

**From:** [REDACTED]  
**To:** [Burrup Rock Art](#)  
**Subject:** Comments on Draft Burrup Rock Art Strategy  
**Date:** Thursday, 30 November 2017 6:40:48 PM

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To Whom It May Concern,

I'd like to lodge some comments on the "Draft Burrup Rock Art Strategy". I am not sure if I can be considered a direct stakeholder, although the Murujuga rock art clearly deserves World Heritage status, but you may find useful comments by a specialist in rock art conservation.

My comments are mostly about the **scope** of the Burrup Rock Art Strategy.

Monitoring to determine whether change is occurring to the rock art and to assess pollution levels is certainly good practice. However, without scientific research on the alteration mechanisms possibly affecting Murujuga rock art and how pollution can affect these mechanisms, monitoring alone will be of little use, especially if damages are evidenced. For instance, if you observe significant changes in rock colour, you need first to determine whether these changes are due to natural rock weathering or to the impact of pollution. If it's due to pollution, you need then to identify the pollutants that are causing the changes and define critical loads so that the industry knows what pollutants to target and works out a solution to reduce emission. All this is possible only if you know 1/ what are the alteration mechanisms naturally affecting Murujuga rock art, 2/ how pollutants may alter these naturally occurring mechanisms and 3/ what are the mechanisms that are not naturally occurring but may be triggered by pollutants.

A better understanding of the mechanisms affecting Murujuga rock art will also help to improve the monitoring procedure: some parameters may be more relevant to the weathering mechanisms actually occurring than the very commonplace parameters (colour, pH, etc.) that are listed in the Draft Burrup Rock Art Strategy (although these parameters are good starting points).

Unfortunately, rock art weathering is known to be highly dependent on local conditions and using knowledge about generic rock weathering mechanisms won't allow you to interpret monitoring data from Murujuga in a really efficient way and design mitigating measures. Worse than that, it is also important to know that "real-life" alteration mechanisms are extremely complex and involve many interacting parameters. If you don't know exactly what is happening, and decide to act blindly on some parameters that you believe are involved, it may actually lead to completely unforeseen consequences, such as an increase in the alteration rate or the onset of other, even more damaging, mechanisms.

Although there is a passing remark about "new studies to determine [...] the pollution load that may result in deterioration of the rock art" (p.8) that may be interpreted as "doing research on mechanisms", it really strikes me that the Draft Burrup Rock Art Strategy almost completely ignores research to understand alteration mechanisms affecting Murujuga rock art and only focuses on monitoring. Putting it a bit bluntly, it means that you may end up observing damages to the rock art without being able to prevent them because you have no knowledge of what is happening and why it is happening. And by then, it may be too late to start a long term research project to answer these questions.

The critical point is, I think: if you observe damages, what are you going to do ? To be able to answer it, I urge you to include in the Burrup Rock Art Strategy a research programme on the alteration mechanism affecting Murujuga rock art.

Kind regards,

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