

# Information Sheet on Ramsar Wetlands (RIS)

## 1. Name and address of the compiler of this form:

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DD MM YY		

Designation date

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Site Reference Number

## 2. Date this sheet was completed/updated:

11 November 2008

## 3. Country:

Australia

## 4. Name of the Ramsar site:

Lake Pinaroo (Fort Grey Basin)

## 5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or  
b) Updated information on an existing Ramsar site

## 6. For RIS updates only, changes to the site since its designation or earlier update:

### a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

**If the site boundary has changed:**

- i) the boundary has been delineated more accurately ; or  
ii) the boundary has been extended ; or  
iii) the boundary has been restricted\*\*

and/or

**If the site area has changed:**

- i) the area has been measured more accurately ; or  
ii) the area has been extended ; or  
iii) the area has been reduced\*\*

### b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

Since Lake Pinaroo was listed as a Ramsar site in 1996, further information has become available indicating Lake Pinaroo supports numerous species during critical stages of their life cycle and is an extremely important wetland that acts as a drought refuge, this information directly relates to Ramsar Criterion 4.

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**7. Map of site:**

**a) A map of the site, with clearly delineated boundaries, is included as:**

- i) **A hard copy** (required for inclusion of site in the Ramsar List):  map of Lake Pinaroo Ramsar Site in Appendix I;
- ii) **An electronic format** (e.g. a JPEG or ArcView image);
- iii) **A GIS file providing geo-referenced site boundary vectors and attribute tables**.

**b) Describe briefly the type of boundary delineation applied:**

The boundary for the Ramsar site is the 120m contour around Lake Pinaroo. The boundary was digitised using 1:100 000 topographic map Fort Grey 7139. The travelling stock reserve that is excluded from the National Park is included in the Ramsar site.

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**8. Geographical coordinates** (latitude/longitude, in degrees and minutes):

Centre of Ramsar site: 29°06'S, 141°13'E

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**9. General location:**

Lake Pinaroo is approximately 80 km north-west of Tibooburra and 24 km south east of Cameron Corner (junction of the New South Wales, Queensland, and South Australia borders), in the north-west corner of New South Wales, Australia.

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**10. Elevation:** (in metres: average and/or maximum & minimum)

Average: 120 metres above mean sea level

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**11. Area:** (in hectares)

719 hectares

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**12. General overview of the site:**

Lake Pinaroo is one of the largest terminal basins in the Simpson-Strzelecki Dunefields biogeographic region within New South Wales (NSW) and is located within Sturt National Park in the remote arid north-west corner of NSW. It is in the Lake Eyre drainage division, which is one of the largest systems in the world and is characterised by extreme climatic variability. According to Pajmans et al (1985), Lake Pinaroo is an episodic lake which is dry most of the time with rare and very irregular wet phases. The lake's large size and its capacity to retain water for extended periods when filled provides valuable habitat in the region, particularly for endangered bird species, and supports a substantial number of waterbirds when full. When dry the lake is generally sparsely vegetated, but this is highly variable and dependent on time since flooding. The lake bed has a dense seedbank of aquatic species such as the fern *Marsilea drummondii* and the sedge *Schenoplectus dissachanthus* which respond to flooding. The lake margins are dominated by low shrubs, forbs and grasses.

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**13. Ramsar Criteria:**

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9

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**14. Justification for the application of each Criterion listed in 13 above:**

**Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.**

Lake Pinaroo is located in the Lake Eyre drainage division which is characterized by extreme climatic variability including high rates of evaporation, erratic flood periods and extended dry periods. Lake Pinaroo only fills when Frome Swamp overflows during intense local rainfall events. However, once full the lake can take up to 6 years to become dry again. This longevity between rainfall and ephemeral nature of the system make it unique. Lake Pinaroo is the largest terminal basin found within NSW within the Simpson-Strzelecki Dunefields bioregion, which is thought to be the largest example of a linear sand dune environment in the world. Only a small portion of this region is found in NSW.

**Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.**

Numerous threatened fauna species have been recorded at Lake Pinaroo Ramsar site including the eastern long-eared bat (*Nyctophilus timoriensis*), listed as data deficient on the International Union for Conservation of Nature (IUCN) Red List, although the population trend is noted as decreasing and as vulnerable under the Environment *Protection and Biodiversity Conservation (EPBC) Act 1999* (Cwth), have been recorded in Sturt National Park and would likely occur within the Ramsar site. The striped-faced dunnart (*Sminthopsis macroura*) and the Forrest's mouse (*Leggadina forresti*), both listed vulnerable under the *Threatened Species Conservation (TSC) Act 1995* (NSW). The freckled duck (*Stricktonetta naevosa*) and the blue-billed duck (*Oxyura australis*), both listed as vulnerable under the TSC Act. The interior blind snake (*Ramphotyphlops endoterus*), listed as endangered under the TSC Act, has also been recorded at the site. There are four threatened plant species known to occur in Sturt National Park including the Desert carpet weed (*Glinus orygioides*) and water weed (*Osteocarpum pentapterum*) which are presumed to be extinct. The blue trumpet (yam) (*Dipteracanthus australasicus* ssp. *corynothecus*) and crumbweed (*Dysphania platycarpa*), are both listed as endangered under the TSC Act (NSW) and may occur at Lake Pinaroo and Fromes Swamp.

**Criterion 3: A wetland should be considered internationally important if it supports populations of plant and/ or animal species important for maintaining the biological diversity of a particular biogeographic region.**

A total of 195 bird species and subspecies have been reported from Sturt National Park, 61 of these are waterbird species. When filled to capacity, Lake Pinaroo holds water much longer than any other wetland within the region, providing a reliable breeding area for substantial numbers of waterbirds. Briggs in 1980 describes 'hundreds to thousands of duck, coot and grebe' being seen in November 1979, 'with probably 200-400 freckled duck', a threatened species in NSW. Lake Pinaroo also provides an important non-breeding refuge for birds that may have bred on other wetlands, particularly interdune swamps that hold water for relatively short periods (4–6 months). These include, for example, black swan (*Cygnus atratus*), pink-eared duck (*Malacorhynchus membranaceus*), grey teal (*Anas gracilis*), black-tailed native hen (*Gallinula ventralis*), banded lapwing (*Vanellus tricolor*), masked lapwing (*Vanellus miles*), red-kneed dotterel (*Erythrogonys cinctus*) and brolga (*Grus rubicunda*)

**Criterion 4: A wetland should be considered internationally important if it supports plant and/ or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.**

The size of Lake Pinaroo and its capacity to retain water play a crucial role for the survival of many species of plants and animals in the immediate and surrounding areas. Species known for their long distance movements such as the grey teal (*Anas gracilis*) and the pink-eared duck (*Malacorhynchus membranaceus*) have been recorded at Lake Pinaroo. It is likely that they migrate there to survive periods of drought. Lake Pinaroo can support up to 61 waterbird species, such as the Australian pelican (*Pelecanus conspicillatus*), pied cormorant (*Phalacrocorax varius*), Australian wood duck (*Chenonetta jubata*), Pacific heron (*Ardea pacifica*), yellow-billed spoonbill (*Platalea flavipes*) and red-necked avocet (*Recurvirostra novaehollandiae*).

Lake Pinaroo acts as an important 'stop-over' site for migratory wading birds such as black-tailed godwit (*Limosa limosa*), common greenshank (*Tringa nebularia*), marsh sandpiper (*Tringa stagnatilis*) and red-necked stint (*Clidris ruficollis*), that are listed under international migratory bird agreements including the ~~Japan-Australia Migratory Bird Agreement (JAMBA)~~ and the China-Australia Migratory Bird Agreement (CAMBA).

## 15. Biogeography

### a) Biogeographic region:

Lake Pinaroo is found within the Simpson-Strzelecki Dunefields biogeographic region.

### b) Biogeographic regionalisation scheme:

Interim Biogeographic Regionalisation of Australia or IBRA (Thackway and Cresswell 1995).

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## 16. Physical features of the site:

Lake Pinaroo comprises late Tertiary and Quaternary unconsolidated sediments overlying Cretaceous Rolling Downs sedimentary sequence. Goodrick (1984) classified Lake Pinaroo in the Gnurntah wetland system which has cracking brown clays and crusty brown clays. The surrounding area is classified in the Strzelecki wetland system which has gilgaid cracking grey clays. Frome Swamp, approximately 8 km away, is classified in the Cuttaburra wetland system which has cracking grey clays, some gilgaid.

Lake Pinaroo is a terminal basin on Fromes Creek, downstream of Frome Swamp. The basin fills when Frome Swamp overflows during intense local rainfall events - this may occur any time throughout the year. When full, the water depth in Lake Pinaroo ranges from 0 to 2 metres. During 1974 to 1995, Lake Pinaroo has held water 6 times with flood durations ranging from approximately 6 weeks to 7 years. When full, the water in Lake Pinaroo is fresh and turbid and, as the lake begins to dry, it becomes more saline (Goodrick 1984).

Lake Pinaroo has an arid climate (low rainfall and high evaporation result in inadequate soil moisture for crop production). Annual average rainfall at Tibooburra (nearest recording station) is 227 mm (Bureau of Meteorology, 2006). Average winter (July) minimum temperature at Tibooburra is 5.4°C and the average summer (Jan) maximum temperature is 36.1°C (Bureau of Meteorology, 2006).

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## 17. Physical features of the catchment area:

Lake Pinaroo's catchment area is approximately 77,706 ha and contains an area primarily enclosed by the Grey Range to the east and south-east. The maximum height of the Grey Ranges is approximately 260 metres, therefore Lake Pinaroo's catchment is very flat and consequently very small changes in elevation will cause great changes in flooding extent.

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### 18. Hydrological values:

Lake Pinaroo is located in the most arid part of NSW and receives the second lowest recorded rainfall in the state (Cunningham et al. 1981). Lake Pinaroo fills after Frome Swamp is full and overflows, and this occurs after very intense rainfall. When full, Lake Pinaroo can hold water for extremely long periods of time (up to six years) because there is no point of outflow. Since water is a limited resource throughout the north-west corner of NSW, Lake Pinaroo plays a vital role in the continued survival of native fauna within the region.

### 19. Wetland Types

#### a) Presence:

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •  
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

#### b) Dominance:

The site is dominated by the Inland wetland type R, seasonal and/ or intermittent saline, brackish and/ or alkaline lakes and flats. There is also an occurrence of wetland type N, inland wetland with seasonal, intermittent and/ or irregular rivers, streams and/ or creeks.

### 20. General ecological features:

When full, Lake Pinaroo consists of an open lake with muddy lake margins. When dry the lake has low species diversity and is generally sparsely vegetated by shrubs such as *Solanum oligocanthum* and *Glycyrrhiza acanthocarpa*, forbs such as *Portulacca oleracea*, *Zehneria micrantha* and the grass *Sporobolus mitchellii*, but this is highly variable and dependent on time since flooding. The lake bed has a large dormant seed bank of aquatic species such as the fern *Marsilea drummondii* and the sedge *Schenoplectus dissachanthus* which respond to flooding. The lake margins support a relatively diverse mix of low shrubs, forbs and grasses such as *Enchylaena tomentosum*, *Atriplex stipitata*, *Sclerolaena divaricata*, *Sclerolaena intricate*, *Olearia meulleri*, *Aster subulatus* and *Glinus lotoides*.

When Lake Pinaroo contains water it holds it much longer than many other wetlands within the region. Therefore, it provides a reliable breeding area for a substantial number of waterbirds. Lake Pinaroo also provides an important non-breeding refuge for birds that have bred on other wetlands, particularly inter-dune swamps that hold water for only 4-6 months. The site is also considered to play an important role for waterbirds such as the freckled duck, blue-billed duck, ibis and cormorants migrating from surrounding wetlands including Coongie Lakes, Bulloo River Lakes, Caryapundy Swamp, Salisbury Lake and Paroo wetlands. Lake Pinaroo provides extremely significant habitat in the region and this is primarily attributed to its size and permanence once full.

### 21. Noteworthy flora:

Plant community diversity and species abundance varies considerably depending on water levels and soil moisture. The plant species that occur at Lake Pinaroo are bioregionally significant due to the scarcity of water and suitable habitat in the region. The surrounding sand dune country is vegetated with sandhill wattle (*Acacia ligulata*), hopbush (*Dodonea viscosa* ssp. *angustissima*), turpentine (*Eremophila sturtii*), saltbush (*Atriplex* spp.), budda (*Eremophila mitchellii*), *Myoporum montanum*, *Senna filifolia*, *Senna pleurocarpa* var.

*pleurocarp.* and whitewood (*Atalaya hemiglauca*). Coolibah (*Eucalyptus coolabah* ssp. *arida*) regrowth is found on the high ground of the lake margins. Forbs and groundcover species in this habitat included silky glycine (*Glycine canescens*), goathead burr (*Sclerolaena bicornis* var. *bicornis*), corrugated side (*Sida corrugate*) and grey germander (*Teucrium racemosum*).

The lake margins support a relatively diverse mix of low shrubs (< 1 m), forbs and grasses dominated by bitter saltbush (*Atriplex stipitata*), ruby saltbush (*Enchylaena tomentosum*), grey copperburr (*Sclerolaena diacantha*), pale poverty bush (*Sclerolaena divaricata*), tangled poverty bush (*Sclerolaena intricata*), spear fruit copperburr (*Sclerolaena patenticuspis*), Mueller's daisy bush (*Olearia meulleri*), bushy starwort (*Aster subulatus*), loose flowered rattlepod (*Crotalaria eremea* ssp. *eremea*), variable Daisy (*Brachycomb ciliaris* var. *lanuginose*), yellow pea bush (*Sesbania cannabina* var. *cannabina*), spreading scurf pea (*Psoralea australasica*), pigweed (*Portulacca oleracea*), desert cucumber (*Zehneria micrantha*), fruit salad plant (*Pterocaulon sphacelatum*), shrubby groundsel (*Senecio cunninghamii* var. *cunninghamii*), spreading heliotrope (*Heliotropium supinum*), hairy carpet weed (*Glinus lotoides*), common sneezeweed (*Centipeda cunninghamii*), bogan flea (*Calotis hispidula*), spreading nutheads (*Epaltes australis*), rat's tail couch (*Sporobolus mitchellii*) and the accidentally introduced species stinkwort (*Ditrichia graveoloens*).

When dry, the lake bed may be colonised by neverfail (*Eragrostis setifolia*), native liquorice (*Glycyrrhiza acanthocarpa*), purselane (*Portulacca oleracea*), *Zehneria micrantha*, bitter saltbush (*Atriplex stipitata*), desert nightshade (*Solanum oligacanthum*), ruby saltbush (*Enchylaena tomentosum*) and rats tail couch (*Sporobolus mitchellii*). Aquatic and semi-aquatic plants survive the long dry periods as drought resistant seeds or spores within the dry sediments. The sediment seed bank of Lake Pinaroo supports 14 species including red milfoil (*Myriophyllum verrucosum*) and charophyte algae. Edible plants found in or surrounding Lake Pinaroo includes ruby saltbush (*Enchylaena tomentosa*), purslane (*Portulacca* spp.) and nardoo (*Marsilea* spp.) (Cunningham et al. 1981).

Twenty-eight species of introduced species have been recorded within the Ramsar site. They are the pepper tree (*Schinus areira*), saffron thistle (*Carthamus lanatus*), milk thistle (*Sonchus oleraceus*), noogoora burr (*Xanthium spinosum*), Bathurst Burr (*Xanthium spinosum* and *X. strumarium*), spreading heliotrope (*Heliotropium supinum*), Mediterranean turnip (*Brassica tournefortii*), bindweed (*Convolvulus arvensis*), camel melon (*Citrullus lanatus* var. *lanatus*), paddy melon (*Cucumis myriocarpus* ssp. *leptodermis*), burr medic (*Medicago polymorpha*), spurred vetch (*Vicia monantha*), common crowfoot (*Reodium cicutarium*), oval crowfoot (*Erodium malacoides*), malvastrum (*Malvastrum americanum*), Mexican poppy (*Argemone ochroleuca* ssp. *ochroleuca*), birdwood grass (*Cenchrus setiger*), tiny bristlegrass (*Rostaria pumila*), wild hops (*Acetosa vesicaria*), spiny emex (*Emex australis*), pimpernel (*Anagallis arvensis*), African boxthorn (*Lycium ferocissimum*), tobacco bush (*Nicotiana glauca*), cat-head (*Tribulus terrestris*) and Mayne's pest (*Verbena aristigera*).

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## 22. Noteworthy fauna:

Lake Pinaroo and surrounding areas provide valuable habitat for a number of endangered fauna including the grey falcon (*Falco hypoleucos*), Australian bustard (*Ardeotis australis*), brolga (*Grus rubicundus*), freckled duck and black-breasted buzzard (*Hamirostra melanosternon*). Three migratory wading bird species, protected by the international treaties JAMBA and CAMBA, have also been recorded at Lake Pinaroo including common greenshank, black-tailed godwit (*Limosa limosa*) and red-necked stint (*Calidris ruficollis*). Sturt National Park supports an extremely diverse range of bird species and approximately 195 species have been recorded. When full, Lake Pinaroo supports large numbers of

waterbirds and waders and the common species include pink-eared duck (*Malacorhynchus membranaceus*), grey teal (*Anas gracilis*), black-tailed native-hen (*Gallinula ventralis*), and wood duck (*Chenonetta jubata*). Budgerigars (*Melopsittacus undulatus*) are also very common in the area.

Small mammals found in the park include Forrest's mouse (*Leggadina forresti*), sandy inland mouse (*Pseudomys hermannsburgensis*), fat-tailed dunnart (*Smithopsis crassicaudata*), paucident planigale (*Planigale gilesi*), long haired rat (*Rattus villosissimus*), echidna (*Tachyglossus aculeatus*) and a number of bats (*Tadarida australis*, *Eptesicus pumilus*, *Chalinolobus gouldii*, and *Nyctophilus geoffroyi*). The park also provides ideal habitat for red kangaroo (*Macropus rufa*) and emu (*Dromaius novaehollandiae*) which are found in large numbers.

Four species of amphibians and twenty-two reptile species have been recorded in Lake Pinaroo and its surrounds. The amphibian species include waterholding frog (*Cyclorana platycephala*) and common spadefoot toad (*Neobatrachus sudelli*) which are able to survive dry periods by burrowing underground. Reptile species include the bearded gecko (*Diplodactylus damaeum*), beaked gecko (*Rhynchoedura ornata*), the tree dtella (*Gehyra variegata*) and the interior blind snake (*Ramphotyphlops endoterus*) (R.Sadlier, Australian Museum). The western brown snake (*Pseudonaja nuchalis ssp. nuchalis*) and the common brown snake (*Pseudonaja textilis ssp. textilis*) are common throughout Sturt National Park. There have been no species of fish recorded in Lake Pinaroo but the presence of fish-eating birds during wet periods suggests that Lake Pinaroo may support some species of fish.

Briggs (1982) has recorded invertebrate communities in Lake Pinaroo, common communities include species from the orders coleoptera, diptera, ephemeroptera, hemiptera, odonata, and trichoptera, and the suborder cladocera.

Introduced fauna include foxes, feral dogs, feral cats, rabbits, goats and pigs as well as two introduced bird species.

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### **23. Social and cultural values:**

Sturt National Park has extremely high cultural value. The park has an exceptionally high density and variety of Aboriginal sites including hearths, middens, ceremonial sites, quarries and abundant stone artifacts, suggesting that a large aboriginal population once occupied the area. There are no officially recorded Aboriginal sites in Lake Pinaroo, however, an open camp site and scarred tree are close by, and artifact scatters (flakes, cores) are common around the fringing dunes. The Aboriginal tribes, Wangkumara and Maljangapa, originally used the Sturt National Park area.

Sturt National Park was the setting for significant events in the history of early exploration of inland Australia. Charles Sturt, the most prominent of these explorers, built a stockade next to Lake Pinaroo and named it Fort Grey. This served as a base camp for the explorer's party while Sturt led smaller parties across what is now known as the Simpson Desert to the north and west. Pastoral infrastructure was inherited when stations were purchased to create the National Park. In the bed and surrounding margins of Lake Pinaroo a crutching shed, hut remains, steam engine relics, bore relics and remains of a stone homestead are present. On the edge of Lake Pinaroo a homestead, various outbuildings and bore have been maintained to preserve their cultural values, and for park management purposes.

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### **24. Land tenure/ownership:**

#### **a) Within the Ramsar site:**

The Ramsar site is within a National Park dedicated under the *National Parks and Wildlife (NPW) Act 1974* (NSW).

**b) In the surrounding area:**

The lands adjacent to the Ramsar site are also a National Park, or Crown Land dedicated under the *Rural Lands Protection Act 1989* (NSW). Beyond the National Park boundary the lands are Crown Land dedicated under the *Western Lands Act 1901* (NSW).

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**25. Current land (including water) use:**

**a) Within the Ramsar site:** The Ramsar Site are permanently dedicated as National Park and used as a nature conservation area. Lake Pinaroo has become a very popular tourist destination in arid NSW because it provides the community with various recreational activities including bird-watching.

**b) In the surrounding area:**

A small portion of land adjacent to the Ramsar Site is Crown Land and used as a Travelling Stock Reserve (designated route or public road that travelling livestock can use), although it has not been used for this purpose for the last 20 years. Sixty one percent of the Lake Pinaroo's catchment is contained within the boundary of the National Park. The remainder of the land in the drainage system is used for grazing domestic stock (Ramsar Information Sheet 1998). The population of the area surrounding the Ramsar site is approximately 160, the majority live in Tibooburra (80 km away) and primarily service the town.

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**26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

**a) Within the Ramsar site:**

Athel pine (*Tamarix aphylla*) was planted at Lake Pinaroo prior to the National Park dedication, although they are part of the cultural landscape, they can be highly invasive and there is a threat the tree will spread vegetatively. Athel pine was considered a minor threat to Lake Pinaroo and has since been removed by NSW National Parks and Wildlife Service (NPWS).

Noogoora burr (*Xanthium occidentale*) is in the upper catchment of Lake Pinaroo and also has the potential to spread, but more rapidly than athel pine. noogoora burr is considered a major threat to Lake Pinaroo.

Introduced animals occur in low numbers on an irregular basis in Sturt National Park, therefore, they are considered a minor threat at Lake Pinaroo. A rabbit fence on the western and northern boundaries of the National Park was erected in the late 1800s. During 1912 to 1914 it was upgraded to a dingo fence with the purpose of keeping dingoes out of NSW. The fence has been very effective for that purpose, however, it also impedes the movement of native animals and subsequently kangaroos concentrate in the area and tend to overgraze the native vegetation. Overgrazing of native vegetation by native animals is considered a negligible threat. The NPWS have constructed exclusion plots to monitor any effect.

Tourists are a minor disturbance to the area - a walking track to Sturt's tree is located in the bed of Lake Pinaroo.

**b) In the surrounding area:**

Reduced rainfall and higher than average temperature as a result of climate change could be a major threat to the Lake Pinaroo Ramsar site resulting in a reduction in the frequency

and extent of inundation at the wetland. However, it is not yet well understood how climate change could affect local conditions at Lake Pinaroo.

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**27. Conservation measures taken:**

**a) National and/ or international category and legal status of protected areas with the Ramsar site:**

Lake Pinaroo Ramsar site is managed to conserve migratory bird habitat in accordance with the International Convention on the Conservation of Migratory Species of Wild Animals (Bonn agreement), JAMBA, CAMBA and the East Asian-Australian Shorebird Reserve Network (EAASRN).

At a national level, Australia's obligations concerning international agreements and including the Convention on Wetlands (Ramsar Convention) are provided for within the *EPBC Act*.

Lake Pinaroo lies entirely within Sturt National Park, which is managed in accordance with the NPW Act.

**b) The IUCN (1994) protected areas category which apply to the site:**

Ia ; Ib ; II ; III ; IV ; V ; VI

**c) Does and official management plan exist, is it being implemented:**

A management plan for the Lake Pinaroo Ramsar site has not been developed, however the Ramsar site lies entirely within Sturt National Park. A Plan of Management for Sturt National Park has been developed and implemented in 1996 (NSW NPWS 1996).

**d) Other current management practices:**

Lake Pinaroo is contained within Sturt National Park (325,329 ha) which was formed when pastoral leases were progressively acquired from 1972 onwards. The majority of Lake Pinaroo was gazetted National Park in 1975 and another smaller portion was gazetted in 1976. All agricultural activities have ceased within the Ramsar site which has resulted in limited regeneration of vegetation. Introduced animals including rabbits (*Oryctolagus cuniculus*), pigs (*Sus scrofa*), foxes (*Vulpes vulpes*), feral cats (*Felis catis*), and feral dogs (*Canis familiaris*) are controlled by the NSW Department of Environment, Climate Change and Water (DECCW). Dingoes (*Canis familiaris spp. dingo*), although protected under the NPW Act are also controlled when they prey on domestic livestock in neighbouring pastoral leases.

The NPWS has established exclusion plots in Sturt National Park to investigate the effects of grazing by rabbits and kangaroos on vegetation regeneration. Pitfall traps have been established near the Ramsar site to monitor changes in small animal populations, and monitoring of raptors is carried out across the Park on a regular basis. Changes to the vegetation of Sturt National Park is monitored by photographic record. A weed control program has been established in the catchment of Fromes Creek to reduce the possibility of infestation. A fire action plan for the area has been prepared and will be reviewed annually. Fireplaces using wood, at the camping ground of Lake Pinaroo, will be phased out. Horse riding in the area is restricted to public roads.

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**28. Conservation measures proposed but not yet implemented:**

The Plan of Management for Sturt National Park (NSW NPWS 1996) addresses numerous conservation and management initiatives to preserve and enhance the area for nature conservation. Initiatives include the removal of athel pine (*Tamarix aphylla*); establishing and implementing an ongoing rabbit control program with the aim of reducing rabbit numbers to

a level which permits satisfactory regeneration of native vegetation communities; Aboriginal sites will be progressively recorded and conservation assessments will be prepared where necessary; maintenance works programmes for historic structures will be prepared and implemented; mapping of rare or endangered native plant species; species management plans may be prepared and implemented where necessary; and revegetation will be monitored after fires pass through the area.

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**29. Current scientific research and facilities:**

Currently there are no research activities being undertaken at Lake Pinaroo, however, in the past Lake Pinaroo has been a site for the study of waterbirds. Briggs (1982) researched the food habits of Freckled Duck and associated waterfowl, and more extensive research on Freckled Duck behaviour in Lake Pinaroo is reported in Marchant and Higgins (1990). Recent investigations of mammals and invertebrates has been undertaken within Sturt National Park (Montague-Drake and Croft 2004, Oliver *et al.* 2004).

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**30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:**

Lake Pinaroo is in a remote location but it is occasionally utilised for educational visits by schools and universities. Eighteen interpretive signs have been erected on a loop walking track located at Lake Pinaroo and information leaflets for the park are also available from the NSW DECCW office, located at Tibooburra.

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**31. Current recreation and tourism:**

Sturt National Park is the only reserved area in the arid north west corner of New South Wales and offers a variety of habitats for the local community and tourists to explore. The park receives 30-40,000 visitors per year and the potential for increased recreation and tourism is high. A loop walking track has been established at Lake Pinaroo, which takes in historical sites including an old hut, steam engine, and Sturt's Tree. Interpretive signage for these attractions has been erected. Camping facilities are available at the site and are used heavily (in comparison to other sites in the park), especially during July and October.

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**32. Jurisdiction:**

**Territorial:** Government of New South Wales

**Functional:** New South Wales Department of Environment, Climate Change and Water (DECCW)

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**33. Management authority:**

NSW Department of Environment, Climate Change and Water  
(Western Region and Zone, Tibooburra District)

Address: District Manager

Post Office

Tibooburra NSW 2880

Phone: 08 8091 3308

Fax: 08 8091 3309

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**34. Bibliographical references:**

Briggs, S. (1980). Notes on visits to north-west wetlands, including Sturt National Park in November 1979 and January 1980. Unpublished report. NSW NPWS, Hurstville.

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## Appendix I:

Below is the map for Lake Pinaroo Ramsar site, clearly showing the Ramsar site boundary.

