

Information Sheet on Ramsar Wetlands

(RIS) – 2009-2012 version

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

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

June 2012

3. Country:

Australia

4. Name of the Ramsar site:

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

Flood Plain Lower Ringarooma River

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

This RIS is for (tick one box only):

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

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

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: ☒

or

If the site boundary has changed:

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

and/or

If the site area has changed:

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

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

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

This RIS is an update to accompany an Ecological Character Description (ECD) completed in 2012. The previous RIS for the site was completed in June 2005. There have been no major changes to the ecological character of the site since the previous RIS. An additional criterion for the site is now recognised in this RIS.

7. Map of site:

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

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

- i) a **hard copy** (required for inclusion of site in the Ramsar List): ☐;
- ii) an **electronic format** (e.g. a JPEG or ArcView image) ☒;
- iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables** ☒.

b) Describe briefly the type of boundary delineation applied:

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

The boundary of Flood Plain Lower Ringarooma River Ramsar site is shown as Lot 1 on Central Plan Register (CPR) 5658 from the Tasmanian Information and Land Services, Department of Primary Industries, Water and Environment. CPR 5658 horizontal datum is Australian Geodetic Datum (AGD66) Universal Transverse Mercator Projection Australian Map Grid (UTM AMG66) and Australian Height Datum (Tasmania) for vertical datum (Appendix 2).

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

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

The centre of the site is located at approximate latitude of 40° 53' 00"S and longitude 147° 56' 00"E.

9. General location:

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

The Flood Plain Lower Ringarooma River Ramsar site is located on the far north-east coast of Tasmania, nine kilometres north-west of the township of Gladstone. The site lies between Cape Portland and Waterhouse Point, extending from Boobyalla Beach inland along the Ringarooma River flood plain. The site is in the Dorset municipality, which has a population of approximately 7,100 (Dorset Council, 2007).

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

The site is all below 20 metres ASL. It adjoins the ocean at Bass Strait and is therefore at sea level at this point.

11. Area: (in hectares)

3,519 ha.

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The site is situated on the sandy flood plain of the Lower Ringarooma River which encompasses extensive marshlands, of which Fosters Marshes is significant, and a number of shallow lagoons including Shantys Lagoon, Blueys Lagoon and Bowlers Lagoon. The Ringarooma River drains into Ringarooma Bay. The site includes the Boobyalla Inlet estuary and parts of both Boobyalla Beach and Murdochs Beach to the east and west of the River mouth respectively. A mobile sand dune system occurs in the northern part of the site. The flood plain supports a variety of habitats, which are significant to a range of flora and fauna species. The area provides nesting habitat for many species of waterbirds. A number of migratory birds have been recorded from the site, including eleven species on international migratory bird lists such as JAMBA, CAMBA, ROKAMBA and the Bonn Convention on Migratory Species. The site supports six species listed on the IUCN redlist or as nationally threatened. The lagoons, marshlands and dunes support a rich variety of invertebrate fauna. Wetland vegetation communities at the site include five Ramsar wetland types, some of which are listed as vulnerable under Tasmanian legislation.

13. Ramsar Criteria:

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

1 • 2 • 3 • 4 • 5 • 6 • 7 8 • 9
☒ ☒ ☒ ☒ ☐ ☐ ☐ ☐ ☐

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

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1: A representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

The Flood Plain Lower Ringarooma River Ramsar site is rare within the bioregion (Tasmania Drainage Division, Commonwealth of Australia 2010; Bass Strait IMCRA Province, Commonwealth of Australia, 2006), as it is rare for large rivers in Tasmania to be flowing through flood plains and forming the mosaic of wetlands that the Ringarooma River does (Stewart Blackhall, personal communication). The site contains good condition, regionally representative examples of wetland systems within a flood plain, with a mosaic of permanent and seasonal marshlands and a large river estuary (Boobyalla Inlet). Boobyalla Inlet is recognised as a Tasmanian estuary with high conservation significance (Edgar, Barrett and Graddon 1999).

Wetland vegetation communities recognised as threatened under Tasmanian legislation that have been recorded within the site (DPIW 2006) include:

- freshwater aquatic sedgeland and rushland (Ramsar wetland type Ts) (vulnerable in Tasmania);
- freshwater aquatic herbland (Ramsar wetland type Tp) (vulnerable in Tasmania);
- lacustrine herbland (Ramsar wetland type Tp) (vulnerable in Tasmania);
- Undifferentiated wetland (including Ramsar types P and U); and
- *Melaleuca ericifolia* swamp forest (Ramsar wetland type Xf), (rare and endangered in Tasmania).

Part of the site is also listed on the Tasmanian Geoconservation Database (DPIW 2009) as part of the Northeast Tasmanian Pleistocene Aeolian System. A section of the marshes known as The Chimneys is thought to be a remnant of a once more extensive lake system, older than other lakes in the area (being situated well within known Pleistocene dunefields) and potentially containing palynological and palaeobotanical fossils and megafaunal remains (Blackhall et al 2000, DEWHA 2010a).

Criterion 2: It supports vulnerable, endangered, or critically endangered species or threatened ecological communities

Common name	Scientific name	IUCN	CITES	CMS	National Status
Birds					
Fairy tern	<i>Sterna nereis</i>	VU	-	-	Vulnerable (EPBC Act 1999)
Fish					
Dwarf galaxias	<i>Galaxiella pusilla</i>	VU	-	-	Vulnerable (EPBC Act 1999)
Australian grayling	<i>Prototroctes maraena</i>	NT	-	-	Vulnerable (EPBC Act 1999)
Amphibians					
Green and gold frog	<i>Litoria raniformis</i>	EN	-	-	Vulnerable (EPBC Act 1999)

Criterion 3: It supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region

The series of shallow freshwater lagoons at the site are an important feeding and nesting place for many

species of waterbirds. Approximately four kilometres of beaches are included in the site, from which a number of shorebirds has been recorded including the hooded plover (*Thinornis rubricollis*), red-capped plover (*Charadrius ruficapillus*), greenshank (*Tringa nebularia*), red-necked stint (*Calidris ruficollis*), ruddy turnstone (*Arenaria interpres*), curlew sandpiper (*Calidris ferruginea*), blackfronted dotterel (*Elsayornis melanops*) and fairy tern (*Sterna nereis*) (Sally Bryant, personal communication). Approximately forty species of wetland dependent plants have been recorded at the site (some noteworthy examples are given in section 21).

The site supports two regionally threatened bird species and four regionally threatened flora species considered to be at risk in Tasmania. These are:

- Little tern (*Sterna albifrons*, rare, TSPA),
- White-bellied sea eagle (*Haliaeetus leucogaster*, vulnerable, TSPA)
- Purple loosestrife (*Lythrum salicaria*, vulnerable, TSPA);
- Ribbon weed (*Vallisneria americana*, rare, TSPA);
- Erect marshflower (*Villarsia exaltata*, rare, TSPA); and
- Native gypsywort (*Lycopus australis*, endangered, TSPA), which was previously thought to be extinct in Tasmania, has recently been found at the site.

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

A number of migratory birds have also been recorded from the site, including 11 migratory birds listed in CAMBA, JAMBA, ROKAMBA and/or the CMS. These species include:

- Latham's snipe (*Gallinago hardwickii*); CAMBA, JAMBA, ROKAMBA and CMS
- Curlew sandpiper (*Calidris ferruginea*); CAMBA, JAMBA, ROKAMBA and CMS
- Red-necked stint (*Calidris ruficollis*); CAMBA, JAMBA, ROKAMBA and CMS
- Ruddy turnstone (*Arenaria interpres*); CAMBA, JAMBA, ROKAMBA and CMS
- Bar-tailed godwit (*Limosa lapponica*); CAMBA, JAMBA, ROKAMBA and CMS
- Little tern (*Sterna albifrons*); CAMBA, JAMBA, ROKAMBA and CMS
- Greenshank (*Tringa nebularia*); CAMBA, JAMBA, ROKAMBA and CMS
- Caspian tern (*Sterna caspia*); CAMBA and JAMBA
- Cattle egret (*Ardea ibis*); CAMBA, JAMBA; and
- White-bellied sea-eagle (*Haliaeetus leucogaster*); CAMBA

Quantitative data were not found for these species, however the provision of support for these species during migration constitutes support during a critical stage of their life cycle.

The site also provides support for five nesting shorebirds at a critical stage of their life cycle: breeding, including the little tern (which has migratory listing as noted above), and the fairy tern (IUCN red listed, as noted above) (Eric Woehler, Birds Tasmania, unpublished data).

Tasmanian mudfish (*Galaxias cleaveri*), Tasmanian whitebait (*Lovettia sealli*) and Australian grayling (*Prototroctes maraena*) have been recorded in the Ringarooma River. These species all migrate between fresh and marine waters and this highlights the importance of the estuarine habitat provided by the site and constitutes support for these species during a critical stage of their life cycle.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region: The site is located within the Tasmanian Drainage Basin, Australian Drainage Divisions.

b) biogeographic regionalisation scheme (include reference citation):

Commonwealth of Australia (Bureau of Meteorology), 2011, Australian Hydrological Geospatial Fabric. For more info on the Geofabric see - <http://www.bom.gov.au/water/geofabric/>.

16. Physical features of the site:

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

The site experiences a temperate rainy climate with warm summers. The average annual rainfall is 723 millimetres, with rainfall peaking in winter, extending through spring and lowest in late summer – early autumn (Bureau of Meteorology, 2009). The Holocene flood plain sediments consist mainly of clays, sands and gravels which are overlain by silty clay soils, with the silt being derived from the mine waste, decreasing with depth in the soil profile.

The site includes three major zones – a coastal zone, an estuary zone and a freshwater zone.

The coastal zone covers the entire coast of the site (approximately four kilometres), including the combined mouth of the Boobyalla and Ringarooma Rivers and hence part of the estuary zone described in the next paragraph. The coastal zone contains the foredunes and sandy beach of the site, as well as the delta.

The estuary zone is wave dominated, with a flood tide delta (Jason Bradbury, personal communication). Physical features present at Ringarooma Estuary that are considered typical of flood tide deltas include a shorefront barrier, a flood/ebb delta, an area of salt marsh, tidal sand banks and the channel. There also appears to be the beginning of a central basin (coastal lagoon) behind the shorefront barrier.

The freshwater wetlands of the site are formed on a flood plain that widens downstream of a shallow and constricted valley (Jerie and Household 2001). In the wider and flatter area of the lowland flood plain, water from high flow events can leave the channel and spread out, filling depressions in the landscape. As the water leaves the channel during high flows it quickly loses velocity and deposits the heavier sediment along the channel edge, forming natural levees. These natural levees impede the water from subsequently returning to the channel, leaving it to form a mosaic of seasonally-inundated and permanent water bodies. The wetlands are generally shallow and clear, providing ideal conditions for submerged and emergent macrophyte vegetation. Hydrology is largely influenced by the interaction between geomorphology and river flows. Hydrology such as timing, volumes, extent of inundation and drying regime of the site is not well-documented, however excellent information is available for the Ringarooma River upstream of the site (Graham 1999). Flow patterns of the lower Ringarooma River provide clear indications of flow inputs to the flood plain wetlands. The seasonal flow patterns of the Ringarooma River follow the rainfall patterns, with highest flows in the winter/spring months and lowest in late summer to early autumn (Read and Graham 2000).

Similar to hydrology, there is little water quality data for the site. Water quality data are available from the Ringarooma River at Gladstone, upstream of the site, which provide information about the quality of water entering the wetlands from the river. The data is indicative of high quality waters for a lowland river in south-eastern Australia. The water is high quality for an aquatic ecosystem with low electrical conductivity, turbidity and nutrients and high dissolved oxygen concentrations.

17. Physical features of the catchment area:

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

The catchment covers an area of approximately 975 square kilometres (NWC 2009). At its lower end, the catchment encompasses the Flood Plain Lower Ringarooma River Ramsar site. The Ringarooma River originates in the far north-east of Tasmania in the foothills between Ben Nevis (part of the Ben Lomond ranges) and Mount Maurice (Graham 1999). From there it flows north for approximately 150 river kilometres before discharging into Bass Strait via Ringarooma Bay, located nine kilometres north-west of the township of Gladstone between Cape Portland and Waterhouse Point. Annual rainfall of the area is 625 - 750 millimetres.

The mid to upper catchment is described as “humid cool/cold mountain ranges situated in Tasmania's inland north-east. The mountains are capped by Jurassic dolerite with shallow gradational soils. Silurian-Devonian siltstones and mudstones covered with gradational soils constitute a substantial part of the lower hills. Lowland vegetation comprises mainly open sclerophyll woodlands and heath while the upper slopes consist of wet sclerophyll forests, some rainforest and alpine vegetation in the highest regions. Land use in the catchment includes forestry, mining and agriculture (grazing)” (Environment Australia 2000).

The lower to mid catchment is described as “moist and dry subhumid warm coastal plains and granitic island chain comprised of the Furneaux islands and coastal north-eastern Tasmania. Devonian granites dominate the elevated areas of the subregion forming low rugged ranges. These are overlain by shallow stony/gravelly gradational or duplex soils carrying *Eucalyptus amygdalina* open forest and woodland with *Eucalyptus nitida* open heath on higher peaks. Quaternary/Tertiary materials overlain by deep sandy soils typify extensive lowland plains, coastal deposits and dunes. Coastal plains have been heavily modified by agriculture (grazing)” (Environment Australia 2000).

18. Hydrological values:

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

The hydrology of the site maintains the character of the wetland ecosystem, through its influence on landforms, vegetation and habitat. The water source is primarily derived from the Ringarooma River, with inputs from smaller tributaries within the site catchment.

The freshwater wetland complex buffers flood peaks and processes nutrients that would otherwise be deposited in the estuary. This occurs through the overbank deposition and subsequent retention of flood waters and sediments into the freshwater wetlands. It also continues to trap a portion of the mine-related sediment that will continue to be transported down the river for at least 50 years (Knighton 1991). A proportion of this sediment will continue to be transported through the estuary to the sea.

Benefits directly attributable to hydrology and its maintenance of the ecosystem/habitat include;

- Providing representative wetlands for bioregion
- Maintaining bioregional biodiversity
- Supporting an abundance of individual species
- Supporting a diversity of species
- Supporting migratory bird species.

19. Wetland Types

a) presence:

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

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

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

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

b) dominance:

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

Xf, Ts, Tp, E, J, H, G, F, W, N, and Xp. This ranking is based on the 2010 ECD (Newall & Lloyd 2010), which uses aerial photo interpretation based on a 2006 air photo and would require detailed surveys for more accurate estimates.

20. General ecological features:

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

The ecological data available for the site are very limited with the exception of a detailed vegetation survey covering much of the flood plain vegetation, and some geomorphic examination of the landforming processes within the site. There are several documents that provide some qualitative information on the site’s ecological character.

The site can be separated into three zones – a coastal zone, an estuary zone and a freshwater (aquatic) zone. The coastal zone covers the entire coast of the site (approximately four kilometres), including the combined mouth of the Boobyalla and Ringarooma Rivers and their delta. The Ramsar wetland types that occur within

the coastal zone are: sandy shores (wetland type E); delta (wetland type F); and intertidal mud and sand flats (wetland type G). A number of beach nesting shorebirds have been recorded breeding on the beaches of the site, comprising the little tern (*Sterna albifrons*), hooded plover (*Thinornis rubricollis*), fairy tern (*Sterna nereis*), pied oystercatcher (*Haematopus longirostris*) and red-capped plover (*Charadrius ruficapillus*).

The estuary zone is wave dominated, with a flood tide delta. Wave dominated deltas are considered 'mature' in terms of evolution and tend to be morphologically stable (assuming stable sea levels). They often have a narrow entrance which can restrict marine flushing, although this is counter-balanced by high river flows that expel marine water and flush material from the delta. The short residence time for deposited material results in little processing or trapping of associated nutrients and contaminants. The Ramsar wetland types that occur within the estuary zone include estuarine waters (wetland type F); intertidal mud and sand flats (wetland type G); intertidal salt marshes (wetland type H); and coastal brackish/saline lagoons (wetland type J).

Typical of wave dominated delta estuaries, the Ringarooma estuary has a direct connection between river and sea, via a channel flanked by a low-lying vegetated flood plain. The channel is kept open by the relatively high river velocities and a dune barrier partially constricts the estuary entrance, preventing it from expanding into a large, open estuary. The 'mature' nature of wave dominated deltas means that they have been mostly filled by sediments. In the case of the Ringarooma estuary, this 'maturation' has probably been created prematurely through an increased rate of sediment yield from the catchment as a result of tin mining during the late 1800s and early 1900s.

The freshwater zone contains wetlands formed on a lowland flood plain that widens out downstream of a shallow and constricted valley. In the wider and flatter area of the flood plain, water from high flows sometimes leaves the channel and spreads out, filling depressions in the landscape. The Ramsar wetland types that occur within the freshwater zone include: seasonal waterways (wetland type N); permanent freshwater marshes, pools and ponds (below 8 ha), with emergent vegetation (wetland type Tp); seasonal freshwater marshes and pools, including seasonally flooded meadows and sedge marshes (wetland type Ts); shrub-dominated wetlands (wetland type W); and freshwater, tree-dominated wetlands (freshwater swamp forest) (wetland type Xf).

Ecosystem services include: maintenance of rare and representative wetland type for the bioregion, support for critically endangered species and populations important for regional biodiversity and/or at critical stages.

21. Noteworthy flora:

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

Four vegetation communities recognised as threatened in Tasmania occur within the site, including freshwater aquatic sedgeland and rushland (Ramsar wetland type Ts), freshwater aquatic herbland (Ramsar wetland type Tp), lacustrine herbland (Ramsar wetland type Tp) and *Melaleuca ericifolia* swamp forest (Ramsar wetland type Xf). There are also four species found onsite listed under TSPA: purple loosestrife (*Lythrum salicaria*), occurs in open areas in *Melaleuca ericifolia* swamp forest and in freshwater aquatic sedgeland and rushland wetlands in the site; ribbon weed (*Vallisneria spiralis*), occurs in freshwater aquatic herbland in study area; erect marshflower (*Villarsia exaltata*, rare), for which The Chimneys is a key site; and native gypsywort (*Lycopus australis*), which was previously thought to be extinct in Tasmania, has recently been found at the site. It occurs in association with lacustrine herbland in the study area and has been observed at one location on the western edge of Shantys Lagoon.

Expansion of grazed pasture within the site, including introduced grasses and weeds, has led to some loss of native vegetation communities. These weeds include gorse (*Ulex europaeus*), crack willow (*Salix fragilis*), blackberry (*Rubus fruticosus*), African boxthorn (*Lycium ferocissimum*), ragwort (*Senecio lusitanica*), marram grass (*Ammophila arenaria*), sea spurge (*Euphorbia paralias*), pampas grass (*Cartadaria selbana*), radiata pine (*Pinus radiata*) and Cape pond weed (*Aponogeton distachyos*).

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare,

endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

A number of migratory birds have also been recorded from the site, including eleven migratory birds listed in CAMBA, JAMBA, ROKAMBA and/or the CMS. These species include:

- Latham's snipe (*Gallinago hardwickii*); CAMBA, JAMBA, ROKAMBA and CMS
- Curlew sandpiper (*Calidris ferruginea*); CAMBA, JAMBA, ROKAMBA and CMS
- Red-necked stint (*Calidris ruficollis*); CAMBA, JAMBA, ROKAMBA and CMS
- Ruddy turnstone (*Arenaria interpres*); CAMBA, JAMBA, ROKAMBA and CMS
- Bar-tailed godwit (*Limosa lapponica*); CAMBA, JAMBA, ROKAMBA and CMS
- Little tern (*Sterna albifrons*); CAMBA, JAMBA, ROKAMBA and CMS
- Caspian tern (*Sterna caspia*); CAMBA and JAMBA
- Greenshank (*Tringa nebularia*); CAMBA, JAMBA, ROKAMBA and CMS
- Cattle egret (*Ardea ibis*); CAMBA, JAMBA
- Great egret (*Ardea modesta*); CAMBA, JAMBA
- White-bellied sea-eagle (*Haliaeetus leucogaster*); CAMBA

The site provides large areas of ideal breeding habitat for the green and gold frog (*Litoria raniformis*), including the shallow part of still or slow-flowing lagoons. They also require terrestrial habitat (such as grasslands and forests), feeding mainly on terrestrial invertebrates such as beetles, termites, cockroaches, moths, butterflies and various insect larvae (DEWHA 2010b). The combined habitat requirement of permanent, still or slow-flowing waters and nearby forests and grasslands is provided by the site through the many lagoons, herblands, sedgelands, swamp forests and coastal forests.

Flood Plain Lower Ringarooma River is an ideal site for the dwarf galaxias (*Galaxiella pusilla*), offering a range of permanent and seasonal waterbodies, mostly still or slow-flowing and many with abundant submerged vegetation. The extent and variety of waterbodies at the site, combined with the importance placed on all existing populations, highlights the importance of the site to the support of this species.

Australian grayling (*Prototroctes maraena*), is an estuary dependent species which spend most of its lifecycle in freshwater, migrating between freshwater streams and the estuary to breed. The species is found in rivers with water ranging from clear to muddy and with substrates ranging from gravel to mud-bottomed. The species is described as occurring widely within Tasmania (DEWHA 2010b) and the importance of the site to the species is not known. The significant estuary and the large upstream river system make this ideal habitat for the species, which is threatened at the national level.

23. Social and cultural values:

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

Social values of the site include:

- Indigenous heritage values; there is evidence that the flood plain was used by Aboriginal people.
- Historic values; the known historic site within the Ramsar area is the location of the township of Boobyalla, along the remains of a port on the Ringarooma (GHD, 2008).
- Recreational values; activities undertaken at the site include hunting, fishing and nature observation.

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

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

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

- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
 - iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
 - iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:
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24. Land tenure/ownership:

a) within the Ramsar site:

The land tenure of the site is complex. Within the site, approximately 60 percent of the area is freehold land owned by Rushy Pastoral, with the remainder being Crown land. The Crown land includes the area between the Ringarooma River and the western boundary and the area of coast and estuary covering the north-west of the site. The area between the Ringarooma River and the western boundary is included in the Cameron Regional Reserve with approximately 303 hectares of this utilised under temporary grazing licenses (leasehold). The coastal strip and estuarine zone of the site is also Crown land and is part of a Public Reserve.

b) in the surrounding area:

Land in the surrounding area is private freehold and the Cameron Regional Reserve.

25. Current land (including water) use:

a) within the Ramsar site:

The site accommodates intensive livestock grazing and associated pivot irrigation. Rushy Pastoral currently leases three commercial dairies within the south of the Ramsar site. The three dairies include *Quinfields*, *Centre View* and *Cygnus*, which comprise approximately 760 ha (22%) of the Ramsar site (GHD, 2008). Recreational activities are undertaken onsite including duck shooting, fishing, bird watching and wildlife observation.

b) in the surroundings/catchment:

Much of the surrounding land has been cleared for agriculture. Land use has recently changed from extensive cattle grazing and dairy production, as the pasture is now irrigated and strip grazed.

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

a) within the Ramsar site:

The key threatening processes to the site were identified as:

- Impacts of excess sediment deposition through past mining practices; ongoing deposition of sand in the wetlands of the site reduces habitat extent and diversity.
- Erosion and eventual scour of the river channel, when upstream sediment supply decreases could result in lowering of river bed and subsequent isolation of the wetlands from the river.
- Expansion of agriculture into natural/near natural vegetation communities; expansion of grazed land into the currently ungrazed areas of the site could lead to loss of vegetation communities.
- Weed invasion; native vegetation communities on higher ground have been invaded by an array of exotic plants through the expansion of irrigated grazed pasture within the Ramsar site and seeds transported to new areas by grazing cattle. However, there are no obvious infestations of invasive flora in the wetlands.
- Decline in water quality through dairying impacts; inputs of excess nutrients lead to problems with algal blooms in permanent and temporary waters of the site.
- Rising sea levels; as much of the site is close to sea level, any rising of sea level associated with climate change would seriously threaten the site's ecological character.

b) in the surrounding area:

Upstream water extraction and mining activities could increase in the future; if they did, these activities have the potential to impact upon the ecological character of the site.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The area (584 hectares) between the Ringarooma River and the western boundary is included in the Cameron Regional Reserve. Cameron Regional Reserve was declared in December 2000 under the *National Parks and Reserves Management Act 2002* (Department of Primary Industries, Parks, Water and Environment, 2008). The term regional reserve is applied to an area of land with high mineral potential or prospectivity; and predominantly in a natural state (Department of Primary Industries, Parks, Water and Environment, 2008).

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

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

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

Yes.

d) Describe any other current management practices:

Management plans were implemented by the dairying operator in 2008 for dairy operations outside the Ramsar site boundary, to reduce possible nutrient waste discharge into the Ramsar site in the future. Within the Boobyalla Inlet, there is no netting allowed upstream of a line from Campbells Point east to the opposite shore (Tasmanian *Fisheries (Scalefish) Rules*, 2004). Campbells Point is located at the mouth of the Ringarooma River.

28. Conservation measures proposed but not yet implemented:

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

A management plan was prepared for the site in 2008:

GHD (2008) Flood Plain Lower Ringarooma River Ramsar Wetland Site Management Plan. Prepared for NRM North, GHD.

29. Current scientific research and facilities:

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

In 2006 DPIW undertook vegetation surveys at the site. Bird surveys were also conducted along the proposed Musselroe Wind Farm Transmission Line, Ringarooma Ramsar area. In 2008, a report was produced regarding proposed dairy effluent management at Rushy Lagoon dairies;

Armstrong, D and Badcock, R (2008). Best Practice Dairy Effluent Management in Tasmania. Rushy Lagoon dairies; Quinfields, Centre View and Cygneus-Supplementary Report V3. Prepared by Armstrong Agricultural Services and Badcock Irrigation Services.

30. 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.

Current CEPA activities: The area is used by local community groups for bird observation. An information booklet has been produced for Tasmania's Ramsar wetlands.

Key CEPA messages:

1. The site is an internationally important wetland listed under criterion one, two, three and four.
2. The site is a zone of high biodiversity.
3. The site contains national and Tasmanian threatened species.
4. The site provides many important services and benefits to the region: wetland products; replenishment of groundwater; shoreline and riverbank stabilization; sediment/nutrient retention; and ecological, recreation, tourism and cultural value.

5. Understanding the ecology of the site will enhance future management of the site.
6. Past and present management practices provide some threats to the site's values, such as human use, grazing, water extraction and sedimentation from past mining activities.
7. The ECD project has summarised the available information on the site which describes its ecological character.
8. Landholders, managers and users should promote the wise use of wetlands.

31. Current recreation and tourism:

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

Recreational activities undertaken at the site include hunting/shooting, fishing, bird watching and wildlife observation. As there is no permanent ranger presence at the site, visitor numbers are unknown.

32. Jurisdiction:

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

Territorial: Dorset Municipal Council.

Functional: Landowner and Director, Parks & Wildlife Service, Tasmania.

33. Management authority:

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

Director, Parks and Wildlife Service,
GPO Box 1751, HOBART, Tasmania 7001.

For leased crown land, the manager is:

Department of Primary Industries, Parks, Water and
Environment (DPIPWE)

Crown Land Services Branch
Level 5, 134 Macquarie Street Hobart TAS 7001

Tel: +61 3 6233 8011

34. Bibliographical references:

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

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DEWHA 2010b. Biodiversity Species Profile and Threats Database,
<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

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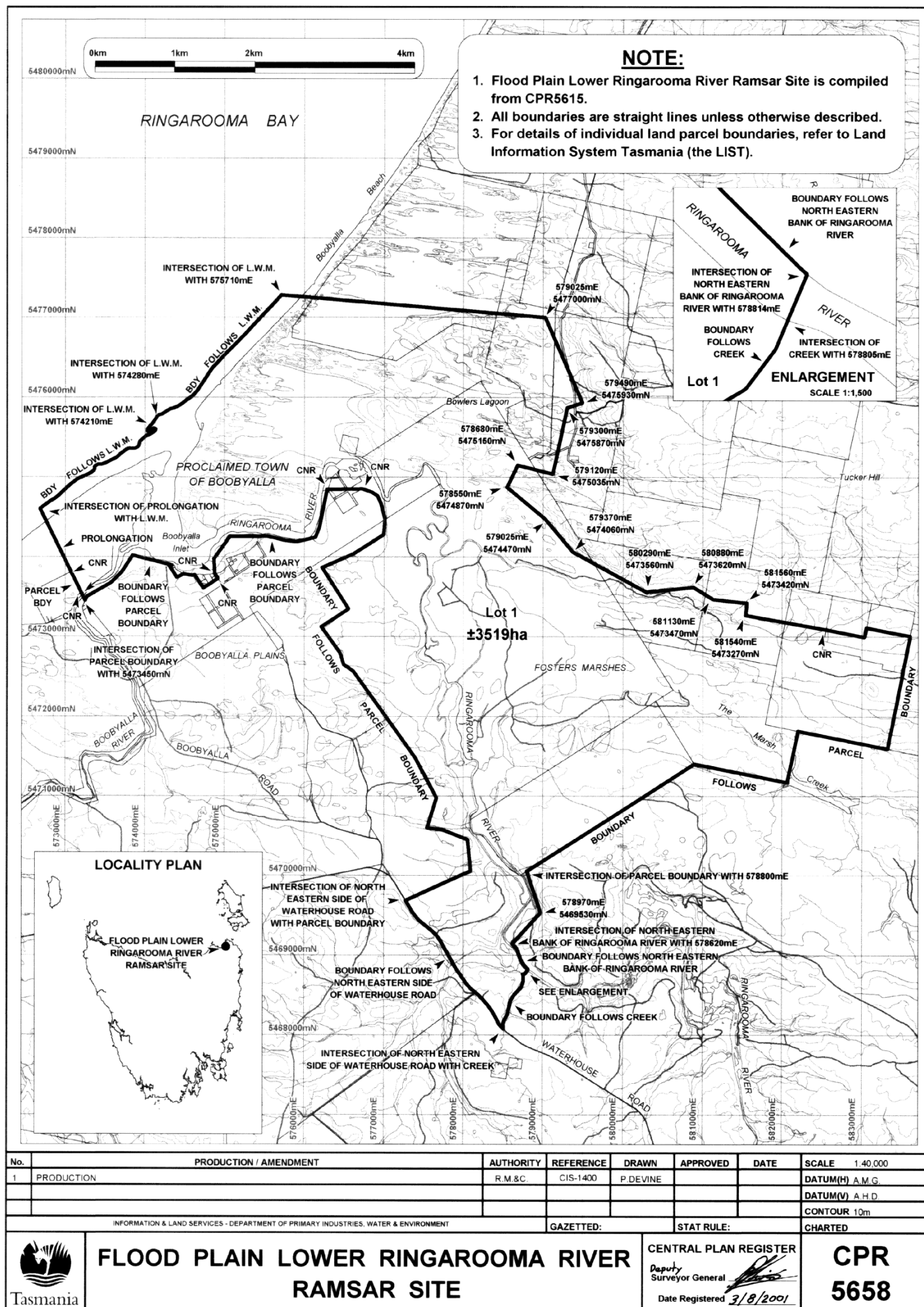
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Appendix 1: Central Plan Register map of the boundary of the Flood Plain Lower Ringarooma River Ramsar site (DPIPWE 2001)



Appendix 2: Location of the Flood Plain Lower Ringarooma Eriver Ramsar site (DSEWPaC 2010)

