



Corner Inlet
Australia

EAAF NETWORK SITE CODE FOR OFFICE USE ONLY:

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**Site Information Sheet on
East Asian-Australasian Flyway Network Sites
(SIS) – 2017 version**

Available for download from <http://www.eaaflyway.net/about/the-flyway/flyway-site-network/>

*Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing,
China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13*

Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network. When there is a new nomination or an SIS update, the following sections with an asterisk (*), from Questions 1-14 and Question 30, must be filled or updated at least so that it can justify the international importance of the habitat for migratory waterbirds.
2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.
3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

1. Name and contact details of the compiler of this form *:

Compiler 1

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2. Date this sheet was completed *:

DD/MM/YYYY

23/12/2019

3. Country *:

Australia

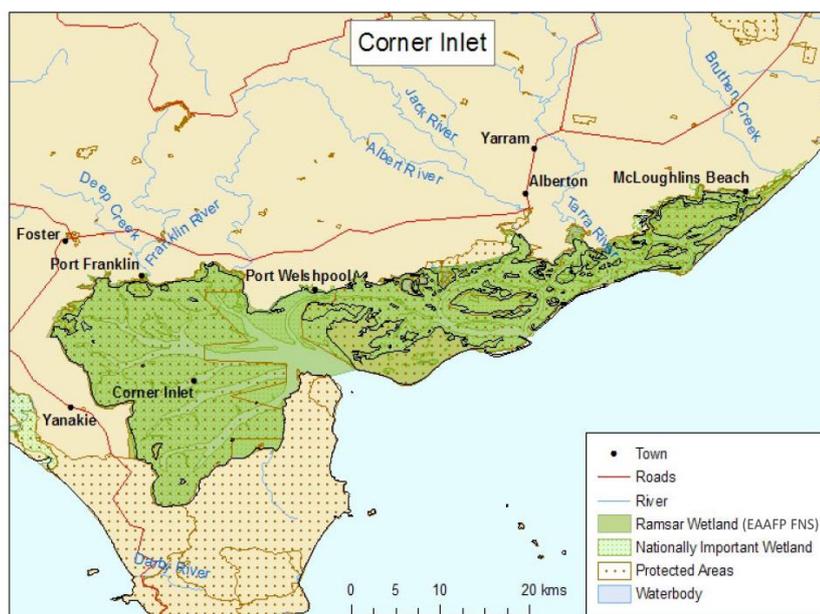
4. Name of the Flyway Network site *:

Accepted English transcription of the Site's name.

Corner Inlet

5. Map of site *:

The most up-to-date available and suitable map of the wetland should also be appended to the SIS (only in digital format and shape file). The map must clearly show the boundary of the site. Please refer to the “Digitising Site Boundaries in Google Earth” file linked [here](#).



6. Geographical coordinates (latitude/longitude, in decimal degrees) *:

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: 38° 36' to 38° 55'S; Longitude: 146° 11' to 146° 53'E

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

Less than 20 metres

8. Area *:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

67,071 hectares

9. General overview of the site *:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

The Corner Inlet Ramsar site is the most southerly marine embayment and tidal mudflat system of mainland Australia. The site is of international zoological significance as habitat for migratory birds. The barrier islands are of national botanical significance due to their biogeographic importance, and national geomorphological significance as an example of barrier island formation.

10. Justification of Flyway Site Network criteria *:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a “staging site” supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The “staging site” criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

The area regularly supports an estimated 29,000 shorebirds (migratory and non-migratory) which represents 21.5% of the total known Victorian shorebird population and includes the majority of Victoria's population of less abundant shorebird species. Corner Inlet supports more than 1% of the national shorebird population of the flyway population of Far Eastern Curlew (*Numenius madagascariensis*) (Mansergh & Norris 1982).

The Corner Inlet Ramsar Site regularly supports 16 species of palaeartic migratory waders listed under international migratory bird treaties. :

- Bar-tailed godwit (*Limosa lapponica*)
- Common greenshank (*Tringa nebularia*)
- Curlew sandpiper (*Calidris ferruginea*)
- Eastern curlew (*Numenius madagascariensis*)
- Great knot (*Calidris tenuirostris*)
- Greater sand plover (*Charadrius leschenaultii*)
- Grey plover (*Pluvialis squatarola*)
- Grey-tailed tattler (*Tringa brevipes*)
- Lesser sand plover (*Charadrius mongolus*)
- Red knot (*Calidris canutus*)
- Red-necked stint (*Calidris ruficollis*)
- Ruff (*Philomachus pugnax*)
- Ruddy turnstone (*Arenaria interpres*)
- Sanderling (*Calidris alba*)
- Sharp-tailed sandpiper (*Calidris acuminata*)
- Whimbrel (*Numenius phaeopus*)

The site regularly supported >1% of the individuals in the population of the following migratory waterbirds over the 1981-2015 period (using Wetlands International 2012 estimates):

- Bar-tailed godwit (*Limosa lapponica*)
- Chestnut teal (*Anas castanea*)
- Curlew sandpiper (*Calidris ferruginea*)
- Eastern curlew (*Numenius madagascariensis*)
- Red-necked stint (*Calidris ruficollis*)
- Red knot (*Calidris canutus*)
- Sooty oystercatcher (*Haematopus fuliginosus*)

11. Wetland Types *:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

Marine/coastal: G, B, A, H, I, F, N, Ts

12. Jurisdiction *:

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

Department of Environment, Land, Water and Planning, Victoria, Australia

13. 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 and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

Corner Inlet Ramsar Site Coordinator:
West Gippsland Catchment Management Authority
PO Box 1374, Traralgon, Victoria, 3844, Australia
Ph. +61 3 5175 7800

Land manager: Parks Victoria

14. Bibliographical references *:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

BMT WBM (2011). Corner Inlet Ramsar Site Ecological Character Description. Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Dickson, M. et al (2014). West Gippsland Waterway Strategy 2014-2022, West Gippsland Catchment Management Authority.

Dickson, M., Park, G., Roberts, A. (2013) Corner Inlet Water Quality Improvement Plan 2013, West Gippsland Catchment Management Authority.

Department of Conservation and Environment. (1996.). Corner Inlet and Nooramunga Marine and Coastal Parks Draft Management Plan. Department of Conservation and Environment, Victoria.

Department of Environment and Primary Industries. (2013), Corner Inlet Ramsar Site Boundary Description Technical Report, Department of Environment and Primary Industries, East Melbourne

Frood, D. (1986). Vegetation Types and Significant Terrestrial Flora in the Proposed South Gippsland Marine and Wildlife Reserves. National Parks Service, Department of Conservation, Forest and Lands.

Hale, J. (2017) Addendum to the Ecological Character Description for the Corner Inlet Ramsar Site. Department of Environment, Land, Water and Planning. East Melbourne.

Hewish, M. 1988. Waterfowl Count in Victoria, February 1988. Report No. 42.

Hua, N., Tan, K., Chen, Y., and Ma, Z. (2015). Key research issues concerning the conservation of migratory shorebirds in the Yellow Sea region. *Bird Conservation International* 25(01): 38–52.

MacKinnon, J., Verkuil, Y.I., and Murray, N. (2012). IUCN situation analysis on East and Southeast Asian intertidal habitats, with particular reference to the Yellow Sea (including the Bohai Sea). Occasional paper of the IUCN species survival commission 47.

Mansergh, I.E & R.C. Norris. (1982). Sites of Zoological Significance in Central Gippsland. E.S.P. No.359. Ministry for Conservation Victoria.

Martindale, J. (1982). A Study of Wading Birds in Corner Inlet. Arthur Rylah Institute Technical Report No. 4. Fisheries and Wildlife Department, Ministry for Conservation.

Murray, N.J., Ma, Z., and Fuller, R.A. (2015). Tidal flats of the Yellow Sea: A review of ecosystem status and anthropogenic threats. *Austral Ecology* 40(4): 472–481.

Norman, F. I. (1983). Grey Teal, Chestnut teal and Pacific black duck at a saline habitat in Victoria. *EMU* 83: 262-71.

Peter, J. (1989). Waterfowl Count in Victoria, February 1989. Report No. 57.

Peter, J. (1990). Waterfowl Count in Victoria, February 1990. Report No. 72.

Peter, J. (1991). Waterfowl Count in Victoria, February 1991. Report No. 79.

Personal Communications

Corrick, Andrew. Department of Conservation and Environment, Arthur Rylan Institute.

Dann, Peter. Research Biologist. Penguin Reserve.

Norman, Ian. Department of Conservation and Environment. Arthur Rylan Institute.

15. 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.

Corner Inlet is bounded to the west and north by the South Gippsland coastline, in the south-east by a series of barrier islands and sandy spits lying end to end and separated by narrow entrances and to the south by the hills of Wilsons Promontory.

The chain of barrier islands are a westward extension of the Ninety Mile Beach and are of complex form and origin. They provide an outstanding example of the processes involved in barrier island formation including the development of multiple beach ridges, lagoons and swamps, tidal creeks, tidal deltas, and tidal wash-overs. As well as providing localities for the monitoring of sediment dynamics associated with marine and aeolian processes, they are of critical importance in the analysis of the evolution of the entire coastal barrier system between Wilsons Promontory and Lakes Entrance.

The main channels of the Inlet are continuous with the Franklin, Albert and Tarra Rivers which drain the catchment area of some 2,300 km² into the embayment and out into Bass Strait through the Main, Port Albert, Kate Kearney, Shoal and McLoughlins Beach Entrances.

16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The inlet consists of a submerged plain covered by sand or mud flats and extensive seagrass beds and large sand islands. A radiating system of deeper channels supports efficient tidal exchange over the flats and the areas between the islands.

17. Hydrological values:

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

Corner Inlet plays a substantial hydrological role in the natural functioning of a major coastal system through its protection from oceanic swells providing habitat for wetland development, receiving and channeling the flow of rivers and creeks within the South Gippsland Basin.

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

The mainland coast and several sandy islands are covered with mangroves, saltmarshes, sandy beaches and very extensive intertidal mudflats. The area contains the only extensive bed of the broad-leaved seagrass *Posidonia australis* in Victoria. The fine-leaved seagrasses, *Zostera muelleri* and *Heterzostera tasmanica*, occur in shallow water throughout the whole of the embayment.

Organisms living on the sea floor and within the sediment of the mudflats and sand flats are typical of unpolluted, non-estuarine soft sediments. There is a wide variety of species of polychaetes and amphipods, and large numbers of several species of bivalve molluscs, crabs, and burrowing sea anemones.

Spartina (Cord grass) is major environmental weed which can impact negatively on shorebird habitat. It colonises estuarine areas, leads to the rapid accumulation of sediment, excludes invertebrate life from the soil strata and spreads across tidal flats resulting in the displacement of wading birds from their intertidal feeding grounds (NRE unpublished). There is a well-established infestation of *Spartina* in Corner Inlet. The WGCMA *Spartina* Management Plan (2018) guides activities towards containment goals over the next 10 years. Progress is being made via WGCMA and Parks Victoria partnership activities which treat *Spartina* using helicopter and ground based methods. Where funding permits this activity is undertaken annually in Spring and Autumn.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy 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 SIS.*

(Please add here the species which do not come under sec no 14)

The islands of Corner Inlet are of national botanical significance. Although not floristically rich, the islands are of high biogeographical significance as a result of their past submergences. The islands also contain significant areas of saltmarsh and mangroves, both of which are communities of very limited distribution. It is thought that the five main vegetation communities on Sunday and Clonmel Islands represent stages in primary plant succession on coastal islands.

Victorian Threatened Flora

Adrian quadripartit s.s (globulous form) (Rare Bitter-bush) - endangered in Victoria

Asplenium obtusatum (Shore Spleenwort) - vulnerable in Victoria

Austrofestuca littoralis (Coast Fescue) - vulnerable in Victoria

Cyathodes juniperinum (Crimson Berry) - vulnerable in Victoria

Eucalyptus kitsoniana (Bog Gum) - vulnerable in Australia, rare in Victoria

Exocarpus tyrticola (Coast Ballart) - rare in Victoria

Lepidium desvauxi (Bushy Pepper-cress) - rare in Victoria
Prasophyllum parviflorum (Slender Leek-orchid) - vulnerable in Victoria
Pterostylis aciculifloris (Slender Ruddyhood) - insufficiently known in Victoria
Pterostylis grandiflora (Cobra Greenhood) - rare in Victoria
Senecio diagchides (Erect Groundsel) - rare in Victoria
Thelymitra epipactoides (Metallic Sun-orchid) - endangered in Australia and Victoria
Triglochin minutissima (Tiny Arrow-grass) - rare in Victoria
Helichrysum dealbatum (Silver Everlasting) - rare in Victoria.
 The most southerly occurrence of *Avicennia marina* (White Mangrove) is at Corner Inlet.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

Corner Inlet is of international zoological significance for its migratory shorebird population. Thirty-two shorebird species have been recorded. The area regularly supports an estimated 29,000 shorebirds (migratory and non-migratory) which represents 21.5% of the total known Victorian shorebird population and includes the majority of Victoria's population of less abundant shorebird species. It is estimated that nearly 50% of the overwintering migratory shorebird in Victoria occur in Corner Inlet. The overwintering birds are predominantly juveniles.

While in Australia these shorebirds have two major habitat requirements - feeding and roosting sites. Corner Inlet provides extensive tidal flats that are exposed at low tide, which are important feeding areas for shorebirds. When the tide covers the feeding areas the shorebirds congregate at specific roosting sites, which are located above high-water mark on the numerous islands and the extensive coastal strip around the inlet. Over forty roosting sites have been located around here.

Corner Inlet supports more than 10% of the Victorian population of the following shorebirds: Pied Oystercatcher (68%), Sooty Oystercatcher (44%), Grey Plover (95%), Lesser Sand Plover (65%), Eastern Curlew (46%), Bar-tailed Godwit (89%), Red Knot (65%), Great Knot (26%), Red-necked Stint (17%), Curlew Sandpiper (19%), Sanderling (11%). It is thought that the area may contain over 15% of the world population of the Eastern Curlew.

The threatened species Little Tern (endangered in Victoria) and Fairy Tern (vulnerable in Victoria and nationally) breed at Corner Inlet.

The Inlet supports large numbers of waterfowl particularly Black Swan and is used by up to 20% of Victorian populations of Chestnut Teal during summer and autumn. During drought numbers of other ducks e.g. Black Duck and Grey Teal are greatest.

Victorian Threatened Species

Birds

Great Egret (*Ardea alba*) - restricted colonial breeding in Victoria
 Cape Barron Goose (*Cereopsis nonvaehollandiae*) - rare in Victoria
 Spot-tailed Quoll (*Dasyurus maculatus*) - vulnerable in Victoria
 Caspian Tern (*Hydroprogne caspia*) - restricted colonial breeding in Victoria (this species breeds at Corner Inlet)
 White-bellied Sea-Eagle (*Haliaeetus leucogaster*) - rare in Victoria
 Pacific Gull (*Larus pacificus*) - restricted colonial breeding in Victoria
 Swift Parrot (*Lathamus discolor*) - endangered in Victoria and vulnerable nationally
 Orange-bellied Parrot (*Neophema chrysogaster*) - endangered in Victoria and nationally
 Far Eastern Curlew (*Numenius madagascariensis*) - rare in Victoria
 Australian Pelican (*Pelecanus conspicillatus*) - restricted colonial breeding in Victoria
 Ground Parrot (*Pezoporus wallicus*) - rare in Victoria
 Black-faced Cormorant (*Phalacrocorax fuscescens*) - restricted colonial breeding in Victoria

Lewin's Rail (*Rallus pectoralis*) - rare in Victoria
 Little Tern (*Sterna albifrons*) - endangered in Victoria and nationally
 Crested Tern (*Sterna bergii*) - restricted colonial breeding in Victoria
 Fairy Tern (*Sterna nereis*) - vulnerable in Victoria
 Hooded Plover (*Thinornis rubricollis*) - vulnerable in Victoria

Mammals
 Southern Right Whale (*Eubalaena australis*) - endangered in Victoria and nationally
 New Holland Mouse (*Pseudomys novaehollandiae*) - endangered in Victoria
 Swamp Antechinus (*Antechinus minimus*) - rare in Victoria

Fish
 Australian grayling (*Prototroctes maraena*) - vulnerable in Victoria and endangered nationally

The islands also support a major proportion of the Victorian Hog Deer population. The Victorian population is apparently the only wild population extant outside the native range of the species. Within its native range the species has declined, in India it is largely confined to sanctuaries and in Ceylon it is perhaps extinct.

21. Social, economic and cultural values:

a) Describe if the site has any general social, economic 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:

Key social, economic and cultural values of the site include:

- Ports and harbours – The four main ports (Port Albert, Port Franklin, Port Welshpool and Barry's Beach) service the commercial fishing industry, minor coastal trade, offshore oil and gas production and boating visitors.
- Fishing – The area supports the third largest commercial bay and inlet fishery in Victoria, including 18 licensed commercial fishermen, within an economic value of between 5 and 8 million dollars annually (DPI, 2008).
- Recreation and tourism – Corner Inlet provide important terrestrial and aquatic environments for tourism and recreational activities such as fishing, boating, sightseeing, horse riding, scuba diving, bird watching and bushwalking. Corner Inlet attracts at least 150,000 visitors each year (DNRE, 2002).
- Cultural Heritage – Both the Corner Inlet catchment and Ramsar site have significant cultural value to the Gunaikurnai people, with the Corner Inlet and Nooramunga area located on the traditional lands of the Brataualung people who form part of the Gunaikurnai Nation. The area has a large number of cultural heritage sites that provide significant information for the Gunaikurnai people of today about their history. The Bunurong and the Boon Wurrung peoples also have areas of cultural significance in this region. Thirty-one shipwrecks are present in the site, with 23 in the Port Albert area. They are an important cultural feature as they illustrate aspects of European settlement, primarily the history of trade, ship building and propulsion (DNRE, 2002).

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? (Double-click the checkbox to check and choose "Checked" under "Default Value" from "Check Box Form Field Options" window)

N/A

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:

22. Land tenure/ownership:

a) Within the Flyway Network site:

The Corner Inlet Site has a complex tenure arrangement. Most public land and waters within the site (89% of the site area) is public land contained within the Corner Inlet Marine and Coastal Park (27,848 ha), Nooramunga Marine and Coastal Park (30,101 ha) and Corner Inlet Marine National Park (1,641 ha). These areas are managed by Parks Victoria under the provisions of the *National Parks Act 1975* and Parks Regulations.

In addition:

- land and waters within Port areas (Port Welshpool and Port Albert) are managed by Gippsland Ports under the Crown Land (Reserves) Act 1978
- Sunday Island, Dog Island, Little Dog Island, Hunter Island and Bullock Island are privately owned and managed
- the remaining areas of the Shorebird site are either unreserved Crown Land or are included in various public purposes or coastal reserves.

b) In the surrounding area:

N/A

23. Current land (including water) use:

a) Within the Flyway Network site:

Reserve for biological conservation; ports with servicing facilities for off-shore oil and natural gas exploration, licensed waste discharges, commercial fishing, recreational fishing, intertidal collecting (for bait), recreation.

b) In the surroundings/catchment:

Forestry, grazing, dairying.

24. 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 Flyway Network site:

Waterbird abundance in relation to three species: Curlew sandpiper, Eastern curlew and Red knot is known to be in decline, with speculation that this is a result of habitat loss in staging areas in their migration route within the flyway (MacKinnon et al. 2012, Murray et al. 2015, Hua et al. 2015). A decline in the population of these species is not considered to be a potential change in ecological character.

High risk threats to the ecological character of site include:

- Pollutant (sediment and nutrients) inputs affecting water quality
- Invasive plants
- Invasive animals-marine
- Invasive animals- terrestrial

- Altered hydrology
- Climate change

b) In the surrounding area:

N/A

25. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network 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.

N/A

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia ; Ib ; II ; III ; IV ; V ; VI ; N/A

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

Available here: <https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/wetlands/significant-wetlands>

If yes, is it being implemented?: If no, is one being planned?

N/A

d) Describe any other current management practices:

A cord grass (*Spartina sp.*) control program has been implemented which has resulted in a significant reduction of the weed since 1996 in the treated area. However, some areas still require treatment. A fox control program on selected barrier islands to protect nesting shore birds such as terns and Hooded Plovers has been implemented.

The Corner Inlet Water Quality Improvement Plan and West Gippsland Waterway Strategy are being implemented by the WGCMA and delivery partners. Activities are focussed on reducing sediment and nutrient loads entering Corner Inlet waters.

Saltmarsh protection activities continue to occur along the privately held strip of coast line.

An ongoing shorebirds monitoring program has been implemented. Action Statements under the *Flora and Fauna Guarantee Act 1988* have been produced for the following fauna species which occur in the Ramsar site. They outline measures to conserve these species.

- White-bellied Sea-eagle (1994)
- Orange-bellied Parrot (1993)
- Little Tern (1994)
- Hooded Plover (1992)
- Tasmanian Pademelon (presumed extinct) (1997)
- New Holland Mouse (1996)

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

<https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/wetlands/significant-wetlands>

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

N/A

28. Current communications, education and public 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.

N/A

29. Current recreation and tourism:

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

Recreational fishing, swimming, surfing, boating, sightseeing, yachting, canoeing, hunting.

30. Threats *:

Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas			
commercial and industrial areas			
tourism and recreation areas			
Agriculture and aquaculture			
annual and perennial non-timber crops			
wood and pulp plantations			
livestock farming and ranching			
marine and freshwater aquaculture			
Energy production and mining			
oil and gas drilling			
mining and quarrying			
renewable energy			
Transportation and service corridors			
roads and railroads			

utility and service lines

shipping lanes

flight paths

Biological resource use

hunting and collecting terrestrial animals

gathering terrestrial plants

logging and wood harvesting

fishing and harvesting aquatic resources

Human intrusions and disturbance

recreational activities

war, civil unrest and military exercises

work and other activities

Natural system modifications

fire and fire suppression

dams and water management/use

other ecosystem modifications

Invasive and other problematic species and genes

invasive non-native/alien species

problematic native species

introduced genetic material

Pollution

household sewage and urban waste water

industrial and military effluents

agricultural and forestry effluents

garbage and solid waste

air-borne pollutants

excess energy

Geological events

volcanoes

earthquakes/tsunamis

avalanches/landslides

Climate change and severe weather

habitat shifting and alteration

droughts

temperature extremes

storms and flooding

Please write here any additional threats and comments/queries you have on the threats.

Annex 1: Criteria for the inclusion of sites in the Flyway Site Network

(From the Partnership Text)

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criteria:

- a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:

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

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more 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.

- b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:

- i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.
- ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.

- c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case by case basis.

Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

Marine/Coastal Wetlands

- A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.
- B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.
- C -- **Coral reefs.**
- D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.
- E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.
- F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.
- G -- **Intertidal mud, sand or salt flats.**
- H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.
- I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.
- J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.
- K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.
- Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

Inland Wetlands

- L -- **Permanent inland deltas.**
- M -- **Permanent rivers/streams/creeks**; includes waterfalls.
- N -- **Seasonal/intermittent/irregular rivers/streams/creeks.**
- O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.
- P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.
- Q -- **Permanent saline/brackish/alkaline lakes.**

- R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats.**
- Sp -- **Permanent saline/brackish/alkaline marshes/pools.**
- Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools.**
- Tp -- **Permanent freshwater marshes/pools;** ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.
- Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils;** includes sloughs, potholes, seasonally flooded meadows, sedge marshes.
- U -- **Non-forested peatlands;** includes shrub or open bogs, swamps, fens.
- Va -- **Alpine wetlands;** includes alpine meadows, temporary waters from snowmelt.
- Vt -- **Tundra wetlands;** includes tundra pools, temporary waters from snowmelt.
- W -- **Shrub-dominated wetlands;** shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.
- Xf -- **Freshwater, tree-dominated wetlands;** includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.
- Xp -- **Forested peatlands;** peatswamp forests.
- Y -- **Freshwater springs; oases.**
- Zg -- **Geothermal wetlands**
- Zk(b) – **Karst and other subterranean hydrological systems, inland**

Note: “**floodplain**” is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

Human-made wetlands

- 1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**
- 2 -- **Ponds;** includes farm ponds, stock ponds, small tanks; (generally below 8 ha).
- 3 -- **Irrigated land;** includes irrigation channels and rice fields.
- 4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).
- 5 -- **Salt exploitation sites;** salt pans, salines, etc.
- 6 -- **Water storage areas;** reservoirs/barrages/dams/impoundments (generally over 8 ha).
- 7 -- **Excavations;** gravel/brick/clay pits; borrow pits, mining pools.
- 8 -- **Wastewater treatment areas;** sewage farms, settling ponds, oxidation basins, etc.
- 9 -- **Canals and drainage channels, ditches.**
- Zk(c) -- **Karst and other subterranean hydrological systems, human-made**

Annex 3: IUCN Protected Areas Categories System

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognized by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

Ia Strict Nature Reserve

Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Ib Wilderness Area

Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature

Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

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Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.