Appendix B

World Heritage Listing

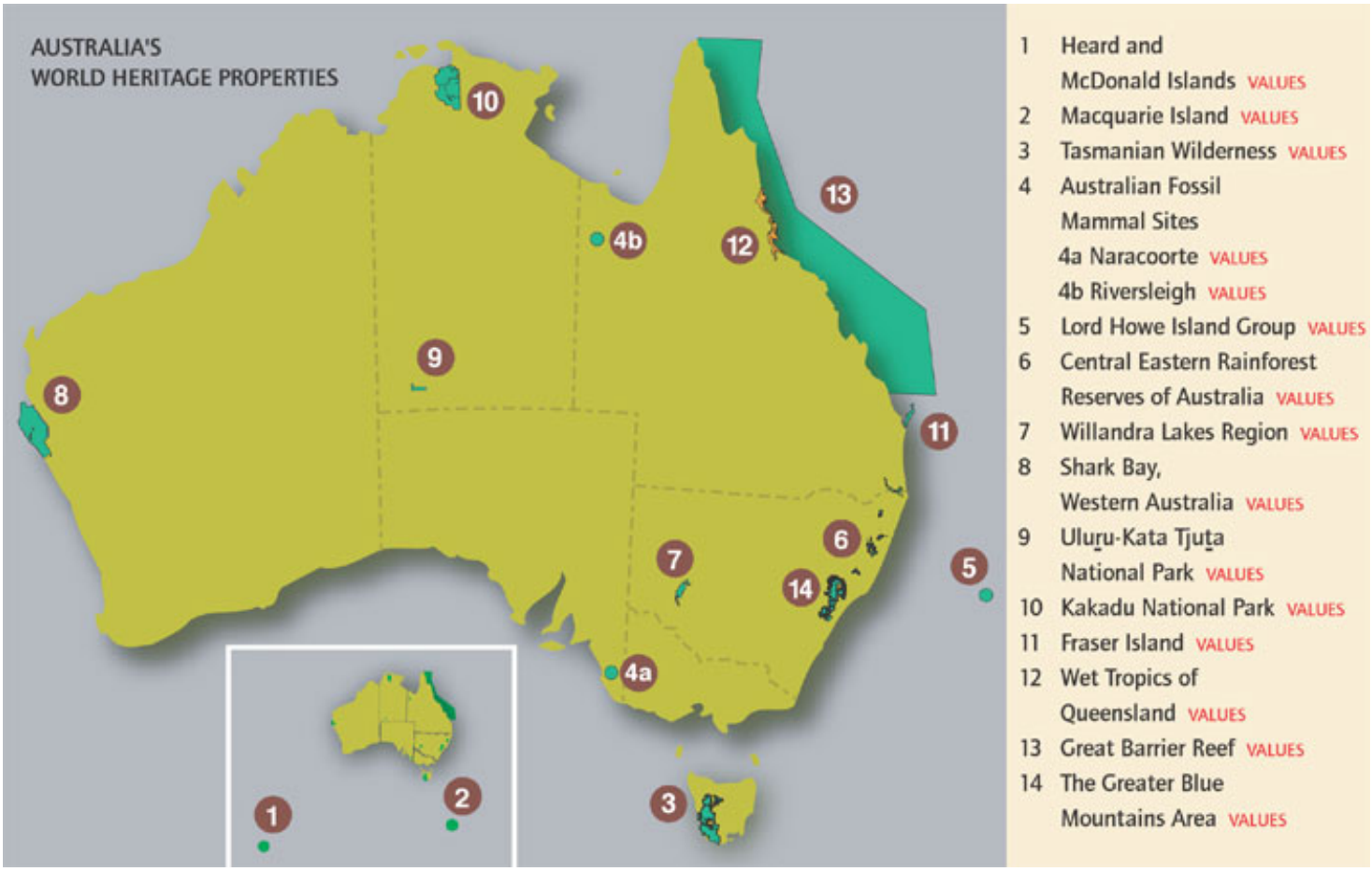
Australia's World Heritage – Location Map http://www.ea.gov.au/heritage/awh/worldheritage/index.html

Willandra Lakes Region http://www.ea.gov.au/heritage/awh/worldheritage/sites/willandra/index.html

Willandra Lakes Region World Heritage Values
http://www.ea.gov.au/heritage/awh/worldheritage/sites/willandra/willandra.html

Australia's World Heritage - location map

There are fourteen Australian properties on the World Heritage List.



World Heritage sites are important to all the peoples of the world, irrespective of the territory in which they are located. Sites nominated for World Heritage listing are inscribed on the List only after carefully assessing whether they represent the best examples of the world's cultural and natural heritage.

LOCATION MAP | ABOUT WORLD HERITAGE | LISTING | IMPLICATIONS OF LISTING | LAWS | CRITERIA

Foreword to *Australia's World Heritage*.

Related Sites

Convention for the Protection of the World Cultural and Natural Heritage (1972)

What Countries and States are Parties to the World Heritage Convention?

UNESCO World Heritage Information

Last Updated: Tuesday, 29-Oct-2002 14:40:05 EST

Willandra Lakes Region

Inscribed 1981

Select photograph for larger view



The Willandra Lakes Region covers 240 000 hectares of a semi-arid landscape mosaic comprising dried saline lake bed plains vegetated with saltbush communities, fringing sand dunes and woodlands with grassy understoreys in the Murray Basin area in far south-western New South Wales.

The region was inscribed on the World Heritage List for both outstanding cultural and natural universal values:

Natural

- as an outstanding example representing the major stages in the earth's evolutionary history; and
- as an outstanding example representing significant ongoing geological processes.

Cultural

- bearing an exceptional testimony to a past civilisation.

The region contains a system of Pleistocene lakes, formed over the last two million years. Most are fringed on the eastern shore by a dune or lunette formed by the prevailing winds.

Today, the lake beds are flat plains vegetated by salt tolerant low bushes and grasses. About 10 per cent of the World Heritage area is gazetted as the Mungo National Park, which covers about two-thirds of Lake Mungo and includes the spectacular parts of the Walls of China lunette. The remaining area comprises pastoral leasehold properties.

There are five large, interconnected, dry lake basins and fourteen smaller basins varying from 600 to 35 000 hectares in area. The original source for the lakes was a creek flowing from the Eastern Highlands to the Murray River. When the Willandra Billabong Creek ceased to replenish the lakes, they dried in series from south to north over a period of several thousand years, each becoming progressively more saline.

The ancient shorelines are stratified into three major layers of sediments that were deposited at

different stages in the lakes' history.

The earliest sediments are more than 50 000 years old and are orange-red in colour. Above are clays, clean quartz sand and soil that were deposited along the lakes' edges when the lakes were full of deep, relatively fresh water, between 50 000 and 19 000 years ago. The top layer is composed largely of wind-blown clay particles heaped up on the lunettes during periods of fluctuating water levels, before the lakes finally dried up.

Aborigines lived on the shores of the Willandra Lakes from 50 000 to 40 000 years and possibly up to 60 000 years ago. Excavations in 1968 uncovered a cremated female in the dunes of Lake Mungo. At 26 000 years old, this is believed to be the oldest cremation site in the world. In 1974, the ochred burial of a male Aborigine was found nearby.

The use of ochres for burial in Australia 30 000 years ago parallels their use in France at the same time. Radiocarbon dating established that these materials were some of the earliest evidence of modern humans in the world.

During the last Ice Age, when the lakes were full, the Mungo people camped along the lake shore taking advantage of a wide range of food, including freshwater mussels and yabbies, golden perch and Murray cod, large emus and a variety of marsupials, which probably included the now extinct super roos. They also exploited plant resources, particularly when the lakes began to dry and food was less abundant.

The human history of the region is not restricted just to an ancient episode. Evidence so far points to an extraordinary continuity of occupation over long periods of time. In the top layers of sediments there is abundant evidence of occupation over the last 10 000 years.

The vegetation in the region, sparse though it is, is typical of the semi-arid zone. It plays an important role in stabilising the landscape and hence maintaining its sediment strata and many species of native fauna.

On the dunes are found the small scrubby multi-stemmed mallee eucalypts with an understorey of herbs and grasses. Rose wood-belah woodland is common on the sand plains. In the lake beds, several species of salt bushes are able to thrive in the saline conditions.

The remains of a large number of animals have been found in Willandra. More than 55 species have been identified, 40 of which are no longer found in the region, and 11 are totally extinct.

Twenty-two species of mammals are currently recorded at Willandra, of which bats are the most diverse group. There are some 40 species of reptiles and amphibians.

The bird life of the Willandra region is similar to that in many other semi-arid areas of Australia. Parrots, cockatoos and finches are the most conspicuous of the 137 recorded species.

Policy coordination and funding are the responsibility of the joint State/Commonwealth Ministerial Council, with advice from a Community Management Council and a Technical and Scientific Advisory Committee. Day-to-day management is the responsibility of the NSW Department of Land and Water Conservation and the NSW National Parks and Wildlife Service.

This information is also available as a pdf file (135 kb). You will need Adobe Acrobat Reader installed on your computer to read this file.

Further information

World Heritage Values for Willandra Lakes Region

New South Wales National Parks and Wildlife Service
PO Box 2111
Dubbo NSW 2830
AUSTRALIA
Web Site: http://www.npws.nsw.gov.au/

World Conservation Monitoring Centre

Web Site: http://www.wcmc.org.uk/protected_areas/data/wh/willandr.html

Further reading

Bowler, M. J. and Thorne, A.G. 1976, 'Human remains from Lake Mungo: Discovery and excavation of Lake Mungo III'in The Origin of the Australians, eds R. L. Kirk and A. G. Thorne Australian Institute of Aboriginal Studies, Canberra.

Flood, J. M. A. 1983, Archaeology of the Dreamtime, Collins.

Fox, A.. 1992, Mungo National Park, NSW National Parks and Wildlife Service, Broken Hill.

Mulvaney, D. J. 1975, The Prehistory of Australia, Penguin.

White, J. P.and O'Connell, J. F. 1982, A Prehistory of Australia, New Guinea and Sahul, Academic Press.

Willandra Lakes Region World Heritage Values

The Willandra Lakes Region was inscribed on the World Heritage List in 1981. The original boundary of the World Heritage Property was modified and reduced to its current size in 1995 in order to better define the area containing the World Heritage values. The World Heritage criteria current in 1981 and against which the Willandra Lakes Region was listed remain the formal criteria for this property. These criteria have been included in the Values Table below. The World Heritage criteria are periodically revised and the criteria against which the property was listed in 1981 are not necessarily identical with the current criteria. Examples of the World Heritage values for which the Willandra Lakes Region was listed are included in the Values Table for each criterion. These examples are illustrative of the World Heritage values of the property, and they do not necessarily constitute a comprehensive list of these values. Other sources including the nomination document and the references listed below the Values Table are available and could be consulted for a more detailed understanding of the World Heritage values of the Willandra Lakes Region.

Values Table

Natural and cultural criteria against which the Willandra Lakes Region was inscribed on the World Heritage List in 1981.	**Examples of World Heritage values of the Willandra Lakes Region for which the property was inscribed on the World Heritage List in 1981.**
Natural Criterion (i) an outstanding example representing a major stage of the earth's evolutionary history.	**The Willandra Lakes Region represents major stages of the earth's geological history, particularly associated with the response to major glacial-interglacial fluctuations. The World Heritage values include:** • **non-glaciated, low-latitude lacustrine landscape lake basins which include:** • **lunettes;** • **inter-lake areas between major lake basins;** • **connecting channels adjacent to the lake system;** • **connecting dunefields adjacent to the lake system;**

- **unusually large clay dunes; and**
- **complex downstream variability in the character of the lacustrine system;**
- **fossil dunes and lake sediments including those which show:**
- **evidence of Pleistocene climatic changes and landscape history for the geomorphological record spanning well over 100,000 years;**
- **detailed stratigraphic, geochemical and pedological evidence for climatic and related environmental changes;**
- **how non-glaciated inland regions were affected by the major climatic fluctuations associated with oscillations in ice sheets;**
- **the influence of the westerly winds that prevailed throughout the period of dune formation, a period extending from at least 100,000 years to about 15,000 years ago; and**
- **evidence of giant extinct marsupial species.**
- **extensive flat plains of lake floors and sedimentary carbonates which show:**
- **evidence of past salinity fluctuations and the stability of the landscape in this region; and**
- **evidence of the area's response to major climate change.**
- **stunted blue bush (*Maireana sedifolia*, *M. pyramidata*) and saltbush (*Atriplex stipulata*) on the lake floor showing evidence of final saline phases of lakes.**

Cultural Criterion (iii) unique, extremely rare, or of great antiquity.	**The Willandra Lakes Region demonstrates an exceptional sequence of Aboriginal cultural occupation extending over tens of thousands of years, including an outstanding record of human responses to major changes over time in climate and environments (e.g. due to increasing aridity). The World Heritage values include:**
Cultural Criterion (iii) unique, extremely rare, or of great antiquity.	• **landforms and locations which greatly extend our understanding of Australia's environmental and Aboriginal cultural history, including:** • **exposures of sedimentary sequences which reveal Pleistocene sedimentary profiles and associated archaeological and palaeontological materials;** • **extensive intact lakeshore landforms that may contain extensive archaeological and palaeontological materials; and** • **the remains of hearths, including those with considerable antiquity, which have provided an ideal source for palaeomagnetic measurements;** • **archaeological sites which occur within stratified sedimentary sequences and provide evidence for the antiquity and continuing presence of human occupation;** • **archaeological sites which contain evidence of utilisation of lacustrine resources during lake full phases, and rangeland resources during arid phases;** • **archaeological sites which demonstrate continuity of human occupation for the region through fluctuations in lake levels drying of the system about 15,000 years ago through the Holocene period and up to historic times;** • **archaeological sites which provide outstanding examples of hunting and gathering, a way of life that has dominated the Australian continent up to modern times,**

including:

- **evidence of human occupation of, and interaction with, the landscape of lakes, lunettes and sand dunes over time in the form of campsites, middens, fireplaces, quarries, knapping floors and burials; and**
- **campsites and fireplaces that reflect people's hunting, gathering and fishing diet;**
- **burial sites which are of global significance for the antiquity of burial practices represented and also for the information they provide on the development of human societies, including Pleistocene and Holocene burial sites; and**
- **burial sites with associated mortuary goods and evidence of ritual burials which demonstrate the antiquity of particular burial practices and the development of religious beliefs and systems over time.**

Further information

Description of the Willandra Lakes Region

The following documents may be available in the Environment Australia library:

- *Nomination of The Willandra Lakes Region for inclusion in the World Heritage List.* Prepared by the Australian Heritage Commission, Canberra, December 1980.
- Willandra Lakes: People and Palaeoenvironments. Johnston H., Clark P. and White J.P. (eds) *Archaeology in Oceania*, Volume 33, Number 3, October 1998. Published by the University of Sydney in association with National Parks and Wildlife Service, New South Wales and the Willandra Lakes World Heritage Area Management Council.

Appendix B

Register of the National Trust Listing

Location: Balranald	Suggested name or Identification of Proposed Listing: WILLANDRA LAKES SYSTEM LANDSCAPE CONSERVATION AREA	Region: Murray
Proposer: D.Moore	Crown Land: Under control of Western Lands Commission / Freehold / Leasehold	Map Sheet Reference: N.S.W. S.W. Sheet 1:1,000,000
Date of Proposal: January 1977	Local Govt Area/s: Balranald/Wentworth	
Suggested Listing Category: CLASSIFIED	Mungo Station, 15,666 ha acquired by N.P. & W.S. 1/8/78. Lake Mungo National Park incorporates the "Walls of China" and remains of a well developed aboriginal community which existed there over 40,000 years ago.	Owner/s: Approx. 29 leaseholders N.P. & W.S. 1/8/78
Committee (Trust use): Landscape Conservation		
Council (Trust use): APPROVED CL 4/4/77		

Reasons for Listing

Scientific value - great importance in understanding the evolution of climates in S.E. Australia and the reversal of the earth's magnetic field. It is the oldest known human occupation site in Australia. Appendix A

Scenic value - the lunettes provide the area with a special scenic quality - Appendix B.

Description

Broad Description: The lakes system, a remnant of the Lachlan River drainage pattern, is approximately 150 km long by 40 km wide and runs generally in a north-south direction from Lake Mulurulu in the north to Lake Prungle in the south. Area approx. 600,000 ha. Parallel to the eastern shores, white sand and clay dunes rise 40 metres above the plain, while deep gullies have been cut through the lake shore deposits. The landscape surrounding the system is one of low, parallel ridges of fine red sand.

The European buildings association with early settlement of the area are a significant feature of this semi-arid landscape. e.g. Woolsheds on Mungo Station, homestead of Golgol Station.

Present land use is sheep grazing.

Lake Mungo, the best known of the lakes in the area, is located in the centre of the Willandra Lakes System, about 100 km N.E. of Mildura. See attached map.

Hydrology and Climate - Appendix C

Vegetation and Geomorphological features - Appendix B

Recommendations:

The area should be given adequate protection against any major change in land use as it could prejudice the results of further scientific investigation of the area.

Reservation of some areas for public use highly desirable to safeguard access for educational and/or recreational purposes.

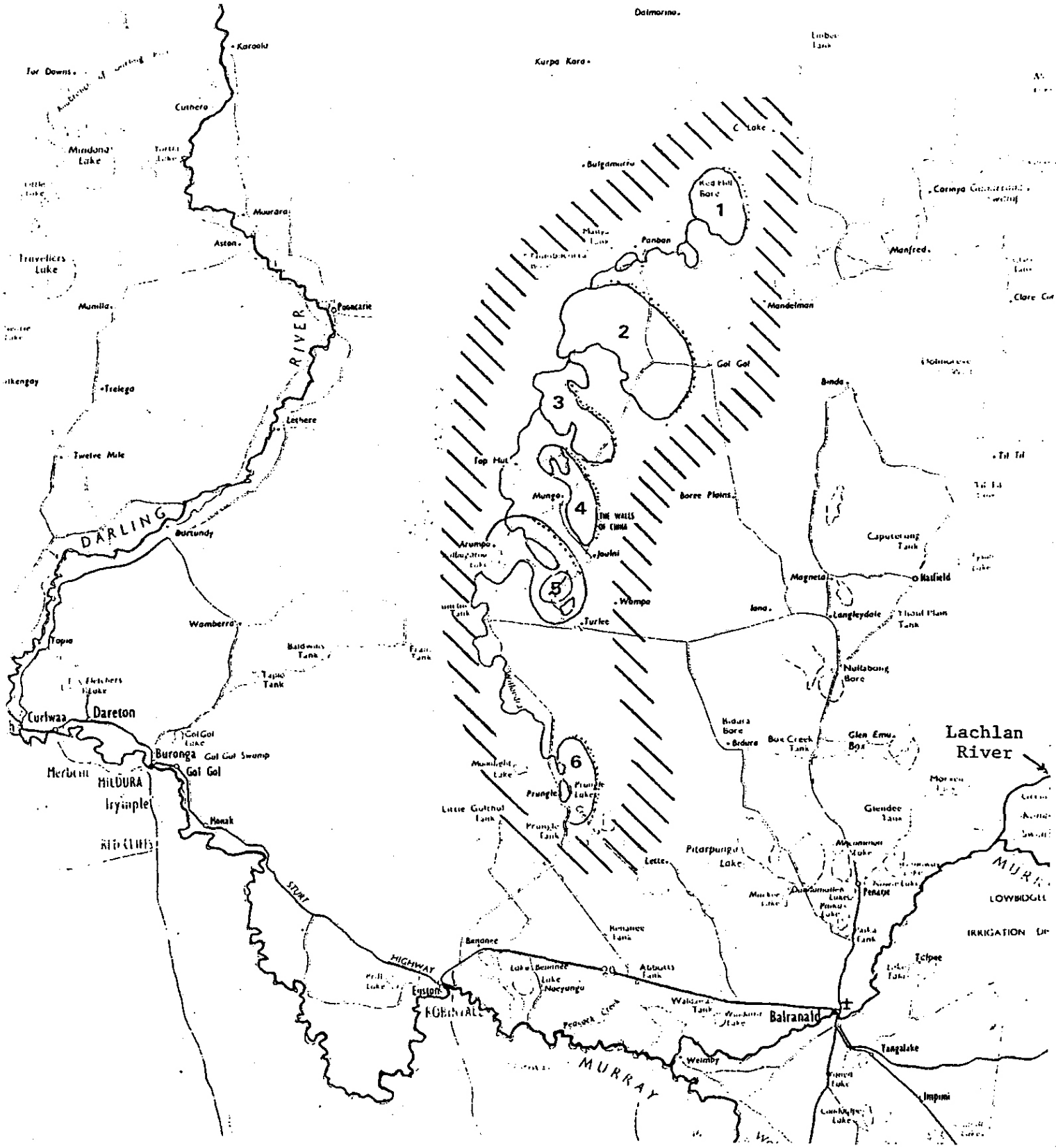
Bibliography

Australian Institute of Aboriginal Studies Newsletter No. 1 January 1974

Aboriginal Man and Environment in Australia, Editors Mulvaney & Golson. 197

National Parks & Wildlife Service.

J.M. Bowler, Rhys Jones, Harry Allan and A.G. Thorne. 1970. Pleistocene human remain from Australia; a living site and human cremation from Lake Mungo, western New South World Archaeology 2(1): 39-60. pls. 3 & 4.



BALRANALD

VILLANDRA LAKES SYSTEM
ANDSCAPE CONSERVATION AREA

HIRES OF BALRANALD AND WENTWORTH

MOORE : JANUARY 1977
ANDSCAPE CONSERVATION COMMITTEE
HE NATIONAL TRUST OF AUSTRALIA (N.S.W.)

BOUNDARY OF LANDSCAPE CONSERVATION AREA

SCALE 1 : 1,000,000

1. LAKE MULURULU
2. LAKE GARNPUNG
3. LAKE LEAGHUR
4. LAKE MUNGO
5. CHIBNALWOOD LAKES
6. PRUNGLE LAKE

APPENDIX A

Scientific Value

Scientific work at Lake Mungo (the Walls of China), part of the Willandra Lakes System, over the last seven years has yielded a succession of discoveries, dramatic in their importance and diverse in the disciplines they inform.

i. The area is of great importance in understanding the evolution of climates and environments in south-eastern Australia.

ii. Reversal of the earth's magnetic field around 30,000 B.P.* was established from a study of Ancient Aboriginal hearths in the area.

iii. The site is at present the oldest known human occupation site in Australia, dating back to 40,000 B.P. It provides valuable evidence of early Aboriginal occupation and life style. Mungo cremation is the world's earliest (20,000 years plus), for such a burial site.

The use of ochre is the earliest in the Pacific Basin. Fire clay in hearths is amongst the earliest fired clay in the world. It is a type site for stone tool assemblages of the Pleistocene Period. One unique advantage is that as human occupation virtually ceased when the lake dried up 15,000 years ago, Pleistocene aged remains are not mixed with or covered by more recent occupational evidence as is normally the case.

There is great scope for a great deal more research, which will undoubtedly result in further valuable discoveries.

* B.P.= before present.

APPENDIX B

Vegetation and Geomorphological Features

The dry lake beds support mallee eucalypt and saltbush communities, while the sand dunes are occasionally bare of vegetation, or support mallee and spinifex communities.

Biological communities could be of major interest subject to further investigation.

The area is representative of south-east Australian lunettes,* or dry lake beds with wind blown dunes on their eastern margins and flat floors, formerly lake bottoms. It is the formation of these lunettes which has preserved the remains of Aboriginal man for so long, and provided the area with a special scenic quality. Stabilised dunes, crescent shaped, edge the lakes and where erosion has occurred, deep gullying has created miniatur grand canyons of great beauty, as at the Walls of China, where the multicoloured strata o the lunette of Lake Mungo is exposed.

* Lunette: A crescentic dune ridge commonly found on the eastern (lee) margin of shallow lake basins in eastern Australia. They have developed under the influence of dominant westerly winds and provide important scientific evidence of past hydrologi and climatic conditions. They are comparatively rare in other parts of the world.

APPENDIX C

Hydrology

The Willandra Lakes System is a fossil waterway developed during the Pleistocene Geological Period when the climate was considerably colder and wetter than in the same area today. Thirty thousand years ago, the Lachlan was a much larger river than today which broke up into four or five major channels, forming large lakes in the sand dunes west of Hillston. These large lakes were permanently filled, covering 1,088 km^2, but now carry water only during peak or flood discharges. Because of the evidence they prodive of past climate, geomorphology and prehistory, they are of world wide interest.

Climate

The area is semi-arid, average rainfall being approximately 250 mm per annum. The area is most significant in that it is capable of yielding knowledge relating to the evolution of climates in south-eastern Australia.