Finding out about Desert Mammals

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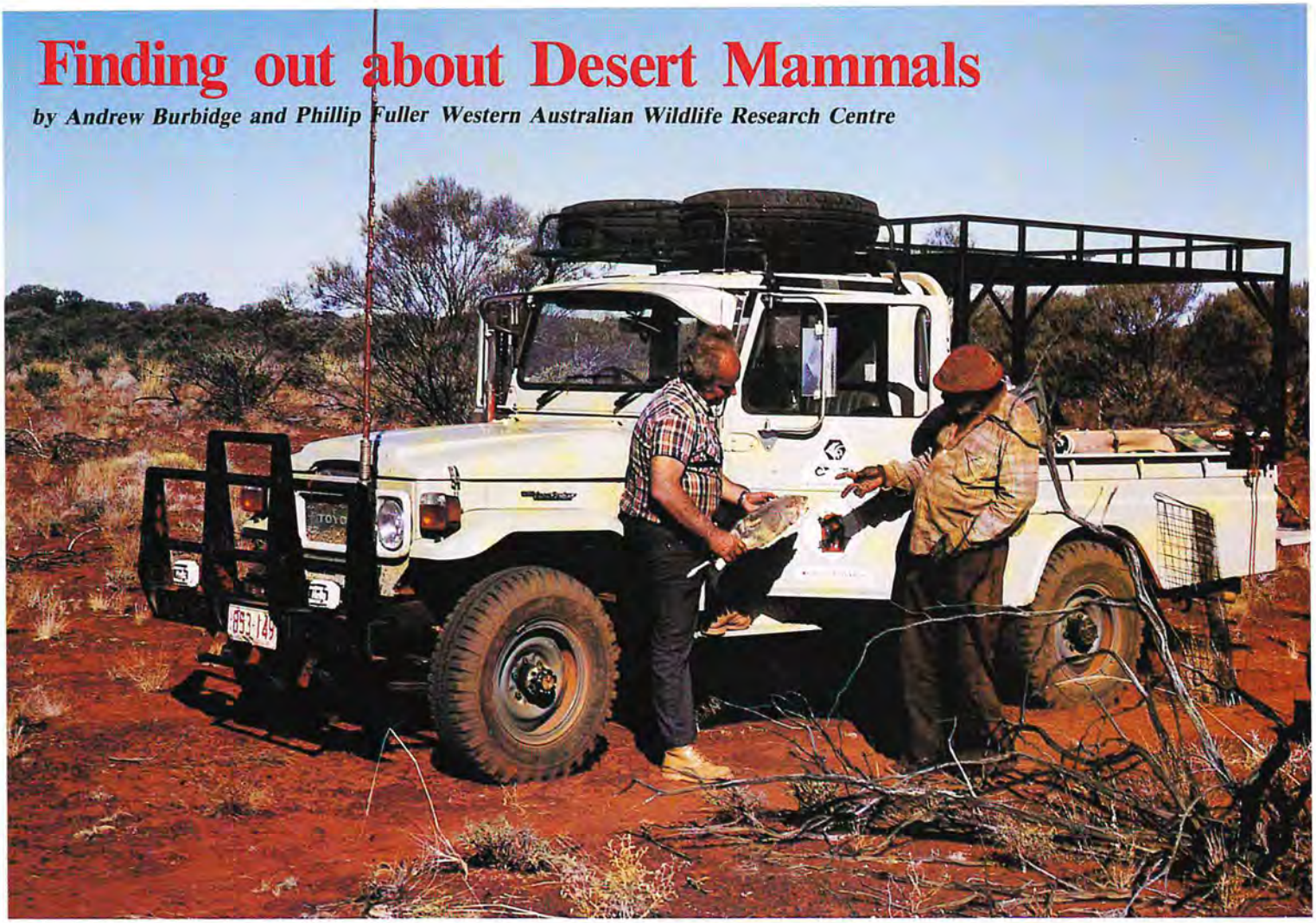

▲ Phil Fuller and Aboriginal informant Micky Robinson at Tjirrkali, Gibson Desert. Mr Fuller is holding a Dalgyte skin. Photo: R. Southgate

Until quite recently surprisingly little was known about the mammals of the interior of Western Australia. Because of the inaccessibility of the region there were few systematic attempts to document the fauna of central Australia and by the time four-wheel drive vehicles became available it appeared that many species had either become extremely rare or were extinct.

That we knew anything about the mammals of the deserts in past times was due largely to the efforts of one person, H. H. Finlayson of Adelaide. Prior to his work our knowledge was confined to a few scattered records from explorers and missionaries and the only extensive scientific study, that of the Horn Scientific Expedition to Central Australia, which took place in 1895.

Finlayson's expeditions to central Australia from 1931 to 1935 are graphically described in his famous book 'The Red Centre'. He travelled with camels collecting and recording mammals and had a close working relationship with the Aborigines of the region, obtaining much information and help from them. Finlayson's studies were concentrated in northern South Australia but he also recorded information from Western Australia and the Northern Territory. His unequalled knowledge of the distribution and status of central Australian mammals was summarized in a scientific paper published in 1961. As well as distributional data, this paper also gave a variety of Aboriginal names for the mammals of the region.

Following Finlayson's work little mammal research was done in the deserts until the 1970s when the Western Australian Wildlife Research Centre started vertebrate surveys in Western Australia and the Northern Territory Government appointed biologists to study endangered species there.

It soon became apparent that many of the species which Finlayson found to be abundant and widespread were now rare or extinct. The species most affected were those of intermediate size between the large kangaroos and the small native mice, dunnarts and bats. Recent analyses of the decline of mammals in Western Australia by the authors and N. L. McKenzie have shown that declines and extinctions in mammals are confined to species with adult body weights between 55g and 5kg.

Why did this catastrophic decline occur? In order to answer this question it is first necessary to know something of the history of the decline: when did the various species

▲ Spinifex plains in the Gibson Desert Nature Reserve. Photo: A. A. Burbidge

disappear and what changes took place in the environment at that time? The only way to find this out was to repeat Finlayson's technique of asking the Aborigines.

We started this study in 1977 in the Warburton area. One of us, Phillip Fuller, knew several Aborigines from Wiluna and Laverton areas so we took a Laverton man with us to Warburton to introduce us to people there. During 1977 we visited a number of Aborigines. We showed them photographs and drawings of a variety of animals and we also had the benefit of knowing the Aboriginal names which H. H. Finlayson had recorded from adjacent areas to the east. This work taught us three things.

▼ Western Barred Bandicoot. A close relative of the Desert Bandicoot which once had a wide distribution in the arid interior but is now thought to be extinct. Photo: A. G. Wells

Firstly, the knowledge of middle-aged and elderly Aboriginal people about wildlife is astounding. This was, perhaps, not unexpected since Aboriginal people lived as hunters and gatherers and depended on their ability to locate animals for food. However, it goes further than this: we were told many details about the biology of the animals, – what they eat, where they breed, how many young they have, and so on.

Secondly, desert Aborigines have a very close relationship with the animals of their country. Animals are seen as part of the land. They are a most important part of Aboriginal mythology and culture and are of great significance in their beliefs.

Thirdly, many Aborigines have difficulty in relating to pictures of animals. Subsequent to the 1977 work we have, where possible, used "puppet" skins of actual animals to show people rather than photographs.

Some of our recent work has been carried out in collaboration with Dr Ken Johnson of the Northern Territory Conservation Commission and Mr Ric Southgate, a biologist employed under a World Wildlife Fund grant to study the Dalgyte or Bilby (SWANS Vol 13, No. 1, 15-17).

Our understanding of the disappearance of many desert mammals is now much greater, and a lot of new information about the various animals has been recorded. An example of this work has been described already by J. A. Friend, P. J. Fuller and J. A. Davis in SWANS Vol 12, No 3, pp 21-26. Some other highlights of this work are discussed below.

Brush-tailed Bettong or Woylie — *Bettongia penicillata*.

Most modern treatments of this small wallaby describe its former distribution as a southern one, including western New South Wales, north-western Victoria, southern South Australia and the south-west of Western Australia. Even the distribution given in the latest authoritative publication 'The Complete Book of Australian Mammals' is similar. These authors apparently ignored H. H. Finlayson's statements that it occurred in north-western South Australia and south-western Northern Territory. Our work has confirmed this and revealed an even wider distribution including much of the Gibson Desert. As with all mammals, different names are used for the same animal by people who speak the different dialects of the Western Desert language. However, a person who speaks a particular dialect may also know the names from two or three other dialects used nearby. Some of the names for the Brush-tailed Bettong are Putujuru, Karpitji and Yalkamarri.

In the desert the Brush-tailed Bettong lived in sandy spinifex country. It built a grass-lined nest in a spinifex hummock and would often run into a hollow log when chased. Woylies in the south-west of the State build a grass-lined nest under a fallen shrub and have also been found in hollow logs. We were told by one group of people from the northern Gibson Desert that the Putujuru made a short burrow under a clump of spinifex in the same way as Mala do. (Mala is the Rufous Hare-wallaby, *Lagorchestes hirsutus*.) This behaviour has not been reported before. According to our informants this species survived in the desert until the mid-1930s.

Desert Bandicoot—*Perameles eremiana*

Few Europeans have seen a live Desert Bandicoot. The last museum specimen was collected in 1931 at Gahnda Rockhole in the north-western Great Victoria Desert and the species is presumed to be extinct. The Desert Bandicoot is well known to Aborigines and some of their names for it are Walilya, Kililpi, Yinmi, Tjura and Maljurkura.

We were told it lived in sandy spinifex country and spent the day in a nest, which was in heaped up leaf litter or under a spinifex clump, often at the end of a short burrow. It ate termites, ants and grubs and had two young at a time. Aborigines captured the animal by tracking it to its nest and then jumping on the nest and grabbing the occupant. Apparently it survived until the late 1930s or 1940s.

Lesser Stick-nest Rat—*Leporillus apicalis*

Visitors to outback caves are often confronted with large structures of sticks and stones welded together with a tar-like substance. The structures are especially common in "breakaway" caves in the Gibson Desert but have been found as far west as Tallering Peak, Yuna and Mt Stirling. These structures were built by large native rodents called Stick-nest Rats. Two species are known—

▼ Sandplains and dunes in the Gibson Desert Nature Reserve. Wallabies and Bandicoots were once abundant in this habitat. Photo: A. A. Burbidge

▼ Brush-tailed Bettong. Photographed in the south-west, this species once extended through much of the deserts. Photo: A. G. Wells.

the Greater (*Leporillus conditor*) and the Lesser (*Leporillus apicalis*). Both species are thought to be extinct on the mainland, but, fortunately, the Greater Stick-nest Rat still occurs on Franklin Island, South Australia.

Older Aborigines from the central deserts know Stick-nest Rats well. Although we are not sure which species they were describing, excavation of the nests has revealed skeletal remains of the Lesser Stick-nest Rat. Some Western Desert language names for Stick-nest Rats are Tjuwalpi, Arrutju, Yininma, Tjurulpa, Punuwuru, Tanpinka, Intjurrka and Kutungu.

When the explorer Ernest Giles passed through central Australia in 1872 and 1873 he reported stick-nests in scrub and open country. "In these scrubs are met nests with twigs and sticks to the height of four feet, the circumference being fifteen to twenty. The sticks are all lengths up to three feet, and up to an inch in diameter. Inside are chambers and galleries, while in the ground underneath are tunnels, which are carried to some distance from their citadel. They occur in many parts of Australia, and are occasionally met with on plains where few trees can be found. As a general rule, they frequent the country inhabited by the black oak (Casuarina). They can live without water, but at times, build so near a watercourse as to have their structures swept away by floods. Their flesh is very good eating" (Giles 1889, Vol I, pp. 57 and 58).

Today this type of stick-nest can not be found and most Aborigines do not remember seeing them. However we did meet one old man from the Cavenagh Range who remembers such nests, which we believe were made by the Greater Stick-nest Rat. If this is so then it would appear that the Greater Stick-nest rat disappeared before the Lesser. We were told that in most areas stick-nest rats disappeared a long time ago but some of our informants remember seeing them about 40 years ago. We were also told that they ate grass seeds.

Evidence that stick-nest rats were declining before Europeans entered central Australia came from one old man from Papunya, Northern Territory. When we asked him about the animal, giving a name we knew from further south-west, he said he had never seen one but his grandfather had told him they once occurred in his country. He accurately described their nests, even though he had never seen one and had learnt about them perhaps 50 to 60 years ago.

Kuluwarri

One of the most surprising results of our work has been to find out about a mammal previously unknown to scientists. Several groups of people asked us why we did not have a skin of the Kuluwarri or Kulkuma. It was described as being a marsupial with soft, long fur, and of a similar size to or slightly smaller than the Burrowing Bettong, *Bettongia lesueur*. We were told it inhabited sand dune country with a spinifex (*Triodia*) dominated vegetation and that it ate grass. A feature described by several people was that it had long hair on its feet which helped it leave indistinct tracks. Some people said it was very quiet and some people said it was deaf because they could creep up to its nest in a spinifex clump and capture it. All people agreed that it was good "kuka" (meat). It was generally agreed that it had disappeared during the 1940s.

We have no idea what this animal was. We do know of two wallabies which might have occurred in the area and which we did not have in our skin collection. One, the Central Hare-wallaby, *Lagorchestes asomatus*, is known to science from only a skull collected near Lake Mackay, N. T., in 1931. The other, the Broad-faced Potoroo, was last collected in the south-west in 1870s but probably had a wider distribution since fossil remains have been found at North West Cape. On the other hand, it is possible that the Kuluwarri has never been seen by scientists, and became extinct before it could be recorded or studied.

It could possibly have been a bandicoot because while most people said it had one young at a time, some said it had two. H. H. Finlayson recorded the name "Kulwarri" from the Daly Waters areas of the Northern Territory and believed it was applied to a bandicoot but was not sure which species.

Our deductions about the reasons for the decline in desert mammals will be discussed in a future issue of SWANS.

ACKNOWLEDGEMENTS

We would like to express our thanks to the Aboriginal people at the many communities visited. Their friendly and warm welcome was at all times greatly appreciated. Without their co-operation and deep interest the work could not have been carried out.

Our thanks are also extended to the many advisers at these communities for their hospitality and help.

FURTHER READING

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▼ Phil Fuller with Aboriginal elders and the chairman at Blackstone. W.A. The man on the right is holding a skin of the Western Native-cat and the man in the foreground is holding a Burrowing Bettong. Photo: R. Southgate.