A Scattered Landscape: *archaeology of late-Holocene Indigenous coastal occupation near Cape Preston, Western Australia*

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Some personal observations and comments offered by a graduate archaeologist, in regards to current heritage legislation and cultural heritage management practices as they relate to Western Australia northwest coast. Using the results from a 2010 honours research project as a case study, this report will highlight how the system needs to create more provisions for academic research.

The biggest question is, how can we measure the research value of this landscape?
Firstly, I would like to highlight that the value of an archaeological site is not always what is clearly visible on the surface. It's what you can't easily see and what lies under the surface, hidden within the minute details, that actually contains the most archaeological value. This is almost always the case, particularly for the archaeology of Indigenous Australian.

The coastal Pilbara region is a mysterious landscape with a deep history. However, if you just examine the visible evidence on the surface, you might not recognize its true value. Recent archaeological research indicates that this harsh coastal Pilbara landscape can contribute valuable information, that increases our current awareness and understanding about the lives of those adventurous souls who traversed the Pilbara coastline before Europeans arrived on Australia's northwestern shores.

The coastal Pilbara region of Western Australia is a unique archaeological landscape. There are hundreds of large and even extensive artefact scatters, grinding patches, rock art sites and also scarred trees scattered about. Many such sites have already been identified and recorded by consulting archaeologists and have been registered with the Department of Indigenous Affairs (DIA). Many of these sites have also been salvaged, to make way for mining developments. Prospectors and mining corporations are investing a lot of funding to ensure that they are working in compliance with Western Australia's heritage legislation (Aboriginal Heritage Act 1972). However, archaeological research generally isn't the primary concern for mining

stakeholders. Their number one priority is to set aside enough provisions to ensure that the company can carry out their exploration programs and get their mines up and running as efficiently as possible, without blowing the budget on heritage.

At this time, compliance with Western Australia's heritage legislation means engaging a heritage team and/or a team of independent consultant archaeologists, to identify and record archaeological sites within their development zone. Consultant archaeologists are called in to conduct surveys, to identify and record details of all the archaeological sites present in that designated area. When an archaeological site if identified, its GPS location and notes on the landscape, are recorded. Sites are generally measured and a map of the site is drawn and basic measurements from a sample of the artefacts are also recorded. This is a simplified description of a process that is often referred to as 'conditional site identification' (s.16).

The data gathered from each archaeological site is used to determine the archaeological significance of the sites. Archaeological significance is generally calculated using a series of formulas, which are based on relevant academic research in that area and information on sites that have previously been recorded within the stipulated development zone. Once the initial report has been written and the Minister has signed the approvals for the mining developments to proceed, a team of consultant archaeologists is once again engaged to revisit those sites and record them in more detail. This part of the process is often referred to as 'detailed site recording' (s.18) and is generally carried out when approval has already been obtained to disturb specific sites within a proposed development zone. This means that consultant archaeologists need to follow a standardized methodology for recording archaeological sites in detail, which has been developed over the course of approximately 20 years. However, standardized methodology does not provide room for exploring new methodologies in detail.

One notable impact of these current heritage legislation and cultural heritage management practices is that archaeology in northwestern Australia has become big business over the past 20 years. New consulting firms seem to be cropping up here and there. During the short period of time that I was working in the industry (2007 - 2011), it wasn't unusual or unexpected to see employees reach the level of Senior Archaeologist, only to leave and start companies of their own.

Another impact of the industry is that graduate archaeologists are being churned out of Australian universities at an unprecedented rate. Professor Peter Veth[1] has recently identified this as a significant problem for heritage in Western Australia. In a statement to The Australian newspaper, Veth highlighted that there is a dire need for 'more training', which is something that 'should have been done 20 years ago.'[2] Veth highlighted that ***'better standards are urgently needed, as the resources boom in Western Australia is increasing pressing deadlines for heritage assessment in mining regions."[3]***

Heritage legislation needs be restructured in a way that facilitates effective, quality archaeological research. *However, this doesn't seem to be happening in an effective manner. In fact, current cultural heritage management practices seem to be facilitating the destruction of archaeological sites, even sites which have been classified and registered as highly significant and which have the potential to contribute valuable information to research goals.*

Why do we need to make provisions for archaeological research? Isn't it enough to keep up the current practices of identifying and recording sites, which means that mining companies can push forward with their developments and keep Western Australia's economy strong?

One reason is that highly significant archaeological sites are certain to disappear long before we run out of minerals and fossil fuels in the Pilbara region. Not only that, but archaeology provides a wealth of priceless information and knowledge about Australia's majestic, mysterious and intriguing history. Human history is a valuable resource that can never grow back. But, like everything, history is only valuable if we use it in a valuable way.

The reason why more provisions need to be set aside for archaeological research, instead of just maintaining the current practices, is relatively simple to explain. Even if we managed to record every single artefact, grinding patch, rock-art site or scarred tree in the Pilbara, it wouldn't necessarily contribute very much to research value of all those sites. ***The reason is that archaeologists cannot rely solely on basic descriptions of the artefacts themselves to***

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[1] http://www.news.uwa.edu.au/201211145218/appointments/world-leading-archaeologist-appointed-kimberley-rock-art-chair
[2] http://www.theaustralian.com.au/arts/visual-arts/rock-art-oversight-not-up-to-scratch/story-fn9d3avm-1226516947487
[3] Ibid.

answer their research questions, because the research value of an archaeological site is contained within the context of a site or an artefact. *For example, one site might contain several square kilometres and thousands upon thousands of stone artefacts scattered across the surface. The sheer number of stone artefacts present might suggest that the site is highly significant. However, this is unlikely, because the site could be located on a low-lying flood plain and all those stone artefacts might have been washed into that area by seasonal floodwater. Since those artefacts are no longer in their original context, which means that they are in the place where people originally used or discarded them, then the research value of the entire site is significantly reduced.*

Therefore, the answers aren't always found in the objects themselves.
Quality research comes from a much deeper understanding about the context of a site. Not only that, but quality research also comes from finding a balance between salvage and the preservation of a site for the purpose of answering future research questions. This is the reason why academic research programs are often carried out over a period of several years and can only begin after a detailed research plan has been mapped out.

From a personal perspective, the problem isn't that most consultant archaeologists don't want to engage in more detailed archaeological research. Many passionate archaeologists come to the consulting industry, after having spent years as academics developing new methodologies for more effective research outcomes. However, they enter an industry where only a few of the larger consulting companies seem to have enough experience, resources and manpower to facilitate research programs as an integral part of their business plan. To the best of my knowledge, there is only one independent archaeological consulting firm currently operating in Western Australia that has the resources and manpower to offer a formalized research program for all their staff. Otherwise, archaeological consultants or firms, need to have connections with a research institution, like UWA or the ANU, which have the resources to facilitate research or provide the free services of a suitably willing honours student.

As a concluding note on this topic, it seems that necessary changes won't come quickly while our goal, as archaeologists, is to simply make a decent living off archaeology while the resources industry is booming. Change needs to take place within the foundation, which begins with Western Australia's heritage legislation itself. It needs to be restructured in a way that more manpower and funding for heritage is being directed

toward long-term and broader scale research goals, which might be carried out through more effective collaboration between mining stakeholders, consulting archaeologists and research institutions.

To demonstrate the reason why these issues have been raised through this report so far, I will now briefly present some results from an archaeological research project that was conducted in 2010, through the honours program at the Australian National University. The honours research program in question involved the analysis of archaeological material salvaged from two extensive sites of late-Holocene age (approximately 3000 years BP to the present), that were located southwest of the town of Cape Preston, Western Australia. The study area is situated on the border between the Onslow Coastal Plain and the Abydos Plain (Beard 1975: 7) and is bounded to the northeast by the Cape Preston Peninsula. The town of Cape Preston lies approximately 14km northwest of the study area and the Fortescue River is 8km to the southwest (Figure 1 – GoogleMap of the study area).

The two sites - EU-IC-ASM-0862 (DIA 25961) and EU-IC-WAM-0874 (DIA 25962) – were identified in 2008, during a conditional site identification survey conducted through collaboration between three archaeological consulting firms. The two sites in question were considered to be very large

for that area of the Pilbara coastline and were visible from satellite imagery (see Figure 1 above). The sites were located on the banks of two ephemeral creek-lines, which would have been reliable semi-permanent water sources for the prehistoric Indigenous Australians, who most likely inhabited these sites on a regular, seasonal basis. A series of 19 radiocarbon estimates, that were obtained from fragments of shell excavated from sub-surface and surface of the sites, suggested that the sites were occupied up to 2248 years BP[4]. Figure 2 (below) shows an example of artefactual shell that was excavated and analyzed for this research project.

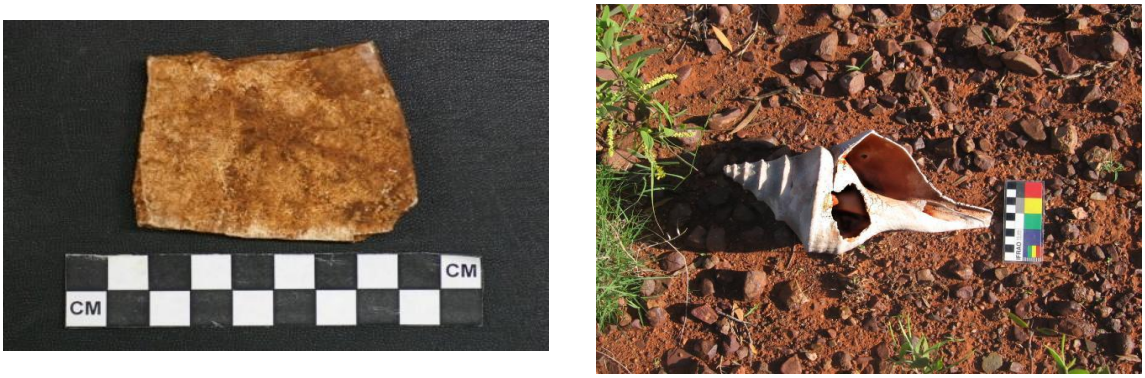


Figure 2: A *Syrinx sp. fragment, excavated from the site, returned a radiocarbon estimate of 2370±30 (left);* A *Syrinx sp. shell with a distinctly square hole cut in the side. This would have served as a useful handle for converting the shell into a container for carrying water (right).*

Approximately 200m downstream, the creeks open into an 800m wide hyper-saline mudflats in the littoral zone. In that area, the coastline is marked by a 9.5km stretch of thin, shrubby mangrove stands.

Both of the sites were characterized by large scatter of discarded shell material and bone fragments, along with stone artefacts and grinding material, which has accumulated along the edge of the adjacent creek-lines. These accumulations of discarded shell and artefactual material meant that these areas were classified as 'shell middens.'

Archaeologists generally use the term 'midden' to describe a discrete area where food or 'kitchen' scraps have been discarded. This word has its origin in the 'kitchen middens' of Europe. A 'shell midden' is generally created as the result of a single-specialized activity; that is the collection and preparation of large quantities of shellfish. When shellfish are gathered and prepared for eating and the shells are thrown away, a 'shell midden' is naturally created in the place where they are

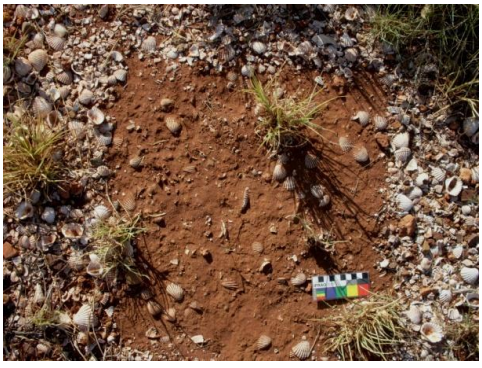
[4] BP = Before Present; where 'present' is standardized as 1950 AD/CE.

discarded. Shell middens across the northwestern regions of Australia often contain species such as Anadara granosa, mudwhelk and oysters, etc. The shell middens at Wiepa, QLD (Figure 3 – right) are classic Australian examples of such specialized activity, where shellfish, in particular A. granosa, were gathered, processed and discarded in discrete areas. The result of this continuing process is the development of large, distinct shell mounds. The distinct size and character of these sites have been a major focus for academic research on Australian shell middens over the past 50 years.

However, academic research also shows that shell middens in Western Australia do not fit the standardized models we currently rely on for understanding shell midden sites. The reason is that there is rarely much vertical depth to the archaeological deposits in Australia's northwest regions.

This research project demonstrated that surface deposits alone don't clearly indicate that the sites contained much significant research value at all. As previously mentioned, the value of an archaeological site is not always what is clearly visible on the surface.

The two sites might not have even been excavated at all, if consideration was only given to archaeological material that was visible on the surface. The photograph to the right (Figure 3) indicates how from the surface, the deposit appeared to be hard, compact silt with a relatively sparse accumulation of archaeological shell material on the surface. In addition, these two comparative photographs (Figure 4 below) demonstrate how shallow the deposit appears to be from the surface. In fact, the only indication that there was any depth to the deposit was due to water erosion along the adjacent the creek line (see Figure 5), which formed a steep cut-away and revealed a potential depth of stratified archaeological deposit of up to 40-60cm for both sites.



Prior to this research project being carried out at the ANU, this evidence of erosion along the creek-line warranted some explorative excavation. Therefore, to assess the depth and structure of the archaeological deposits, a hydraulic digger was used to cut a cross section through the centre of each site. This kind of site disturbance could only be carried out after approvals have already obtained for the sites to be destroyed in preparation for developments. This means the salvage excavations were carried out without making arrangements or setting aside provisions for further research, following the preliminary analysis and research on the salvaged material.

The consultant archaeologists who were leading the salvage operation, made a fair attempt to explore new and efficient methodologies for excavating large sites like these, which appear to contain stratified archaeological deposit. A geo-archaeological expert was sub-contracted from the ANU to excavate the cross-section profile of the sub-strata and collect samples for radiocarbon dating. However, the scope of the salvage contract seems to have prevented further analysis and research of the two sites. Therefore, analysis of the salvaged material was handed over to an honours student with limited knowledge of the excavations and who never visited the sites in person.

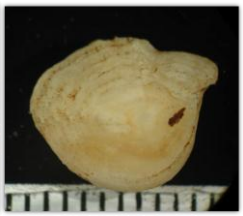
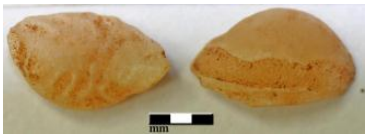
After 10 months of detailed research on the salvaged material and radiocarbon dating of shell material, the sites unexpectedly returned evidence for late-Holocene, prehistoric occupation. ***The unexpected results of this research program are another reason why further detailed academic research of shell middens in the coastal Pilbara region is necessary. It is the reason I am suggesting that provisions for academic research need to incorporated into cultural heritage management practices in Western Australia.***

In an academic research context, this salvage operation would be equal to a preliminary analysis of the sites, to determine some further research questions. In an academic context, it would have been possible to develop further research questions based of the results of this analysis and then revisit the sites two or three times over a period of three years, to conduct further excavations.

This honours project involved the research and analysis of material from only two 50x50cm excavation squares in each site. That was a tiny fraction of material out of what could have potentially been excavated from the two sites and analyzed. Not only that, but this research was focused solely on identifying coastal food resources, such as shellfish and fish and obtaining radiocarbon estimates to date the sites.

However, the sites didn't just contain scattered shell material, but they also could have contributed to research on terrestrial and marine food resources, the production and usage of stone tools and grinding material. The results of this research project suggested that the archaeological deposit contained evidence that the people who occupied these sites were eating a much greater variety of foods than simply shellfish. By examining the minute details, hidden beneath the surface, it was possible to identify a variety of shellfish species, including Anadara granosa (L), Mudwhelk (TL), rock oysters (TR), which were all identified as potentially reliable food resources. Small rock-shore dwellers, such as Hexiplex sp. (BL) and Nerites (BR), which may or may not have been consumed, were also present. No evidence for these coastal food resources were clearly visible on the surface of the sites.

It was also possible to identify turtle bone (TL), mudcrab (BL) and otoliths from catfish (Neoarius sp.) (TR), freshwater grunters (Terepontidae sp.) (MR) and small mudskippers (Gobidae sp.) (BR).




In addition, a variety of locally manufactured and imported stone artefacts were also identified, along with grinding stones. Stone artefacts were also recovered in close association with radiocarbon dated shell material, which provided an opportunity to obtain a radiocarbon estimate for the last use of that stone artefact. For example, one stone adze was found nestled inside an A. granosa shell (BR). A radiocarbon estimate was obtained for this shell, which suggests that it may have been discarded 512 – 635 years BP.

The two sites in question, and in fact the wider coastal Pilbara landscape, had the potential to contribute a vast amount of invaluable archaeological information about late-Holocene lifestyle of Indigenous people living in the coastal Pilbara region, prior to the arrival of Europeans. *However, any further research potential these two sites might have contained is no longer relevant, because the excavations were completed within few weeks, for the purpose of obtaining permission to move ahead with the development of MIC railway. To the best of my knowledge, these sites have now been destroyed. This is the reason for my argument that preservation of archaeological sites and provisions for long-term detailed research programs, including sub-surface testing, radiocarbon dating and detailed analysis. There are a very limited number of sites in the scattered coastal Pilbara landscape, which contain as much research potential. However, with the way cultural heritage management is currently being conducted in Western Australia, these sites will disappear before we even realize how priceless and valuable they were.*

Therefore, if Western Australia's heritage legislation ensures that provisions are being set aside for future academic research, it will be possible to take results of something like this small study and develop further research questions about this intriguing scattered landscape. In doing so, it will be possible to revisit sites to conduct academic research and thereby broaden our understanding of the role that these sites played in the mysterious lives of prehistoric Indigenous Australians, when they were traversing the Pilbara coastline during the late-Holocene.