Tolderol Wetland Pre-Feasibility Fact Sheet

The proposal for Tolderol wetland seeks funding to undertake feasibility investigations for the Tolderol Wetland Restoration Project. Tolderol was formerly one of the most ecologically diverse wetlands in the Lower Lakes, Coorong and Murray Mouth (LLCMM) region providing critical habitat for many species, particularly migratory birds.

This project proposal aims to restore Tolderol wetland to its former condition by reinstating a hydrological regime and associated works to create a range of habitats that support water birds as well as terrestrial birds, native fish and amphibian species. In particular, the restoration of Tolderol wetland would provide critical summer habitat for migratory water birds by increasing the area of seasonally inundated brackish wetland habitat. The on-ground works are likely to include upgrading existing culverts with water control infrastructure for individual bays as well as upgrading existing connections between bays and maintaining connectivity between the main connector channel and Lake Alexandrina.

The Ngarrindjeri community have identified Tolderol as an important site for future management.Tolderol is a large wetland complex (200 ha) situated on the western fringe of Lake Alexandrina, 13 km northeast of the township of Milang. The wetland complex is located within the Tolderol Game Reserve.

The wetland comprises a series of regulated artificial bays that were constructed to provide a variety of habitats for migratory waders and other species. A major channel runs parallel to the lake shore and several channels run perpendicular to this inland. In the western section further channels interconnect these perpendicular channels. The wetland has not been actively managed since 2008.

In the past, the wetland provided significant habitat and drought refuge for migratory waders, attracting large numbers of birds.

Toderol wetland forms part of The Living Murray LLCMM Icon Site and the Coorong and Lakes Alexandrina and Albert Ramsar site, and is also subject to international migratory bird agreements.

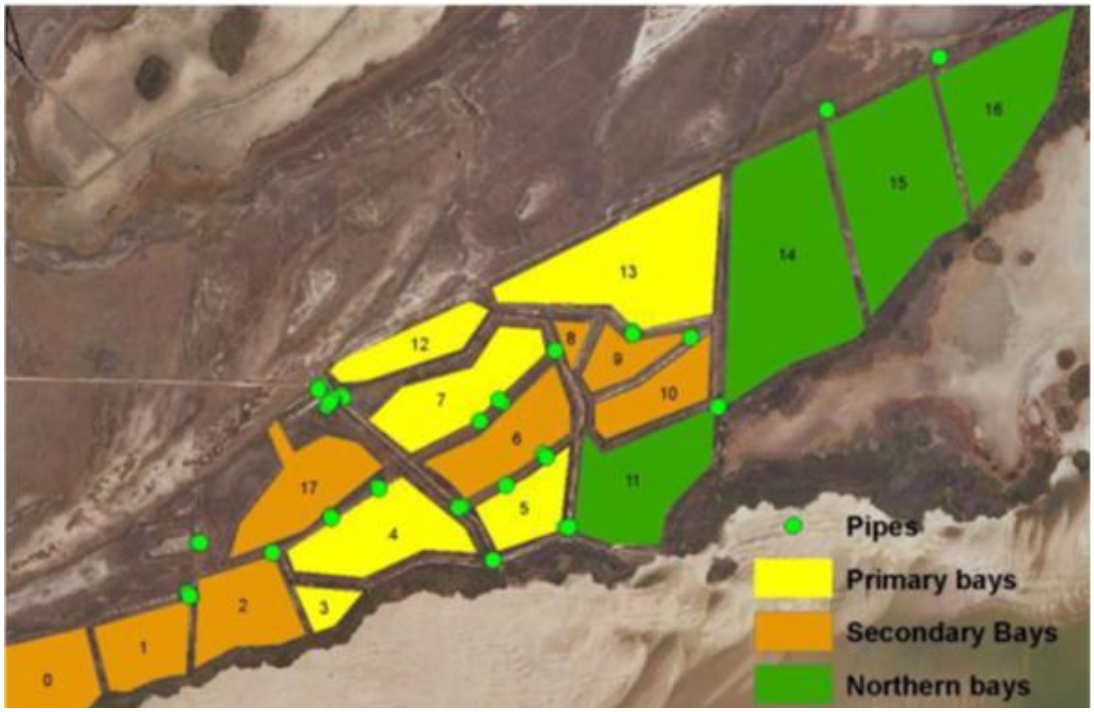

Figure1: Tolderol Wetland

ECOLOGICAL SIGNIFICANCE AND CONDITION

Tolderol wetland was as one of the top three priority sites for on-ground works within the LLCMM region, in an assessment undertaken of 15 LLCMM sites by the University of Adelaide in 2008. The ranking was based on predicted improvements in condition for 12 ecological values.

Vegetation
A wetland survey undertaken in 2004 identified a range of vegetation types and over 60 species, dominated by low growing swamp and marsh plants. The Sarcocornia quinqueflora shubland supported Samolus repens which occurs at the wetland and is listed as rare in the region.

Birds
When wet, the marshes provide vital habitat for migratory waders over summer as well as over 50 waterbird species. Over 125 bird species have been recorded at Tolderol Wetland, of which twenty seven are Ramsar species, including the Australasian Bittern (Botaurus poiciloptilus) (endangered), the critically endangered Orange-bellied Parrot (Neophema chrysogaster) and the Australian Painted Snipe (Rostratula australis)(vulnerable). Other important species previously recorded at Tolderol include the Australian Bustard (Ardeotis australis), Australasian Darter (Anhinga novaehollandiae), Yellow Wagtail (Motacilla tschutschensis), Golden-headed Cisticola (Cisticola exilis). Glossy Ibis (Plegadis falcinellus), Sacred Ibis (Threskiornis aethiopica)and Straw-neck Ibis (Threskiornis spinicollis) and Royal Spoonbills (Platalea regia) are known to breed nearby.

Fish
In a 2004 baseline survey, eight species of native fish were recorded, including the Southern Pygmy Perch (Nannoperca australis) which is a protected species under the South Australian Fisheries Management Act 2007. The nationally threatened Murray Hardyhead (Craterocephalus fluviatilis) has been captured at nearby Boggy Lake and there is a strong likelihood that Tolderol could provide habitat for this species with appropriate management.

Frogs
Tolderol is one of the few wetlands in the LLCMM region that has supported the Southern Bell Frog (Litoria raniformis), considered vulnerable and protected under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and South Australian National Parks and Wildlife Act 1972. Other frog species recorded in the 2004 survey are the Brown Tree Frog (Litoria ewingii), Spotted Grass Frog (Limnodynastes tasmaniensis) and Common Eastern Froglet (Crinia signifera).

CULTURAL AND SOCIAL VALUES

The wetland is culturally very significant for the Ngarrindjeri people – the traditional owners of the region. The Ngarrindjeri name for Tolderol is Thultharrung. The Ngarrindjeri have previously identified Tolderol as an important site for future management, which requires ongoing consultation with the Ngarrindjeri Regional Authority.

Due to its location, the wetland has significant social and recreational values for bird watching and game hunting in designated areas. In the past, Tolderol attracted many visitors, particularly during the migratory bird season. In the absence of water, bird numbers have declined as have the numbers of birdwatchers visiting the site.

As a game reserve, hunting is permitted in designated areas during and if the hunting season opens, generally between February and June. Hunting is only permitted in small sections of the wetland.

LAND OWNERSHIP AND SITE GOVERNANCE

Tolderol wetland is located on a dedicated Game Reserve which is owned and managed by the Department of Environment, Water and Natural Resources (DEWNR) and adjoins extensive lakeside wetlands on private land.

MANAGEMENT HISTORY

Prior to 1970, Tolderol wetland was privately owned and grazed by cattle. In 1970, the South Australian Government purchased Tolderol as part of a state-wide program to conserve water bird populations and habitat.

Before river regulation and active management of the wetland, the area consisted of a low lying littoral wetland that would have been temporarily inundated depending on water levels in Lake Alexandrina. Changes to the hydrology of Lake Alexandrina to a permanent freshwater lake with surcharged water levels promoted the growth of reeds and other aquatic vegetation.

Wetland Care Australia worked with the South Australian Government to develop a rehabilitation program for the wetland. The aim of the program was to increase the area of seasonal inundated brackish wetland habitat to supply the critical summer habitat for migratory water birds.

A series of water impoundments were constructed in 1976 to allow the wetland to be managed to support natural salt marsh habitat which had been lost from most of the lake. Water was supplied to the bays by a pump that lifted water from the lake via a channel. The freshwater environment within bays created a refuge for water fowl feeding and protection, with flows controlled between bays and

channels to mimic natural flooding and dry conditions with combinations of salt marsh, mudflats and shallow water.

Until 2008, Tolderol had an annual allocation of one GL (licensed to the South Australian Government) which was used to inundate the wetland. During the drought the wetland was disconnected from the lake due to falling water levels in Lake Alexandrina.

A Schedule of Works was developed for Tolderol wetland in 2009, which outlined a vision for the restoration of the wetland to improve ecological values. Achieving the vision requires investment in on-ground works. A revegetation program, managed by DEWNR, was initiated at the wetland in 2010.

Other recent activities at Tolderol include:

- surveying of bay elevations;
- wetland monitoring; and
- removal of sand build up to reconnect the main channel to Lake Alexandrina following siltation during the drought.

Much of the original infrastructure is in poor condition.

THE PROJECT PROPOSAL

Description

The proposed restoration of Tolderol wetland would include an upgrade of infrastructure to create a water regime within the wetland that supports migratory waterbirds as well as other bird, macrophyte, fish and amphibian species. The on-ground works are likely to include upgrading culverts with water control infrastructure for individual bays, as well as upgrading existing connections between bays and maintaining connectivity between the main connector channel and Lake Alexandrina.

The water regime would be managed to provide a variety of habitat types. A management priority would be the creation of a shallow salt marsh/mud flat habitat with the drying phase to coincide with the migratory birds' brief breeding season in the northern hemisphere. Drying of the mud flats would allow for aeration of the soils while compacting sediment and locking in nutrients. Following this dry phase, it is proposed to inundate the wetland bays in August to release nutrients and stimulate food production which would coincide with the southward migration. The inundation period would last as long as birds are present (Sept/Oct – March/April). See Figure 8, Conceptual Model of Tolderol's Hydrological Regime and Expected Outcomes for One Habitat.

Wetland infrastructure would be designed to require minimal operational support and maintenance compared with the more intensive pumping regime formerly in place.

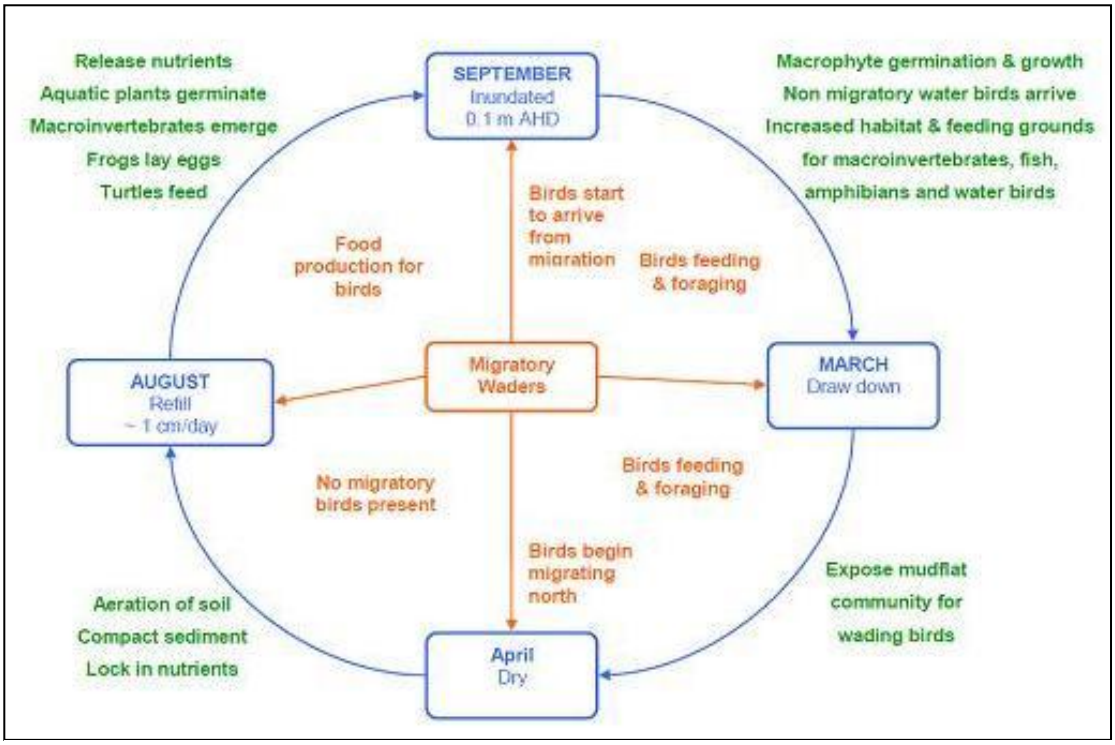

Figure 2: Conceptual Model of Tolderol's Hydrological Regime and Expected Outcomes for on Habitat Type

Outcomes and Benefits
Potential outcomes include:

- restored hydrological regime to provide a variety of habitats for bird, frog, fish and other aquatic species, including enhancing habitat for migratory waders; and
- maintained connection and improved flows between Lake Alexandrina and the wetland.

Potential benefits include:

- improved ecological values and diversity;
- reinvigorating Tolderol as an international tourist destination for bird watching; and
- enhanced cultural heritage and provision of opportunities for the Ngarrindjeri to participate in active management of the site.

The potential outcomes and benefits outlined above were identified by community members at workshops held in June 2012 and supported by DEWNR technical experts in September 2012. It was noted that wetland management of this nature has achieved proven benefits at similar project sites at Narrung and Paiwalla wetlands.

The community has indicated strong support for active involvement in the future management of Tolderol Wetland.

FEASIBILITY OVERVIEW

Feasibility investigations at Tolderol wetland would determine the preferred flow path and volume of water required to achieve optimal ecological outcomes. This information would be used to develop future management options, including infrastructure upgrades.

Objectives of Feasibility Investigations
The objectives of the feasibility stage of this project would be to:

- Develop a shared vision for the site amongst key groups and stakeholders
- Determine the optimal water management regime to achieve the vision
- Support the ongoing community and stakeholder ownership and involvement in the project
- Determine priority locations, costs and designs for flow regulators
- Undertake assessment of ecological and other risks
- Determine ongoing operation and maintenance requirements, responsibilities and costs
- Identify approvals required to implement the project.

Project Management
It is anticipated the project would be managed by DEWNR.

ACKNOWLEDGEMENTS

The contribution of the South Australian River Murray Regional Community, including the many individuals and various local groups and organisations for their generous involvement and enthusiasm is greatly acknowledged. This partnership approach enabled the community ideas to be captured and prioritised by utilising and sharing local knowledge in the development of proposals.

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For more information

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