Friday, 1 December 2017

Open letter to the Government of Western Australia, Department of Water and Environmental Regulation (DWER),

Regarding: Comments on Draft Burrup Rock Art Strategy (September 2017)

This open letter responds to DWER's public exhibition of the Draft Burrup Rock Art Strategy (DBRAS). We welcome the DBRAS as an overarching statement of aspirations and guiding principles for monitoring the condition of Aboriginal rock engravings located on the Burrup Peninsula. As an academic research group, the Place, Evolution and Rock Art Heritage Unit (PERAHU) is concerned with rock art conservation in our Australasian region. This work is focused through an Australian Laureate Fellowship awarded to Prof. Paul Taçon by the Australian Research Council in mid-2016 for the project *Australian rock art history, conservation and Indigenous well-being*. Our staff has a unique blend of technical (material scientific and rock art specialties), anthropological, and heritage management expertise. We provide the following specific comments on the DBRAS with the aim of helping to focus this much needed, ambitious, overarching guide for preserving the Burrup petroglyph assemblage.

Purpose

Rock art conservation in Australia has become a reactionary process (Watchman 2005), largely funded and implemented by industry (Cole & Buhrich 2016), with oversight from multiple levels government and associated regulatory agencies. There is obviously already a heavy industrial presence on the Burrup Peninsula. We welcome DWER putting this overarching strategy in place so that the monitoring of rock art in the region can be implemented in a more considered way in the coming decades. We suggest that the purpose statement be expanded to include a preference for methods of preventive and protective conservation in relation to the Burrup rock art (Agnew et al. 2015).

Introduction

The DBRAS does not currently include an illustration of the location of petroglyphs of Murujuga in relation to the proximity of current industrial operations, or proposed industrial developments. Rather the map supplied as Figure 1 (p. 3) denotes the land tenure zones. While land tenure is absolutely relevant to the DBRAS, this level of detail alone is insufficient in regards to the different *types* of industry currently operating (or are proposed to operate) within the industrial zone. The specific risks posed to the Murujuga engravings are dependent on the type of industrial operation, with the severity of any potential impacts directly correlating to the specific distance of industrial processes from the rock art. The transport of iron ore along a rail corridor obviously carries different associated risks to the petroglyphs than that of an ammonium nitrate facility. In the same vein, the

summary of industrial licences and approvals (Appendix C) could similarly benefit from a column of data stating the distance to the nearest rock art. Relevant infrastructure such as roads should also be mapped in relation to rock art, as numerous studies have shown a direct correlation between dust impacts/emissions and road traffic (Bucko et al. 2011; Paterson et al. 2010; Watchman 1998).

Monitoring and Analysis

We agree that further studies relating to the preservation of rock art such as air quality and microbial activity are warranted in response to growing industrial activity on the Burrup Peninsula. Rock art conservation in Australia over the past 15 years has become overwhelmingly reactionary (Agnew et al. 2015; Cole & Buhrich 2016; Marshall & Taçon 2014; Taçon & Marshall 2014; Ward 2011; Watchman 2005). In this context, we commend DWER for retaining the programs of monitoring colour change and spectral mineralogy. While there have been valid criticisms of these programs, the longitudinal dataset is globally unique and deserves to be continued, as well as the continuation of rigorous scientific peer review of the data. In addition to modifying the existing methodology in response to the scientific peer reviews undertaken, we suggest the addition of complimentary, non-invasive analytical techniques such as portable X-Ray Diffractometry and/or portable X-Ray Fluorescence Spectrometry, which have proved useful in describing geological weathering products (Huntley 2012; Huntley & Officer 2016; Wallis et al. 2015). Investigations into microbial activity should be broadened from the surface of the petroglyphs to include other contexts such as dust (Bell 1984; De Deckker et al. 2008).

In relation to Section 4.1.1 (p. 10), we suggest a review of existing environmental data, including utilising existing industry emissions data. While legislative protections relating to the Burrup rock art have been outlined in Table 1, and a list of current operations is given in Appendix C, it is not clear what environmental monitoring is currently being undertaken by industry in relation to their legal obligations not to impact rock art. The fact that air quality and emissions limits are in place (Table 1, p. 6) does not explain the current mechanisms for monitoring emissions or the consequences for industry if these limits are breached. We suggest mapping the location of current industry-based monitoring stations with a legend that explains the various techniques used and the interval of data capture. Are any of the industrial operations monitoring above compliance? This information should be considered within the context of environmental conditions such as prevailing winds, seasonal rainfall, the location of fresh water bodies, ocean currents and any other relevant variable that could be considered to affect the delivery and retention of industrial emissions, which could detrimentally impact the rock art. While environmental variables have been considered in the specialist studies commissioned in relation to the rock art, and in the environmental impact assessments' relation to approved industrial development, there should be an up-to-date summary to underpin decisions regarding monitoring.

Again, with regard to Section 4.1.1 (p. 10), we support the review of sampling methods and analysis by external expert(s) independent of the key stakeholders. We are pleased, however, that DWER will take advantage of the dedicated expertise cultivated by stakeholders as part of the Burrup Rock Art Strategy. Specifically, we are pleased to see that [redacted] of Friends of Australian Rock Art (FARA) is a proposed member of the Burrup Rock Art Stakeholder Reference Group. [redacted] has cultivated expertise in relation to the preservation of the Burrup rock art and will be a valuable member of the Reference Group. While we do not agree with all of the criticisms [redacted] has

previously levelled at the specialist studies undertaken, he has done so by contributing to scientific debate and inviting the scrutiny of peer review in his work (Black, MacLeod & Smith 2017).

In reference to Section 4.1.2 (p. 10), we think it would be a mistake to separate data collection and analysis. The analysis of data relating to rock art conservation is heavily reliant on the analyst intimately understanding data collection so that they can interpret data trends and patterns within their environmental context. The same individual should ideally do data collection and analysis, and DWER should only employ contractors who possess the necessary expertise across both data collection and analysis. It is entirely appropriate that an independent third party reviews the analytical methods and data interpretation.

Section 4.2 describes one of the criticisms levelled at the 2008 CSIRO acid dissolution tests of the parent geology for the Burrup rock art. However, this has been left open-ended, with no statement about whether the accelerated weathering study should be repeated and/or data analysis redone.

Establishing a coordinated long-term ambient air-monitoring network across all industries should be a priority, as indicated in Section 4.2.1. Rather than responding to industrial development in an ad hoc manner, as has been the history of scientific analyses of Murujuga, air quality needs to be continuously monitored at stations throughout the Dampier archipelago, especially where industrial development is closest to rock art. The location of monitoring stations should be mapped and made publically available as has recently been done in other major industrial hubs such as the Hunter Valley of NSW (http://www.environment.nsw.gov.au/aqms/uhunteraqmap.htm). In addition to increasing the number of air quality monitoring collection sites, we recommend that apparatuses using filter papers are deployed to catch particulate matter so that the source of dusts can be accurately identified and their composition studied in detail (Huntley & Officer 2016; Paterson et al. 2010; Watchman 1994).

It is important that pH is measured in both rain water and at a variety of rock art surfaces throughout Murujuga and that microbial activity and all potential sources of pollution are identified as far as practicable (Sections 4.2.2, 4.2.3 and 4.2.4). We suggest that the review of environmental conditions feeds into these studies as a foundation for understanding threats to the preservation of Burrup rock art.

Management Responses

The title of the DBRAS, specifically “decision-making framework”, implies that there will be triggers for action should monitoring work find that rock art is being adversely impacted by industry. While the Burrup Rock Art Strategy needs to be flexible, some certainty about triggers for action need to be more clearly outlined. It is also unclear who are the decision makers. Section 5’s preamble states that DWER will work with the Burrup Rock Art Stakeholders Working Group to provide a range of management options to government. DWER are stated as the responsible party for implementing the DBRAS (Appendix B), but who will ultimately enforce penalties for any breaches of emission limits or environmental impacts is not clear. We suggest a statement clarifying these responsibilities be added.

Joint management

Aboriginal Australians are taking a more formal role in the preservation and management of their heritage, driving research, assessment, and management agendas relating to their sites. For many years, Indigenous peoples have been not only adopting, but engaging with, modifying, and innovating the use of the western scientific method and technologies to better serve cultural needs now and for the future of their communities (Huntley & Freeman 2016; May et al. 2011). In addition to the involvement of Murujuga Land and Sea Unit in the monitoring program, we strongly suggest the Burrup Rock Art Strategy include dedicated resources to report the findings of commissioned scientific studies to the local Aboriginal community in an accessible way, using plain language and appropriate translations. This is in accordance with DWER's responsibility to facilitate consultation with key stakeholders outlined in Section 6.

Governance

We strongly suggest that the DBRAS be revised to include a requirement that when DWER commissions studies and selects peers to review these scientific investigations, the DWER staff making these selections have a suitable level of scientific expertise and experience to inform such decisions (paragraph 5 of Section 6, p. 14).

Representation on the joint management and advisory committees is proportionally skewed in favour of industry (see below: Stakeholders and Consultation).

Funding

We suggest the DWER website hosts a register of funds contributed by industry and reports commissioned out of the funding pool. This register should be updated in real time and made publically available for transparency of process.

Stakeholders and Consultation

In relation to Appendix B (p. 19), we suggest the Burrup Rock Art Stakeholder Group include five representatives of the Murujuga Aboriginal Corporation, boosting their representation to a third of the 15 member committee in recognition of the primacy of Aboriginal custodianship over the rock art of the Burrup. If the composition of the Stakeholder Reference Group proceeds as is, there would be a single traditional custodian in the room as opposed to up to five pro-industry representatives.

General comments

We are pleased to see the DBRAS take a more conservative approach when discussing the antiquity of the Burrup rock art (p. 3) (Black et al. 2017; Pillans & Fifield 2014; Pillans & Fifield 2013; Watchman, Taçon & Aubert 2014), recognising that establishing the antiquity of the rock art is not straight forward but, more importantly, demonstrating an understanding that the potential Pleistocene age of some of the petroglyph assemblage has little bearing on determining their international significance as priceless cultural heritage.

The DBRAS's meritorious aims of providing an appropriate level of protection to rock art, by building on previous work, in a scientifically rigorous manner, needs to strike a balance between flexibility and certainty. Triggers and deadlines therefore need to accommodate activities and reports that will feed into and guide the DBRAS to insure the best and most up-to-date information is incorporated. It is regrettable that the findings of the Senate enquiry into the protection of Aboriginal rock art of the Burrup Peninsula have again been further delayed with the report now anticipated on 6 December 2017**.** We hope that the DWER's revision to the DBRAS will have time to incorporate any relevant information from the Senate enquiry.

The DBRAS currently focuses on measurable impacts to the fabric of the engravings. The reduction of visual amenity and disruption of cultural landscapes by industrial activity have also been recognised as threats to Aboriginal rock art sites by UNESCO (1999). We strongly suggest that the monitoring program for the petroglyphs of Murujuga attempts to address the cultural context of the physical objects, including visual amenity and the disruption to Aboriginal peoples' cultural practices (if occurring) through secondary impacts, such as access restrictions imposed by industrial activity and associated infrastructure (Sutton et al. 2013).

We thank DWER for the opportunity to comment on the DBRAS. We look forward to the formalisation and implementation of an effective strategy to preserve the internationally significant petroglyphs of Murujuga.

Yours sincerely,

Professor Paul S.C. Taçon
FAHA, FSA, ARC Australin Laureate Fellow (2016-2021) and Chair in Rock Art Research
Place Evolution and Rock Art Heritage Unit
Griffith Centre for Social and Cultural Research
Gold Coast Campus
Griffith Univeristy, Queensland, 4222

Authorship

This document was complied by Dr Jillian Huntley with input from PERAHU staff.

Conflicts of interest

Jillian Huntley recently held Australian Geographic funding to work on Weld Range rock art and ochre quarries. The team for this ongoing project includes Erick Ramanaidou (CSIRO Perth).

References Cited (PERAHU staff underlined):

Agnew, N., Deacon, J., Hall, N., Little, T., Sullivan, S. & Taçon, P. S. C. 2015. *Rock Art: A cultural treasure at risk*. The Getty Conservation Institute, Los Angeles.

Bell, D. 1984. The role of alge in the weathering of Hawkesbuery Sandstone: Some implications for rock art conservation in the Sydney Area. *Institute for the Conservation of Cultural Materials Bulletin* 10: 5–12.

Black, J. L., MacLeod, I. D. & Smith, B. W. 2017. Theoretical effects of industrial emissions on colour change at rock art sites on Burrup Peninsula, Western Australia. *Journal of Archaeological Science: Reports* 12: 457–62. doi:10.1016/j.jasrep.2017.02.026

Bućko, M. S., Magiera, T., Johanson, B., Petrovský, E. & Pesonen, L. J. 2011. Identification of magnetic particulates in road dust accumulated on roadside snow using magnetic, geochemical and micro-morphological analyses. *Environmental Pollution* 159: 1266–76.

Cole, N. & Buhrich, A. 2016. Endangered rock art: Forty years of cultural heritage management in the Quinkan region, Cape York Peninsula. *Australian Archaeology* 75(1), 66–77. doi:10.1080/03122417.2012.11681951

De Deckker, P., Abed, R. M., de Ber, D., Hinrichs, H-u., O'Loingsigh, T., Schefuß, E., Stuut, J-b. W., Tapper, N. J. & van der Kass, S. 2008. Geochemical and microbiological fingerprinting of airborne dust that fell in Canberra, Australia, in October 2002. *G3: Geochemistry, geophysics and geosystems, an electronic journal of the Earth Sciences* 9(12): 1–22. doi:10.1029/2008GC002091

Huntley, J. 2012. Taphonomy or paint recipe: *In situ* portable x-ray fluorescence analysis of two anthropomorphic motifs from the Woronora Plateau, New South Wales. *Australian Archaeology* 75(December): 78–94.

Huntley, J. & Officer, K. 2016. Analysis of dust and other surface deposits within Aboriginal Rock Art Site WCP72, Wilpinjong NSW: Wilpinjong Coal Mine Aboriginal rock art monitoring and assessment program. Unpublished report for Wilpinjong Coal Pty Ltd by Navin officer Heritage Consulting.

Huntley, J. & Freeman, C. 2016. Evaluating non-invasive x-ray techniques for material science investigations of rock art: Community driven Australian research. In R. G. Bednarik, D. Fiore, M. Basile (eds), *Paleoart and Materiality: The scientific study of rock art*, 41–57. Archaeopress, Oxford.

Marshall, M. & Taçon, P. S. C. 2014. Past and present, traditional and scientific: The conservation and management of rock art sites in Australia. In T. Darvill & A. P. B. Fernandes (eds), *Open-air Rock-art Conservation and Management: State of the art and future perspectives*, 214–28. Routledge, Oxford.

May, S. K., Blair, S., Sullivan, S. & Hall, N. 2011. *An-garregen: A Cultural Heritage Strategy for Kakadu National Park*. Report commissioned by Parks Australia.

Parliament of Australia. 2017. Protection of Aboriginal rock art of the Burrup Peninsula. Available at: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/BurrupPeninusla [Accessed: 29 Nov 2017].

Paterson, A., Aubert, M., Morse, K. & Cameron, R. 2010. Background briefing advice regarding possible impacts of emissions from proposed James Price Point Liquid Natural Gas hub. Western Australia on Kimberley rock art. Unpublished report for Kimberley Land Council.

Pillans, B. & Fifield, L. 2014. Reply to comment on 'Erosion rates and weathering history of rock surfaces associated with Aboriginal rock art engravings (petroglyphs) on Burrup Peninsula, Western Australia, from cosmogenic nuclide measurements'. *Quaternary Science Reviews* 91: 73–75.

Pillans, B. & Field, K. 2013. Erosion rates and weathering history of rock surfaces associated with Aboriginal rock art engravings (petroglyphs) on Burrup Peninsula, Western Australia, from cosmogenic nuclide measurements. *Quaternary Science Reviews* 69: 98–106.

Sutton, M-J., Huntley, J. & Anderson, B. 2013. 'All our sites are of high significance': Reflections from recent work in the Hunter Valley-Archaeological and Indigenous perspectives. *Journal of the Australian Association of Consulting Archaeologists* 1: 1–14.

Taçon, P. S. C. & Marshall, M. Conservation or crisis? 2014. The future of rock art management in Australia. In Y. Zhang (ed.), *A Monograph of Rock Art Research and Protection*, 119–41. Zhong Guo Zang Xue Chu Ban She/ China Tibetology Publishing House, Beijing.

UNESCO. 1999. *Convention Concerning the Protection of the World Cultural and Natural Heritage; 22nd Session of the World Heritage Commitee, Kyoto, Japan, 30 November to 5 December 1998.* Retrieved from Paris, 29 January 1999.

Wallis, L., Huntley, J. & Watchman, A. 2015. A study of painted rock art sites in the Central Pilbara: Final report. Unpublished report to BHP Billiton Iron Ore.

Watchman, A. 1998. Composition and source of dusts on Slpit Rock Paintings, Australia. *Rock Art Research,* 15(1): 36–40.

Watchman, A. 2005. Conservation of Australian Rock Art. *Coalition* 10: 14–18.

Watchman, A., Taçon, P. S. C. & Aubert, M. 2014. Correspondence on 'Erosion rates and weathering history of rock surfaces associated with Aboriginal rock art engravings (petroglyphs) on Burrup Peninsula, Western Australia, from cosmogenic nuclide measurements'. *Quaternary Science Reviews* 91: 70–73.

Ward, G. K. 2011. The role of AIATSIS in research and protection of Australian rock art. *Rock Art Research* 28(1): 7–16.