Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

This Ramsar Information Sheet has been converted to meet the 2009 – 2012 format, but the RIS content has not been updated in this conversion. The new format seeks some additional information which could not yet be included. This information will be added when future updates of this Ramsar Information Sheet are completed. Until then, notes on any changes in the ecological character of the Ramsar site may be obtained from the Ecological Character Description (if completed) and other relevant sources.

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

Roger Jaensch, Wetlands International - Oceania, on behalf of the Western Australian Department of Conservation & Land Management (DCLM), in 1998. Updated by DCLM staff in 2000 and 2003.

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

All inquiries should be directed to:
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2. Date this sheet was completed/updated:
October 2003

3. Country:
Australia

4. Name of the Ramsar site:
The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Lake Gore, Western Australia

5. Designation of new Ramsar site or update of existing site:
Lake Gore was designated on 5 January 2001. The previous RIS was dated 2000.

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** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

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:

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7. Map of site:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

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): ☑;

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:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

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8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Latitude: 33° 44’ S to 33° 50’ S; Longitude: 121° 26’ E to 121° 32’ E

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9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Lake Gore is in the Shire of Esperance (local authority) in the State of Western Australia (population ca. 1.95 million in 2003). It is 34 km west-north-west of the town of Esperance (Shire population ca. 13,100 in 2003).

The Lake Gore Ramsar Site comprises the entire area of Nature Reserve 32419 and the eastern part of Nature Reserve 26885, which are almost contiguous (see map). The western boundary of the Site is the "protected road" (unformed track) that provides vehicular access across Nature Reserve 26885 to Warrinup Beach. Wetlands within the Site include Lake Gore and part of a downstream system of inter-connected lakes and swamps of varied sizes ("the overflow wetlands").

A strip of land oriented east-west and approximately 686 m wide inside the northern boundary of Nature Reserve 26885 is excluded from the Site in anticipation of possible future exchange of this land for freehold land that may be added (subject to negotiation with and voluntary agreement of the present owner) to Nature Reserve 32419, and which would substantially enhance the conservation values and management of the wetlands. Lakes Gidong, Kubitch and Carbul, which are adjacent to Lake Gore, are not in the Ramsar Site; neither are Quallilup Lake or the un-reserved overflow wetlands that connect that Lake to the Site. There is potential for addition of these areas of wetland to the Site in the future, subject to resolution of tenure and other issues.

10. Elevation: (in metres: average and/or maximum & minimum)
Approximately 10 – 20m (Australian Height Datum)

11. Area: (in hectares)
4 017 ha of which Lake Gore itself comprises 740 ha

12. General overview of the site:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Site comprises a near-permanent saline lake and part of a downstream system of inter-connected lakes and swamps of various sizes which are intermittently inundated. Lake Gore itself supports the largest known populations of Hooded Plover *Thinornis rubricollis*, and is important for moulting by thousands of Australian Shelduck *Tadorna tadornoides* and for drought refuge by thousands of ducks and shorebirds. Lake Gore also supports thousands of Banded Stilt *Cladorhynchus leucocephalus*.

13. Ramsar Criteria:
Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1	2	3	4	5	6	7	8	9
☐	☐	☐	☑	☑	☑	☐	☐	☐

14. Justification for the application of each Criterion listed in 13 above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

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.
Lake Gore regularly supports moulting by thousands of Australian Shelducks; it is one of the most important moulting sites for shelducks in South-Western Australia. The Lake is also used as a drought refuge by large numbers of waterbirds (see criterion 5).

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.
More than 29,000 waterbirds have been counted at Lake Gore. The number of individual waterbirds that use the lake each year probably exceeds 20,000 and the annual data on water depth suggest conditions are suitable for use by 20,000 waterbirds at least several times within a 25 year period; in

the context of wetland availability in Western Australia this is considered sufficient evidence of regular use by 20,000 waterbirds.

Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.
Lake Gore supports up to 1600 Hooded Plover which constitutes more than 1% (actually almost one third) of the global population. Lake Gore is the single most important wetland for this species. The 1% criterion also is met for Banded Stilt: thousands occur regularly and counts of up to 20,000 (about 10% of the population) have been recorded.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):
Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
Esperance Plains

b) biogeographic regionalisation scheme (include reference citation):
Interim Biogeographic Regionalisation for Australia (IBRA) Version 5.1 (Cummings and Hardy 2000).

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16. Physical features of the site:
Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The Site is situated in the Albany-Fraser Orogen, in alluvial/lacustrine sediments overlying marine limestone and gneiss/sandstone on a sub-coastal plain. It includes a large lake (Lake Gore: 740 ha), and a downstream system of inter-connected small lakes, swamps and creeks ("the overflow wetlands"), all of which are natural wetlands. Water is derived from a relatively large surface catchment, mainly from Dalyup River, Coobidge Creek and minor seasonal streams. The total wetland area downstream of Lake Gore and within the Ramsar Site boundary is in the order of 600 ha.

Lake Gore is a sub-terminal drainage basin. It is seasonal or near-permanent, sometimes being dry in autumn: maximum depth recorded is 2.0 m (September 1996) and the September mean is 1.4 m. In particularly wet years, which have occurred at least four times in the last 25 years, Lake Gore flows out at two points into the overflow wetlands: at times flow may continue for another 1-2 km beyond the Ramsar Site to Lake Quallilup (a terminal basin) and exceptionally also about 10 kilometres westward beyond the Ramsar Site to Barkers Inlet. Water may be more than 1.0 m deep in the overflow wetlands and may persist for more than 12 months before drying out, unless there are further floods.

Water quality, Lake Gore: salinity ranges from saturated salt (e.g. January 1984, when less than 0.5 m deep) to 6.5 parts per thousand (September 1989) with a September mean of 52.1 ppt (n=12); water pH ranges from 7.1 to 9.4; and the water is colourless. The overflow wetlands mainly hold water when the lake has overflowed and are at the lower end of salinities recorded for Lake Gore.

Water data are from monitoring by the Department of Conservation & Land Management.

Median and mean annual rainfall at Esperance (34 km east-south-east of Lake Gore) are 553 mm and 568 mm respectively, mostly falling in May-August. Annual evaporation is about 1800 mm.

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17. Physical features of the catchment area:
Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The Dalyup River Catchment is approximately 82 000 ha in area and has about ten percent of its original native vegetation remaining. The 90 percent of cleared catchment area is used for agricultural purposes, primarily winter cropping (wheat, barley, canola and lupins) and livestock production (beef, wool and sheep meat).

The Gneissic-migmatite bedrock beneath the Dalyup Catchment that was emplaced 2400 million years ago forms the basement of the hydrogeologic system. Between the bedrock and the ground surface is the catchment's regolith, which is a zone of weathered bedrock and sediments.

The regolith has large variations in its material composition and thickness. In the Esperance land-systems the regolith consists of Tertiary sediments overlying the in-situ weathered material (bedrock that has weathered and broken up in place) above the basement rock. The Dalyup and West Dalyup rivers were formed thirty million years ago (during the Oligocene period) when the Darling Plateau uplifted and the southern coastline tilted toward the south to form the Ravensthorpe Ramp. This partly rejuvenated the rivers and they started to drain in a southerly direction instead of the previous east-west direction. Over time, the rivers etched the weathered profile and sandplain exposing granite along the bottom of drainage lines and remnant Tertiary sedimentary rock with lateritic profiles on the flanks of low hills. The regolith in the river valleys and slopes is a mixture of these sediments, in-situ weathered material and other materials deposited and transported from the surrounding landscape by water (alluvial), gravity (colluvial) and wind (aeolian) processes. (John Simons, Regional Hydrologist, AGWEST, Esperance, pers. comm.).

The soils of the catchment are predominantly grey sandy duplex soils usually with ironstone gravels within the sandy topsoil and pale deep sands (Esperance land-systems). In the northern part of the catchment the soils are alkaline grey shallow sandy duplex soils of the mallee (Scadden land-system) (Brendan Nicholas, Soil Resource Officer, AGWEST, Esperance, pers. comm.).

The Dalyup catchment has a Mediterranean type climate which is characterised by a cool winter with reliable rainfall and a warm dry summer with occasional thunderstorms. The catchment receives an average of 484 mm of rainfall a year. Seventy-six per cent of this falls between April and October. The southern end of the catchment has an average annual rainfall of 590 mm (of which 80 per cent falls in winter) while the northern part of the catchment, 40 km away, receives an average of 368 mm (of which 70 per cent falls in winter) (Pam Burgess, AGWEST, Esperance, pers. comm.).

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The Site's hydrological values are currently being investigated and reports will be completed by 2007.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines.*

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:
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

R, Ss.

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20. General ecological features:
Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Lake Gore and many of the overflow wetlands support a zone (generally narrow; wide in some overflow swamps) of open-woodland of saltwater paperbark *Melaleuca cuticularis* over understorey of the sedges *Gahnia trifida* and *Schoenus brevifolius* at or near the margins (Halse *et al*. 1993; Lane *et al*. 1996). Areas of low shrubland dominated by the samphires *Suaeda australis* and *Sarcocornia quinqueflora,* the grass *Sporobolus virginicus* and the herb *Samolus repens,* occur in the overflow wetlands. Surrounding areas support mainly open-scrub or open-heathland, or are cleared.

There is little information on long-term changes to the vegetation though many dead trees in the paperbark woodlands are indicative of prolonged inundation, possibly due in part to increased inflow to the Lake following land clearance in the surface catchment.

Surveys have recorded 48 waterbird species at Lake Gore and about 33 at the overflow wetlands; 14 are migratory shorebirds. Fairy Tern *Sterna nereis* (unusual inland) and Freckled Duck *Stictonetta naevosa* sometimes occur in small numbers. Over 1500 Black Swans *Cygnus atratus* were recorded at Lake Gore in November 2002, which is an unusually high number for the south coast of Western Australia (Buchanan 2003). Eight species of waterbirds have been recorded breeding at Lake Gore; several species (e.g. Chestnut Teal *Anas castanea*) breed in the overflow wetlands. Most breeding is in wetter years, mainly in samphire and inundated woodland. The most abundant migrant shorebird is Red-necked Stint *Calidris ruficollis* (625 at Lake Gore). Major roost sites for waterbirds in Lake Gore are at the delta-spit of the Dalyup River and on rock outcrops (flightless moulting shelducks).

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21. Noteworthy flora:
Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

There are no rare, threatened or endemic plants known at the Site.

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22. Noteworthy fauna:
Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Almost one third of the world population (Rose & Scott 1997) of Hooded Plover occurs regularly at Lake Gore: the maximum count was 1600 in January 1995. The birds often occur in loose groups, sometimes in dense flocks, along the broad north and north-eastern beaches of Lake Gore. Few if any have been seen in the overflow wetlands and there is no evidence of Hooded Plover breeding anywhere in the Site. Although other nearby wetlands, including the Gidong suite of lakes and the Ramsar listed Lake Warden System (at Esperance), also support hundreds of Hooded Plovers, despite many surveys, Lake Gore clearly remains the single most important wetland for this species.

Up to almost 10% of the world population of Banded Stilt (20,000 in March 1988) occurs at Lake Gore, usually when the Lake has dried back substantially. This is one of the most important drought refuges for Banded Stilt in South-Western Australia.

Lake Gore is used each year in spring-summer for moulting by thousands (up to 12,000, November 1986) of Australian Shelduck. It is one of the most important moulting sites for shelducks in the bioregion.

Extensive use by Australian Shelducks and Banded Stilts indicates that Lake Gore is one of the most important drought refuges for waterbirds in the bioregion. The highest number of waterbirds counted was 29,273 in March 1988 and though no other counts have reached 20,000 the number of individual waterbirds that use the lake each year probably exceeds 20,000. The most abundant species at Lake Gore are Banded Stilt, Australian Shelduck, Grey Teal *Anas gracilis* (3500, December 1987) and Hoary-headed Grebe *Poliocephalus poliocephalus* (1000, March 1988).

The beaches of Lake Gore have red shell deposits of an ostracod (cf *Australocypris* sp.) that thrives in the lake (S. Halse pers. comm.).

Data are from Jaensch *et al.* 1988, Halse *et al.* 1990, Lane *et al*. 1996 and data sets held by the Western Australian Department of Conservation & Land Management.

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23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

None recognised.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box ❑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:
a) within the Ramsar site:
The Ramsar Site comprises Nature Reserve 32419 and the eastern part of Nature Reserve 26885, both vested in the Conservation Commission, for the purposes of "Water and Conservation of Flora and

Fauna" (32419), and "Conservation of Flora" (26885). Reserve 26885 has been proposed as an addition to Stokes Inlet National Park (CALM 1991).

b) in the surrounding area:
Surrounding areas include freehold (privately owned) land, Nature Reserve, Recreation Reserve, Unallocated Crown Land and marine waters.

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25. Current land (including water) use:
a) within the Ramsar site:
The principal land use within the Ramsar Site is nature conservation. In addition, low level passive recreational use occurs. There are no developed facilities for nature-based recreation and this type of recreation is negligible within the Ramsar Site.

b) in the surroundings/catchment:
The most important land uses in the surface catchment are agriculture (cereal, other seed crops) and grazing of sheep. Some adjoining areas are reserved for nature conservation. Some recreational fishing by local residents occurs at or near Warrinup Beach, which is also popular for surfing. Human population in the surface catchment of the Site is in the order of several hundreds of people.

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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:
Major algal blooms, probably due to use of agricultural fertilisers in the Dalyup River catchment, occur at Lake Gore from time to time and result in deposits of algal mats on the shores. The impact of these blooms/mats on waterbirds including Hooded Plovers is not known. The Site's wetlands became naturally saline about 5000-6000 years ago however, due to catchment salinisation and increased run-off, salt loads have increased within the wetlands. Increased salt loads together with increased inundation have resulted in major riparian vegetation deaths across the entire Ramsar site within the last five years. Recent sediment cores taken from the centre of Lake Gore indicate that deposition/siltation has increased 50 fold, from 8 mm per one hundred years pre European settlement to 400 mm per hundred years post settlement. Out of season rainfall events such as the 1999 and 2000 summer floods are consistent with CSIRO global warming modeling for southern Australia. Such events, together with the impacts of catchment hydrological change and upper catchment deep drainage practices, are placing pressure on the natural values of the wetland system.

b) in the surrounding area:
Eutrophication and salinisation are significant threats in surrounding farmland and wetlands. Changes in agriculture are possible, e.g. possible establishment of tree plantations, which if extensive may reduce surface and ground water inputs and input of nutrients and salt.

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27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:
In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.
The Ramsar Site comprises Nature Reserve 32419 and the eastern part of Nature Reserve 26885, both vested in the Conservation Commission, for the purposes of "Water and Conservation of Flora and Fauna" (32419), and "Conservation of Flora" (26885). Reserve 26885 has been proposed as an addition to Stokes Inlet National Park (CALM 1991).

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

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

c) Does an officially approved management plan exist; and is it being implemented?:

d) Describe any other current management practices:
Cooperative management of parts of the surface catchment, with substantial community participation (Dalyup Catchment Group), is occurring under the federally funded Landcare program. The Water & Rivers Commission is preparing an Action Plan with the Dalyup Catchment Group to protect the Dalyup River. This work includes foreshore surveys of the Dalyup and West Dalyup Rivers and tributaries and the development of recommendations addressing management issues.

Most of the shoreline of Lake Gore has less than 50 m of buffer zone within protected areas.

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28. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

There is some local interest in the surface catchment becoming designated as a "Key Wetlands and Natural Diversity Catchment" under the Salinity Action Plan for Western Australia and in the Site becoming part of a continuous "macro-corridor" of natural lands, including protected areas, along the South Coast between Albany and Esperance.

There is potential to extend the Ramsar Site in the future, subject to resolution of land tenure and other issues.

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29. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Depth, salinity and other water quality parameters have been measured by the Western Australian Department of Conservation and Land Management at least annually at Lake Gore since 1979. Waterbird usage was surveyed annually during 1981-91, with an emphasis on shorebirds and ducks (e.g. Jaensch *et al.* 1988, Halse *et al.* 1990). Intensive study of the Hooded Plover at Lake Gore and elsewhere in the bioregion has been undertaken by Birds Australia, and the effect of a major rainfall event (ex-tropical cyclone Bobby in February 1995) on Hooded Plovers at Lake Gore has been investigated (Weston and Elgar 2000). Murdoch University and the University of Western Australia have undertaken research on classification and management of the Coobidge Creek wetlands.

The Department of Conservation and Land Management is currently investing State Salinity Action program funds into understanding the conservation threats faced by Lake Gore. The Department, in conjunction with the Centre for Water Research, University of Western Australia, is developing a model to better understand surface water and groundwater interactions in south coast wetlands. The model will assist in assessing landuse change scenarios throughout the catchment and their effects on the conservation values of Lake Gore. Lake Gore is a pilot area for testing this model. The model is part of an environmental management system (EMS) being developed for south coast wetlands by the Department of Conservation and Land Management. The EMS will be used to evaluate the effects of current landuse and changes in landuse on the health of Lake Gore. The EMS requires baseline information to be collated, which is currently occurring in the form of the following projects:

- hydrogeology groundwater drilling program;
- hydrogeology electromagnetic survey;
- lake bed surface water bathymetry survey;
- ongoing monitoring of depth gauge and water quality;
- lake bed sediment core sampling;
- vegetation condition monitoring using airborne multi spectral imaging technology;

- waterbird surveying during the 2003 drought period; and
- establishing two gauging stations on the West Dalyup and Dalyup rivers.

The results from these projects will be analysed and reports will be completed by the year 2007.

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30. Current communications, education, participation and awareness (CEPA) activities related to or benefiting the site:
e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

No facilities or materials are available at present. Since 1994, depth, salinity and other water quality parameters have been measured at Lake Gore every three months by the Esperance Senior High School as part of a "Ribbons of Blue" community-based water monitoring program. The Site is difficult to access without a 4-wheel-drive vehicle.

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31. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Low level recreation occurs, mainly in Reserve 26885 and associated with the coastline (fishing, swimming). Also see Items 25 and 30.

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32. Jurisdiction:
Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Territorial: The State Government of Western Australia.
Functional: The Conservation Commission (vesting) and the Western Australian Department of Conservation & Land Management (management on behalf of the Conservation Commission).

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33. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Esperance District (based in Esperance) of the South Coast Region, Western Australian Department of Conservation & Land Management.

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34. Bibliographical references:
Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Buchanan, B. 2003. Waterbirding at Esperance. Western Australian Bird Notes 105, 18-20.

CALM 1991. South Coast Region, Regional Management Plan 1992-2002. Management Plan No. 24, Department of Conservation & Land Management, Perth, Western Australia.

Cummings, B. and Hardy, A. 2000. Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1 – Summary Report. Environment Australia, Canberra. (Also available online at http://www.ea.gov.au/parks/nrs/ibra/version5-1/summary-report/index.html).

Esperance Catchment Support Team. 2000. Dalyup Catchment Report. Agriculture Western Australia, Esperance.

Jaensch, R.P. and Watkins, D. 1999. Nomination of additional Ramsar wetlands in Western Australia. Unpublished technical report by Wetlands International – Oceania for the Department of Conservation & Land Management, Perth.

Lane, J., Jaensch, R. and Lynch, R. 1996. Western Australia. In, ANCA. A Directory of Important Wetlands in Australia. Second edition. Australian Nature Conservation Agency, Canberra.

Halse, S.A., Jaensch, R.P., Munro, D.R. and Pearson, G.B. 1990. Annual waterfowl counts in south-western Australia - 1988/89. Dept. of Conservation & Land Management Technical Report No. 25. 43 pp.

Halse, S.A., Pearson, G.B. and Patrick, S. 1993. Vegetation of depth-gauged wetlands in nature reserves in south-west Western Australia. Western Australian Department of Conservation & Land Management Technical Report 30.

Jaensch, R.P., Vervest, R.M. and Hewish, M.J. 1988. Waterbirds in nature reserves of south-western Australia: reserve accounts. Royal Australasian Ornithologists Union Report No. 30. 290 pp.

Newbey, B.J. 1996. Report on Hooded Plover project, June 1994 to March 1996. WA Bird Notes 79, Suppl.

Rose, P.M. and Scott, D.A. 1997. Waterfowl population estimates. Second edition. Wetlands International Publication 44, Wageningen, The Netherlands.

Singor, M. 1999. Hooded Plover Report No. 2, 1996-1999. WA Bird Notes 90, Suppl.

Weston, M.A. and Elgar, M.A. 2000. The effect of a Major Rainfall Event on Hooded Plovers on a Salt-lake in Western Australia. Emu 100, 64-69.

Wilson, B. 2003. A Preliminary Assessment of the Recent Environmental History of Lake Gore – Esperance WA. A Technical Report prepared for the Department of Conservation and Land Management by the School of Earth and Geographical Sciences, University of Western Australia, Perth.

Please return to: **Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
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