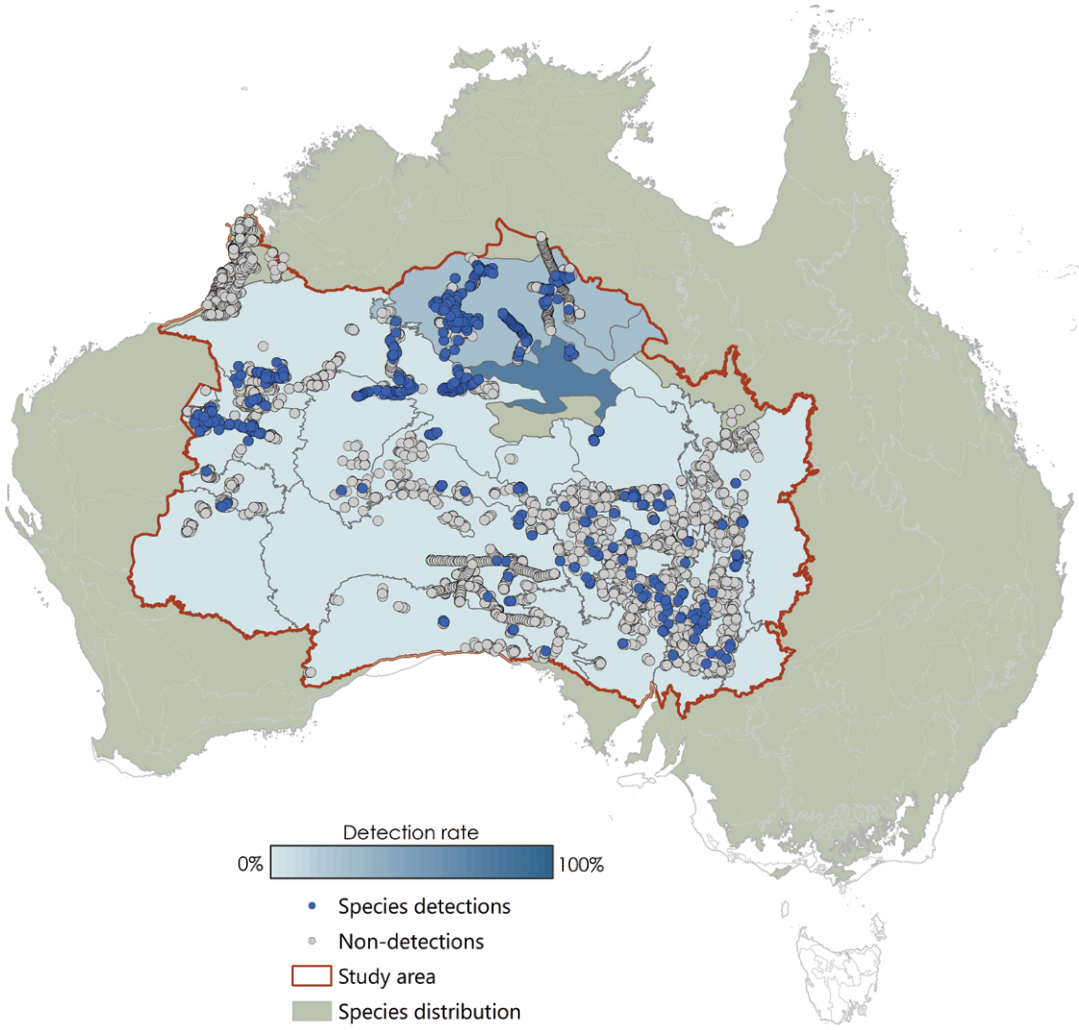
The maps above show data shared by data providers with the AZM project. The data are from track and sign surveys. This method is great for detecting species that live in sandy deserts, but not as good for species that prefer rocky habitats, or species with distributions that are mostly outside the central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

Gould's goanna detection rates

Gould's goanna were detected at over 5% of all surveys in the AZM dataset. It was most commonly recorded reptile species. The AZM database includes almost 2000 records of 'goanna' that are not identified to species – some of these may be Gould's goanna.

The map below shows the average Gould's goanna across all surveys carried out in each bioregion. The darker blue are bioregions where the Gould's goanna was detected most frequently, and it appears that they are more common in the northern deserts.



Things to think about when surveying for Gould's goanna

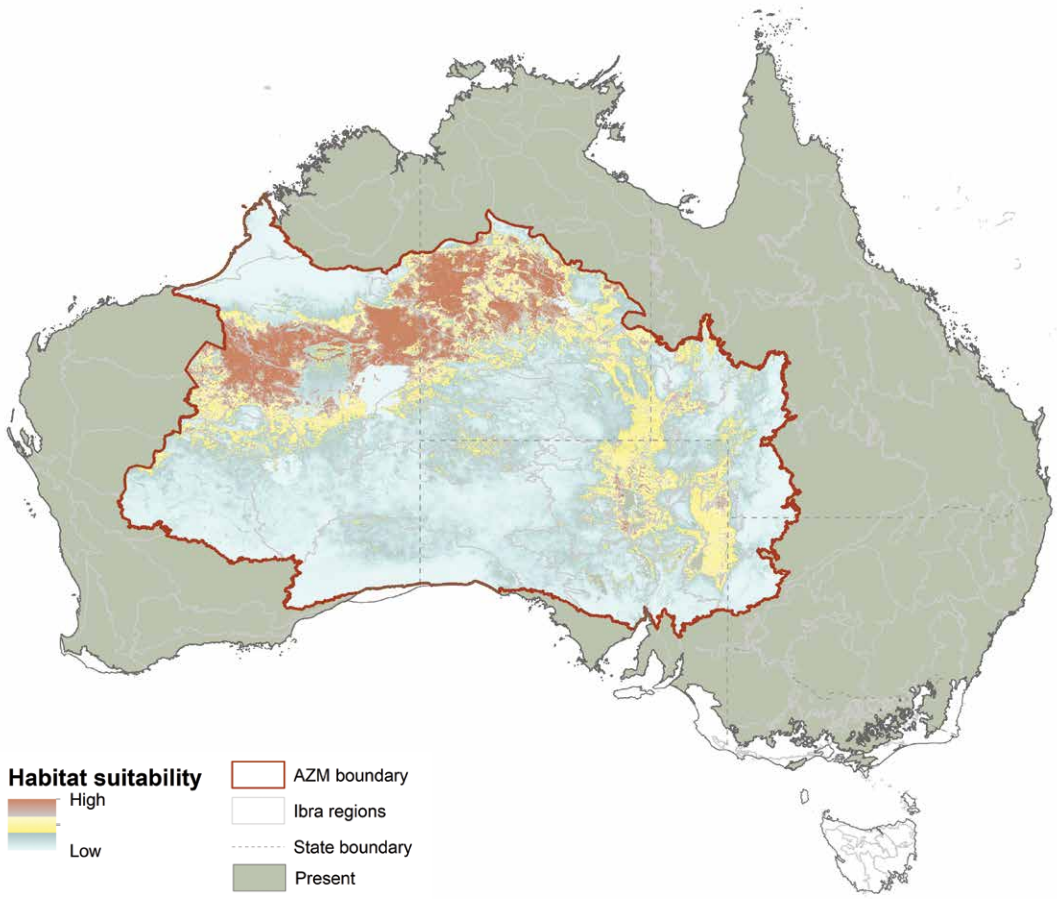
- Survey during good conditions (in the early morning is best, not too windy or straight after rain).
- Organise to do surveys at regular times every year – for example, before the wet or hot season (October) and in the early dry season or early cool time (April).
- Follow advice of experienced trackers - know how to tell Gould's goanna tracks apart from other species such as perenties or yellow-spotted goannas before you go to survey.
- 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 (like 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.

Gould's goanna habitat suitability

The habitat suitability model can tell us about where the Gould's goanna 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 suggests us that Gould's goannas prefer to live in areas that have warm temperatures with annual means greater than 20 degrees Celsius and in areas where soils have low clay content. They are more common in northern deserts, in the red-brown shaded areas of the map.

The maps only show habitat suitability inside the AZM project boundary, but Gould's goannas are also found outside the project area, and could be common there. 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

[1] Species distribution information compiled during a 2017 reptile assessment carried out by IUCN (https://datadryad.org/stash/dataset/doi:10.5061/dryad.83s7k), and updated by expert opinion (R. Tingley).

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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