



Ramsar Information Sheet

Published on 15 July 2019

Update version, previously published on : 1 January 1998

Australia

Kerang Wetlands



Designation date	15 December 1982
Site number	265
Coordinates	35°39'39"S 143°52'16"E
Area	9 784,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

The Kerang Wetlands Ramsar Site is located in northern Victoria approximately 300 kilometres northwest of Melbourne. The site comprises 23 named lakes, marshes and swamps which vary in area, depth and salinity on the lower reaches of the Avoca and Loddon Rivers and the Pyramid Creek near the town of Kerang. The site supports eight Ramsar wetland types. It is dominated by permanent and intermittent freshwater lakes but also includes a significant area of permanent and intermittent saline lakes.

Approximately six decades before the time of listing in 1982, some wetlands within the Ramsar site were modified from their pre-European state for to store water for irrigation. The water supply to these permanent freshwater wetlands is regulated. Some intermittent freshwater wetlands are managed for conservation purposes but also have a regulated water supply due to the legacy of changes to natural flow paths associated with irrigation development. Five saline wetlands are managed as salt disposal basins to reduce salt loads entering the Murray River. The remaining wetlands are not regulated. Water depths in the site's wetlands vary from very shallow, i.e. less than 1 meter, to in excess of 8 meters. Kangaroo Lake is the deepest lake at 8.4 meters.

The variety of salinity and water regimes within the site results in a diversity of wetland vegetation communities including black box, river red gum, tangled lignum, chenopod shrubland, grassland, sedgeland, aquatic herbland and reed beds. The wetlands support an abundance and diversity of waterbirds and over 50 species have been recorded breeding within the site.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

Name	Janet Holmes
Institution/agency	Department of Environment, Land, Water and Planning
Postal address	8 Nicholson St, East Melbourne, Victoria 3002
E-mail	janet.holmes@dewlp.vic.gov.au
Phone	+61 03 9637 9859

2.1.2 - Period of collection of data and information used to compile the RIS

From year	1975
To year	2015

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Kerang Wetlands
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2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary	Yes <input type="radio"/> No <input checked="" type="radio"/>
(Update) B. Changes to Site area	the area has increased
(Update) The Site area has been calculated more accurately	<input checked="" type="checkbox"/>
(Update) The Site has been delineated more accurately	<input checked="" type="checkbox"/>
(Update) The Site area has increased because of a boundary extension	<input type="checkbox"/>
(Update) The Site area has decreased because of a boundary restriction	<input type="checkbox"/>

2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?	No
(Update) Optional text box to provide further information	

Criterion 1
 The justification for criterion 1 has been reviewed. It has been determined that the original assessment that the Kerang Wetlands Ramsar Site met this criterion at listing was an error.
 The appropriate bioregion for the site is the Murray-Darling drainage division. There are eight wetland types represented in the Kerang Wetlands Ramsar Site
 Mapping and classification of the wetlands in the Murray Darling drainage division, indicates that the Kerang wetlands do not represent any "rare" or "unique" wetland types. Therefore, this criterion could only be considered met on the basis of a representative wetland in the bioregion in "near natural" condition. Many of the wetlands within the Ramsar site have been modified for use as water storages or saline disposal basins and as such could not be considered to be in "near natural" condition. While the Avoca Marshes, comprising First, Second and Third Marsh, are unregulated, recent assessments in 2008 and 2014 (during and post Millennium drought) found that they were in poor condition and cannot be considered to be good representatives of their type in the bioregion.
 This criterion was erroneously assessed as being in met at nomination and in the 2011 ECD. This criterion was not met at the time of listing and remains unmet.

Criterion 6
 This criterion is only applied to wetland dependent flora and fauna that are regularly supported (in two thirds of seasons) at a Ramsar site. The ECD states that this criterion is met for the banded stilt based on four occasions between 1982 and 2003. This is insufficient to meet the requirements of "regularly supports". Recent data indicates that the site may support 1% of the population of Australasian bittern, however this is not confirmed. This criterion was not met at the time of listing and remains unmet.

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
 <1 file(s) uploaded>

Former maps	0
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Boundaries description

The boundary comprises crown land parcels that include the outer extremities of the wetland dependent ecosystems for 23 named lakes, marshes and swamps that comprise the site: Lake Tutchewop, Lake William, Lake Kelly, Little Lake Kelly, Kangaroo Lake, Racecourse Lake, Lake Charm, Little Lake Charm, Stevenson Swamp, Third Lake, Middle Lake, Reedy Lake, Lake Cullen, Town Swap and Kerang Weir Pool, Third Marsh, Second Marsh, First Marsh, Lake Bael Bael, Cemetery Swamp, Fosters Swamp, Johnson Swamp and Hird Swamp.

Stevenson Swamp boundary matches the Stevenson Swamp Wildlife Reserve boundary. The Johnson Swamp wildlife reserve forms part of the boundary for Johnson Swamp. The Hird Swamp wildlife reserve forms part of the boundary for Hird Swamp.

A more detailed boundary description is provided as an attachment.

2.2.2 - General location

- a) In which large administrative region does the site lie?
- b) What is the nearest town or population centre?

2.2.3 - For wetlands on national boundaries only

- a) Does the wetland extend onto the territory of one or more other countries? Yes No
- b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

- Official area, in hectares (ha):
- Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	
Marine Ecoregions of the World (MEOW)	Murray - Darling

Other biogeographic regionalisation scheme

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

<no data available>

Criterion 2 : Rare species and threatened ecological communities

Criterion 3 : Biological diversity

Justification

The Kerang Wetlands Ramsar site supports a high diversity of waterbirds, most likely related to the diversity of habitats provided by the site (permanent and temporary, fresh and saline, vegetated and open water). A variety of data sources indicate that the total number of wetland dependent bird species recorded at Kerang Wetlands Ramsar site is 86 (this list includes species that regularly occur as well as vagrants and isolated records). This represents the second most species rich Ramsar site, with respect to waterbirds, in the bioregion after the Coorong and Lakes Alexandrina and Albert Ramsar site which supports 118 waterbird species. In addition to the number of species supported, species are distributed across a full range of functional groups (ducks, herbivores, large wading birds, piscivores and shorebirds) representing a higher diversity than sites that support species from only one or two functional groups.

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Criterion 5 : >20,000 waterbirds

Overall waterbird numbers:

Start year:

Source of data:

3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<i>Duma florulenta</i>	Tangled lignum	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		Unusual community - unknown from elsewhere

Tangled lignum (*Duma florulenta*) is one of the common species throughout the Ramsar site, however the community at Reedy and Middle Reedy Lakes is significant as it is the only known population which survives in permanently inundated conditions in Australia (Roberts and Marston, 2011). Twenty Ecological Vegetation Classes have been identified at the site (Rakali Ecological Consulting 2014).

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion			Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6								
Birds													

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	<i>Acrocephalus australis</i>	Australian Reed Warbler	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Anas gracilis</i>	Grey Teal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Anas superciliosa</i>	Gray Duck; Pacific Black Duck	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Anhinga novaehollandiae</i>	Australasian Darter	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Ardea modesta</i>	eastern great egret	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Ardea pacifica</i>	White-necked Heron	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Aythya australis</i>	Hardhead	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Uses site as a drought refuge
CHORDATA/AVES	<i>Biziura lobata</i>	Musk Duck	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Significant moulting site
CHORDATA/AVES	<i>Botaurus poiciloptilus</i>	Australasian Bittern	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	National (EPBC) - endangered	Estimate up to 20 individuals during breeding in 2016 Breeding recorded within the site
CHORDATA/AVES	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Non-breeding foraging habitat for international migratory species.
CHORDATA/AVES	<i>Calidris ferruginea</i>	Curlew Sandpiper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	National (EPBC) - critically endangered	A small number of curlew sandpiper are regularly recorded in the Kerang Wetlands Ramsar Site, with maximum counts of around 200 in 1987 and 1990. Between 1980 and 2015 they were recorded in 69 percent of years." International migratory shorebird
CHORDATA/AVES	<i>Calidris ruficollis</i>	Red-necked Stint	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		Non-breeding foraging habitat for international migratory species.
CHORDATA/AVES	<i>Chlidonias hybrida</i>	Whiskered Tern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Circus approximans</i>	Swamp Harrier	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Cygnus atratus</i>	Black Swan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Gallinula tenebrosa tenebrosa</i>	dusky moorhen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Gelochelidon nilotica</i>	Gull-billed Tern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Himantopus himantopus</i>	Black-winged Stilt	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Nycticorax caledonicus</i>	Nankeen Night Heron; Rufous Night Heron	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	<i>Phalacrocorax carbo</i>	Great Cormorant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Phalacrocorax varius</i>	Australian Pied Cormorant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Platalea regia</i>	Royal Spoonbill	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Podiceps cristatus</i>	Great Crested Grebe	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Porphyrio porphyrio</i>	Purple Swamphen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Sictonetta naevosa</i>	Freckled Duck	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Breeding recorded within the site
CHORDATA/AVES	<i>Tadorna tadornoides</i>	Australian Shelduck	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Significant moulting site
CHORDATA/AVES	<i>Threskiornis molucca</i>	Australian White Ibis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Colonial nesting species breeding recorded within the site
CHORDATA/AVES	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Colonial nesting species breeding recorded within the site
CHORDATA/AVES	<i>Tringa nebularia</i>	Common Greenshank	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Non-breeding foraging habitat for international migratory species.
CHORDATA/AVES	<i>Tringa stagnatilis</i>	Marsh Sandpiper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Non-breeding foraging habitat for international migratory species.
Fish, Mollusc and Crustacea																		
CHORDATA/ACTINOPTERYGII	<i>Bidyanus bidyanus</i>	silver perch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	National (EPBC) - critically endangered. vulnerable in Victoria	wetland dependant
CHORDATA/ACTINOPTERYGII	<i>Craterocephalus fluviatilis</i>	Murray hardyhead; Murray hardyhead	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	National (EPBC) - endangered. Vulnerable in Victoria	wetland dependant

1) Percentage of the total biogeographic population at the site

3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

The Ramsar site is a cluster of 23 lakes and wetlands with varying hydrological and salinity regimes. The Ramsar site has been influenced by the Torrumbarry Irrigation System since 1923, approximately six decades prior to listing. There are four hydrological types in the cluster of wetlands including (Kellogg, Brown & Root Pty Ltd 2011):

- irrigation/regulated wetlands maintained as permanent open water (for storage),
- terminal/regulated drainage wetlands managed as salt disposal basins (evaporation basins to reduce salt discharge into the Murray River),
- regulated fresh supply, non-irrigation wetlands reserved to protect natural features and
- natural/unregulated freshwater wetlands that are influenced by flows from the Avoca River.

The site supports 8 critical components, processes and ecosystem services and benefits which determines the sites ecological character (hydrology, salinity, waterbird abundance, colonially nesting waterbird species breeding, waterbird diversity, vegetation diversity, diversity of wetland types and threatened waterbird species). The variable hydrological and salinity ranges across the 23 wetlands in the site support a diverse assemblage of biota with the site being notable for supporting significant numbers and diversity of waterbirds (86 species) at the bioregional scale.

Waterbirds: The site provides drought refuge during extreme dry periods; supports significant waterbird colonial nesting events and provides key moulting habitat for several waterfowl.

Vegetation: the hydrology and salinity determines the distribution and extent of different vegetation associations. Twelve ecological vegetation communities are present:

1. Freshwater lake aggregate, Aquatic hermland, Lakebed hermland, Tall marsh (freshwater lake aggregate group)
2. Brackish lake bed hermland, Samphire shrubland (saline vegetation group)
3. Lignum shrubland, Lignum swamp, Lignum swampy woodland (lignum-dominated group)
4. Intermittent swamp woodland, Riverine chenopod woodland, Grassy riverine forest (tree-dominated group)

Threatened waterbird species: the Ramsar site regularly supports two threatened species listed under the EPBC Act and / or the IUCN Red List.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Lakes and pools >> Q: Permanent freshwater lakes	Permanent freshwater lake	1	2257	
Fresh water > Lakes and pools >> P: Seasonal/intermittent freshwater lakes	Temporary freshwater lake	0	762	
Saline, brackish or alkaline water > Lakes >> Q: Permanent saline/brackish/alkaline lakes	Permanent saline lake	4	976	
Saline, brackish or alkaline water > Lakes >> R: Seasonal/intermittent saline/brackish/alkaline lakes and flats	Temporary saline lake	3	1038	
Fresh water > Lakes and pools >> T: Permanent freshwater marshes/pools	Permanent freshwater swamp	0	196	
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/intermittent freshwater marshes/pools on inorganic soils	Temporary freshwater swamp, Temporary freshwater marshes and meadows	2		
Fresh water > Marshes on inorganic soils >> W: Shrub-dominated wetlands	Temporary freshwater swamp, Temporary freshwater marshes and meadows	2		

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
8: Wastewater treatment areas	Sewage farm	1	6	

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Fringing native woodlands	1665

(EOD) Habitat connectivity

The site consists of 23 individual lakes, some of which are connected by drains or channels/creeks, most are isolated within a rural agricultural landscape.

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

RIS for Site no. 265, Kerang Wetlands, Australia

Scientific name	Common name	Position in range / endemism / other
<i>Acacia oswaldii</i>	Umbrella wattle	depleted in Victoria
<i>Asperula gemella</i>	Twin-leaf bedstraw	Vulnerable in Victoria
<i>Callitris columellaris</i>	White cypress pine	depleted in Victoria
<i>Cynodon dactylon</i>	Native Couch	insufficiently known in Victoria
<i>Diplachne fusca</i>	Brown bottle grass	rare in Victoria
<i>Eragrostis falcata</i>	Sickle love grass	rare in Victoria
<i>Panicum decompositum</i>	Australian Millet	rare in Victoria
<i>Ranunculus undosus</i>	Swamp Buttercup	Vulnerable in Victoria

Invasive alien plant species

Scientific name	Common name	Impacts	Changes at RIS update
<i>Juncus acutus</i>	spiny rush	Actually (minor impacts)	increase
<i>Lycium ferocissimum</i>	Box thorn	Actually (minor impacts)	decrease
<i>Phragmites australis</i>	Common reed	Actually (minor impacts)	increase
<i>Salix cinerea</i>	Greysallow	Actually (major impacts)	decrease
<i>Typha orientalis</i>	Cumbungi	Actually (minor impacts)	increase

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Anhinga melanogaster</i>	Oriental Darter;Darter				restricted colonial breeding in Victoria
CHORDATA/AVES	<i>Ardea alba</i>	Great Egret				restricted colonial breeding in Victoria
CHORDATA/AVES	<i>Falco hypoleucos</i>	Grey Falcon				vulnerable in Victoria
CHORDATA/AVES	<i>Falco subniger</i>	Black Falcon				rare in Victoria
CHORDATA/ACTINOPTERYGII	<i>Macquaria ambigua</i>	golden perch				rare in Victoria
CHORDATA/REPTILIA	<i>Morelia spilota variegata</i>	carpet python				vulnerable in Victoria
CHORDATA/AVES	<i>Oxyura australis</i>	Blue-billed Duck				rare in Victoria
CHORDATA/AVES	<i>Pedionomus torquatus</i>	Plains-wanderer				vulnerable in Victoria and nationally
CHORDATA/AVES	<i>Rostratula benghalensis</i>	Greater Painted Snipe				insufficiently known
CHORDATA/AVES	<i>Sterna nilotica</i>	Gull billed tern				restricted colonial breeding in Victoria
CHORDATA/ACTINOPTERYGII	<i>Tandanus tandanus</i>	Eeltail catfish;Tandan				vulnerable in Victoria
CHORDATA/AVES	<i>Xanthomyza phrygia</i>	Regent Honeyeater				endangered in Victoria

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts	Changes at RIS update
CHORDATA/ACTINOPTERYGII	<i>Cyprinus carpio</i>	European carp	Actually (minor impacts)	unknown
CHORDATA/ACTINOPTERYGII	<i>Gambusia holbrooki</i>	Eastern gambusia	Potentially	unknown
CHORDATA/MAMMALIA	<i>Lepus europaeus</i>	European Hare	Potentially	increase
CHORDATA/MAMMALIA	<i>Oryctolagus cuniculus</i>	European Rabbit	Actually (minor impacts)	No change
CHORDATA/MAMMALIA	<i>Sus scrofa</i>	Wild boar	Actually (minor impacts)	No change
CHORDATA/MAMMALIA	<i>Vulpes vulpes</i>	Red Fox	Actually (minor impacts)	unknown

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
B: Dry climate	BSk: Mid-latitude steppe (Mid-latitude dry)

Timbal et al. (2016) have defined three climatic regions in Victoria. The Kerang Wetlands are located in the Murray Basin region. Under modelled simulations for the high representative concentration pathway (RCP) - RCP8.5 (little curbing of emissions) the predictions for this region are:

- sustained warming by 2090 by around 3.5 - 4°C
- a marked increase in the duration of warm spells (consecutive days above the 90th percentile measured against the 1986–2005 baseline period)
- mean annual rainfall decline of 28% to 11% by 2090 relative to the 1986–2005 period
- heavy rainfall events are expected to increase despite rainfall declines
- the proportion of time spent in any category of drought (from mild to extreme) is projected to increase through the century, especially by 2090
- the median change for annual runoff for 2090 is a decrease of slightly more than 20% for the Murray Basin.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Murray-Darling Basin

4.4.3 - Soil

Mineral

(Update) Changes at RIS update No change Increase Decrease Unknown

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

Please provide further information on the soil (optional)

Salinisation is a regional issue. Acid sulfate soils (ASS) have been found in some wetlands within the site but no activation of ASS has been documented.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	No change
Usually seasonal, ephemeral or intermittent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from rainfall	<input type="checkbox"/>	decrease
Water inputs from groundwater	<input checked="" type="checkbox"/>	increase
Water inputs from surface water	<input checked="" type="checkbox"/>	No change

Water destination

Presence?	Changes at RIS update
Feeds groundwater	unknown
To downstream catchment	unknown

Stability of water regime

Presence?	Changes at RIS update
Water levels largely stable	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Hydrology of the site in terms of surface water flows and management under a regulated system is described in detail in the ECD for the site.

(ECD) Connectivity of surface waters and of groundwater Connectivity of surface waters was believed to have been reduced prior to listing and that the character of the site is a reflection of the more isolated conditions at the time of listing.

(ECD) Stratification and mixing regime No current data available on this aspect of the character of the site.

4.4.5 - Sediment regime

Significant accretion or deposition of sediments occurs on the site

(Update) Changes at RIS update No change Increase Decrease Unknown

Sediment regime unknown

Please provide further information on sediment (optional):

Sediment deposition at Reedy and Middle Reedy Lakes is thought to contribute to sustaining the tangled lignum community which tolerates permanent inundation - the actual way in which sediment deposition achieves this is a knowledge gap.

(ECD) Water turbidity and colour	No current data available on this aspect of the character of the site.
(ECD) Light - reaching wetland	No current data available on this aspect of the character of the site.
(ECD) Water temperature	No current data available on this aspect of the character of the site.

4.4.6 - Water pH

Unknown

4.4.7 - Water salinity

Fresh (<0.5 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Mxohaline (brackish)/Mxosaline (0.5-30 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Euhaline/Eusaline (30-40 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Hyperhaline/Hypersaline (>40 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

Please provide further information on salinity (optional):

The Ramsar site wetlands exhibit a full range of salinities from very fresh to hypersaline. These include:
 1. deep permanent freshwater lakes with mean salinities typically less than 500 EC (Racecourse Lake 360 EC, Kangaroo Lake 360 EC, Little Lake Charm 200 EC, Reedy Lake 420 EC, Middle Lake 200 EC, Third Lake 360 EC)
 2. wetlands that generally range between 4000 EC to 50 000 EC (Lake Bael Bael 2000 EC, Avoca Marshes range from 2000 to 25000 EC, Town Swamp and Kerang Weir Pool range from 1800 to 2300 EC, Lake Cullen ranges from 4000 to 170000 EC, Johnson Swamp range from 400 to 1500 EC and Hird Swamp ranges from 2600 to 3100 EC) and
 3. salt disposal basins with salinities over 100,000 EC (Lake Tutchewop mean 50,000 EC, Lake William, Lake Kelly and Little Lake Kelly).

(ECD) Dissolved gases in water	No current data available on this aspect of the character of the site.
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4.4.8 - Dissolved or suspended nutrients in water

Unknown

(ECD) Dissolved organic carbon	No current data available on this aspect of the character of the site.
(ECD) Redox potential of water and sediments	No current data available on this aspect of the character of the site.
(ECD) Water conductivity	No current data available on this aspect of the character of the site.

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar ii) significantly different site itself:

- Surrounding area has greater urbanisation or development
- Surrounding area has higher human population density
- Surrounding area has more intensive agricultural use
- Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

The area surrounding the Ramsar site is primarily dryland, largely cleared of native vegetation and used for agriculture whereas the site is comprised mainly of wetlands which retain many of their natural values and are reserved and managed for conservation, water supply, salinity disposal and other public purposes.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Low
Fresh water	Water for irrigated agriculture	High
Fresh water	Drinking water for humans and/or livestock	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Pollution control and detoxification	Water purification/waste treatment or dilution	High
Climate regulation	Local climate regulation/buffering of change	not relevant for site
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	High
Recreation and tourism	Nature observation and nature-based tourism	Medium
Recreation and tourism	Water sports and activities	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Scientific and educational	Educational activities and opportunities	Low

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Low

Within the site:

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

- i) the site provides 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) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) 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

<no data available>

4.6 - Ecological processes

(ECD) Primary production	No information available
(ECD) Nutrient cycling	Land use affects the nutrient cycle. the Avoca Marshes are fed by inflows from the Avoca River which derives its water primarily from surface flows from a catchment dominated by agriculture.
(ECD) Carbon cycling	No information available
(ECD) Animal reproductive productivity	The Ramsar site provides a diverse range of breeding habitat which varies by wetland type and hydrology source. In the period 1980-2005, 99 colonial nesting breeding events were recorded (ibis, darters, cormorants, spoonbills).
(ECD) Vegetational productivity, pollination, regeneration processes, succession, role of fire, etc.	There are over 170 wetland dependent plant species from five functional groups which form 12 identifiable vegetation types (ecological vegetation classes).
(ECD) Notable species interactions, including grazing, predation, competition, diseases and pathogens	Foxes and rabbits compete with and prey on native fauna. Rabbits and carp destroy fauna habitat, increase soil erosion and decrease water quality. Grazing destroys native vegetation cover, erodes soils and increases nutrients
(ECD) Notable aspects concerning animal and plant dispersal	Colonial nesting waterbirds disperse after successful breeding events in the wetland.
(ECD) Notable aspects concerning migration	23 species of international migratory shorebird species migrate annually.
(ECD) Pressures and trends concerning any of the above, and/or concerning ecosystem integrity	Very high risks to the site are from unlicensed livestock grazing and invasive species.

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Provincial/region/state government	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

The site consists of natural features reserves (Scotts Swamp, Lake Cullen, Johnson Swamp, Hird Swamp, Fosters Swamp, Stevensons Swamp, Cemetery Swamp, Lake Bael Bael, First, Second and Third Marsh), water supply reserves (Reedy, Middle and Third Lakes, Kangaroo Lake, Racecourse Lake, Lake Charm), salinity disposal reserves (Lakes Tutchewop, Kelly, William and Little Lake Kelly), freehold land owned by Goulburn Murray Water (Little Lake Charm), a sewage purposes reserve (part of Fosters Swamp) and public purposes reserves (Kerang Weir Pool and Town Swamp).

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: Parks Victoria, North Central CMA, Goulburn-Murray Water, , Lower Murray Water, Department of Environment Land Water and Planning

Provide the name and title of the person or people with responsibility for the wetland: Bruce Wehner, Regional Area of Work Coordinator (Environment Land and Water)

Postal address: Parks Victoria, 127 Welsford St, Shepparton VIC 3630

E-mail address: bruce.wehner@parks.vic.gov.au

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Canalisation and river regulation	Low impact	Medium impact	<input checked="" type="checkbox"/>	increase	<input checked="" type="checkbox"/>	increase
Salinisation	Medium impact	High impact	<input checked="" type="checkbox"/>	increase	<input checked="" type="checkbox"/>	increase

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Livestock farming and ranching	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	increase

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Fishing and harvesting aquatic resources	Low impact	Low impact	<input checked="" type="checkbox"/>	increase	<input type="checkbox"/>	No change

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Recreational and tourism activities	Low impact	Low impact	<input checked="" type="checkbox"/>	unknown	<input type="checkbox"/>	No change

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Dams and water management/use			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Invasive non-native/ alien species	Medium impact	Medium impact	<input checked="" type="checkbox"/>	increase	<input checked="" type="checkbox"/>	increase

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Agricultural and forestry effluents	Medium impact	Medium impact	<input checked="" type="checkbox"/>	increase	<input checked="" type="checkbox"/>	increase
Household sewage, urban waste water	Low impact	Low impact	<input checked="" type="checkbox"/>	increase	<input checked="" type="checkbox"/>	increase

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Habitat shifting and alteration	unknown impact	unknown impact	<input checked="" type="checkbox"/>	unknown	<input checked="" type="checkbox"/>	unknown
Droughts	Medium impact	High impact	<input checked="" type="checkbox"/>	increase	<input checked="" type="checkbox"/>	increase
Temperature extremes	Low impact	Medium impact	<input checked="" type="checkbox"/>	increase	<input type="checkbox"/>	unknown

Please describe any other threats (optional):

Potential for acid sulfate soils to be present within some of the Ramsar wetlands. Several of the lakes are managed as salt disposal basins.

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
crown land wildlife reserve	Cemetery Swamp		partly
crown land wildlife reserve	Fosters Swamp		partly
crown land wildlife reserve	Lake Bael Bael, Avoca Marshes, Lake Cullen, Hird Swamp, Johnsons Swamp, Stevenson Swamp		whole
crown land wildlife reserve	Little Lake Charm		partly
freehold land	Little Lake Charm		partly
municipal purposes reserve	Cemetery Swamp		partly
public land vested in water authority	Town Swamp, Kerang Weir Pool		partly
salinity disposal reserve	Lakes Tutchewop, Kelly, William and Little Lake Kelly		whole
sewage purposes reserve	Fosters Swamp		partly
timber reserve	Cemetery Swamp		partly
water supply reserve	Reedy Lake, Third Lake, Middle Lake, Kangaroo Lake, Racecourse Lake, Lake Charm		whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Northern Victorian Wetlands	http://www.birddata.com.au/iba.vm	partly

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Partially implemented
Habitat manipulation/enhancement	Partially implemented
Hydrology management/restoration	Partially implemented
Improvement of water quality	Partially implemented

Species

Measures	Status
Threatened/rare species management programmes	Partially implemented
Control of invasive alien animals	Partially implemented
Control of invasive alien plants	Partially implemented

Other:

Production of a detailed action plan and establishing a site coordinating committee between the main state agencies and local authorities who have responsibility for parts of the site commenced in 2015. Environmental Water Management Plans exist for Lake Cullen, Hirds Swamp and Johnson Swamp. Goulburn-Murray Water will be developing land and on-water management plans for Kangaroo Lake and Lake Charm.

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

There is no Ramsar centre, educational facility or visitor facility at the site.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but a plan is being prepared

Further information

The detailed Action Plan which is being developed for the Kerang Wetlands Ramsar Site will cover aspects of rehabilitation, as required.

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Animal species (please specify)	Implemented
Birds	Implemented
Plant species	Implemented

There are no other monitoring activities.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Cook, D. and Bayes, E. (2014). Kerang Ramsar and Other Significant Wetlands Monitoring Project. Rakali Consulting, Chewton, Victoria.

Cook, D., Foreman, P., Just, K., and Jolly, K. (2013). Ecological Vegetation Class Assessment for the Reedy Lake system, Little Lake Charm and Racecourse Lake and surrounding areas in the Kerang Wetlands Ramsar Site. Rakali Consulting, Chewton, Victoria.

Kellogg Brown and Root. (2011). Ecological Character Description for the Kerang Wetlands Ramsar site. Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT.

Kingsford, R., Bino, G., Porter, J., and Brandis, K. (2014). Waterbird Communities in the Murray-Darling Basin, 1983-2012. Australian Wetlands, Rivers and Landscapes Centre, University of New South Wales, Canberra, ACT.

North central CMA (in prep.) Kerang Wetlands Ramsar Action Plan 2016-2024. North Central Catchment Management Authority, Huntly, Victoria.

North Central CMA. (2013). Lake Cullen Environmental Water Management Plan. North Central CMA, Huntly, Victoria.

O'Donnell, C.F.J. (2011). Breeding of the Australasian Bittern (*Botaurus poiciloptilus*) in New Zealand. *Emu* 111(3): 197–201.

Rakali Ecological Consulting, 2014. Kerang Ramsar and Other Significant Wetlands Monitoring Project 2014. Report prepared for the North Central Catchment Management Authority, Rakali Ecological Consulting, Chewton, Victoria.

Roberts, J. & Marston, F. 2011, Water regime for wetland and floodplain plants. A source book for the Murray–Darling Basin. National Water Commission, Canberra.

Timbal, B., Ekstrom, M., Fiddes, S., Grose, M., Kironon, W., Eun-Pa, L., Lucas, C. and Wilson, L. (2016). Climate change science and Victoria. Bureau Research Report no. 014. Bureau of Meteorology, Melbourne.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<1 file(s) uploaded>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<2 file(s) uploaded>

vi. other published literature

<2 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Kerang Wetlands Ramsar Site (Department of Environment, Land, Water and Planning, 06-01-2011)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation