

Reconstructing Australian rock art history

DUNCAN LEARMOUTH

duncan.learmouth@durham.ac.uk

Durham University

There are many hundreds of rock art sites located throughout Australia. Whilst researchers have identified distinctive regional styles, there has been little consensus on how these styles might relate to each other and whether such relationships might help contribute to questions related to Australian population history. Using an existing dataset of 104 sites, analysed by the presence or absence of 38 rock art motifs (Layton 1992), an Australian rock art phylogeny was derived using Bayesian statistical software (*Mr Bayes*). Grouping site locations into 12 regional families, and using a majority rule for motif presence/absence, six tree nodes were resolved with greater than 50% posterior probability. The phylogeny shows distinct groupings for Arnhem Land, Kimberley and a third group encompassing the remainder of Australia. This correlates with analysis suggesting these groups are also separated linguistically, with the latter group having been resolved as the Pama-Nyungan phylogeny (Bower & Atkinson 2012). More detailed comparison with this phylogeny indicates further similarities, such as an East/West divide separating both rock art style and language. It also highlights some differences with a south-east (Sydney) group that is somewhat isolated in the rock art phylogeny compared to its linguistic correlate. Although most rock art images so far dated indicate an origin within the last 5,000 years (Langley & Taçon 2010) it is possible that the Sydney region is linked to an older tradition which might explain its anomalous position in the phylogeny. An area close to these sites has previously been highlighted as a possible refuge location for populations during the last ice over 20,000 years ago (Williams *et al.* 2013). Whilst these results are preliminary, they indicate that phylogenetic methods can be applied to reconstructing visual histories thereby providing new material for understanding past human population movements.

References

- LAYTON, R. 1992. *Australian Rock Art: A New Synthesis*. Melbourne: Cambridge University Press.
- BOWER, C. & ATKINSON, Q. D. 2012. Computational phylogenetics and the internal structure of Pama-Nyungan. *Language* 88: 817-845.
- LANGLEY, M. C. & TAÇON, P. S. C. 2010. The age of Australian rock art: a review. *Australian Archaeology* 71: 70-73.
- WILLIAMS, A. N. *et al.* 2013. Human refugia in Australia during the last glacial maximum and terminal Pleistocene: a geospatial analysis of the 25-12 ka Australian archaeological record. *Journal of Archaeological Science* 40: 4612-4625.