CHINAMAN'S ISLAND NATURE RESERVE: ENVIRONMENTAL MANAGEMENT PLAN 2020-2030



Community Tree Planting Day, 27/10/2020

Report prepared by: Friends of Chinaman's Island Nature Reserve

ACKNOWLEDGEMENTS

The Chinaman's Island Nature Reserve: Environmental Management Plan 2020-2030 has been developed by Friends of Chinaman's Island Nature Reserve in partnership with Moira Shire Council.

Friends of Chinaman's Island Nature Reserve would like to thank the following people for their involvement in the development of this Plan:

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Document Control

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3			

Executive Summary

Chinaman's Island is a nature reserve in Yarrawonga adjoining Lake Mulwala (Figure 1).

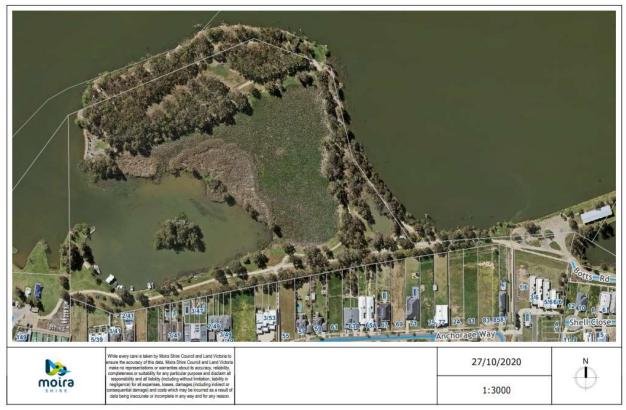


Figure 1. Chinamans Island Nature Reserve, approximately 6 ha.

The 'Island' was created following the construction of Lake Mulwala in 1939. It has provided various functions as a market garden, pig farm, pastoral farming and since 1989 as a nature reserve for the benefit of the community.

The reserve is located on Crown land that is vested in Goulburn Murray Water (GMW). Moira Shire Council (council) manages the land on behalf of GMW in accordance with the Occupation Licence with GMW 2018-2038.

This environmental management plan is broken up into three sections.

- 1. Friends of Chinaman's Island Nature Reserve
- 2. Annotated Bibliography
- 3. Environmental Management

The Friends of Chinaman's Island Nature Reserve (FOCINR) was established in 2020. This section outlines how the FOCINR will work within the Terms of Reference and sets out clear targets. FOCINR to work with Council to manage the reserve for the purpose of providing a space for community to connect with nature.

The Annotated Bibliography details the key management plans developed to improve the management of Chinamans Island. It identifies the key recommendations that this management plan will build upon.

The Environmental Management Plan identifies the key management areas and actions to improve the condition of the island over the next 10 years (2020-2030) and required infrastructure projects.

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Introduction

Purpose

To conduct bush regeneration activities to support native wildlife and flora, and community connection to nature.

Scope

The 10-year management plan:

- Describes the ecological values present;
- Sets long-term ecological objectives; and
- Management structures of the site.

Vision

To build upon the achievements of the Friends of Chinamans Island and the Yarrawonga Eastern Foreshore Committee of Management by caring for and developing the nature reserve, and providing a place for the community to experience an Australian natural environment.

Background

The 'Island' was created when Lake Mulwala was formed in 1939. It had previously been a river sand ridge called by the Wrights "The Hill". When the Wrights Market Garden was inundated by the Lake, they transferred their operations to the Island. The Aitchisons later operated a pig farm. And later the property was leased by Bill Jane who ran cattle and sheep on the Island. In the 1970s and 80s, the Janes had grand visions for the area, proposing a subdivision with boat access via channels. They even sought to have Victoria's second Casino erected on the Island.

The consequence of the farming pursuits was an almost total degradation of the Island. Yarrawonga Mulwala Rotary Club initiated the recovery efforts in 1989 when they began planting native trees. Contention arose around the future of the land following the formation of Moira Shire Council and the option of 'gifting' the reserve to private enterprise for the development of a 'sporting complex'. Desire by community members for the site to be a nature reserve led to the formation of the "Friends of Chinaman's Island" (FOCI). The FOCI successfully petitioned on behalf of the community to leave the reserve for passive recreation and as a nature reserve.

The FOCI maintained the reserve from 1996/1997 to 2000. The S86 sub-committee, 'Yarrawonga Eastern Foreshore Committee of Management'(YEFC) was formed on the 28th of September 2000 to manage the area. They held their first meeting on the 17th of October 2000. These early members (led and inspired by Bronwyn Taylor) made many notable achievements in a relatively short time to establish the general layout seen today including the walking track, excavation of Bron's Pond, picnic tables, seats and lookouts and planting of many trees, shrubs and grasses. Thanks to the support of Rotary the Rotunda was also built.

Ongoing works include the planting of natives indigenous to the district, management of erosion from wave action, weed control and rubbish removal. A key achievement includes the removal of spiny rush and the eradication of bindii (three cornered jacks).

Legislation changes brought about an alteration to the administration structure for the Nature Reserve. This resulted in the YEFC being disbanded 31 August 2020. The YEFC managed the nature reserve for almost 20 years.

The new body formed is known as 'Friends of Chinaman's Island Nature Reserve' (FOCI NR) and is regulated by the Terms of Reference (TOR) (MSC, 2020).

Friends of Chinaman's Island Nature Reserve

In 2020, the Friends of Chinaman's Island Nature Reserve was formed. Volunteers from the 'Yarrawonga Eastern Foreshore Committee of Management' largely transitioned across.

The FOCINR will continue to take ownership around the management of the island and advocate on its behalf ensuring that Chinaman's Island remains Lake Mulwala's 'Jewel in the Crown'. The Friends of Chinaman's Island Nature Reserve will work with Council's Environment Team to achieve the aspirations of this plan.

Administration

The leadership group of the Friends of Chinaman's Island Nature Reserve is to provide guidance regarding the management of Chinaman's Island Nature Reserve. Leadership group to work within the terms of reference.

Meetings to be held when necessary. Informal Chairperson and Secretary to be agreed upon by the leadership group. One member is to be assigned the role of having oversight of financial matters, consulting with Council and submitting invoices for payment.

Targets		Time frame
Recruit new individuals to the FOCINR.	High	2020-2030
Select leadership group on an annual basis and identify main roles.		2020-2030
All leadership members to complete Council's Volunteer Induction Course.		2020-2030

Working bees and community working bees

Regular working bees with the FOCINR to be held to maintain the condition of the reserve.

Target		Time frame
A record of attendees must be maintained for all working bees.		2020-2030
A Record of Injury Register is to be maintained.		2020-2030
Volunteers to sign JSA and work to be undertaken in accordance with the		2020-2030
JSA.		

Working Bees with the Community to be held to encourage connection to the reserve and recruitment to the FOCINR.

Target	Priority	Time frame
At least two working bees per year.	High	2020-2030
Keep a record of all individuals who helped with the management of the	High	2020-2030
reserve and their contact details.		
Annual event to be held to thank all volunteers who have helped with the		2020-2030
management of the reserve over the last 12 months.		

Annotated Bibliography

This management plan builds on the three management plans detailed below.

Weed Control Plan by Greenacres Land Management (2006)

The Weed Control Plan (WCP) divided the Reserve into six Management Areas and set out the treatment procedure for each area. The areas are, Wetland (now referred to as Sedgeland), Wetland Pond (now known as Bron's pond), Riparian Zone, Saline Strip, Treed Area, Bare Area.



Figure 2. Zones on Chinamans Island.

Chinaman's Island Vegetation Plan by Regeneration Solutions Pty Ltd (2006) This plan divides the Reserve into the same areas as the WCP. It sets recommendations for the ecological management procedures for the areas. It also identifies the birds, and plants of the Reserve.

The plan recommended that the willows on the bank be removed. Initially starting with a control site.

Report on wetland vegetation at Chinaman's Island by Rakali Ecological Consulting (2016) The report focuses on the Sedgeland (formerly referred to as the Wetland) area of the Reserve. The aim is to return the Sedgeland to its former healthy state and the report suggests the methods to achieve this result. To control the weeds which have encroached upon the Sedgeland, Rakali (2016) recommends periodic flooding of the sedgeland, generally in the cooler months, to recreate the conditions previously enjoyed when these events happened naturally.

Environmental Management

Management Areas



Figure 3. Approximate locations of the 6 management areas: Sedgeland, Bron's Pond, Riparian zone, Saline Strip, Treed Area and Bare Area.

The Sedgeland

Description of management area

The vegetation type has been identified as Ecological Vegetation Classes (EVC) 'Plains Sedgy Wetland' (Rakali 2016). The Sedgeland is dominated by Poong'ort (*Carex tereticaulis*). The diversity and abundance of native herbaceous species is uncharacteristically low, consisting of small, scattered patches of Upright Milfoil (*Myriophyllum crispatum*), Poison pratia (*Lobelia concolor*), Slender Knotweed (*Persicaria decipiens*) and Shield Pennywort (*Hydrocotyle verticilata*). Native grasses include Common Blown-grass (*Lachnagrostis filifolia*) and Mat grass (*Hemarthria uncinata*)."

This sedgeland once was flooded on a regular basis. Changes to weir infrastructure has reduced the maximum level of the lake and stopped the occasional inundation events. The sedgeland is now only periodically inundated during high flow events in the Murray River such as the 2016 and 2010-2011 floods.

The Regeneration Solutions report (2006) paints a much rosier picture of the sedgeland which illustrates its degeneration over the 12-year period between the reports. Their report says:

"The shallow depths of this area coupled with the location sheltered from the prevailing winds have allowed this wetland to develop relatively intact riparian vegetation mostly dominated by Spike Rush *Carex tereticaulis Common* Reed *Phragmites australis* and Rushes *Juncus sps.*"

Key Stakeholders

Stakeholders	Role and responsibility
Council	To obtain permissions and oversee building of the bund.

Threats and current condition

Rakali (2016) identifies that "Several weed species have invaded the Sedgeland. On the drier verges the most significant weeds include Toowoomba Canary-grass (*Phalaris aquatica*) and Paspalum (*Paspalum dilatatum*). In lower-lying areas weeds including Celery Buttercup (*Ranunculus scieratus*), Drain Flat-sedge (*Cyperus eragrostis*), Yellow Marsh-cress (*Rorripa palustris*) and Marsh Ludwigia (*Ludwigia palustris*)."

To an extent the weeds were previously controlled by occasional inundation from high weir levels. This also promoted a greater diversity of plant life within the sedgeland.

The typical period of inundation for this sedgeland is 1 to 8 months (Rakali 2016). This would have occurred annually.

Management Actions

It is recommended that an improved hydrological regime would improve the condition of the Sedgeland.

The first watering event occurred in 2019. Water was observed to return to the lake. A learning from a trial watering event in 2019 was that a 'bund' was required to hold pumped water on the sedge land and to prevent it returning to the lake. This would help to promote the growth of a more diverse community.

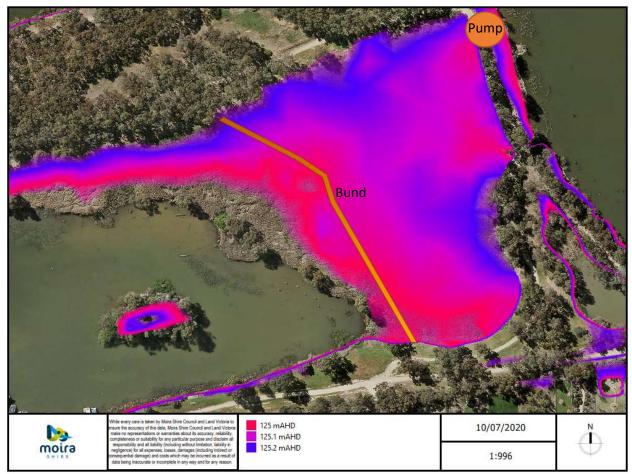


Figure 3. Bund to run approximately 200m to achieve an inundation extent of approximately 2ha. Bund to be built to a height of 125.2m AHD. LIDAR was used to determine the sedgelands topography above.

The bund should be built from the north west shore in a curve more or less parallel with the phragmites to end at the south western shore.

The bunding should be a first priority as an annual licence fee is payable to GMW.

Weed control would be required to manage the growth of *Pasalum* and *Phalaris* sp.

Revisit Greenacres plan (2006) to manage weeds on Chinamans Island.

Targets	Priority	Time frame
Receive required approvals to build a 'bund' incl. native vegetation. Council		2020-2021
to undertake. FOCINR to remind Council of problem and encourage works to		
be undertaken.		
Build the 'bund'	High	2021-2022
Implement an improved hydrological regime (frequency/duration/timing)	High	2022-2028
Manage growth of weed species	High	2022-2028

Bron's Pond

The pond is currently serving its function, receiving stormwater runoff from the paths near the rotunda and providing some level of treatment before being discharged to the lake. The pond also provides permanent open water habitat.

Riparian Zone

Description of management area

Description of management area.

Regeneration Solutions report states "The zone abuts the lake and is where emergent aquatic plants usually grow as a result of regular inundation. In places the indigenous River Red Gum is present with native rushes (*carex spp & Juncus spp*). The area is very important for species like Platypus, Water Rat and Yellow-bellied Water Skink."

Threats and current conditions.

Key Stakeholders	
Stakeholders	Role and responsibility
Council	To liase with GMW and FOCINR and provide advice on plantings
GMW	To remove willows and ash trees upon request from MSC and
	FOCINR. Complete rock beaching.

Threats and current condition

Regeneration Solutions state "in most parts this habitat is degraded with grassy weeds like Kikuyu and trees like willows dominant." The north bank is currently suffering severe erosion problems."

Erosion is a key issue in this area.

Aged willows have a limited life expectancy on Chinamans Island and need to be replaced with native trees. Willows removed from a control site on the western side required rock beaching to stabilise the bank. *Casuarina Glauca* (swamp she-oak) plantings appears to have been successful in these areas and to help hold the bank together.

Management Actions

Erosion control measures required on the northern bank to include rock beaching followed by plantings.

Future plantings could include:

- Acacia dealbata and Acacia pycnantha for lower story and its reseeding habit.
- Callistemon sieberi for its extensive river bank rooting.
- Acacia salicina higher on the bank. Some have already been planted nearby, and they will eventually sucker.
- Casuarina glauca as other plantings have proven successful however non native
- *Casuarina obesa* (Swamp Sheoak) native to western parts of state and can tolerate water logged areas.

Target	Priority	Time frame
Rock beaching required on the northern bank. GMW to undertake. FOCINR	High	2021
to remind GMW of problem and encourage works to be undertaken.		
Understand that the works are budgeted for 2021.		

Encourage GMW to remove non-native trees incl. Willows and Ash.	Medium	2020-2030
Plants natives in this area as rock beaching occurs.	Medium	2022-2030

Saline Strip

Description of management area

Described by Regeneration Solutions as "The strip of land between the southern side of the island and the large wetland contains saline discharge as indicated by areas of bare soil and the introduced weed spiny rush."

Key Stakeholders

Stakeholders	Role and responsibility
Council	Support with tree planting and weed control.

Threats and current condition

The spiny rush has been generally dealt with and mainly salt-tolerant native species have been planted. Current conditions have seen an increase of weed growth, particularly cape weed.

Management Actions

YEFC have successfully removed and replaced the highly invasive Spiny Rush in places by indigenous native plants. There are still small pockets of the weed. It is considered possible to control these by slashing and spraying. Some sections of the saline strip require replacement plants.

Future plantings could include:

- *Casuarina obesa* (Swamp Sheoak) native to western parts of state and can tolerate water logged and saline conditions.
- Acacia stenophylla (River Cooba) successful plantings in this area in the past.
- *Eucalyptus camalduensis* (River Red Gum) successful plantings in this area in the past however would benefit from being in a location that is periodically inundated.
- Eucalyptus largiflorens (Black Box) tolerant of drier conditions and salt tolerant.
- *Eucalyptus microcarpa* (Grey Box) tolerant of drier conditions and salt tolerant, plus its good at supressing weeds.
- *Melaleuca lanceolate* found along creek beds at edges of rivers and waterbodies

Target	Priority	Time Frame
Remove Spiny Rush.	Low	2020-2030
Plants natives in this area.	Low	2021-2025
Control other emerging weeds (<i>e.g.</i> capeweed). Council to undertake. FOCINR to remind Council of problem and encourage works to be undertaken.	Low	2020-2030

Treed Area

Description of management area

Description of management area.

This area consists of mostly planted trees as well as a few self-seeded saplings. This area also includes the plantings between the carpark (to the east) and yacht club (to the west) and the island. Shrub and understory layers have been largely established in these areas. The treed area on the island was largely

planted in the late 80s and early 90s. The ground layer mostly consists of sparse pasture grasses and broadleaf weeds although hardy native grasses like Spear and Wallaby Grass are starting to establish in places.

Key Stakeholders

Stakeholders	Role and responsibility
Council	Support with tree planting, weed control and thinning activities.

Threats and current condition

In places the trees are in fierce competition with one another for resources and it is limiting their growth. The trees are also supressing the growth of exotic annual grasses and weeds. These areas would benefit from ecological thinning and promotion of a more diverse community.

Management Actions

In areas where the trees are in fierce completion with one another and the understory is largely native consider thinning as a tool.

Thinning

Choose to keep trees with leafy canopies. Over time, work outwards from thinned areas, but only as annual weeds die out. Sowing of native grasses and shrubs might be required in some areas in the future. Retain fallen timber in these areas to encourage lizards and birds that prefer to forage on the ground amongst woody debris.

Target	Priority	Time
		Frame
Annually assess and undertake - ecological thinning in areas with low levels	High	2020-2030
of exotic annual grasses. Council to undertake. FOCINR to remind Council of		
problem and encourage works to be undertaken.		
Plant native shrubs and grasses to create a more diverse community	Medium	2025-2030
structure with first and second strata plants.		
Slash grasses. Council to undertake around September before seed set and if	Medium	2020-2030
required a second slash around December. FOCINR to remind Council of		
problem and encourage works to be undertaken.		

Bare Area

Description of management area

The bare area known as 'The Hill'. It has been degraded by grazing and vegetable growing.

Key Stakeholders

Stakeholders	Role and responsibility
Council	Support with tree planting and weed control.

Threats and current condition

Efforts to establish native grasses have been largely unsuccessful.

Management Actions

Approximately 200 plants were planted in 2020 in accordance with the Sand Ridge Community. Future plantings are required.

Plantings to include:

- Acacia implexa (lightwood) T
- Acacia salicina (Willow Wattle) T
- Allocasuarina verticillata (Drooping Sheoak) T
- Callitris glaucophylla (White Cypress-pine) T
- Callitris gracilis subsp. Murrayensis (Slender Cypress-pine) T
- Banksia marginata (Silver Banksia) T
- Acacia brachybotrya (Grey Mulga) S
- Acacia hakeoides (Hakea Wattle) S
- Atriplex semibaccata (Berry Saltbush) S
- Calytrix tetragona (Common Fringe-myrtle) S
- Dodonaea viscosa subsp. Cuneate (Wedge-leaf Hop-bush) S
- Enchylaena tomentosa var. tomentosa (Ruby Saltbush) S
- Pittosporum angustifolium (Weeping Pittosporum) S

Dense eucalypt regeneration is useful for suppressing weeds through fierce competition for moisture.

Target	Priority	Time
		Frame
Plant native trees (e.g. <i>Callitris</i> and <i>Allocasuarina</i>) to help control weedy	High	2021-2025
grasses – 10m spacing's between trees		
Plant native shrubs once trees sufficiently established		2025-2030
Water plants for the first 2 years following planting. Plan to water at least	High	2021-2030
monthly unless adequate rainfall received e.g. 45mm.		
Control weeds around plantings e.g. mulching and slashing.	High	2020-2030

Infrastructure Projects

Target

Apply for Grants as required and appropriate through a through a sponsor group such as Yarrawonga Mulwala Development Inc.

Sedgeland Waterhole and Pump

Should the improved watering regime prove successful a more permanent arrangement should be investigated. This could include the deepening of the ingress drain at the eastern point and the creation of a waterhole from which the flooding could be carried out, either by a windmill or a solar powered pump.

Priority: Low

Anchorage Way Track Drainage

Lack of fall in the drain near the Rotunda is preventing adequate drainage from the south side of the track to Bron's Pond. This area becomes easily bogged. Improved drainage options need to be explored. Priority: Medium

Storage Facility

Storage is required for the equipment acquired by the YEFC and now FOCINR incl. the water trailer, water tank and pump. Current storage options include onsite the Yacht Club (cost \$365 p.a.) and toilet block, and offsite the showgrounds and private residencies. Storage options to be further explored with Council.

Priority: Medium

Signage

Some of the informative signs are now out of date and/or are damaged. They need to be a reviewed and replaced where necessary.

Priority: Medium

Drinking Fountain

The drinking fountain at the Rotunda has been vandalised (not for the first time) by someone ripping up the outlet pipe, which means that the water does not discharge. It is a more traditional type of fountain and is therefore probably not considered hygienically safe these days. The bottle filler fountain may be a less vulnerable and more hygienic alternative. There would be no harm in asking Rotary to replace the present fountain. If they say "No" then we will get the present fountain repaired.

The Rotary Club recently undertook a project to install water fountains/bottle fillers in various locations. It is understood that the Nature Reserve was considered but missed out on receiving a fountain. It has been suggested that Rotary be approached to consider replacing the vandalised drinking fountain at the Rotunda with a more up-to-date water supply facility. Priority: Medium

Wright's Lookouts' Boardwalk

A boardwalk constructed in an arch around the front of the original and the new lookouts would create what would probably be the best lookout on the Lake with a 180-degree view of the Yacht Club, the bridges and across to Mulwala. A boardwalk would greatly reduce the foot traffic through the garden. Priority: Low

Conclusion

The Friends of Chinamans Island Nature Reserve wish to improve the condition of the reserve and provide a place for community to connect with nature. Some purist may believe that natural spaces should exclude humans, however this is not the understanding of FOCINR. Traditional owner's connection with Australia began at least 65, 000 years ago resulting in changes that can be seen today. Further changes occurred post European settlement. FOCINR understand that positive human intervention promotes healthy and diverse environments for our native wildlife and flora. This management plan outlines how FOCINR will continue to improve the nature reserve for the benefit of all.

Appendix 1. Annual Review of Targets

Targets	Achievements - (Year)	
Administration		
Recruit new individuals to the FOCINR.		
Select leadership group on an annual basis and identify main roles.		
All leadership members to complete Council's Volunteer Induction		
Course.		
A record of attendees must be maintained for all working bees.		
A Record of Injury Register is to be maintained.		
Volunteers to sign JSA and work to be undertaken in accordance with		
the JSA.		
At least two working bees per year.		
Keep a record of all individuals who helped with the management of		
the reserve and their contact details.		
Annual event to be held to thank all volunteers who have helped with		
the management of the reserve over the last 12 months.		
Sedgeland		
Receive required approvals to build a 'bund' incl. native vegetation.		
Council to undertake. FOCINR to remind Council of problem and		
encourage works to be undertaken.		
Build the 'bund'		
Implement an improved hydrological regime		
(frequency/duration/timing)		
Manage growth of weed species		
Riparian Zone		
Rock beaching required on the northern bank. GMW to undertake.		
FOCINR to remind GMW of problem and encourage works to be		
undertaken. Understand that the works are budgeted for 2021.		
Encourage GMW to remove non-native trees incl. Willows and Ash.		
Plants natives in this area as rock beaching occurs.		
Saline Strip		
Remove Spiny Rush.		

Targets	Achievements - (Year)
Plants natives in this area.	
Control other emerging weeds (<i>e.g.</i> capeweed). Council to undertake.	
FOCINR to remind Council of problem and encourage works to be	
undertaken.	
Treed Area	
Annually assess and undertake - ecological thinning in areas with low	
levels of exotic annual grasses. Council to undertake. FOCINR to remind	
Council of problem and encourage works to be undertaken.	
Plant native shrubs and grasses to create a more diverse community	
structure with first and second strata plants.	
Slash grasses. Council to undertake around September before seed set.	
FOCINR to remind Council of problem and encourage works to be	
undertaken.	
Bare Area	
Plant native trees (e.g. Callitris and Allocasuarina) to control weedy	
grasses	
Plant native shrubs once trees sufficiently established	
Water plants for the first 2 years following planting. Plan to water at	
least monthly unless adequate rainfall received e.g. 45mm.	
Control weeds around plantings e.g. mulching and slashing.	
Infrastructure	
Sedgeland Waterhole and Pump	
Storage Facility	
Signage	
Drinking Fountain	
Wrights Lookout Boardwalk	