

Marsupial Mole Survey

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Background

Marsupial Moles are a little-known creature found in the sandy inland regions of Australia. Their extremely unusual life habits involve spending almost their entire lives beneath the soil surface. Consequently very little is known about the most basic details of their lives including their behavior, diet, status and distribution. In South Australia, Marsupial Moles are currently known only from the far north and west of the state, including the Anangu Pitjantjatjara Lands, the Maralinga Tjarutja Lands and the western side of the Simpson Desert. However, the difficulties in detecting moles and the lack of survey effort aimed at searching for them in other areas means that their range could well be more widespread than currently known.

The aim of the current survey was to follow up on a possible sighting of a Marsupial Mole, which was made by Andrew Black on Etadunna Station in 2002 while excavating with a bulldozer. A previous trip was made to Etadunna in 2006 by Michelle Watson from the SA Arid Lands NRM to try and locate the area of the sighting and look for tracks of other small mammal species. At this time, the area of the sighting was thought to be near Georgia Bore, approximately 50 km west of the Birdsville Track in the southern area of the Tirari Desert.

However, after talking directly with Andrew (in May 2008) it was discovered that the sighting was actually made near Boolcaltaninna Bore, to the east of the Birdsville track, north of Lake Gregory.

Some details of Andrew Black's description of the sighting (from a phone conversation on 23/5/2008):

- Sighting was made towards the end of 2002.
- Was digging a hole with a bulldozer near a trough fed by a pipeline that runs east from Boolcaltaninna along the northern shore Lake Gregory. The site was at the second hole along that pipeline.
- The area was in rough country with clayey soil, but was between sand dunes.
- While digging a small guinea pig-sized creature with golden fur was unearthed.
- The animal was 3-4 m away and clumsily ran away over the relatively rough country and disappeared under a bush.
- No tail was noticed as the animal ran away.

Survey Methods

A visit was made to the Georgia Bore and Boolcaltaninna Bore areas to check the suitability of the habitat and survey for Marsupial Moles.

Marsupial Mole survey trenches were dug at four locations spaced at 10 km intervals between the Birdsville Track and Georgia Bore (Figure 2). At each of the four sites three trenches were dug to sample the dune crest, middle dune and base of the dune resulting in a total of 12 trenches. Trenches were dug following the methods in the Marsupial Mole Monitoring Manual (Benshemesh 2005). This involves digging a 100 cm long x 80 cm deep x 40 cm wide trench. The north-facing wall is carefully smoothed and then allowed to dry for several days to reveal the signs of back-filled mole tunnels through the soil profile.

Due to some confusion over the exact location of the area of the sighting East of Boolcaltaninna and the condition of the track over the sandhills to get there, the exact location was not visited during the current trip.

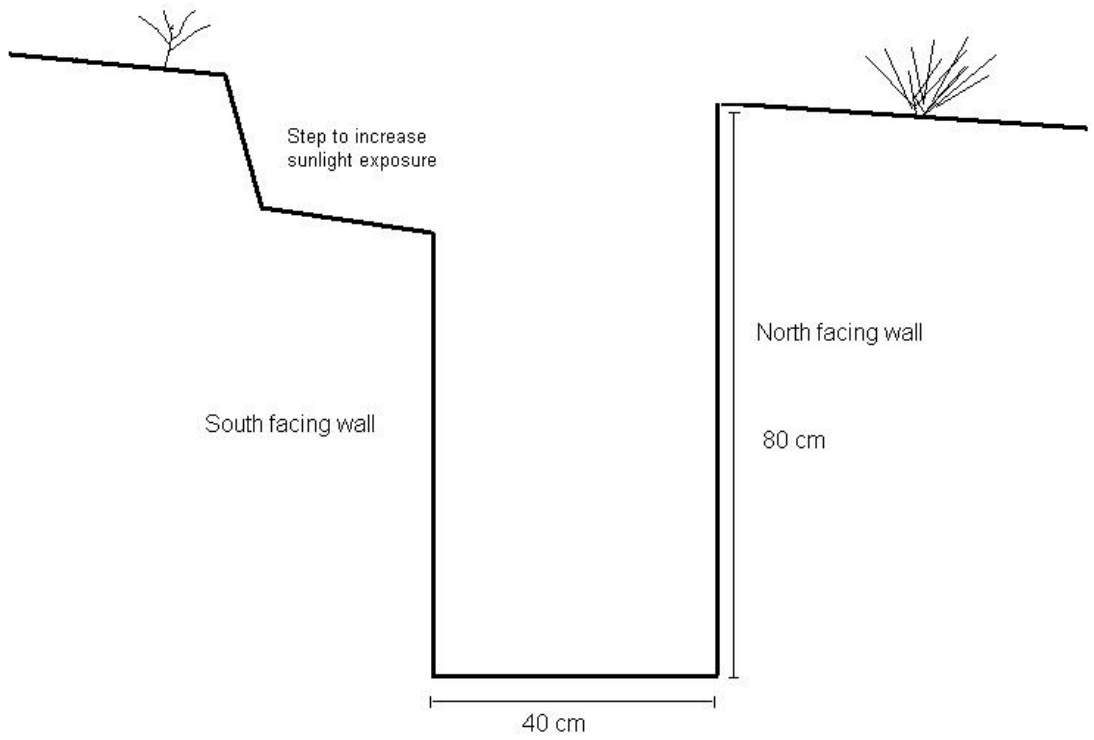


Figure 1. Marsupial Mole survey trench (profile view). The north facing wall is carefully smoothed then allowed to dry for several days to reveal signs of back-filled mole tunnels through the soil.

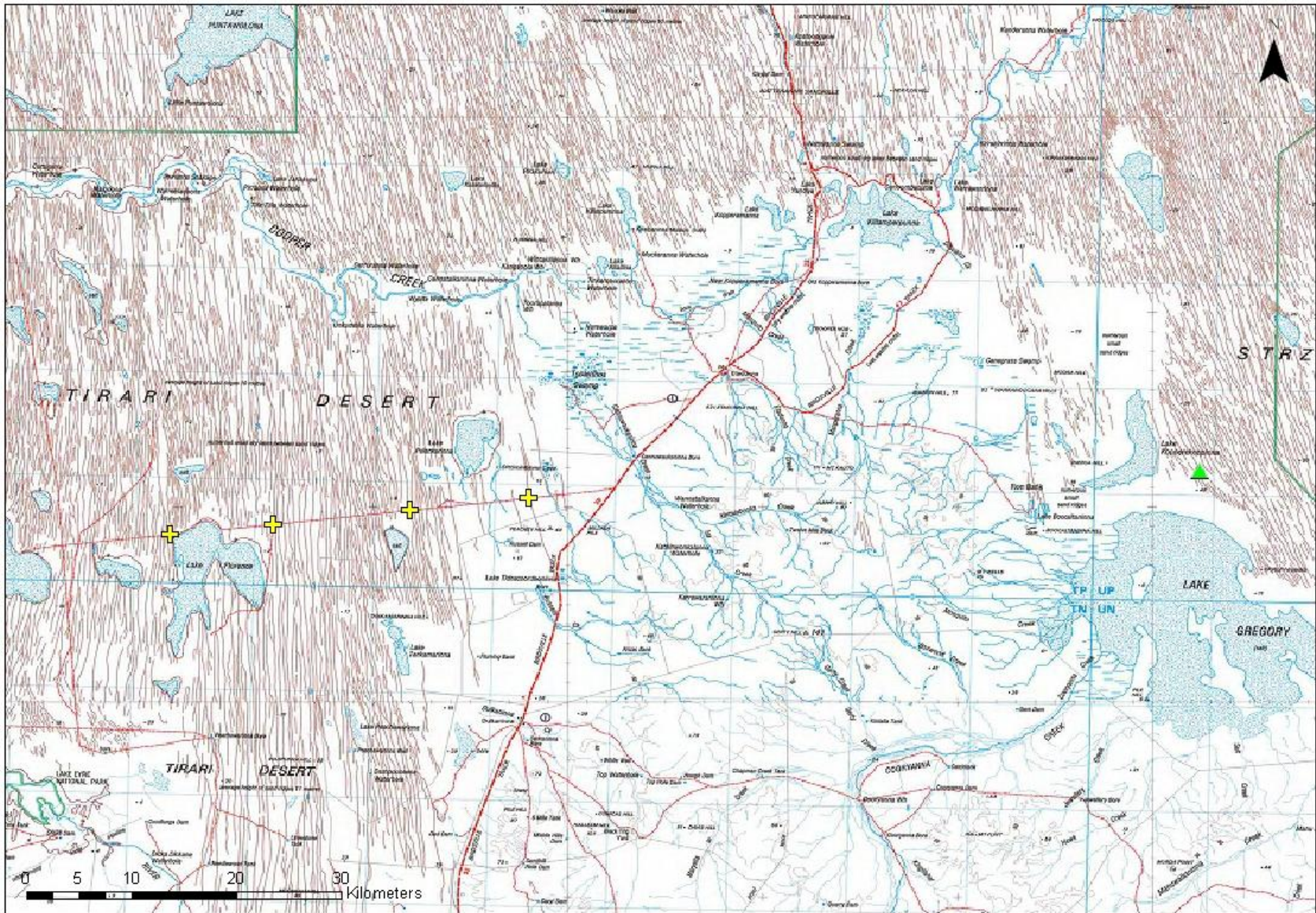


Figure 2 . Etadunna Station area, showing Marsupial Mole survey sites (yellow crosses) and approximate location of the sighting, east of Boolcaltaninna (green triangle).



Figure 3. A Marsupial Mole survey trench at site MM004, overlooking Lake Florence.

Results and Discussion

Disappointingly, no signs of Marsupial Moles were found in any of the 12 trenches. Although only a small number of trenches were dug over a relatively large area, this suggests that Marsupial Moles are not likely to be present in the local area.

Table 1. Summary of results from mole trenches along with opportunistic observations of tracks at each site.

Site	Location	Marsupial Mole sign observed?	Tracks observed				
			Rabbit	Fox	Dingo	Hopping Mouse	Ampurta
MM001	Crest	No	✓		✓	✓	
	Mid-slope	No					
	Base	No					
MM002	Crest	No	✓		✓	✓	
	Mid-slope	No					
	Base	No					
MM003	Crest	No	✓	✓	✓		✓
	Mid-slope	No					
	Base	No					
MM004	Crest	No	✓			✓	✓
	Mid-slope	No					
	Base	No					

The behavior of the animal unearthed by Andrew Black near Boolcaltaninna, and the type of soil that it was in suggest that it was unlikely to be a Marsupial Mole. Both Andrew Black's and Jason Dunn's descriptions of the site support that although the area is between dunes, the soil was rough and clayey. This type of habitat is not thought to be suitable for Marsupial Moles. The behavior of the few Marsupial Moles that have been observed by Europeans suggests that they rarely move very far or very quickly on the surface of the soil. However they are well-adapted to swimming through sand and have been reported to vanish into the sand by quickly burying themselves if disturbed.

The description of the animal seen by Andrew sounds more like an Ampurta than a Marsupial Mole. Ampurtas are about the size of a small guinea pig and have pale blonde coloured fur. They are carnivorous marsupials and eat a wide range of insects and even small rodents and birds. They belong to the Dasyurid family, which also includes larger carnivores such as the Tasmanian Devil and Quoll (Native Cat).

Ampurta tracks were seen in several locations during the survey (Figure 3) and a sub-adult female was also captured on Etadunna in September 2007 by Keith Bellchambers, while carrying out surveys for hopping mice. The colour of their coat is quite variable. In areas of pale coloured sand, they are often a pale golden blonde colour (Figure 4, 5 & 6). These animals shelter in a burrow beneath the surface during the day.



Figure 4. Tracks made by a Hopping Mouse (top) and Ampurta (bottom) at site MM004. Ampurtas use the same gait as a rabbit, but their tracks are distinguished by their smaller size and more obvious toe marks (matchbox for scale).



Figure 5. An adult male Ampurta. This animal was caught in the Simpson Desert Regional Reserve.



Figure 6. A much smaller female Ampurta, also caught in the Simpson Desert Regional Reserve.



Figure 7. A pale male Ampurta. This captive animal was originally caught to the west of Lake Eyre on The Peake Station. Fur colour can be quite variable and is usually darker in areas with deep red sand, grading to a golden blonde colour in areas of pale sand.



Figure 8. *A Marsupial Mole. The legs and feet of these animals are well-adapted to swimming through sand and are of little use above the surface. They are unable to move very quickly at all on the sand surface and are more likely to vanish into the sand by burying themselves if disturbed rather than running away (photo by Joe Benshemesh).*

Acknowledgements

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References

Benshemesh (2005) Manual for Marsupial Mole Survey and Monitoring by Trenches. Unpublished Report to Anangu-Pitjantjatjara Land Management and the Department of Environment and Heritage SA.