Major Aboriginal occupation sites around Tropicana in the Great Victoria Desert

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Introduction

Almost no archaeological research has been conducted in the Great Victoria Desert, Australia's largest desert, which is situated between the Gibson Desert and the Nullarbor Plain.

A series of consultancy surveys provides the only comprehensive record of Aboriginal occupation of this sandridge desert (Mattner 2009; Mattner & Kalotas 2010). The results challenge some common assumptions regarding desert adaptations and settlement.

More than 60 Aboriginal archaeological sites were recorded at the Tropicana Project Area, in the southwest portion of the Great Victoria Desert, during surveys commissioned by AngloGold Ashanti Australia Ltd and Independence Gold Ltd ahead of exploration and mine development.

The systematic transect surveys covered all types of common landforms (except salt lakes) and this ensured the sample of sites was representative and unbiased.

This study of surface sites revealed a very structured and stable settlement pattern underpinned by deep local knowledge, rather than a mobile and opportunistic pattern (cf. Gould 1991; Veth 1995). The results also suggest a long antiquity for occupation, although no dated sequences have been obtained.

Unexpected Results

The types of sites recorded were to be expected, and included numerous artefact scatters and stone quarries, with a number of rockshelters and two stone arrangements. Also to be expected was the strong positive correlation of sites with hills and breakaways and the strong negative correlation of sites with sand dunes and sand plains.

However, the very large size of particular sites was unexpected, as was the prevalence of these major sites. The composition of the assemblages at these artefact scatter sites also does not fit with common models of arid zone occupation derived from other deserts.

Range of sizes of archaeological sites

size category	artefact scatters	%	quarries	%
<100	5	*15.2*	4	*23.5*
100< <1000	17	*51.5*	7	*41.2*
1000< <10 000	6	*18.2*	3	*17.6*
10 000< <25 000	0	*0.0*	0	*0.0*
25 000< <50 000	1	*3.0*	1	*5.9*
50 000< <150 000	3	*9.1*	2	*11.8*
>150 000	1	*3.0*	0	*0.0*
sub-totals	**33**	*100.0*	**17**	*100.0*

Almost one sixth of the artefact scatter sites (5 of 33) were estimated to contain more than 25 000 artefacts. The largest may contain 200 000.

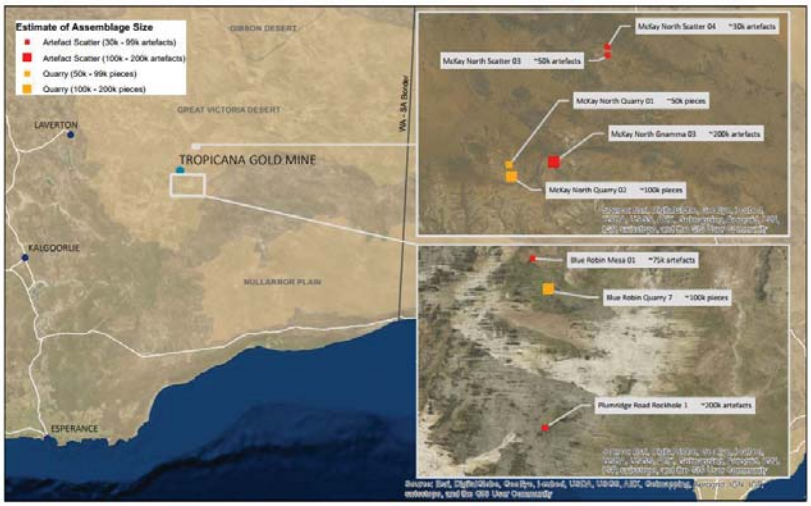
All of these major campsites were situated near water sources; either a billabong in a creekline or a gnamma (rockhole). But these major campsites occurred in various landforms, including the sand dune fields and sand plains, and there was no correlation with the volume of the water source and the size of the artefact scatter.

Another feature of these very large artefact scatters was the scarcity of grinding material, other implements and retouched pieces. Despite the ubiquitous spinifex savannah vegetation, no complex grindstones were noted at any site and there were very few grindstones. This may reflect the absence of suitable material for grindstones in this desert.

Specialised woodworking tools were uncommon in the major campsite assemblages, although both Eucalyptus and Mulga trees are common and the available stone types are suitably tough to use as scrapers or adzes.

Also, one sixth of the quarry sites (3 of 17) were estimated to contain more than 25 000 artefactual pieces, with two of these having in the order of 100 000 pieces. The range of raw material was limited to coarse-grain silcrete or high quality chert, and any occurrences almost always showed signs of exploitation.

Intensive *in situ* reduction and artefact manufacture occurred at each of the major quarries, consistent with a targeted approach to raw material procurement. There was, however, little evidence for the movement of stone resources around the district. Assemblages at the major campsites were predominantly composed of artefacts from the nearest quarry.



Location of major archaeological sites identified near Tropicana in the Great Victoria Desert

Discussion

Campsites or quarries of this size are uncommon anywhere in Western Australia, including bettered watered areas, so it is challenging to our understanding of arid zone settlement and desert adaptations that such major sites are reasonably common in the Great Victoria Desert.

Sample bias cannot account for the result. Systematic sampling of hundreds of square kilometres resulted in a full range of sites being discovered and major sites were recorded over a wide area extending more than 100km north-south, although clustered in two areas.

Overall, the surveys at the Tropicana project area established that archaeological sites are very sparsely distributed and are largely absent from the sand dune fields and sand plains that characterise this region. The total number of sites identified was low, with most being small or very small. Two thirds of the artefact scatters and quarries are estimated to contain 1000 or less artefacts or pieces. Medium sized sites are rare, and there is a strong bi-modal pattern in size.

All the major sites were found in association with uncommon topographical or geological features, such as a gnamma, a creekline or highly siliceous outcrop, and this explains their distribution, but not their size.

Most models of arid zone occupation have followed Gould's (1977, 1991) proposal of basecamps at reliable water sources in conjunction with minor sites widely distributed at ephemeral water sources or food resources (Cane 1984; Veth 1995).

Major campsites in the Tropicana project area do not conform to that model. They contain only a small range of artefact types, with relatively few implements. There is little evidence of lateral recycling and a very little geographical diversity in the range of rock types used. The hallmarks of prolonged site occupation such as woodworking tools and grindstones are scarce at these campsites. A similar pattern of undifferentiated artefact scatters of variable size was noted in the Simpson Desert, another sandridge desert (Barton 2003).

The paucity of grinding material is also challenging, because it indicates that seed grinding was not an important subsistence activity. This is contrary to the models of intensification (Lourandos & David 2002) and desert settlement that see dependence on grinding spinifex seed as a prerequisite for settlement of the sandridge deserts (Smith 1993, 2013; Veth 1995, 2006).

Rather than providing evidence of aggregation of multiple bands and prolonged occupation at reliable water sources as ephemeral water sources dried up, these major sites more likely are the result of very frequent occupation by highly mobile small bands. This is especially likely where the water sources (1 or 2 gnammas) were small (<100 litres), a feature of two major campsites.

If occupation was generally transient and limited to small groups, then the size of these assemblages is a result of high artefact discard rates or a very large number of visits. The scarcity of stone resources in this sandy desert argues against a wasteful use of stone, as does the highly targeted exploitation of the few major quarries.

While the evidence suggests these major campsites were occupied on very many occasions, the unreliable and erratic rainfall which is currently typical of the Great Victoria Desert would not support regular or frequent occupation. It is likely then, that these sites have accumulated over very many millennia, with people retaining a deep knowledge of their territory that allows them to access their main sites despite long absences and a largely featureless landscape.

The existence of these major sites lends weight to arguments that the sandridge deserts were occupied in the early Holocene, when there was a more favourable climate (Byrne 2008; Smith 2013). It also shows surface sites provide important information different from rockshelters.

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