Traces in a Lost Landscape: Aboriginal archaeological sites, Dyarubbin/Nepean River and contiguous areas, NSW, Australia (Data Paper)

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Cite this as: Karskens, G. et al. 2019 Traces in a Lost Landscape: Aboriginal archaeological sites, Dyarubbin/Nepean River and contiguous areas, NSW, Australia (Data Paper). Internet Archaeology 52. https://doi.org/10.11141/ia.52.8

Dataset Location

The dataset has been deposited with Open Context https://doi.org/10.6078/M7CR5R8Z with location data removed and replaced with AHIMS record identifiers. The dataset can also be found at NSW Office of Environment and Heritage, Aboriginal Heritage Information Management System (AHIMS) Web Services (ID 104240) with location data included (note that registration is required).

Referee

Referee statement by Lynley A. Wallis

Dataset Content

This dataset consists of Australian Aboriginal archaeological locations of interest in the greater Nepean River area in New South Wales, Australia. Specifically, the data includes:
A database (CSV) of 203 site records with 63 attributes each

63 historical maps, in TIFFs format with associated TWF files

A Digital Elevation Model (DEM) of the research area, sourced from GeoScience Australia

Background

The Traces in a Lost Landscape: Aboriginal archaeological sites, Dyarubbin/Nepean River Project uses geospatial recording and analysis to recover, integrate, and map data from published and unpublished reports on Aboriginal archaeological sites on Dyarubbin/the Nepean River in New South Wales, Australia. The focus area is located on the western side of the Cumberland Plain extending along the river between Emu Plains in the south and Yarramundi in the north, with the contiguous country of Londonderry in the east, and some (though not all) sites in the Blue Mountains on the west. This area was and still is rich in Aboriginal archaeological sites, including both pre- and post-contact sites. Archaeological survey and excavations have been carried out in the area since the 1930s, with intensive activity in the 1980s and 1990s as a result of open-cut gravel and sand quarrying at Castlereagh. Here, a vast area (c.2,000ha) along the Nepean River has been destroyed, including approximately 70 Aboriginal sites and artefact find-spots. However, the areas outside the quarried areas – for example, Yellomundee Regional Park, the Nepean River, Shaws Creek and the lower Blue Mountains – are still rich in Aboriginal sites and artefacts (Knox and Stockton 2019). The aim of this project, then, was to map that lost landscape of Castlereagh, together with extant sites in the contiguous area to provide a landscape perspective for this significant region.

While some rescue investigations and excavation projects have been published (12 articles), the bulk of the survey, excavation, and artefact data collected existed only in 55 unpublished archaeological reports — a large but scattered, idiosyncratic, and unintegrated resource. The sites are, to some extent, mapped at a state-wide scale by the Aboriginal Heritage Information Management Scheme (AHIMS) managed by the New South Wales Office of Environment and Heritage (OEH), but the purpose there is cultural resource management rather than regional research on Aboriginal history and archaeology. This project collates and presents the data at a much more fine-grained level, along with terrain maps and elevation data.

This project was conducted in consultation with the local Aboriginal community and
OEH as described below (see Consultations and Permissions).

**Summary Description**

The broader aim of the *Traces in a Lost Landscape* project is to provide the 'backbone' for an Aboriginal history of this area, one which crosses the artificial boundaries between 'prehistory' and 'history' (Karskens forthcoming), and eventually address the problem, identified by Byrne *et al.*, that until recently, archaeology largely failed to connect with Aboriginal social significance (*2001*, 142). The histories of Indigenous peoples in urban and peri-urban areas is a significant but relatively new field in Australia and worldwide (e.g. Karskens *2009*; Thrush *2007*; Edmonds *2010*; Irish *2014*). Meanwhile, apart from the work of Fred McCarthy (*1948*; *1978*), archaeologists only began to take the Aboriginal archaeology of the Cumberland Plain seriously in the 1980s, often as a result of extensive development in the area and the requirements of Environmental Impact Assessment legislation (Byrne *et al.* *2001*, 23-4).

The focus region, centred on the Nepean River, includes a range of landscapes typical of Western Sydney: the undulating shale country of the Cumberland Plain, rich riparian floodplains and wetlands backed by ancient river terrace uplands, the sandstone base and foothills of the Blue Mountains plateau, and the river corridor itself, with its varied high and low banks and numerous stony fords and falls.

It is now almost certain that Aboriginal people were living on Dyarubbin/the Nepean River as long as 50,000 years ago (Nanson *et al.* *1987*; Nanson *et al.* *2003*; Williams *et al.* *2017*). Systematic excavations in the Hawkesbury-Nepean corridor and adjacent Blue Mountains have steadily revealed increasingly early dates of occupation. At least one site in the adjacent Blue Mountains was occupied 26,500 years ago, near the peak of the last Ice Age (Stockton *2009*, 52; Attenbrow *2002*, 153). The lowest deposits of a large rockshelter on Shaw's Creek showed that people sheltered there 17,800 years ago (Kohen *et al.* *1981*, Kohen *et al.* *1984*). In 2011, artefacts found deep below a site in Thompson Square in Windsor revealed that Aboriginal people visited a sand dune beside the river there 33,000 years ago. In 2014, archaeologists excavating the riverbank at Pitt Town revealed Aboriginal presence there 36,000 years ago. Reviewing all the evidence, archaeologist Alan Williams concluded that 'visitation of the Nepean river corridor by Aboriginal people [was] a part of the initial colonisation of Australia' (Williams *et al.* *2017*). Occupation
and activity appear to have intensified in the late Holocene, and both archaeological and historical evidence show that Aboriginal people continued to live on and around this part of the river well into the early twentieth century (Williams 2013, 4; McDonald 2008, 41; Karskens forthcoming). Today approximately 12,000 Indigenous people live on the Hawkesbury-Nepean river and the country adjacent (Australian Bureau of Statistics 2016 Census). ²

The area was once rich in different types of Aboriginal sites: open camp-sites, tool workshops,³ rock shelters with artwork and stratified occupation deposits, and carved trees. But a large proportion of this heritage was destroyed, first by collectors from the 1880s on, and more recently by development and quarrying. After legislation protecting Aboriginal sites was passed in the late 1960s (Amendment to the National Parks and Wildlife Act 1969), developers were obliged to hire archaeologists to survey their proposed development areas before work could begin. Because development pressures were intense in Western Sydney, hundreds of sites were discovered by consultant archaeologists over the following decades, though they were then almost invariably destroyed to make way for development.

The archaeological reports lodged with National Parks and Wildlife Service (now the NSW Office of Environment and Heritage via the AHIMS database) are rich in detailed evidence, providing precious records of Aboriginal sites which have been lost. However, many of these reports are quite old, dating from the early 1980s, and they tend to be narrowly focused and limited in scope, while the data is often incompatible and the spatial information ambiguous. These issues meant that this dataset required over 300 hours of data collection, cleaning, reconciliation, and standardisation to make it accessible to and reusable by researchers. Finally, the incorporation of information from 12 academic publications (enumerated below) enhanced the value of the reports retrieved from AHIMS.

The use of consultants' reports to produce wider understanding, either of Aboriginal prehistory generally, or of bioregions such as the Nepean River and Western Sydney specifically, has been limited. Exceptions include Josephine McDonald's work at Rouse Hill (2005), which presents findings from an area east of the Nepean study area,⁴ and Val Attenbrow's excellent Sydney's Aboriginal Past, which offers an overview of the entire Sydney region (2002). However, Attenbrow's focus is necessarily broad-brush rather than the detailed reconstruction of a bioregion.
Scope

The data presented here was selected in order to map the spatial distribution of archaeological and historic sites in the Penrith, Castlereagh, Cranebrook, Yarramundi, Agnes Banks, Londonderry, Springwood, and Kurrajong areas. The initial objectives were:

- Reconcile and map sites using unpublished archaeological reports and published articles
- Compile a synthesized dataset of these reports including
  - Locations of known sites, isolated finds, and development-orientated surveys
  - Site type (settler, indigenous or both; open camp or shelter, etc.)
  - Archaeological methods of recovery
  - Artefact densities, if any
  - Age of site, approximate unless otherwise indicated
  - Identification of primary investigator(s)
- Provide a visual representation of this dataset by geo-referencing site locations provided by scanned maps

As a result of incomplete, dated and/or disparate datasets and uncertain projections and locations, the map is not considered to be a highly precise spatial representation of the area or the location of the sites. It does, however, aim to reflect the spatial distribution of sites in the region, and offers an accurate representation of archaeological investigation in the area, particularly over the past 40 years. Elevation data that pre-dated the quarrying in the Penrith Lakes area could not be obtained and, as such, the data for that area cannot be used for accurate hydrological modelling for the pre-quarrying period. Primarily, this dataset was intended for visualisation and provides a composite dataset of sites sourced from 'grey literature' reports – information that would otherwise remain fragmented and relatively inaccessible (Evans 2015).

Consultations and Permissions

Indigenous heritage data in Australia is culturally sensitive, and research on Aboriginal history and archaeology should involve Aboriginal people. We have consulted widely to ensure that we are publishing this data ethically. This paper is
published with permission from the NSW Office of Environment and Heritage (OEH) and Muru Mittigar Aboriginal Cultural and Education Centre. In addition, Traditional Owners representing the country covered by this study were contacted via letters containing information about the project and requesting feedback in the form of comments, suggestions, and objections. These organisations included:

- Deerubbin Local Aboriginal Land Council
- Darug Custodian Aboriginal Corporation
- Darug Tribal Aboriginal Corporation
- Blue Mountains Aboriginal Culture and Resource Centre
- The Gully Traditional Owners Incorporated
- Gundungurra Aboriginal Heritage Association Incorporated
- Gundungurra Tribal Council Aboriginal Corporation

No objections to the project were received from these organisations. A copy of the letter has been placed in Open Context alongside the dataset.

The OEH approved reuse of data from AHIMS under the following conditions:

- The researchers worked with the local Aboriginal community as part of the project. Muru Mittigar was involved from early in the project. Some of the research involved members of Darug Custodian Aboriginal Corporation and Indigenous rangers at Yellomundee Regional Park. The consultation described above was then conducted prior to publication.
- The data was ordered through the AHIMS online system, at which time the academic affiliation of the researcher, and the data's intended use for research, were declared (this process is also necessary in order to waive AHIMS data access fees).
- Publicly-available data from AHIMS must not contain the locations of sites, but should instead include AHIMS record identification numbers.

As a result, the dataset published through Open Context does not contain site locations. We, however, also agreed with OEH to lodge a version of the dataset containing site locations, along with a copy of this data paper, in AHIMS, as its own record. Researchers can request the unabridged dataset, with locations, through the usual AHIMS process.

Reuse requests for data in AHIMS are not routine, but we hope that the process we
used can serve as a precedent for future requests, and offer a model for responsible publication of Australian Indigenous data. As the open science movement brings demands for reproducible (or at least transparent and verifiable) research to archaeology, it will become ever more important to reconcile the imperative for ethically responsible research with the requirement that researchers make their data available (see, for example, the resources listed in ANDS 2019).

**Re-use potential**

At the simplest level, the *Traces in a Lost Landscape* project makes the many reports of archaeologists working in this area over the past 40 years visually accessible as well as offering composite data on Aboriginal sites and artefacts. It thus salvages something valuable from what was a largely non-Indigenous heritage system which oversaw the destruction of scores of Aboriginal sites here — indeed a whole landscape. The project thus has the potential to offer some small redress. For example, it provides strong supporting evidence for the current campaign to have the Castlereagh area declared an Aboriginal Place under section 84 of the *National Parks and Wildlife Act 1974*. It has been welcomed by staff at local Aboriginal cultural organisation *Muru Mittigar* as a valuable addition to their cultural and educational resources.

Inevitably, the project maps the work of archaeologists over the 20th and early 21st centuries, rather than the larger Holocene and post-contact Aboriginal landscape that once existed here. Yet, as Karskens' work will explore (Karskens forthcoming), the two are related, and the number and distribution of sites, artefact types and materials may offer further insights into the tool traditions that have been such a strong focus of archaeological research in this region. Read in tandem with environmental features and historical records, the project may help clarify Aboriginal occupation patterns (open campsites, rockshelters, workshops, bora/burbung grounds) and their relationship to one another, to water, food sources and geographic features like stone outcrops, creeks and wetlands, cobble rapids, high ground and low and soil types. Is there any correlation between the distribution of sites and artefacts and the patterns of burning in the forests, recently identified by Karskens? (Karskens 2019). How do the types of sites (from everyday occupation sites to art/ritual sites) relate to elevation, especially compared with the work of Matthew Kelleher on sacred landscapes in the adjacent Blue Mountains (Kelleher 2003)? What were the impacts
of regular flooding on this archaeological record (Karskens 2016)?

The Traces in a Lost Landscape project has additional research and re-use potential as the core of an expanding dataset. Future researchers surveying in the field could add the hundreds of sites located in the adjacent Blue Mountain and excavated over the past 30 years or provide additional detail for existing sites. 9 Data on settler landscapes and heritage could also be added, which would enhance a much-needed study of post-contact Aboriginal and settler co-occupation – the confluences as well as the conflicts. Finally, set in the wider context of development pressures in Western Sydney, the fact that much archaeological work has been funded by developers themselves, plus the emergence of numerous Aboriginal organisations and issues concerning the nature of academic versus consultant research, the project also has potential for exploring the politics of archaeological investigation and knowledge paradigms during the late 20th and early 21st century.

Relationship to other publications

The dataset draws on:

1. Unpublished archaeological reports from Castlereagh, Cranebrook, Yarramundi, Agnes Banks and Emu Plains stored in Aboriginal Heritage Information Management System (AHIMS).

2. Published articles:
   - Kohen et al. 1981
   - Kohen et al. 1984
   - McCarthy 1948
   - McCarthy 1978
   - Nanson et al. 1987
   - Nanson and Young 1987
   - Nanson et al. 2003
   - Nelson 2007
   - Stockton 1970
   - Stockton 1973
   - Stockton and Holland 1974
   - Stockton and Nanson 2004

References

ANDS 2019 'Indigenous data', Australian National Data Service (ANDS)


Kohen, J.L., Stockton, E.D. and Williams, M.A.J. 1981 'Where Plain and Plateau Meet:
Recent Excavations at Shaws Creek Rockshelter, Eastern New South Wales', *Australian Archaeology* **13**, 63-8.


Nanson, G.C. and Young, R.W. 1987 'Comparison of Thermoluminescence and Radiocarbon Age-Determinations from Late-Pleistocene Alluvial Deposits near Sydney, Australia', *Quaternary Research* **27**, 263-9. [https://doi.org/10.1016/0033-5894(87)90082-2](https://doi.org/10.1016/0033-5894(87)90082-2)


Williams, A.N. 2013 'A new population curve for prehistoric Australia', *Proceedings of the Royal Society Biological Sciences* 280, 20130486, 1-9; and 'Data Supplement' [https://doi.org/10.1098/rspb.2013.0486](https://doi.org/10.1098/rspb.2013.0486)


**Funding statement**
Traces in a Lost Landscape was funded through a research project grant from the Faculty of Arts and Social Science at the University of New South Wales, Sydney, Australia.

Referee Statement by Lynley A. Wallis

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Cite this as: Wallis, L.A. 2019 'Referee Statement' in Karskens, G. et al. 2019 Traces in a Lost Landscape: Aboriginal archaeological sites, Dyarubbin/Nepean River and contiguous areas, NSW, Australia (Data Paper), Internet Archaeology 52. https://doi.org/10.11141/ia.52.8

Each Australian state and territory has different legislative requirements when it comes to cultural heritage management. There are major differences in how each regulatory authority chooses to manage data generated through archaeological and heritage consulting and research projects – so much so that in some instances it is no longer de rigueur to lodge reports or data with any central repository. Consequently, researchers in Australian archaeology (and heritage managers in many instances) can be severely challenged in terms of how they access existing information and data, and how it might therefore be utilised to inform future research. Recent initiatives, such as the Australian Historical Archaeology Database (AHAD) and New South Wales Archaeology On-Line (NSW-AOL), are making great strides in redressing the situation with regard to historical archaeology data. The situation with Indigenous archaeology in Australia is somewhat more complex, given the decades-old struggle by Aboriginal people to have archaeologists recognise them as the genuine owners of their own heritage, with concomitant rights to how that data should be used and disseminated (e.g. Langford 1983).

The Traces in a Lost Landscape (TIALL) dataset, focused on sites along the Dyarubbin (Nepean) River, represents a miniscule fraction of the archaeological data that has been collected in NSW about Aboriginal sites. The proximity of the associated Cumberland Plains to a major urban population, which has proven to be a significant threat to the survival of Aboriginal sites and cultural landscape (as demonstrated through the TIALL dataset), in turn affords unprecedented research opportunities, being literally 'on one's doorstep'. In a significant development for the discipline of archaeology in Australia, the TIALL dataset
draws together information squirreled away in disparate resources, making them easily accessible to a wide audience for the first time. In doing so, the authors have exerted considerable effort in ensuring the data is comparable and consistent, so as to allow it to be utilised effectively. The main value of the dataset is that it opens up opportunities for a landscape approach not otherwise easily adopted. The power of predictive modeling that such an approach affords is of great worth, particularly given the demonstrated long term occupation of their study region. Coupled with the potential to integrate post-1788 site and land-use data, the TIALL dataset demonstrates the potential of an open source approach to archaeological data management.

The authors have conscientiously consulted widely with relevant Aboriginal organisations and persons, and worked closely with the NSW Office of Environment and Heritage in the development and publication of the TIALL dataset. Its publication represents a valuable step forwards in standardizing information held in the 'grey literature' of consulting reports and making them easily accessible to interested persons in an ethically sensitive fashion. In doing so, the authors make a worthwhile contribution to the emergence of a more holistic 'archaeology' that is anchored in the present, incorporates 'historical' and 'archaeological' knowledges, and concomitantly respects Indigenous cultural knowledge and landscapes. Providing future additions to, expansions of and complementary projects to TIALL are similarly undertaken with the approval and support of the relevant Aboriginal communities, ensuring compliance with their wishes about public accessibility of cultural knowledge, the future avenues of research using this dataset could be myriad.


**Footnotes to the data paper**

1. The Aboriginal name for the Hawkesbury-Nepean River was recorded in David Collins in 1795 as *Dee-rab-un*. This spelling *Dyarubbin* was recorded by R.H. Mathews in the early twentieth century as a word for 'yam'. As yams were a staple food on the river, the river and yams probably shared the same name. See David Collins *An Account of the English Colony in New South Wales*, 2 volumes, edited by

2. Calculated from the number of Aboriginal and Torres Strait Island people in the City of Blue Mountains, City of Hawkesbury, City of Penrith, The Hills Shire and Hornsby Shire local government areas.

3. The terms ‘tool workshop’ and ‘surface workshop’ were first used in this area by archaeologist Frederick D. McCarthy in the 1940s and thereafter by later archaeologists including James Kohen and Eugene Stockton – see for example Stockton *et al.* 2019.

4. McDonald’s *Salvage Excavation of Six Sites along Caddies, Second Ponds, Smalls and Cattai Creeks*, was published in PDF format in 2005 by the Australian Association of Consulting Archaeologists Inc., however access is limited as download requires a paid AACAI membership, while a WorldCat search (Accessed 12 August 2019) indicates that the report is not held in any library worldwide.


6. Especial thanks to Peter Chia, Chief Executive Officer, Leanne Watson, former Ranger and Contract Manager and Erin Wilkins former Ranger and Aboriginal Culture and Tourism Supervisor, Muru Mittigar Aboriginal Cultural and Education Centre.


9. For example, the survey work being carried out rangers from Muru Mittigar and Yellomundie Regional Park, and by researchers who are part of the Blue Mountain Education and Research Trust, as well as future archaeological consultants work on proposed development sites or in national and regional parks.