

CONSULTATION INFORMATION PACK

Application for authorisations under the *Aboriginal Act 1988* (SA)

Scientific analyses on Aboriginal objects from the Upper River Murray Region

Applicant:	Professor Amy Roberts of Flinders University
Application Type:	Authorisations under sections 23 and 29(1)(b) of the <i>Aboriginal Heritage Act 1988</i> (SA)
Proposed Activities:	To conduct destructive and non-destructive scientific analyses on 30 Aboriginal objects held in the South Australian Museum's collections, originally collected from the Upper River Murray region between Morgan and the South Australian border.
Purpose:	The analyses will aim to determine how old the objects are, the types of wood used in creating them, what the objects were used for and how they were manufactured/decorated.

Figure 1 - Image of a wooden coolamon (dish) from SAM's collections (image courtesy of the Applicant)



INTRODUCTION

The Minister for Aboriginal Affairs (Minister), who is responsible for the *Aboriginal Heritage Act 1988* (SA) (Act), has received an application for authorisations under sections 23 and 29(1)(b) of the Act from Professor Amy Roberts of Flinders University (Applicant).

Under the Act, authorisation under section 23 of the Act is required to damage, disturb or interfere with an Aboriginal object. Authorisation is also required under section 29(1)(b) of the Act to remove an Aboriginal object from the state.

The current application forms part of a broader collaborative research project between Flinders University and the River Murray and Mallee Aboriginal Corporation RNTBC (RMMAC), with the cooperation of the South Australian Museum (SAM). The broader project is being undertaken through an Australian Research Council (ARC) Future Fellowship and is titled '*From Baskets to Boomerangs: Knowledges, Lifeways and Colonial Legacies*' (FT230100499).

The broader project aims to better understand Australian Aboriginal 'lifeways' through a comprehensive study of fibre and wooden objects. Of the broader project, the Applicant says:

This project, initiated by Traditional Owners, will employ innovative archaeological science techniques, explore colonial legacies and use creative engagement methods to provide new insights into the diversity of Aboriginal experiences and connect Traditional Owners with their material cultural heritage housed in museums.

Research undertaken by Flinders University to date, has identified and catalogued almost 200 relevant objects in SAM's collections. The Applicant is proposing to conduct destructive and non-destructive scientific analyses of 30 Aboriginal objects from this collection, originally collected from the Upper River Murray region between Morgan and the South Australian border (the Research Project, hereafter) (Table 1). These objects include examples of wooden boomerangs, shields, dishes, spears and other items.

Prior to considering whether to grant an authorisation, section 13 of the Act requires the Minister to understand and consider the views of a range of interested Aboriginal parties. Aboriginal Affairs and Reconciliation (AAR) conducts this consultation on the Minister's behalf, seeking the views of Traditional Owners, the State Aboriginal Heritage Committee (Committee) and other Aboriginal parties that the Minister considers may have an interest in the matter.

Information in this document has been provided by the Applicant and adapted by AAR.

INFORMATION ABOUT THE OBJECTS

Information about the 30 objects

The Applicant advises that vast majority of objects subject to the Research Project were donated to SAM by private collectors between 1970 and 2009. Table 1 provides a brief description of each object, along with details on where each object was collected from.

Table 1 – List of the 30 objects, as described by the Applicant

Category & Description	Material	Collection details	Other details
Boomerang	Wood	Morgan, SA	Broken fragment - incomplete
Shield	Wood	Overland Corner, SA	Complete, engraved, Ovoid shape with carved handle
Dish (coolamon)	Wood	Morgan District, SA	Small, concave, complete
Stake	Wood	Winkie, SA	Tapered from butt, complete
Punting pole or spear	Wood	Lake Bonney, Barmera, SA	Distal end has lateral crack
Boomerang	Wood	Barmera, SA (between Spectacle Creek & Blackfellows Creek)	Fragment
Boomerang	Wood	Loxton, SA	Mostly complete
Boomerang	Wood	Barmera, SA	Partly broken
Club	Wood	Barmera, SA	Scorched lines and scallop pattern
Shield	Wood/ochre	Calperum/Renmark	Ovoid with inset handle, red ochre
Dish (coolamon)	Wood	Calperum/Renmark	Fluting, ovoid, deeply convex, scarred margins
Dish (coolamon)	Wood	Calperum/Renmark	Ovoid, damaged
Dish (coolamon)	Wood/paint	Calperum/Renmark	Ovoid, convex, chipped paint flecks
Shaft	Wood/resin	Calperum/Renmark	Fluting, resin head
Spear tip	Wood/sinew	Calperum/Renmark	Sinew binding and wedge in place
Shaft	Wood/sinew	Calperum/Renmark	Sinew binding
Spear thrower	Wood/sinew	Calperum/Renmark	Sinew binding and wedge in place
Shield	Wood	Calperum/Renmark	Ochred, ovoid with inset handle
Boomerang	Wood	Calperum/Renmark	Fluting, blackened end
Boomerang	Wood	Calperum/Renmark	Fluted upper, stained, scoring on reverse
Boomerang	Wood	Calperum/Renmark	Stained?
Boomerang	Wood	Calperum/Renmark	Transverse, scarring at ends
Boomerang	Wood	Calperum/Renmark	One end missing
Boomerang	Wood	Calperum/Renmark	Plain Mulga
Boomerang	Wood/ochre	Calperum/Renmark	Hooked style, ochre, fluting, hole
Club	Wood/resin	Calperum/Renmark	Fluting, transverse scoring, resin
Club	Wood	Calperum/Renmark	Incised 19 th C female figure, tree
Punting pole or spear	Wood	Calperum/Renmark	Long & thin
Club	Wood	Calperum/Renmark	Javelin style
Shaft	Wood	Calperum/Renmark	Broken, tapered point

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Figures 2 and 3 show examples of other objects within SAM's collection, that are subject to this application.

Figure 2 - Image of a boomerang from SAM's collections (image courtesy of the Applicant)



Figure 3 - Image of a wooden shield from SAM's collections (image courtesy of the Applicant)



Consultees who wish to know more about the objects, or would like to receive photographs of any or all of them, are encouraged to contact AAR.

THE RESEARCH PROJECT

Support from the River Murray and Mallee Aboriginal Corporation RNTBC (RMMAC)

In 2023, RMMAC provided a letter of support to the Flinders University Ethics Committee confirming that it is the initiator of the Research Project and that it supports the methods proposed in the Research Project. RMMAC's letter indicates that RMMAC will:

- actively assist the Applicant with Research Project activities
- explore, with the Applicant, co-authorship arrangements for academic publications arising from the Research Project.

RMMAC says that it hopes the Research Project will, *“provide new insights into the diversity of Aboriginal experiences and connect community members with their material cultural heritage housed in museums and other institutions”*.

Of the Research Project, the Applicant says that it *“builds on a longstanding relationship between Flinders and RMMAC that has successfully managed several projects and that continues to contribute to a deeper understanding of Aboriginal histories in this state”*.

Aims of the Research Project

The Research Project seeks to satisfy the following four key aims:

- to determine how old the objects are
- to identify the types of wood used to create the objects
- to understand what the objects were used for
- to learn how the objects were manufactured/decorated.

Types of research proposed

A range of analytical techniques are being considered for the Research Project, though these will not necessarily be applied to all objects. The techniques include non-destructive and non-invasive methods such as some types of microscopy (study with a microscope), as well as destructive methods that include radiocarbon dating, some kinds of spectrometry/spectroscopy (the study of the emission and absorption of radiation and light) and plant DNA analysis.

The methods that may be carried out of the objects include the following:

- collection of small samples from the objects for analyses
- radiocarbon (C-14) dating
- residue and usewear analyses
- various types of ochre analysis
- plant and animal DNA analysis
- morphological, chemical, microscopy and spectrometry/spectroscopy analyses.

Further information about the type and nature of analyses that would be undertaken as part of the Research Project is provided below.

Radiocarbon dating

Radiocarbon (C-14) dating is a scientific method used to determine the age of organic materials up to 45,000 years old.

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Radiocarbon dating requires the removal of small samples of wood (50mg) from the relevant object. The object will be secured, and the sampling surface cleaned (brushed with ethanol) prior to the removal of small samples of wood using a fine (0.8-1.2mm bit) Dremel drill or similar. The drilled wood 'dust' sample will be collected in alfoil and placed in a labelled bag before submission to a radiocarbon dating laboratory. The sampling site will be chosen to minimise visual impacts to the objects. Samples will be analysed using Standard Accelerator Mass Spectrometry (AMS) dating techniques (see description below).

Residue and usewear analysis

Residue analysis involves examining artefacts for remnants of micro-remains left on an object after it has been used or from its manufacture. Usewear analysis involves an examination of artefacts for traces of wear (such as scratches and polishes) which relate to the way an object has been used.

The combination of residue and usewear analyses should provide information about the manufacture/decoration and function of the object. These analyses may be conducted on the objects where these residues have survived. Residues and usewear may be analysed either in situ (e.g. by studying the artefacts under a microscope), or residues may be removed from the objects (including using a solvent, depending on the type of residue present). In some cases, a small fragment (milligram amounts) will need to be removed from the object for analysis in the laboratory. The first preference will be given to material that has potentially fallen off the object into the museum storage boxes, before sampling the object itself. If the object is sampled, the sampling site will be chosen to minimise visual impacts to the objects. Analyses will depend on the residue material and usewear traces and may include the scientific techniques listed below.

Ochre analysis

Various techniques can be applied to the analysis of ochre to determine its unique chemical composition, and in doing so, match this chemical 'fingerprint' to known sources of ochre. Ochre also contains organic components, such as bacteria, fungi or plants. These components can provide information about the source (origin) and history of a particular ochre sample by matching ochre fragments and pigments on artefacts to known ochre sources. In some cases, a small fragment (milligram amounts) will need to be removed from the object for analysis in the laboratory. The first preference will be given to material that has potentially fallen off the object into the museum storage boxes, before sampling the object itself. If the object is sampled, the sampling site will be chosen to minimise visual impacts to the objects. Where present, ochre will be analysed using various microbiological and chemical techniques listed below.

Plant and animal identification

Identifying the plant or animal species used to make objects is often difficult. For the Research Project, the Applicant will use various methods to try to understand the many plant and animal parts that were used in the manufacture of artefacts. Some methods will involve the use of microscopes, others will require very small samples to be taken and will employ techniques such as DNA comparisons with known modern species (plant/animal tissues) and/or other chemical and microscopic analyses listed below. In some cases, a small fragment (milligram amounts) will need to be removed from the object for analysis in the laboratory. The first preference will be given to material that has potentially fallen off the object into the museum storage boxes, before sampling the object itself. If the object is sampled, the sampling site will be chosen to minimise visual impacts to the objects.

Proposed scientific research techniques

For the Research Project, the Applicant proposes to undertake various laboratory-based scientific analyses on the objects, or samples taken from them. These may include:

Radiocarbon dating: Standard Accelerator Mass Spectrometry (AMS) dating techniques will be applied to collected samples. This is a method of radiocarbon dating that requires only very small amounts of material to achieve an age estimation using mass spectrometry (a method that uses ionisation to understand the mass, structure and formula of a chemical compound). The small samples collected for this purpose are destroyed in the process.

Residue and usewear: methods such as Raman microscopy/spectroscopy, Fourier-transform infrared (FTIR) spectroscopy or pyrolysis–gas chromatography–mass spectrometry. Raman microscopy/spectroscopy (which involves the study of the emission and absorption of radiation and light) is considered a non-destructive method of analysis. FTIR spectroscopy (which also relates to the study of the emission and absorption of radiation and light) is also considered a non-destructive method of analysis. Pyrolysis–gas chromatography–mass spectrometry is a destructive scientific analytical technique that requires only small milligram samples and which uses heat to decompose molecules to produce smaller components, which are then separated by a gas column and identified by mass spectrometry (see above).

Ochre analysis: this includes metagenomics analyses and various chemical analyses, such as inductively coupled plasma mass spectrometry, Raman microscopy/spectroscopy, reflectance spectroscopy and X-ray analyses (e.g. diffraction, fluorescence and microtomography). Metagenomics involves the study of the DNA of microbes associated with an environment/object and is a destructive technique requiring only small milligram amounts of sample. Inductively coupled plasma mass spectrometry is a destructive method that is used to understand the elemental composition by ionizing a small sample and then using mass spectrometry (see above). Reflectance spectroscopy is considered non-destructive and also involves the study of the emission and absorption of radiation and light. X-ray analyses use electromagnetic radiation to study the composition, structure and properties of a material. X-ray analyses are generally considered non-destructive techniques providing that long exposure and high-intensity beams are not employed.

Plant and animal identification - Available techniques for this include Raman spectroscopy (see above), infrared spectroscopy (see above), pyrolysis–gas chromatography–mass spectrometry (see above), X-ray analyses (see above) and DNA analyses (which in this project relate to the study of the genetic material of a plant or animal). The DNA analyses for this aspect of the project are also destructive and require only small milligram amounts of sample from the object which will be compared to a reference collection (see also sections above).

Consultees who would like additional information about the proposed scientific research techniques are requested to contact AAR, who will then seek the information directly from the Applicant.

Other information

Ethics Approval

The broader project, of which the Research Project forms a part, received Human Research Ethics Committee approval from Flinders University on 24 October 2022, with an expiry date of 9 September 2027.

SAM approval

The intended analyses will be subject to an approval process by SAM, which would follow if the Minister grants the authorisations, and subject to any conditions. The Applicant's current authorisation request under the Act is a pre-requirement of the SAM approval. SAM personnel will also provide close oversight of the analysis and curation of the objects and may conduct some of the necessary sample collection.

Removal of objects from South Australia

It is anticipated that the bulk of the analyses will be conducted at SAM or at Flinders University. However, external laboratories may be engaged to conduct specific analyses. For instance, radiocarbon dating may be conducted at interstate and international institutions.

Sampling considerations

All the objects are currently housed in the SAM collections under strict curation requirements. It is likely that the collection of samples will be conducted at SAM under the supervision or directly by SAM personnel using strict conservation methods. RMMAC representatives will also supervise any sampling. Where objects need to be removed from SAM for specialist analyses, this will be undertaken under the guidance of SAM personnel in consultation with RMMAC.

The sampling will aim to minimise any impacts to the objects by removing the minimum required samples. Where possible, sampling will be conducted from areas of previous damage and positioned to limit any visual impacts.

Reporting

The results of the Research Project will be the subject of various post-graduate research theses, journal articles and other publications. The Applicant advises that intellectual/cultural property has been carefully considered, and as such, co-authored and endorsed publications with RMMAC is an element of the Research Project. RMMAC will also be provided with a complete set of recorded data, publications and other documents relating to the Research Project. Face-to-face meetings, progress reports and other forms of communication will be routinely undertaken throughout the Research Project.

Timing

The Applicant advises that, if the authorisations are granted under the Act, it would conduct the initial Research Project work through 2025-26, with the Research Project potentially continuing through to 2027.

SCOPE OF AUTHORISATIONS SOUGHT

The Applicant has sought that any authorisations granted by the Minister apply to:

- Professor Amy Roberts, Lead Researcher and Supervisor, Flinders University
- Dr Craig Westell, Research Assistant, Flinders University
- Ms Alyssa de Luna, PhD Candidate, Flinders University
- Mr Juan Marquez, PhD Candidate, Flinders University
- other University thesis students (supervised by Prof. Roberts)
- South Australian Museum staff
- staff at various testing laboratories undertaking the analyses
- agents, staff, contractors and sub-contractors of the above entities.

SECTION 13 CONSULTATION

Before considering whether to grant any authorisation under the Act, section 13 requires the Minister to take all reasonable steps to consult with the Committee, Traditional Owners, and any other Aboriginal persons or organisations that, in the opinion of the Minister, have particular interest in the matter.

Invitation for submissions from interested Aboriginal parties

Submissions are now invited from all interested Aboriginal parties about the Research Project. Consultees may make a submission to AAR in person, by phone, letter, or email. Anyone in receipt of this consultation information pack is encouraged to share it with other Aboriginal parties who may have an interest in the Research Project.

This document is available online at agd.sa.gov.au/heritage-applications.

CONSULTATION CLOSES ON MONDAY 26 MAY 2025.

The Committee will consider all submissions received by the due date. Aboriginal people with an interest in this matter are encouraged to contact AAR to learn more about the Research Project and to lodge a submission. All consultation feedback, submissions and/or requests for further information should be addressed to:

Mr Peter Kapisir
Senior Project Officer (Heritage), AAR
Mail: GPO Box 464, ADELAIDE SA 5001
Email: AAR.CIR@sa.gov.au
Telephone: (08) 8429 9419

When making a submission, consultees should consider and respond to at least the following:

- 1. Should the authorisations sought by the Applicant be granted? Why or why not?**
- 2. If the authorisations are granted, what conditions (if any) should be imposed on them?**
- 3. Will the Research Project provide you with any direct or indirect benefits (e.g. cultural, financial or personal)?**
- 4. Are there any other matters the Minister should consider when deciding this application?**

Consultees may request AAR to keep any cultural information in their submission confidential. Where possible, AAR will accommodate that request; however, procedural fairness considerations may require that the Applicant be provided with a right of response to information that is relevant (or at least so much of the information as is relevant). Otherwise, all submissions will be forwarded to the Applicant in full for comment. Once the consultation period has closed, consultee submissions and the Applicant's comments about them will be forwarded to the Committee, and the Committee's advice will then be sought.

AAR will collate all submissions, the Applicant's responses to them, the Committee's advice, and its own recommendations to the Minister to assist them to make a final decision about the application.

AAR is available to answer questions or provide further information about the application at any time prior to consultation closing on Monday 26 May 2025. AAR is available to assist people to record submissions if they have any difficulty in doing so.

Thank you for taking the time to consider this document. If you are an interested Aboriginal party, AAR encourages you to make a submission about this application.