

World Heritage Places - Willandra Lakes Region



The Willandra Lakes Region was inscribed on the World Heritage List in 1981. The original boundary of the World Heritage Property was modified in 1995 in order to better define the area containing the World Heritage values.

The Willandra Lakes Region was one of 15 World Heritage places included in the National Heritage List on 21 May 2007.

The Willandra Lakes Region is an extensive area that contains a system of ancient lakes formed over the last two million years, most of which are fringed by a crescent shaped dune or lunette. Aborigines lived on the shores of the lakes for at least 50,000 years, and the remains of a 40,000 year old female found in the dunes of Lake Mungo are believed to be the oldest ritual cremation site in the world.

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More information (#a1)

Location

The Willandra Lakes Region covers 2,400 km² of a semi-arid landscape mosaic in the Murray Basin area of far south western New South Wales. It comprises dried saline lake bed plains vegetated with saltbush communities, fringing sand dunes and woodlands with grassy understoreys.

Description of Place

The region contains a system of Pleistocene lakes, formed over the last two million years. These lakes are now dry. Most are fringed on the eastern shore by a crescent-shaped dune, referred to as a 'lunette', that was formed by the prevailing winds.

Today, the lake beds are flat plains vegetated by salt tolerant low bushes and grasses. Part of the World Heritage property 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. Joulni Station at the southern end of the Mungo lunette is of cultural significance to the three Traditional Tribal Groups.

There are five large, interconnected, dry lake basins and 14 smaller basins varying in area from 6 to 350 km². 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 lakes were full of deep, relatively fresh water for a period of 30,000 years that came to an end 19,000 years ago. 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. 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.

Indigenous people have lived in the Willandra Lakes Region for at least 50,000 years. Excavations in 1968 uncovered the cremated remains of 'Mungo Lady' in the dunes of Lake Mungo. At 40,000 years old, this is believed to be the oldest site of ritual cremation in the world. In 1974, the ochred burial of a male Aborigine was found nearby. The skeleton, known as 'Mungo Man', is believed to be 40,000 years old.

In 2003, nearly 460 fossilised human footprints were discovered, the largest collection of its kind in the world. The prints were made by children, adolescents and adults 19,000 to 23,000 years ago in wet clay. The clay, containing calcium carbonate, hardened like concrete, and a layer of clay and sand protected the prints.

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, yabbies, golden perch and Murray cod, large emus and a variety of marsupials, which probably included the now extinct giant kangaroos. 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.

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

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

Twenty-two species of mammals are currently recorded. Bats are the most diverse group, and there are some 40 species of reptiles and amphibians.

The bird life of the Willandra Lakes Region is similar to that in many other semiarid areas of Australia. Parrots, cockatoos and finches are the most conspicuous of the 137 recorded species.

Policy coordination and funding are joint responsibilities of the State and Commonwealth with advice from the Community Management Council, the Technical and Scientific Advisory Committee and the Elders Council. Day-to-day management is the responsibility of the New South Wales National Parks and Wildlife Service and the New South Wales Department of Lands. The Elders Council advises on Indigenous cultural matters.

Outstanding Universal Value (#a2)

- [World Heritage Committee information for Willandra Lakes Region](http://whc.unesco.org/en/list/167) (<http://whc.unesco.org/en/list/167>)

Brief synthesis

The Willandra Lakes Region, in the semi-arid zone in southwest New South Wales (NSW), contains a relict lake system whose sediments, geomorphology and soils contain an outstanding record of a low-altitude, non-glaciated Pleistocene landscape. It also contains an outstanding record of the glacial-interglacial climatic oscillations of the late Pleistocene, particularly over the last 100,000 years. Ceasing to function as a lake ecosystem some 18,500 years ago, Willandra Lakes provides excellent conditions to document life in the Pleistocene epoch, the period when humans evolved into their present form.

The undisturbed stratigraphic context provides outstanding evidence for the economic life of *Homo sapiens sapiens* to be reconstructed. Archaeological remains such as hearths, stone tools and shell middens show a remarkable adaptation to local resources and a fascinating interaction between human culture and the changing natural environment. Several well-preserved fossils of giant marsupials have also been found here.

Willandra contains some of the earliest evidence of *Homo sapiens sapiens* outside Africa. The evidence of occupation deposits establishes that humans had dispersed as far as Australia by 42,000 years ago. Sites also illustrate human burials that are of great antiquity, such as a cremation dating to around 40,000 years BP, the oldest ritual cremation site in the world, and traces of complex plant-food gathering systems that date back before 18,000 years BP associated with grindstones to produce flour from wild grass seeds, at much the same time as their use in the Middle East. Pigments were transported to these lakeshores before 42,000 years BP. Evidence from this region has allowed the typology of early Australian stone tools to be defined.

Since inscription, the discovery of the human fossil trackways, aged between 19,000 and 23,000 years BP, have added to the understanding of how early humans interacted with their environment.

Criterion (iii): The drying up of the Willandra Lakes some 18,500 years BP allowed the survival of remarkable evidence of the way early people interacted with their environment. The undisturbed stratigraphy has revealed evidence of *Homo sapiens sapiens* in this area from nearly 50,000 years BP, including the earliest known cremation, fossil trackways, early use of grindstone technology and

the exploitation of fresh water resources, all of which provide an exceptional testimony to human development during the Pleistocene period.

Criterion (viii): The Australian geological environment, with its low topographic relief and low energy systems, is unique in the longevity of the landscapes it preserves, and the Willandra Lakes provides an exceptional window into climatic and related environmental changes over the last 100,000 years. The Willandra Lakes, largely unmodified since they dried out some 18,500 years BP, provide excellent conditions for recording the events of the Pleistocene Epoch, and demonstrate how non-glaciated zones responded to the major glacial-interglacial fluctuations.

The demonstration at this site of the close interconnection between landforms and pedogenesis, palaeochemistry, climatology, archaeology, archaeomagnetism, radiocarbon dating, palaeoecology and faunal extinction, represents a classic landmark in Pleistocene research in the Australasian area. Willandra Lakes Region is also of exceptional importance for investigating the period when humans became dominant in Australia, and the large species of wildlife became extinct, and research continues to elucidate what role humans played in these events.

Integrity

The property as nominated covered some 3,700 km², following cadastral boundaries and including the entire Pleistocene lake and river systems from Lake Mulurulu in the north to the Prungle Lakes in the south, thereby including all elements contributing to its Outstanding Universal Value. In 1995 boundaries for the property were revised in order to 'better define the area containing the World Heritage values and ... facilitate the management of the property'. The revised boundary follows topographic features, with an appropriate buffer within the boundary, to more closely delineate the entire lake and river system but exclude extraneous pastoral areas. The area of the property now covers ~2,400 km².

Although pastoral development has resulted in ecological changes, stocking rates are low and dependent on natural unimproved pasture and the area remains predominantly vegetated in its natural condition. For leasehold properties within the property, Individual Property Plans (IPPs) have been developed and implemented, including actions such as excluding grazing from sensitive areas and relocating watering points to minimise the impact of grazing, to protect Outstanding Universal Value while also allowing sustainable land uses. There have also been significant additions to Mungo National Park, including some of the most archaeologically significant areas of the property.

Much of the scientific and cultural significance of the property is related to the values embedded in or associated with the lunettes. Erosion and deflation continues to expose material in already disturbed areas of the lunettes. At time of listing approximately 8% was extensively eroded, while 72% remained vegetated and intact, with the remaining area partly eroded.

Authenticity

The authenticity of the natural and Aboriginal cultural heritage values of the Willandra has been established in the first instance, in a western or European cultural sense, by rigorous scientific investigation and research by leading experts in their fields. Researchers have established the great antiquity and the richness of Aboriginal cultural heritage at Willandra which brought about a reassessment of the prehistory of Australia and its place in the evolution and the dispersal of humans across the world.

For the Traditional Tribal Groups (TTGs) that have an association with the area there has never been any doubt about the authenticity of the Willandra and any particular sites it contains. The TTGs have maintained their links with the land and continue to care for this important place and participate in its management as a World Heritage property. Aboriginal people of the Willandra take great pride in their cultural heritage and maintain their connection through modern day cultural, social and economic practices.

Protection and management requirements

The majority of the area comprises pastoral stations leased from the State and administered by the [NSW](#) Land and Property Management Authority. The remaining land contains a large part of the Mungo National Park, which is managed by the [NSW](#) National Parks and Wildlife Service (NPWS), and which has grown from 4.2% of the property at time of inscription to 29.9% in 2012. There are also some small areas of freehold land within the property. The [NSW](#) Office of Environment and Heritage provides archaeological expertise over all land tenures within the property. The statutory basis for management is established under New

South Wales legislation by the *Willandra Lakes Region Environmental Plan*. This provides for a Community Management Council, Technical and Scientific Advisory Committee, Elders Council of Traditional Tribal Groups affiliated with the Willandra, and Landholders Protection Group to input advice on the management of the World Heritage Area.

Upon listing, the World Heritage Committee requested that a management plan be ‘rapidly established for the whole area.’ This process was begun in 1989 with the first property management plan – *Sustaining the Willandra* –finalised in 1996 following extensive consultation with all stakeholders. Individual Property Plans have been developed to protect World Heritage values on the pastoral stations. Similarly, Mungo National Park, managed jointly by the NPWS and Traditional Tribal Groups under a Joint Management Agreement, is subject to a management plan which aims to maximise conservation of both natural and cultural heritage values while also conserving biodiversity and facilitating appropriate visitor access. Visitor access to sensitive areas is carefully controlled, and in some areas excluded, to mitigate adverse impacts on World Heritage values.

All World Heritage properties in Australia are ‘matters of national environmental significance’ protected and managed under national legislation, the *Environment Protection and Biodiversity Conservation Act 1999*. This Act is the statutory instrument for implementing Australia’s obligations under a number of multilateral environmental agreements including the World Heritage Convention. By law, any action that has, will have or is likely to have a significant impact on the World Heritage values of a World Heritage property must be referred to the responsible Minister for consideration. Substantial penalties apply for taking such an action without approval. Once a heritage place is listed, the Act provides for the preparation of management plans which set out the significant heritage aspects of the place and how the values of the site will be managed.

Importantly, this Act also aims to protect matters of national environmental significance, such as World Heritage properties, from impacts even if they originate outside the property or if the values of the property are mobile (as in fauna). It thus forms an additional layer of protection designed to protect values of World Heritage properties from external impacts. In 2007 the Willandra Lakes Region World Heritage Area was added to the National Heritage List in recognition of its national heritage significance.

The property management plan identifies issues for management, outlines strategies for responses and identifies responsible parties. Among the issues and threats to values being addressed through coordinated action are the occurrence of invasive pest species (including European rabbits and feral goats), balancing increased visitation with asset protection, controlling total grazing pressure to provide for perennial vegetation regeneration, and limiting accelerated erosion where practicable.

Resources (#a3)

Listing information

- [Location/Boundary plan \(PDF - 460.99 KB\)](#)
(/sites/default/files/env/pages/f82e987c-e5ea-423f-b757-ff0b80727e57/files/105693.pdf)
- [Gazettal notice \(PDF - 67.56 KB\)](#)
(/sites/default/files/env/pages/f82e987c-e5ea-423f-b757-ff0b80727e57/files/10569301.pdf)
- [Australian Heritage Database record for this place](#)
(https://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=105107)

Further information

- [Willandra factsheet \(PDF - 818.7 KB\)](#)
(/sites/default/files/env/pages/f82e987c-e5ea-423f-b757-ff0b80727e57/files/willandra-factsheet.pdf)
- [Map \(PDF - 271.56 KB\)](#) (/sites/default/files/env/pages/f82e987c-e5ea-423f-b757-ff0b80727e57/files/willandra-map.pdf)
- [Protected Planet Database - Willandra Lakes Region World Heritage Site](#)
(http://www.protectedplanet.net/sites/Willandra_Lakes_Region_World_Heritage_Site)
- [World Heritage Committee information for Willandra Lakes Region](#) (http://whc.unesco.org/en/list/167)
- [New South Wales National Parks and Wildlife Service](#) (http://www.nationalparks.nsw.gov.au/)

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