

# **Mapping Country Project**

## **Overview**

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## **1 Project Overview**

### **1.1 Initiation and evolution of the project**

The Mapping Country Project commenced on the 30<sup>th</sup> May 2005 with the signing of an MOU between the Blue Mountains World Heritage Institute (BMWHI), the Blue Mountains City Council (BMCC), and the NSW Department of Environment and Conservation's National Parks and Wildlife Service (DEC/NPWS), which was also representing the Hawkesbury Nepean Catchment Management Authority (HNCMA).

This project developed out of the NPWS World Heritage Unit's 'Living Country' program. In response to consultations with Aboriginal community groups around the GBMWA who wished to move towards co-management, especially in relation to their cultural heritage in the area, a strategic plan was developed to guide the implementation of co-management arrangements around the GBMWA. The "Indigenous Cultural Mapping World Heritage Pilot Project" was first proposed in 2004 and was to focus on the Gundungurra Tribal Council Aboriginal Corporation that was in a process of negotiating an Indigenous Land Use Agreement (ILUA) with the State Government. In support of the proposed project, NPWS had received a grant of \$100,000 from the Natural Heritage Trust in conjunction with the HNCMA, which had an equal interest in supporting the Aboriginal communities to become more effectively engaged in the decision-making in relation to their cultural heritage, both within and beyond the World Heritage Area. The agreement with HNCMA in relation to the project involved the NPWS providing matching funding.

While these negotiations were going on, the BMCC had come to recognise that they also needed a better means of identifying Aboriginal heritage values within the council area, and were looking to complete the "Blue Mountains LGA Aboriginal Cultural Heritage Study" that would help facilitate a more effective means of achieving this. As both agencies were members of the BMWH Institute, discussions were undertaken in early 2005 to see if these two initiatives might not be brought together in the interests of both efficiency and cost. By May 2005, a set of common aims and objectives were developed along with a work schedule and budget. This agreement was formalised into an MOU between the three partners (Appendix i). It was agreed that BMWHI would take

responsibility for managing the joint project in conjunction with a steering committee made up of representatives of the four partner organisations. Quarterly meetings were held over the eighteen months of the project.

The project was designed to address the specific needs and outcomes sought by each of the agencies (BMCC, HNCMA and NPWS). A lack of Aboriginal heritage information was identified during Council's development and gazettal of its Local Environmental Plan (LEP) covering urban areas (LEP 2005). In light of the recent NSW planning reforms, as well as the need to update its LEP covering rural areas (LEP 1991), Council committed funds towards developing a map-based Aboriginal cultural heritage inventory of the City of the Blue Mountains. The intention was to use this information as part of the MapInfo-based Decision Support tool already used by Council in its development assessment process and in its strategic planning. NPWS has responsibilities under the National Parks and Wildlife Act to manage and protect the Aboriginal cultural values in the national parks estate. NPWS has also identified the need to develop a tool to assist rangers and other technical officers to better protect Aboriginal cultural values in the land management process. NPWS has no specific GIS-based tool for land and heritage management outside the Aboriginal Heritage Information Management System (AHIMS) and required a stand-alone tool that could allow the integration of Aboriginal cultural knowledge into their processes.

In NSW, the state government has been working towards greater recognition of Aboriginal cultural values and the engagement of Aboriginal people in planning and development processes.<sup>1</sup> Government policies around co-management, Local Environmental Planning (LEP) and Environmental Impact Surveys<sup>2</sup> provide roles for Aboriginal people in the development and planning processes for both on and off protected areas.<sup>3</sup>

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<sup>1</sup> DEC's Regional Studies, Dept Planning's Cultural Landscape, and CCA, Co management

<sup>2</sup> For example Department of Planning Comprehensive Coastal Assessment, Plan First, Central Branch Strategic Priorities 2004-2006 (1.6 Aboriginal Co-management Program), DEC Interim Community Consultation Requirements for Applicants

<sup>3</sup> For on-park NPWS Impact assessment process, Consultation Policy, off-park



## 1.2 The objectives of Mapping Country

“Mapping Country” was designed to support Aboriginal communities by providing tools and resources to assist them to research, document and protect their cultural knowledge. This was viewed by the Aboriginal communities around the GBMWhA as an important step in the cultural renewal process. It was also important in helping them to work more effectively with land management agencies such as the NPWS, HNCMA and BMCC in the conservation of their cultural heritage throughout the Greater Blue Mountains World Heritage region.

The Mapping Country project has three main objectives:

1. The protection and conservation of Aboriginal cultural heritage values and knowledge in the GBMWhA and on BMCC lands, and the development of resources and processes that identify the cultural values and threats to those values and methods of conservation.
2. Provision of resources and processes to the local Aboriginal community groups to allow them to engage in decision making processes in relation to conservation and management within and around the World Heritage Area.
3. Provision of resources and processes for land managers to engage with Aboriginal communities in the decision-making processes, to empower local Aboriginal communities and at the same time, protect their cultural knowledge.

To achieve these objectives, the Mapping Country project needed to develop a set of tools and resources that would allow Aboriginal communities and land managers to come together and develop a strategic approach to the conservation of Aboriginal cultural heritage across the region while allowing Aboriginal communities to protect their cultural knowledge. It was acknowledged that the identification and conservation of Aboriginal cultural heritage values could only be done with the proper engagement of Aboriginal communities. This required the development of processes that allow Aboriginal communities to provide information in a culturally sensitive way that protected their rights and interests.

There were four main stages identified for the Mapping Country process (Appendix ii):

1. Assess the current knowledge of Aboriginal cultural values in the study area;
2. Develop a computer-based data management system for an Aboriginal Cultural Knowledge Database;
3. Research and record relevant heritage and cultural data, and assist the Gundungurra and Darug communities build this into their ACKB system.
4. Integrate relevant data into existing GIS data management systems of BMCC, HNCMA and NPWS.

### **1.3 Aboriginal Community Consultation Process**

As already mentioned, the Mapping Country project came out of an extensive period of consultation with the Aboriginal communities of the World Heritage Area. This had been carried out by the NPWS's World Heritage Unit under the 'Living Country' program. In the process of NPWS negotiating an ILUA with the Gundungurra, it was decided that the initial pilot program would be carried out within their Country to support the ILUA.

However with the engagement of the BMCC as a partner in the project it was necessary to include the Darug communities, as Council lands were predominantly in Darug traditional areas or on lands claimed by both communities.

At the outset of the project it was agreed that MOUs would be established between the BMWH Institute and the Gundungurra Tribal Council, Darug Custodians Aboriginal Corporation and Darug Tribal Aboriginal Corporation (see MOUs Appendix iii). This agreement was to ensure that members of the Aboriginal communities understood and agreed with the objectives of the project.

By October 2005 an MOU with the Gundungurra had been agreed by both the executive and council lawyers and signed by the Chairman, Bill Hardy. Both the Darug Custodian Aboriginal Corporation, and Darug Tribal Corporation are committed to taking up the Mapping Country system, however due to changing in the executive of both groups, MOU's have not as yet been signed.

Throughout the project, regular consultation and presentations were made with various members of each of the groups. (see appendix However changes in the executives and membership of the key local Aboriginal organisations was a problem throughout the

project, resulting in the necessity for extra consultation and additional meetings with key community members. This resulted in some delays and difficulties with the project.

## **2. Project components**

### **2.1 The Study Area**

The study area for this project covers 183,298 hectares of the central Blue Mountains (see map, appendix iv). It encompasses the Blue Mountains plateau, the areas known as the Blue Labyrinth, and the Kedumba, Grose and Megalong Valleys including an area around Mt Wilson. This study area was chosen for two main reasons. Firstly, as already mentioned, the area is part of an Indigenous Land Use Agreement (ILUA) being negotiated between the Gundungurra Tribal Council Aboriginal Corporation and the NSW Government, and it was envisaged that the outcomes of this project could support the development of that ILUA. Secondly, the area also covers the land managed by the Blue Mountains City Council.

The Blue Mountains region contains significant evidence of past Aboriginal occupation and evidence of Aboriginal people maintaining their connections to Country in the modern context. These include rock art, camp sites, burial trees, stories and places. There are clear responsibilities for NPWS and BMCC to conserve these values both on and off reserve.<sup>4</sup> As most of the evidence for previous occupation by Aboriginal people of the region is vulnerable to destruction from many activities, it is essential that conservation measures be developed.

There are a number of existing government strategies for conserving Aboriginal cultural heritage in the Blue Mountains: the DEC Blue Mountains Region Cultural Heritage Management Strategy 2002 – 2006; some specific plans of management related to specific places (Blackfellas Hands Cave); plans of management for parks (eg Red Hands Cave); provisions within the Blue Mountains Local Environmental Plan LEP 2005, and through the development control processes.

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<sup>4</sup> “.. (b) the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to:(i) places, objects and features of significance to Aboriginal people, and.....” National Parks and Wildlife Act 1974 No 80, Section 2A, Objects of Act

***Mapping Country GIS Datasets (Disk), Hooper, S. & Ridges, M. BMWHI 2006*****2.2 Development of the ACKB Software System**

A major issue for the Mapping Country project was how Indigenous cultural values should be appropriately incorporated into management processes of the agencies involved in the project. While not in the original budget for the project, it was soon realised that the best possible option for integrating Aboriginal cultural knowledge into the operational procedures of NPWS, the BMCC and the HNCMA, was to develop a culturally sensitive computer data base system which could be linked to the GIS based systems used in planning and operations by these land management agencies.

There were a number of difficulties in taking this course. Firstly, to develop the software for such a system, if commercially contracted, would have cost as much as the entire project budget (quotes to do the work from software companies were in the order of \$300,000). Secondly, in taking this course the project had to confront the fact that most of the Aboriginal communities in the GBMWA were not familiar with computer databases and GIS systems. If the project was to build a computer based knowledge information system then there would need to be a major educational component built into the package.

After an extensive review of the options, it was accepted by the steering committee that a computer data base linked to a GIS system was the best possible option for storing and accessing the information that would be collected and developed within the project. It was decided that to overcome the lack of specific funding for this aspect of the project, an additional application for \$250,000 would be made for a Regional Assistance grant from the Commonwealth Government. This would cover the cost of developing and implementing the software and provide funding for two Aboriginal trainees, one of whom would focus on collecting and managing the Aboriginal knowledge for the database system, and the other to be engaged in the translation of an management information within the GIS based mapping system. However by November 2005 the Institute was notified that the application for funding had been unsuccessful. A contingency plan had been developed in relation to this possibility, which meant cutting back on some of the

project outcomes particularly in the area of archaeological and botanical research and the Gundungurra dictionary.

It was also recognised that in relation to the ACKB system, an open system utilising an XML structure would be a tool that the communities would be able to build upon over time. By making it compatible with the GIS systems of the agencies, it would also be an important tool that would enhance the co-management process.

After reviewing available Indigenous cultural databases, such as the Queensland University / Smithsonian Institute's XMEG system, it was decided that the system needed for this project could be more easily built from scratch, while drawing on some of the principles used in a number of related 'open source' systems. The second major task was to make the Aboriginal community data base compatible with the Mapinfo and Arcview software used by the agencies.

The Aboriginal Cultural Knowledge Database system (ACKB) developed for this project allowed the Aboriginal community to both identify existing heritage sites listed on the NPWS-AHIMS data base or on Council land, and add new places and sites with culturally specific information. In this respect the program made possible a practical framework in which co-management processes could be undertaken without the fear, on the part of the community, that they were losing control of culturally sensitive information. From the agency perspective, having Aboriginal values accurately depicted on operational GIS maps should make it easier in turn to work with the community. The major outcome from this aspect of the project was the ACKB software system and a Users Manual.

***ACKB Manual & Software***, Smith, E. & Hooper, S., **Mapping Country Project, BMWHI 2006, Vol 2.** (see appendix v for technical details on the development of the ACKB Software)

### **2.3 Aboriginal Sites Predictive Modelling**

A second and equally important area of software application involved in this project was the development of the Aboriginal Sites Predictive Modelling tool (ASPM). This was of particular interest to the BMCC, as their LEP and development-related processes need a predictive capability in relation to the location of Aboriginal sites of heritage or cultural importance in bush lands under their jurisdiction. There was also concern that important elements of the Aboriginal cultural landscape, such as plant species traditionally used by the Aboriginal communities of the region, should be identified and conserved where possible. The ASPM system developed for this project was based on an analysis of the geological, topographical and ecological character of known sites, and vegetation types in the World Heritage Area and on BMCC lands.

The system was developed by Shaun Hooper and Mal Ridges of the Spatial Information and Analysis Section of DEC. The value of the predictive model for both the Parks Service and Council is that it could also provide a tool to identify areas where archaeological research could be focused across both the World Heritage Area and on Council lands.

Two spatial products are derived from the ASPM system, a predictive model of archaeological features, and resource accessibility maps based on modelling where Aboriginal people accessed plant resources within study area (for details of Bush Resources see appendix vi ).

The outputs of this component of the Mapping Country project are a report on the development of the system and its methodology, as well as the predictive modelling software package for the study area.

***Aboriginal Sites Predictive Modelling*, Ridges, M. Mapping Country Project, BMWHI 2006, Vol 3.**

**ASPM System, Ridges, M. & Hooper, S. in *GIS Datasets (Disk)*, Mapping Country Project, BMWHI, 2006.**

## 2.4 Archaeological Survey

The survey of archaeology in the study area is divided into three parts, a historical review of archaeological research in the region, an analysis of the main theoretical issues surrounding the interpretation of the site data of the region, and an explanation of how the AHIMS data base was developed and integrated in the GIS-based Aboriginal Cultural Landscape map system used in this project.

It was originally planned that an archaeological field survey in the study area would be carried out as part of the project, to provide additional data from areas that had not been previously surveyed, such as the Megalong Valley. However the survey was deferred, due to lack of funding, and the priority of resources and time being given to the ACKB and ASPM system development, as well as difficulty with Gundungurra community politics throughout much of 2006. The value of the survey would have been to further test the predictive model and to provide additional sites data to the AHIMS register, and to the Gundungurra and Darug communities. Despite this, considerable time was needed in assessing and analysing the existing data of the region. This involved linking the site card data from the AHIMS database, and additional research carried out by independent and amateur archaeologists, to the ACKB, ASPM and GIS map systems. It was also recognised that having set in place the ACKB system for the Gundungurra and Darug communities, and Cultural Landscape mapping system for the land management agencies, the gathering and integrating of additional archaeological research data would be an ongoing outcome of the Mapping Country program.

The output of this component of the Mapping Country project is a detailed desktop survey and analysis of the known archaeological site of the study area, along with the methodology for the integration of the AHIMS data and other data into the Aboriginal Cultural Landscape Map of the study area (Appendix vii.)

***Archaeology of the Blue Mountains - Hooper S, Mapping Country Project, BMWHI 2006, Vol 4.***

## 2.5 Bush Resources

Bush resources of the study area have not until now been compiled in any single form. For the purpose of this project the known plant resources have been divided into three categories – Food, Medicine and Material Resources.

The data was compiled from an extensive literature review drawing on a number of Indigenous and botanical collections including those of the Australian Institute of Aboriginal and Torres Strait Islander Studies in Canberra, the Blue Mountains City Council libraries, Royal Botanic Gardens library, NPWS Wildlife Atlas and a range of websites (see Bush Resources Bibliography, Appendix vi).

Due to aboriginal concerns in relation to intellectual property rights, details about the specifics of use of plant material, especially in relation to medicine, have not been included in this volume.

### **Bush Resources map layers**

Information was collated about the possible bush food, medicine and resource plants that are present, and may have been used within the study area. These were then related to vegetation communities of the region, and the resulting map layers show the relationship of identified plants of Aboriginal economic use within these vegetation communities.

As there was no comprehensive vegetation data for the whole study area, a shape file was developed from soil landscape maps developed by NSW Department of Natural Resources.<sup>5</sup>

A simple vegetation map layer was produced which included the plants known to be used by Aboriginal communities, and which are found within specific vegetation types. This was then converted to a ESRI Grid at a 25 m grid size, giving a grid that shows the number of potential plants resources, food, medicine or material resource within that 25 m grid square.

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<sup>5</sup> <http://www.dlwc.nsw.gov.au/care/soil/ssu/nswssu.htm>



Some field work was also undertaken. A transect was walked for each vegetation community approximately 1km x 5m and a record made of any bush resources identified within this area. This was used along with information from the Royal Botanical Garden's *Cunninghamia* (A Journal of Plant Ecology for eastern Australia) descriptions of vegetation communities for the study area (Keith 1988; Benson 1992); the National Parks and Wildlife Service Wildlife Atlas and other sources to identify their occurrence in vegetation communities in the study area.

This survey is obviously incomplete, and further research is needed into the use of bush resources by the Gundungurra and Darug communities as well as the other tribal groups across the World Heritage area. This could also be enhanced by further analysis of archaeological data emerging from camp sites, and the rock art of the region. Such data would contribute to greater understanding of Aboriginal land use and management practise within the World Heritage Area. The list of plants used and the sources from which they were drawn are to be found in the Bush Resources Bibliography, and also the Annotated Bibliography in this volume.

The outcome of this component of the project was a compilation of the known plants that were traditionally used in the region, and maps showing the distribution of the vegetation types where these plants were found. Please note that while the main maps and datasets are to be found in this volume, bush resources are also addressed in the Predictive Modelling report in Vol 3.

***Bush Resources Data & Map, Hooper, S. & N. Mapping Country Project, BMWHI 2006 , Appendix vii, Vol 1 & Mapping Country GIS Datasets (Disk).***

## **2.6 Gundungurra Wordlist**

It is well recognised that a critically important part of the process of cultural renewal amongst Aboriginal communities has been the rediscovery and reintegration of traditional languages into everyday life. In order to enhance the cultural value of the information provided as part of the project, it had been planned to develop a full dictionary of the Gundungurra language. Due to budgetary limitations already mentioned, this ambitious task was reduced back to an extensive wordlist. However

during the project an elementary grammar of the Gundungurra language was identified and together with the wordlist provides a useful resource to the community.<sup>6</sup>

This wordlist was developed in the conjunction with the Aboriginal linguist Chris Kirkbright, and can be integrated into the Gundungurra Tribal Councils ACKB system. The sources for the word list were five studies of the Gundungurra language<sup>7</sup>. A limitation of the wordlist is the lack of a standardised orthography. This is due to the limited number of published works on the Gundungurra language, with wordlists compiled between 1901 and 1993, and each adopting slightly different orthographic conventions. While it might have been possible to standardise these for the purpose of this word list, it was agreed, after consultation with the community, that such standardisation would need to be a much longer term project, and undertaken with the full engagement of leading elders of the Gundungurra community. It was therefore considered more appropriate to use the orthographic conventions of the sources publication in compiling this word list.

The regeneration of the Gundungurra and Darug linguistic tradition might well be enhanced with the wider appreciation within the European community of their traditional names for plants, animals and places; also their use, along side English, on signage in Gundungurra and Darug areas of the World Heritage Area.

The output of this component of the project was the development of a comprehensive Gundungurra Word List based on known published sources.

***Gundungurra Word List*, compiled by Rogers, J. & Hooper, S. Mapping Country Project, BMWHI 2006, Vol 5.**

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<sup>6</sup> Besold, Jutta. (2004) A sketch grammar of Gandangarra (Gundungurra). A 'Sleeping' Language of South Eastern New South Wales. B Arts (Hons) University of Melbourne

<sup>7</sup> Kohen, J (1993) A Dictionary of the Gundungurra Language in Stockton, E., Ed. Blue Mountains Dreaming - The Aboriginal Heritage of the Blue Mountains. Winmalee, N.S.W., Three Sisters Publication.

Mathews R H (1901), The Gundungurra Language, American Philosophical Society -- Proceedings, v.40, no.167, 1901; [140]-148

Meredith, John (1989) The last Kooradgie : Moyengully, chief man of the Gundungurra people, Kangaroo Press, Kenthurst, N.S.W.

Ray, S H (1925) Aboriginal Language, Illustrated Australian Encyclopaedia, v.11, 1925; 2-15

Sims, Bessie, (1901) "Gundungurra grammar / with holograph notes by M.M. Everitt and covering letter by E.C. Long"

## **2.7 Aboriginal Cultural Landscape Maps (ACL Maps)**

An important component of this project are the maps of known Aboriginal cultural sites in the study area, which are provided to both the partner agencies and the Aboriginal Community. These were developed from the archaeological and predictive modelling components (see vol 3 & 4), and have been generated through the project's GIS system. These ALC Maps have been produced to provide a medium for land managers and Aboriginal Communities to talk about the conservation of Aboriginal cultural values. They provide a mapped outline of areas that are of concern to the Aboriginal Community. Used in conjunction with the Archaeological and Predictive modelling systems, these maps provide a context for planning, discussion and decision-making about conservation and management objectives between Land Management Agencies and Aboriginal Communities.

### **The Cultural Landscape Mapping process**

Sites of identified cultural value across the study area were mapped using the Arcview geographic information system. Polygons were used to show places sourced from historical documents, the DEC's Aboriginal Heritage Information System (AHIMS), places known to the Aboriginal community, data from unpublished archaeological surveys, and other similar sources.

### **Cultural Landscape Codes and Descriptors**

To allow for consistency in dealing with Aboriginal Cultural Heritage across NSW, the categories used by Gavin Andrews<sup>8</sup> provide a way of identifying sites of Aboriginal Community value within an area, without fully disclosing the exact nature of the site or place, have been adopted.

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<sup>8</sup> Andrews, G., C. Daylight, et al. (2006). Aboriginal Cultural Heritage Landscape Mapping of Coastal NSW. prepared for the Comprehensive Coastal Assessment by the NSW Department of Natural Resources. Sydney.

Field Name	Description
CL_Code	The code that describes the site or place as set out in the table below.
CL_Name	The full descriptive name set out in the table below
Site_Id	A number for the site that is used to identify the particular site or place of interest with the relevant Aboriginal Community.

The following table sets out the codes and descriptors used by Andrews and Daylight (ibid) in their Aboriginal Cultural Heritage Landscape Mapping of Coastal NSW as part of the NSW Comprehensive Coastal Assessment (CCA).

Code	Name	Description
A	Spiritual / Ceremonial	includes places and areas of creation and law stories (legends), ceremonial activity areas, gender specific areas, burials, etc
B	Physical Evidence	includes the diverse array of archaeological sites on record (DEC), and also those additional sites and areas known to the Aboriginal communities.
C	Environmental Knowledge & Resources	includes places and areas known for their cultural resources (foods, medicines, implements, etc), and environmental knowledge areas (increase sites, weather knowledge, etc).
D	Historical	includes post colonial places and areas of importance such as conflict areas, massacre areas, missions, etc.
E	Social / Economic	includes traditional travel & trade routes, contemporary social gathering areas, etc.

The “site id” field refers to an identifying number in the relevant Aboriginal Communities Aboriginal Community Knowledge Database (ACKB) software.

## **Updating the Information**

The ACKB software provides Aboriginal communities with an array of tools that allow them to enter data into the system, and add information about the values they hold in relation to any specific item identified on the map (see Vol 2). This is then protected by a password that allows levels of access to be set. The software has the capacity to produce ESRI Arcview Shape files. These can be produced to update information in relation to areas and items indicated on the map on an ongoing basis. It will also allow new areas to be formed in relation to the discovery of new sites such as rock art caves etc.

The output of this part of the project is an Aboriginal Cultural Landscape Map for the study area.

**Aboriginal Cultural Landscape Map of study area, in *Mapping Country GIS Datasets* (Disk) & Appendix vii, Vol 1.**

### **2.8 Maps of Gundungurra and Darug areas**

Another important component of the project is the maps showing Darug and Gundungurra areas of interest. These indicate the extent of “country” for each group. Darug Tribal maps were created by discussion with Darug Custodian Aboriginal Corporation, and Darug Tribal Chair. Darug tribal may now not agree with this boundary as a new executive committee has only recently been formed. The Gundungurra tribal area is taken from the National Native Title Tribunal GIS layer of claims ([http://www.nntt.gov.au/publications/maps\\_landing.html](http://www.nntt.gov.au/publications/maps_landing.html)) and is a public document downloadable from Geoscience Australia (<http://www.ga.gov.au/>).

**Maps of Gundungurra and Darug areas, in *Mapping Country GIS Datasets* (Disk), & Appendix viii, Vol 1.**

### **2.9 The Annotated Bibliography**

A bibliography of literature relevant to the project’s core themes was developed throughout the project and annotated in term of its relevance to research fields and components parts of the project. While not exhaustive it does constitute a valuable research reference list. These materials were drawn from a wide range of collections in

libraries, and government reports, including online sources. Where possible the annotation details the relevance of the work to either the Gundungurra and Darug communities, and to specific aspects of the project. Like other aspects of this project, the bibliography is designed to be built upon in the future both the Aboriginal communities and partner agencies. It can be searched and organised in relation to a number of designations, for example to identify works relevant to either of the two tribal groups or in relation to Bush Resources or Archaeology etc. This Annotated Bibliography therefore provides a useful research tool in this own right. Separate specific bibliographies are provided in the additional four volumes.

**Annotated Bibliography , Hooper, S. in *Mapping Country GIS Datasets (Disk) & Appendix ix, Vol 1.***

### **3 Project and Financial Management**

#### **3.1 The Budget**

The day to day financial management of the Mapping Country project was carried out by the BMWH Institute, with the oversight of the steering committee. At regular quarterly meetings, the budget was reviewed and adjustments made were necessary in relation to the scope of the project's outcomes. The budget for the overall project was not adequate to do all that was envisaged at the project inception, as already mentioned.

The financial contribution to the project were as follows:

HNCMA	\$100,000
NPWS	\$105,000
BMCC	<u>\$ 157,500</u>
Total	\$ 362,500

The failure to get the additional funding sought from the Commonwealth government (\$250,000), to support the development of the ACKB and GIS software systems and to provide training for two Aboriginal community members, meant cutting back on some outcomes, while maintaining the integrity of the project's overall objectives. This involved adjusting the scope and cost where possible as the project progresses. It was also recognised by the steering committee at the outset, that it was not possible to specify the time needed to achieve all the outcomes, especially as many of these required contributions from both the Aboriginal communities and government agencies.

There were a number of unanticipated delays such as the arrival of AHIMS data, and provision of an Arcview GIS software licence from NPWS, as well as the time taken in getting agreements in relation to MOUs with the Darug and Gundungurra communities. While these and other factors led to considerable delays in the completion of some components, and in meeting some milestones, the project as a whole has been completed on time and within budget.

### **3.2 Staffing and project management**

Staffing for this project consisted of one full time position of project coordinator which was undertaken by Shaun Hooper, who, in his previous role at the World Heritage Unit of NPWS, had developed the original Mapping Country proposal. A part-time assistant position was initially provided by the World Heritage Unit of NPWS, but due to staffing difficulties this was changed to financial support to cover the cost the position.

Short-term contractors were employed to undertake specific functions such as software development (Edward Smith), linguistic research (Chris Kirkbright), archaeology (Wayne Brennan & Lisa Clements), research and other assistance (Nicola Hooper, Jo Rogers, Teekee Marloo, Elly Chatfield). Support was also provided to the project from a range of partner agency staff such as Mal Ridges (DEC) for development of the predictive model, Paul Tacon (Aust Museum/ Griffith University) for rock art, and Wayne Brennan and Michael Jackson for archaeology. Administrative support for the project was provided by the Institute, and John Merson acted as the project supervisor. The steering committee for the project was Angela Langdon (BMCC), John Lennis (HNCMA), Lenore Lindsay & Jacqueline Reed (NPWS) and John Merson (BMWHI).

## **4 Conclusion**

Mapping Country has been an extremely challenging project. Its objective was to support the complex process of co-management through the development of new tools and a new framework for Aboriginal Communities and Land Management Agencies to work together. The first challenge was developing a computer based system which would allow the Gundungurra and Darug communities to codify and systematically document their cultural values in relation to heritage sites and cultural landscape, represents a major change in the way such issues have been traditional addressed. It will be a matter of time to see how successful that aspect of the project will prove to be.

The second challenge was to develop an appropriate means for the Aboriginal communities and land management agencies to have common tools and procedures. The linking of the ACKB system with the GIS mapping systems of land management agencies such as NPWS, HNCMA and BMCC had not been done before, and at the outset was seen by many to be technically too difficult, costly and uncertain in its outcomes. While these technical and conceptual challenges were overcome by the project, the crucial test of its value will be in the use to which it is finally put, by both Land Management Agencies and the Aboriginal Communities involved.

It is our belief that the Mapping Country project provides a new context and tools whereby management decisions in relation to Aboriginal heritage can be more easily discussed and agreed upon, through the use of common GIS maps, linked to a culturally appropriate data base of Aboriginal community knowledge and values. If the Mapping Country process is successfully applied it will represent a small but important step towards the goal of genuine partnership and co-management.

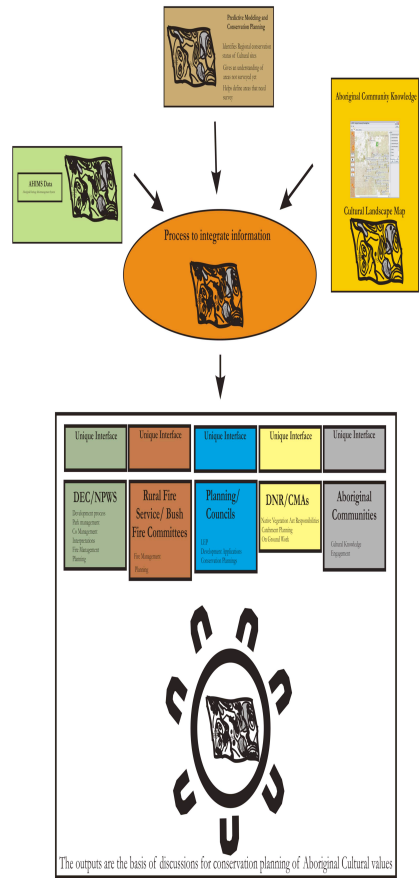


## **Appendix i**

### **Mapping Country MOU**

## Appendix ii

# Mapping Country Process

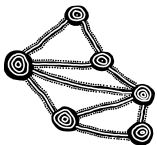


# Mapping Country Project

## Mapping the Aboriginal Cultural Heritage Values of the Greater Blue Mountains World Heritage Area

A joint project of the Blue Mountains World Heritage Institute, Blue Mountains City Council and NSW Department of Environment and Conservation Parks and Wildlife Division (National Parks and Wildlife Service)

Version 2.0  
25 May 2005



“Communities” – Aboriginal People of the Greater Blue Mountains

Illustration by Shaun Boree Hooper © 2005

## Introduction

Blue Mountains City Council (BMCC) and NSW Department of Environment and Conservation Blue Mountains Region (DEC) have identified the need to integrate Aboriginal cultural values into their land management processes and to develop better tools to work with Aboriginal communities for the protection and conservation of those values.

To help achieve this, the “Mapping Country” project is being implemented by the Blue Mountains World Heritage Institute (BMWHI) in partnership with BMCC and DEC under a Memorandum of Understanding. The two projects being combined into the BMWHI Mapping Country project are the DEC “Indigenous Cultural Mapping World Heritage Pilot Project” and the BMCC “Blue Mountains LGA Aboriginal Cultural Heritage Study”. There will be 4 main stages of the Mapping Country project: (1) assessing the current knowledge of Aboriginal cultural values in the study area; (2) developing a computer-based data management system for an Aboriginal Cultural Knowledge Database; (3) field survey and recording (archaeological survey; ecological knowledge survey; oral histories); and (4) integration of the data into the existing data management systems of BMCC and DEC.

The project will address the specific needs and outcomes sought by each of the two agencies (BMCC and DEC). BMCC has specific requirements around the environmental planning process and public land management. They have an existing GIS which is used in the development assessment process and requires the integration of Aboriginal cultural information into this system to allow better protection of Aboriginal cultural heritage in the land development process. DEC has responsibilities under the National Parks and Wildlife Act to manage and protect the Aboriginal cultural values of the National Parks estate. DEC has also identified the need to develop a tool to assist rangers and other technical officers to better protect Aboriginal cultural values in the land management process. DEC has no specific tool to manage land management information at present and requires a stand-alone tool that can allow integration of Aboriginal cultural knowledge into their processes.

## Outline of the Mapping Country Process

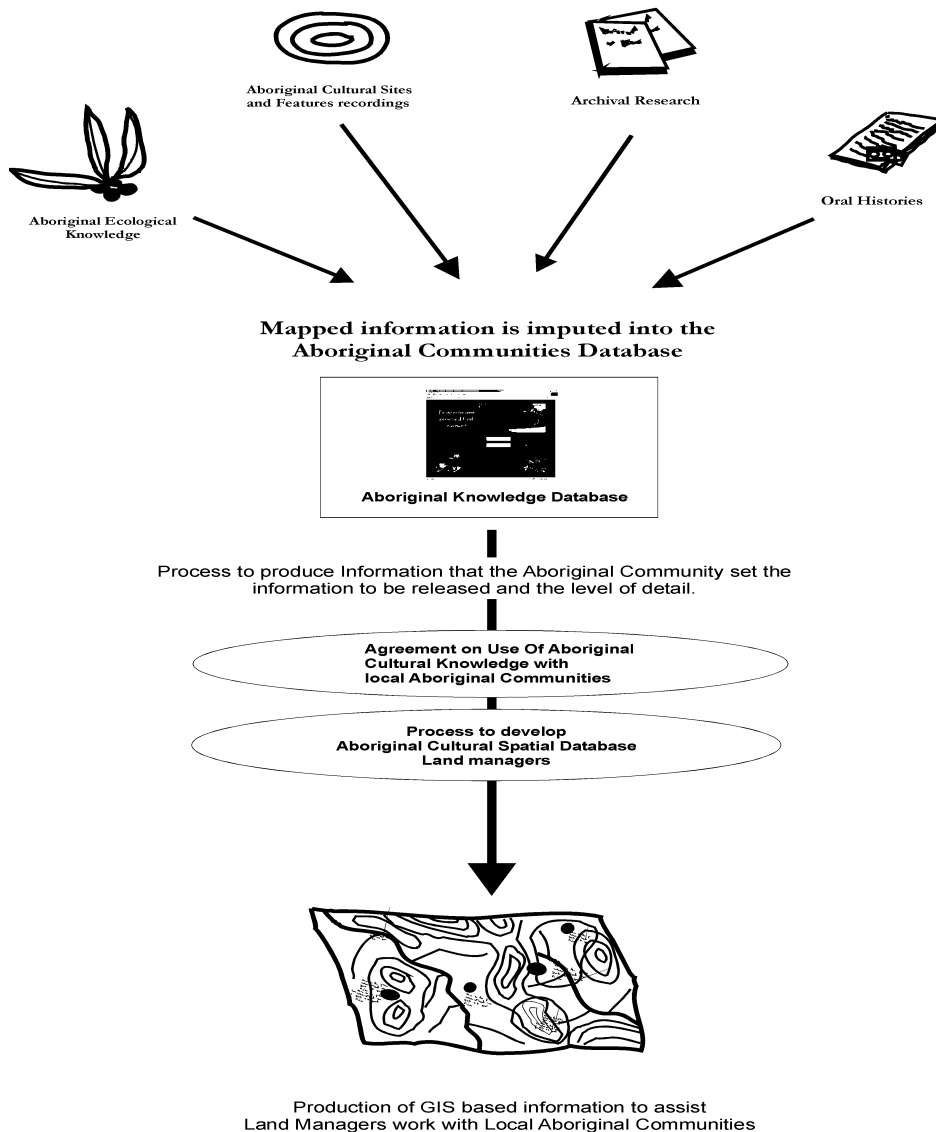
Assessment of the wide range of Aboriginal cultural values in the study area will be undertaken in partnership with the local Aboriginal communities. Aboriginal people have occupied every part of Australia for well over 65,000 years. During this time the Australian environment has been changed both by the forces of nature and Aboriginal land management practices. From an Aboriginal perspective, the Australian continent has been formed and reformed by a series of dramas played out by spiritual beings, humans and plants and animals throughout the Dreamtime which has developed the Australian environment.

Of course much has changed over the last 200 odd years with the coming of white people.

Out of this long period of cultural interaction with the Australian continent, Aboriginal people's culture developed close relationships with land. This close relationship is often given the name of "Country". Country is a holistic description of the group of connections that Aboriginal people have with the landscape. This involves rights, responsibilities, knowledge and spiritual, physical and kinship connections. It is this "connection to Country" that drives Aboriginal people's need to be involved in the management of land in NSW.

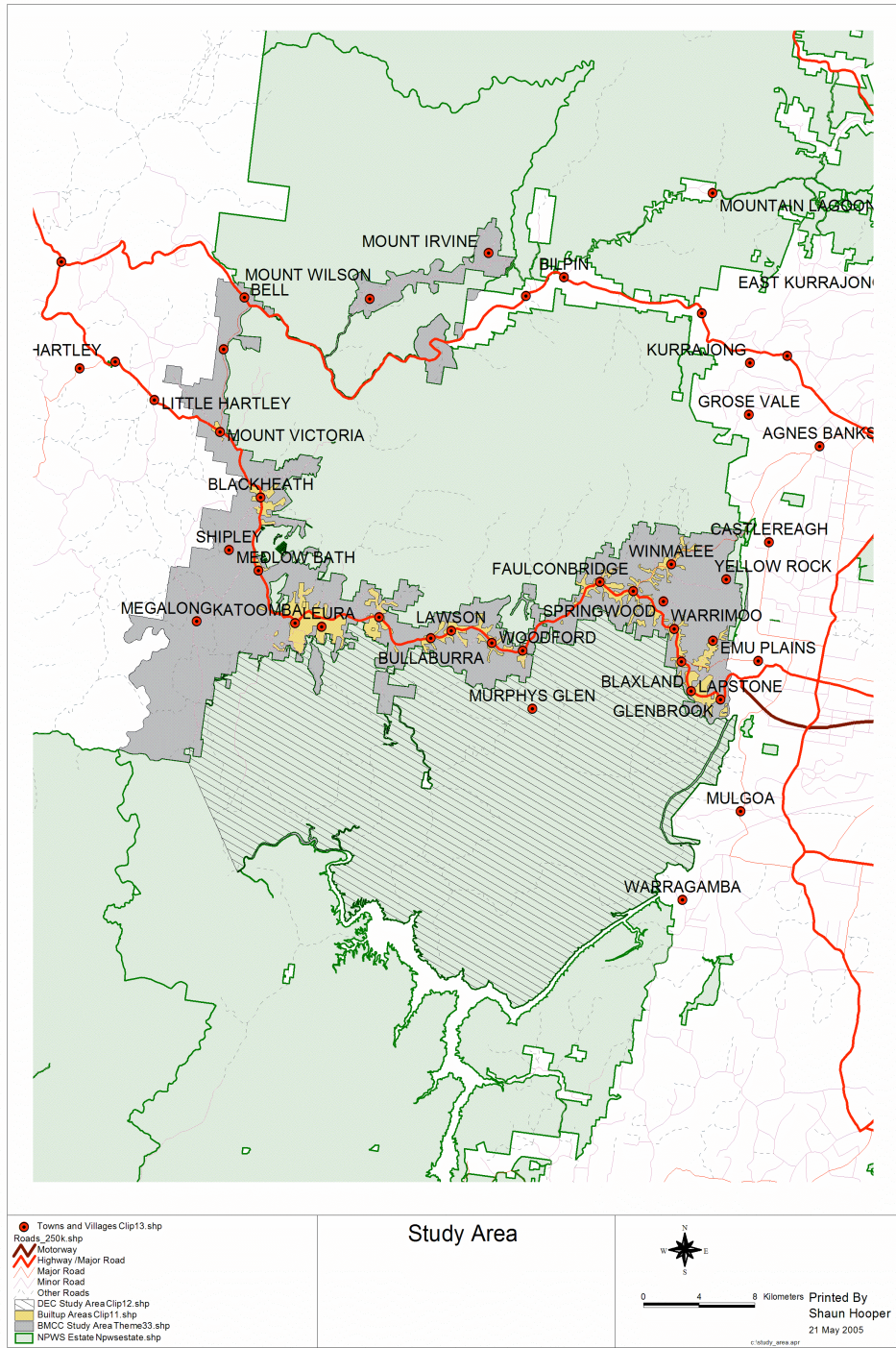
Engagement of local Aboriginal communities in the land management process is the only way to truly integrate their values and wishes into a project. The development and use of any system should not replace meaningful and inclusive Aboriginal involvement.

## The Mapping Country Process



### The Study Area

The study area of the project covers the central Blue Mountains Plateau, Blue Labyrinth and Kedumba valley areas. The map below identifies the main BMCC component and the NPWS component of the study area.



## **Project stages**

Outlined below are the stages of the project and their component tasks and timeframes. The 4 main stages of the project are:

1. Scoping.
2. Database construction and development.
3. Field survey and recording.
4. Integration of the data into the data management systems of BMCC and DEC.

### **Stage 1 - Project scoping (June-Aug 2005)**

The scoping stage of the project will assess the current knowledge on Aboriginal cultural values in the study area. This will identify all previous studies, reports and other work done in the study area.

<b>Task</b>	<b>Details</b>	<b>Date</b>
1. AHIMS Database Review	Review status of the sites data held in the DEC Aboriginal Heritage Information Management System.	June-July 2005
2. Annotated bibliography of Aboriginal Cultural Heritage in the study area	A comprehensive listing of all references relating to the study area, including a review of the literature which assesses the extent of previous work and implications.	June-Aug 2005
3. Review of previous archaeological work in study area and surrounds	In conjunction with the bibliography, a review of all previous archaeological work in the study area will assist in the development of the survey strategy.	Aug-Oct 2005
4. Timeline of events related to Aboriginal people in study area	A timeline will be developed of events and dates relative to the Aboriginal occupation of the study area.	June 2005
5. Gap analysis and report on Aboriginal Cultural Heritage in the study area	An overall gap analysis on information resulting from the above tasks, with recommendations for the next stages of the project.	Aug 2005
6. Language Bibliography	A bibliography of all known references to the Aboriginal languages in the GBMWA and a resource folder for each language group of all archive materials.	June 2005
7. Report on Aboriginal languages of the GBMWA	This report will describe from a linguistic perspective: - the Aboriginal concept of "boundary" in the study area; - the relationship between kinship clan area and language area; - the relationships between the Aboriginal languages in the GBMWA and surrounds. A map will be prepared showing different languages/dialects spoken in the GBMWA and provide support for the identification of	June-Aug 2005

	each area.	
8. Gundungurra dictionary	This dictionary will be prepared from all known sources together with a brief description of the grammar to support Gundungurra Tribal Council's involvement in the project. A separate project will assist Darug to compile a dictionary.	July-Aug 2005
9. Issues of Orthography Discussion Paper	This will discuss the issues of orthography for using Aboriginal language in the GBMWH, and will include a standard spelling and pronunciation system for Aboriginal languages of the region for approval by the Aboriginal Traditional Owners of the area. It will also describe the use of hand language in Aboriginal Language.	Aug-Sept 2005

### ***Stage 2 – Database construction and development \* (Sept 2005 - on-going)***

\* This stage of the project will be funded separately (not by the funding partners under this MOU) but will be key to delivering the outcomes of the project.

The data that already exists and that which will be generated through the project, needs to be collected and managed in culturally sensitive and appropriate ways, with ongoing utility and integrity of the dataset. Therefore, central to the project will be development of a computer-based data management system which aims to provide a method for Aboriginal communities to preserve cultural and historical information in a digital format that is easily searched and accessible to the communities. This will also empower Aboriginal communities to engage as equal partners in the land management process.

The project will utilise a data description system which has been developed by the Distributed Systems Technologies Centre (DSTC.edu.au) at the University of Queensland. The system is able to manage images, photographs, manuscripts/documents, oral histories, languages, songs, videos, historic footage, documentaries, interviews, tribal ceremonies/dances, and assist in the management of physical artifacts. The system allows for sharing and exchange of knowledge and material within and related to Indigenous collections. The person who supplies the information to the system defines ownership, dissemination, access and copyright permissions so that it can ensure customary laws and protocols are protected.

The system protects the rights and wishes of the person who deposited the information in the system through Access Restrictions that are defined by the person or Aboriginal Community. The structure of restrictions can be based on: membership of a particular clan or tribe; status within the tribe (uninitiated, initiate, elder); role within the tribe (midwife, hunter, dancer); gender; relationship to people (kinships), animals, places;



objects depicted in the resource; the death of people recorded in a resource; and the context in which the resource will be reused or reproduced.

To support the development of the database, manuals and a training program will be developed and run for the whole community and two Gundungurra People from Gundungurra Tribal Council will be employed on the project. One person will be trained in the system as an administrator and will input data into the database for 6 months. This person can then provide support and further training within the Aboriginal Community. The second person will be trained in the collection of data using a variety of methods of digital data collection and work for 18 months as part of the project team collecting the data for the database.

### ***Stage 3 – Field survey and recording***

The main components of this stage of the project are:

- Archaeological Survey
- Aboriginal Ecological Knowledge Survey
- Recording of Oral Histories

<b>Task</b>	<b>Details</b>	<b>Date</b>
1. Archaeological Field Survey Strategy Development	To gain a better understanding of the Aboriginal Cultural Values of the study area a Archaeological Field Survey Strategy will be developed from consultation with DEC, BMCC, Local Aboriginal Communities and the Gap Analysis. This will also support the development of the modeling project and allow for field testing of the models developed.	June-Sept 2005
2. Develop MOU's with Gundungurra and Darug communities.	Includes agreement on collection and use of knowledge.	May-June 2005
3. Archaeological Field Survey	All identified Aboriginal sites and places will be recorded and training provided to the local Aboriginal community to assist in these recordings. A list of targeted sites will also be developed with the local Aboriginal Community including details of how they wish them to be interpreted.	Sept 2005-Dec 2006
4 Report to Project Committee	Project update.	Quarterly from June 2005
5. Blue Mountains Stone Resources Project	As part of the archaeological field survey, this will explore the rich stone resources of the region to provide a framework for analysis of stone tools and resources available to the Aboriginal people of the study area.	July 2005-Dec 2006

6. Aboriginal Cultural Modeling Project	A model of Aboriginal prehistoric occupation of the Blue Mountains will be developed. This will entail preparing a discussion paper for comment, and will guide development of the Archaeological Survey Strategy, which in turn will field-test the model.	Oct 2005- Dec 2006
7. Aboriginal Ecological Knowledge Project	Aboriginal people hold natural values as part of their cultural heritage. Methods to record and analyse these data have been attempted in past projects. A review of these processes will be undertaken and an Aboriginal Ecological Knowledge Discussion Paper (Aug 2005) developed to outline the process to be used in the study. Oral history and field work will be commenced with the local Aboriginal community to identify the range of values they hold for the environment. The report will identify the words used for plants and animals and words relevant to land management (eg fire). The languages report in stage 1 will inform the way Aboriginal people in the GBMWhA understood their environment and how they used language to describe plants, animals and environment.	July 2005- Aug 2006
8. Bush Resources Bibliography and Database Development	To support ecological field work and to assist in identifying possible values.	June- Aug 2005
9. Bush Resources Field Survey and Training		Aug 2005- Feb 2006
10. Reporting to Aboriginal communities.		Quarterly from Sept 2005

#### ***Stage 4 – Integration of data into the data management systems of BMCC and DEC (12-18 months from June 2005)***

Preparation for the integration of data into the agencies' systems will be part of the overall process, involving on-going consultation with staff from BMCC and DEC, but final integration will take place in the latter stage of the project.

## **Appendix iii**

### **MOU's with Gundungurra & Darug Communities**



## **Appendix iv Study Area Map**

## Appendix iv Background to ACKB Software

As part of discussions at Department of Environment and Conservation regarding co-management of the Greater Blue Mountains World Heritage Area (GBMWH) a request was made by the Aboriginal Communities of the GBMWH for the provision of software to support the documentation of Aboriginal Communities' cultural knowledge in a way that both protects and conserves this knowledge but is simple to use and maintain. It was identified that the use of GIS or geographic information systems to allow mapping of cultural knowledge would provide the best platform for this work. GIS is typically expensive and difficult to operate without extensive training so a way that the benefits of visual mapping could be integrated into a database program to allow easy capture of cultural knowledge for all levels of users and computer experience levels.

### Software development process

A survey of available software was made to identify the most suitable and cost effective solution. A program called XMEG was first identified as possibly suiting our needs. On further inspection and trials it was found to be unsuitable. This was mainly due to the fact that the XMEG design misused object-orientated programming methodologies (many variables were open to the whole program allowing variable changes to occur anywhere in the program). To correctly integrate GIS into the system, we needed to start afre

### Table of identified software

Organisation	Project	Notes	Web
Balkanu Cape York Development Corporation	Traditional Knowledge Recording Project	Recording and preserving Awu-Laya traditional knowledge for land and people. To assist Elders to record and demonstrate traditional knowledge for the benefit of the community and the environment.	<a href="http://www.balkanu.com.au/projects/tkrp.html">http://www.balkanu.com.au/projects/tkrp.html</a>
The University of Melbourne	Cultural heritage database		
Sydney Olympic Park Authority	Databank	Database containing scientific, historical and archaeological information	

The State Library of Queensland - Indigenous Library Services (ILS) unit	Quinkan Matchbox project	The Quinkan Matchbox Project is a cataloguing system suitable for small, generally-skilled cultural communities. Matchbox, a generic resource catalogue, is customised as the Quinkan Culture Matchbox	
Galiwinku Indiegnoous Knowledge Centre (in Arnhem Land) NSW Department of Environment and Conservations	Database of cultural knowledge		
Pitjantjatjara Council Inc	AHIMS (Aboriginal Heritage Information Management System) Ara Irititja project		<a href="http://www.irititja.com/">http://www.irititja.com/</a>
Oriental Institute of the University of Chicago by David and Sandra Schloen Diwurruwurru	XSTAR	The goal of this project is to create a sophisticated Internet-based research environment for specialists in textual and archaeological studies	<a href="http://oi.uchicago.edu/OI/PROJ/XSTAR/XSTAR.html">http://oi.uchicago.edu/OI/PROJ/XSTAR/XSTAR.html</a>
DSTC and the Smithsonian Institute's National Museum of the American Indian	Indigenous Knowledge Management Project	DSTC's Indigenous Knowledge Management tools are being used by indigenous communities in Australia, North America and New Zealand to preserve and protect their unique indigenous cultures, knowledge and artefacts while supporting traditional protocols. The low cost, robust and simple-to-use tools have been designed to enable the description, annotation and rights management of collections of mixed-media digital and physical objects which belong to indigenous communities. The IKM project is an ongoing collaboration between DSTC and the Smithsonian Institute's National Museum of the American Indian.	<a href="http://www.deakin.edu.au/arts/diwurru/">http://www.deakin.edu.au/arts/diwurru/</a>

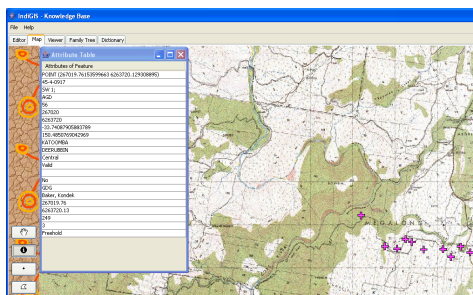
## Overview of Development

After rejecting XMEG as an appropriate software base, we created a UML (Unified Modeling Language) use-case diagram for the development of IndiGIS. This planning tool displays how objects will speak to each other using the common object-oriented programming principles of inheritance, polymorphism, encapsulation and abstraction. The first version of the software using GeoTools was built on a cleaner and smaller framework, using correct object-oriented programming principles. The IndiGIS spatial data display was developed to include the exporting of shape files containing data selected by the communities, for use by other authorities. The exact site location was protected by a buffer.

Next we added the ability to add user defined shapes, images, colours and symbols and ASCII format Grids, then added AHIMS default data and related images of the area in the spatial viewer. Sound recording was then added, and improved metadata text commenting.

Copying files to data directory for storage and easier backups was built, requiring an ensured method of creating files to be uniquely identified.

We then made the interface elements easier to use by providing functionality for layer list viewer, for turning layers on and off, removing user defined layers, and selection display of selected spatial data in a list.



View non-Metadata spatial related shape files (e.g. user defined shape files and AHIMS data).

The system compiled the Java code into a native executable (Win32), and had to supply all the .dll's related to the imaging components, and also the ordering of java code files and libraries to be processed for it to work correctly

## About GeoTools

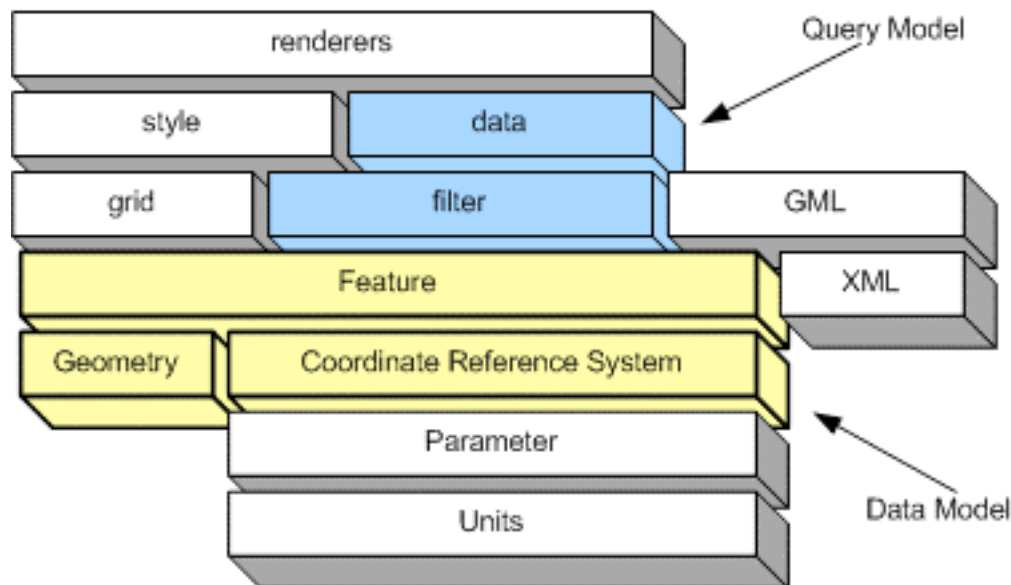


The GeoTools library began in 1996 at the University of Leeds as part of a masters project to visualize the results produced by the Geographical Analysis Machine (GAM) over the web. The project developed into a toolkit, which was targeted at the Java Applet API and still exists as GeoTools-Lite.

The second generation of GeoTools started in 2002. Early on, the GeoServer project (supported by The Open Planning Project (TOPP)) helped push GeoTools functionality to the level they needed. Latter, code from the SeaGIS project was added to GeoTools providing coordinate transformations, grid coverages and one renderer.

The library has been fundamentally redesigned to take advantage of the full power of the Java platform. The clean start with a better design and larger development community ensure that the project will continue to improve into the future. It is a long term goal of the GeoTools project to refine its core API and become a standard API for Java geospatial development.

ACKB uses GeoTools to drive the Geographic Information System component. Taken from in full <http://www.geotools.org> . GeoTools is an open source Java GIS toolkit providing implementations of many Open Geospatial Consortium (OGC) specifications as they are developed. GeoTools is also associated with the GeoAPI project that creates geospatial, Java interfaces.





GeoTools code is built using the latest Java tools and environments and its modular architecture allows extra functionality to be easily incorporated. GeoTools code is released under the GNU Lesser General Public License (LGPL).

### **GeoTools includes the following features**

- Vector data access (features) for:
  - ESRI Shapefile
  - GML - OGC Geography Markup Language
  - WFS - OGC Web Feature Server
  - PostGIS
  - Oracle Spatial
  - ArcSDE
  - MySQL
- Raster data access (grid coverages) for: +(footnote)
  - WMS - OGC Web Mapping Server
  - ArcGrid
  - GeoTIFF
  - Images georeferenced with a world file
- Java Topology Suite (JTS) - with support for the OGC Simple Features Specification - used as the geometry model for vector features.
- OGC Grid Coverage implementation backed by Java Advanced Imaging (JAI) API.
- Implementation of OGC Coordinate Transformation Services providing coordinate reference systems, and coordinate transformations (map projections and datum transformations).
- Two Renderers:
  - LiteRenderer - a 'stateless', low memory renderer, particularly useful in server-side environments.
  - J2D - a 'stateful' renderer with optimizations for update rate and good for interactive client-side displays.
- Styling implements the OGC Styled Layer Descriptor (SLD) specification to symbolize data.
- Support for the OGC Filter Encoding specification to specify a subset of features to operate on based on attribute and spatial constraints.
- Graphs and networks.

# Data Dictionary

## ACKB to Dublin Core

BMWHI	Dublin Core	Description	Type
<b>CORE</b>			
<type/> *	<type>	The type of file	String
<owner/> *	<contributor>	The person who owns and entered this information	String
<status/> *	<rights>	Information about rights held in and over the resource	String
<contact/>		Whom to contact	String
<dateopen/>		The date this will become open	Date
<dateclose/>		The date this will become closed	Date
<comment/>		About the content, e.g. why it's closed	String
<id/>	<identifier>	An unambiguous reference to the resource within a given context	String
<resource/>		This resource	String
<name/>	<title>	A name given to the resource	String
<comments/>		List of comment files, audio and text	URI [ ]
<file/>	<source>	A resource from which the present resource is derived	URI
<references/>	<subject>	Resource content keywords	String
<b>SPECIFIC by type</b>			
<b>* Modified Dublin Core Attributes</b>			
<b>PHOTO</b>			
<author/>		The author	String
<datetaken/>	<date>	The date the photo was taken	Date
<source/>	<source>	A resource from which the present resource is derived	String
<location/>	<coverage>	The extent or scope of the content of the resource	String
<point/> *	<coverage>	The extent or scope of the content of the resource	WTK
<direction/>		The direction in which the photo was taken	Integer
<b>PERSON</b>			
<clan/>		The clan to which the person belongs	String
<aboriginalname/>		The Aboriginal name for this	String
<birthdate/>	<date>	The person's date of birth	Date
<birthlocation/>	<coverage>	The person's place of birth	
<dieddate/>	<date>	The person's date of death	Date
<diedlocation/>	<coverage>	The person's place of death	
<b>EVENT</b>			
<datestart/>	<date>	The date the event started	Date
<dateend/>	<date>	The date the event ended	Date
<timestart/>		The time the event started	String
<timeend/>		The time the event ended	String
<source>	<source>	A resource from which the present resource is derived	String
<b>PLACE</b>			
<region/>	<coverage>	The region in which the resource occurs	String

<area/>	<coverage>	The sub-region in which the resource occurs	String
<place/>	<coverage>	The place in which the resource occurs	String
<point/>	<coverage>	The point at which the resource occurs	WKT
<poly/>	<coverage>	The boundary of the plane on which the resource occurs	WKT
<b>DOCUMENT</b>			
<author/>		The author	String
<subject/>	<description>	A description of the content of the document	String
<publishdate/>	<date>	The date the document was published	Date
<source/>	<source>	A resource from which the present resource is derived	String
<format/>	<format>	The physical or digital manifestation of the resource	String
<b>SITE</b>			
<location/>	<coverage>	The location of the site	String
<placetype/>		The type of site	String
<importance/>		The importance of the site	String
<aboriginalname/>		The Aboriginal name for the site	String
<point/>	<coverage>	The point at which the resource occurs	WKT
<poly/>	<coverage>	The boundary of the plane on which the resource occurs	WKT
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<topic/>	<description>	A description of the content of the resource	String
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<b>VIDEO</b>			
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<source/>	<source>	A resource from which the present resource is derived	String
<format/>	<format>	The physical or digital manifestation of the resource	String

## Appendix vi Bush Resources Survey

Plant	Food	Medicine	Resource
<i>Cissus hypoglauca</i>	1	1	
<i>Dianella longifolia</i>	1		
<i>Gahnia aspera</i>	1		
<i>Persoonia chamaepitys</i>	1		
<i>Persoonia myrtilloides</i>	1		
<i>Rubus parvifolius</i>	1		
<i>Imperata cylindrica</i>	1		
<i>Amyema cambagei</i>	1		
<i>Hovea linearis</i>	1		
<i>Microtis parvifolia</i>	1		
<i>Lomatia silaifolia</i>	1		
<i>Brachychiton populneum</i>	1		1
<i>Acacia binervia</i>	1		
<i>Ficus rubiginosa</i>	1		
<i>Dicksonia antarctica</i>	1		
<i>Marsdenia rostrata</i> (1,3)	1		
<i>Marsdenia flavescens</i> (1,3)	1		
<i>Atherosperma moschatum</i>	1		
<i>Eupomatia laurina</i>	1		1
<i>Morinda jasminoides</i>	1		
<i>Blechum patersonii</i>	1		
<i>Acacia longifolia</i>	1		1
<i>Acacia implexa</i>	1	1	
<i>Acacia elata</i>	1		
<i>Hakea salicifolia</i>	1		
<i>Astroloma humifusum</i>	1		
<i>Blechum nudum</i>	1		
<i>Acacia parramattensis</i>	1		
<i>Alectryon subcinereus</i>	1		
<i>Clematis aristata</i>	1		
<i>Cyathea australis</i>	1	1	
<i>Acmena smithii</i>	1		
<i>Eustrephus latifolius</i>	1		
<i>Blechum cartilagineum</i>	1		
<i>Cassytha glabella</i>	1	1	
<i>Xanthorrhoea media</i>	1		
<i>Acrotriche serrulata</i>	1		
<i>Lissanthe strigosa</i>	1		
<i>Podocarpus spinulosus</i>	1		
<i>Styphelia angustifolia</i>	1		
<i>Eucalyptus macrorhyncha</i>	1		
<i>Burchardia umbellata</i>	1		
<i>Haemodorum plantifolium</i>	1		

Macrozamia communis	1		
Plantago varia	1		
Cryptostylis subulata	1		
Eucalyptus punctata	1		
Glossodia major	1		
Marsdenia suaveolens	1		
Thelymitra ixiodes	1		
Hardenbergia violacea	1	1	
Acacia decurrens	1		
Hakea dactyloides	1		
Gahnia sieberana	1		
Persoonia levis	1		
Geranium potentilloides var abditum	1		
Lycopodium deuterodensum	1		
Acianthus caudatus	1		
Smilax glycyphylla	1		
Dianella caerulea	1		
Banksia ericifolia	1		
Banksia serrata	1		
Lambertia formosa	1		
Leucopogon lanceolatus	1		
Banksia spinulosa	1		
Angophora costata	1	1	
Pteridium esculentum	1	1	
Eucalyptus rubida	1		
Billardiera scandens	1		
Cyrtostylis reniformis	1		
Eucalyptus gummifera	1		
Persoonia linearis	1		
Banksia marginata	1		
Exocarpus cupressiformis	1		
Geranium solanderi	1		
Lomandra longifolia	1		1
Themeda australis	1		
Casuarina cunninghamiana			1
Eucalyptus globoidea			1
Goodenia ovata		1	
Swainsonia galegifolia		1	
Acacia melanoxylon			1
Indigofera australis			1
Allocasuarina torulosa		1	1
Dendrocnide excelsa			1
Adiantum aethiopicum		1	
Centella asiatica		1	
Pratia purpurascens		1	
Alphitonia excelsa		1	1
Doryphora sassafras		1	
Backhousia myrtifolia			
Eucalyptus sclerophylla		1	
Dodonaea viscoa		1	
Dodonaea triquetra		1	

Eucalyptus mannifera	1	
Stypantra glauca	1	
Angophora floribunda	1	
Daviesia latifolia	1	
Allocasuarina littoralis	1	1
Eucalyptus dives	1	
Poa labillardieri		1
Eucalyptus viminalis	1	

## **Appendix vii**

### **Aboriginal Cultural Landscape Map of study area**

## **Appendix viii**

### **Maps of Gundungurra and Darug land within the study area**



## Appendix IX

### Community Consultation Database

#### Mapping Country Project – community consultation database

<b><i>Who was consulted</i></b>	<b><i>Date</i></b>	<b><i>Type of consultation</i></b>	<b><i>Aim of Meeting</i></b>	<b><i>Attendance</i></b>	<b><i>Issues Raised</i></b>
Hawkesbury-Nepean CMA	21.6.05	Meeting	Consultation		None
General Public	July 2005	Article in BMCC Rate Notice Newsletter	Provide information on project to general public	General Public	How does Non Aboriginal Community access information
Gully Guardians	28.10.05	Face to face	To inform and provide information	4	The Gully would not be included in the study General concern about issues of access and confidentiality
<i>Gundungurra Tribal Council</i>	<i>30.10.05</i>	Meeting	Signing of MOU	5	None
Partner agencies – BMWHI	18.11.05	presentation	Provide information on the project	37	None
<i>Darug Custodian Aboriginal Corporation</i>	<i>17.1.06</i>	meeting	Explain project	3	None
<i>Darug Tribal Aboriginal Corporation</i>	<i>24.1.06</i>	meeting	Explain project	2	None
Gundungurra Tribal Corporation – Annual General Meeting (Presentation)	21.1.06	Face to Face	To inform and provide information (Change in executive)	16	Discussions around expectations
Carrington Presentation (General Public-part of	13.1.06	Face to Face	Provide information on the finding of the project	6	None

NPWS Discovery program)					
Blackheath Presentation (General Public-part of NPWS Discovery program)	27.1.06	Face to Face	Provide information on the finding of the project	17	None
Partner agencies	27.1.06	meeting	Presentation of project		None
<i>Aboriginal Culture and Resource Centre</i>	9 .2.06	meeting	Explain project	1	None
Blue Mountains City Council World Heritage Advisory Council	27.2.06	Meeting	Explain project to general public	12	None
Partner agencies	27 .2.06	meeting	Presentation of project	7	None
Darug Custodian Aboriginal Corporation -	26.3.06	Face to Face Meeting	Update on project	2	Issues raised around planning in western Sydney.
Councils World Heritage Advisory Committee	22.3.06	Face to Face Meeting	Deal with Questions and Report on project	10	None
Partner agencies	3 .4.06	Meeting	Presentation of project		None
Darug Custodian Aboriginal Corporation	30 4.06	Meeting	Discuss project	10	None
Darug Custodian Aboriginal Corporation	25 .6.06	Meeting	Discuss project	11	None
Gundungurra Tribal Council	4 .8.06	Meeting	To discuss community field work	3	None
Greg Simms - Native Title Claimant	7 .8.06	meeting	Explained project in relation to Gundungurra Native Title Claimant	4	None
Linguist	11.8.06	meeting	Hand over of information	3	None
Gundungurra Tribal Council	19.8. 06	presentation	Provide information on	16	None

			progress of project		
Darug Custodian Aboriginal Corporation	27 .8.06	Meeting	Discuss project	12	None
Partner agencies	31.8 06	Meeting	Presentation of project		None
Gundungurra Tribal Council	27.10.06	presentation	Computer program training on project	3	None

***The aim of this table is to capture the formal/large/significant consultation efforts of the Project not every conversation/phone call or contact with community members.***

# **Appendix x**

## **Annotated Bibliography**