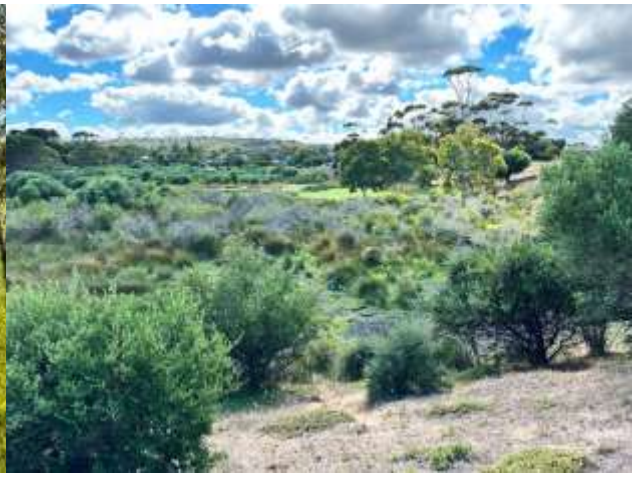
Bungala River Lower Reaches – Interim 5 Year Action Plan - 2024-2028

incorporating private property east of main South Rd & Bungala Park. *By Phil Barron, 29/4/24*

Introduction

The Bungala river has significant cultural history from before and after European settlement that has seen radical changes in recent history, given that that boats and barges used to traverse this area in the not too distant past - something that is impossible these days, due to sedimentation from upstream erosion and encroachment from weeds and native reedbeds, along with pressure and pollution from following Main South Road and the townships Yankalilla and Normanville (Gibbs, 2024, pers. comm, pending other references).

Despite this pressure in recent years, the lower reaches of the River still play an important ecological role, being a critical interface and filter between the estuary and Gulf and the bulk of the rest of the catchment. Thanks to efforts from Government agencies, Council and volunteers from groups like the Friends of the Bungala River (FOBR), the River itself also remains important habitat for many species of native plants, fish and other wildlife in itself – although needing ongoing help to improve (Figure 1).

The aim of this plan is not to return the river to the state of being able to herald the return of shipping, but, in the short-term at least, assist the Friends of the Bungala River (FOBR) with short-term planning, prioritising on-ground work and support-sourcing (including funding applications) – targeting reduce weed competition and facilitate increased natural regeneration and native species diversity and restore a billabong and other riparian functions. It is understood that this needs to be done with care, so as not to exacerbate erosion and weed proliferation.

This plan is designed to complement and coincide with previous overarching plans, including the Bungala River Estuary Action Plan (2010). The specific objects from that plan to be addressed include the following:

- Objective 3: Improve Ecological Health and Biodiversity.
- Category: Rehabilitation – on-ground works.
- Issues:
  - Diminishing riparian zone with a lack of native vegetation reducing ecosystem quality
  - Heavy weed growth outcompeting native species:
  - Lack of instream habitat decreasing habitat and species diversity

- Proposed Actions:
  - Facilitate the removal of weeds on private land and steep banks adjacent to the Bungala Estuary.
  - Implement staged removal of weeds where they are providing either habitat or bank stabilisation.
  - Develop and implement a revegetation plan for riparian zones using native and local provenance species.

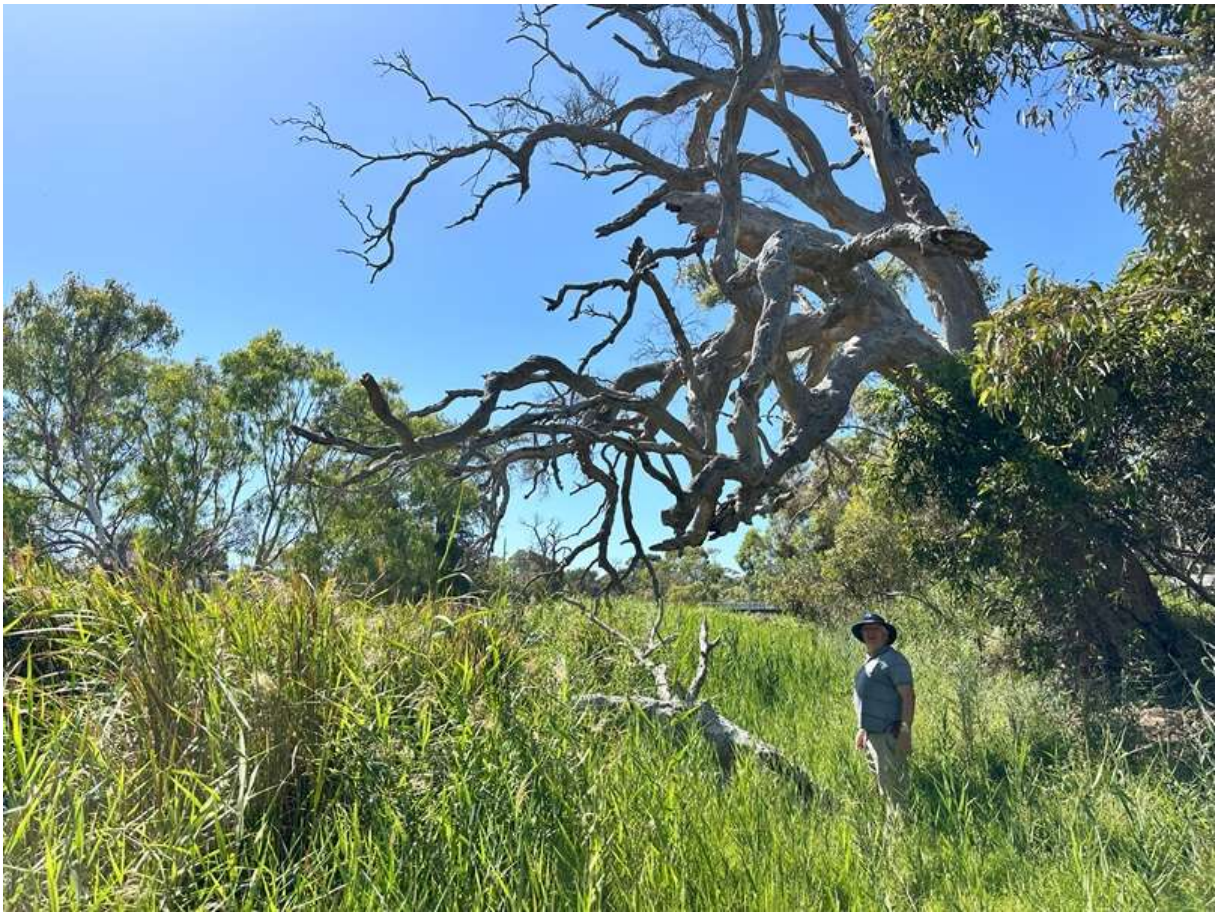


Figure 1. Good habitat remains but needs assistance.

Plan Summary

Referring to Figure 1, for the purposes of this plan, the project area consists of 2 main sites:

- Zone 1 – "Bungala Park": riparian zone public land under care and control of Council west of Main South Road to approximately hay Flat Rd (not including the higher maintenance parkland, picnic facilities and public toilets).
  - This popular recreational area has already been undergoing significant levels of restoration, involving weed control and revegetation and in I the 'fine-tuning' stage of restoration.
- Zone 2 - Private property incorporating the riparian zone, east of Main South Road to the caravan park boundary.
  - This involves one landholder who has generously already fenced the riparian zone to reduce livestock grazing pressure and accepted the help of the FOBR to help significantly escalate woody weed control works already under way.

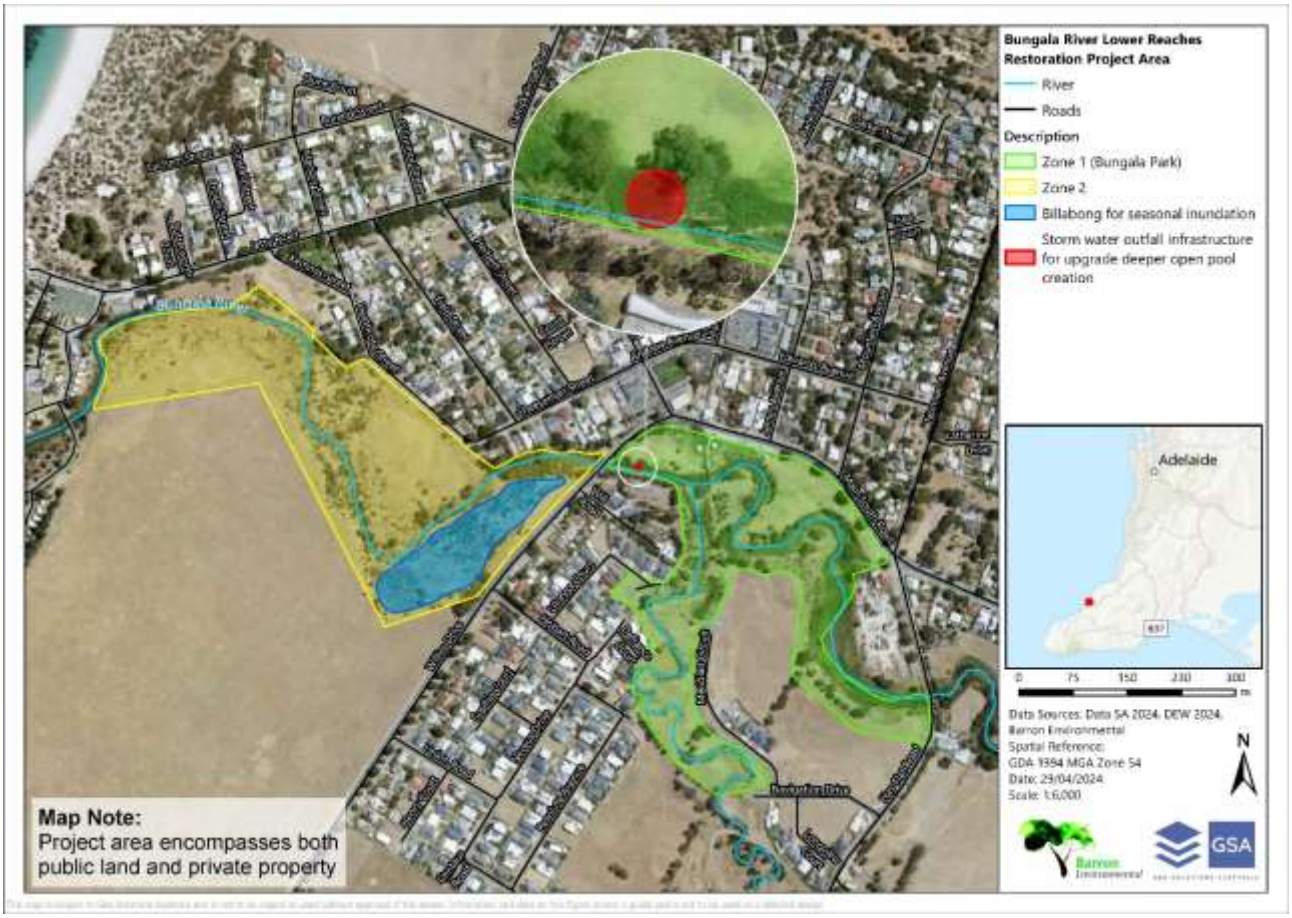


Figure 2. Site map. Note – this group is active on private and public land, with permission.

General priorities for each site are as follows, but please refer to Appendix 1 and Figure 2 for a more detailed breakdown of the proposed plan of action.

Overall plan actions:

- If possible, maintain or escalate feral pest control: ie. Rabbits, hares, Foxes, Cats and Rats, in conjunction with related Landscape Board promotion and education activities.
- Conduct a baseline flora and fauna survey using cost-effective methods that can provide monitoring feedback on progress in the future. This could be based on the Native Vegetation Councils "Bushland Assessment Method" for vegetation condition in conjunction with a standardized, repeatable, and nationally recognised bird survey method.

Zone 1 – "Bungala Park"

For this area the plan aims to focus on the following:

- Maintain woody and other invasive weed control.
- Increasing species diversity in existing revegetation areas, with "fire-wise" species and encourage on going spread of native grasses & other understorey species (Appendix 2).
- Use an opportunity to upgrade a stormwater outfall infrastructure to also create deeper open pool(s) in the river itself, between the footbridge and Main South Rd bridge (Figure 2 & 3). This is for the following reasons:
  - Improve habitat diversity for native fish and other native flora and fauna species, with only a small overall impact on the size and function of the reedbeds while their overall filtering and other habitat benefits will be maintained.
  - Improve aesthetics for the picnic area.

- Existing tree and regeneration patches can be used to increase heavy shading of pool(s) via revegetation of shrub species, to help maintain lower levels of reeds, as an alternative or in addition to excavation, without densely revegetating the whole area and obscuring views. Shading is a recognised tool for reducing Phragmites cover (Colville, 2005).

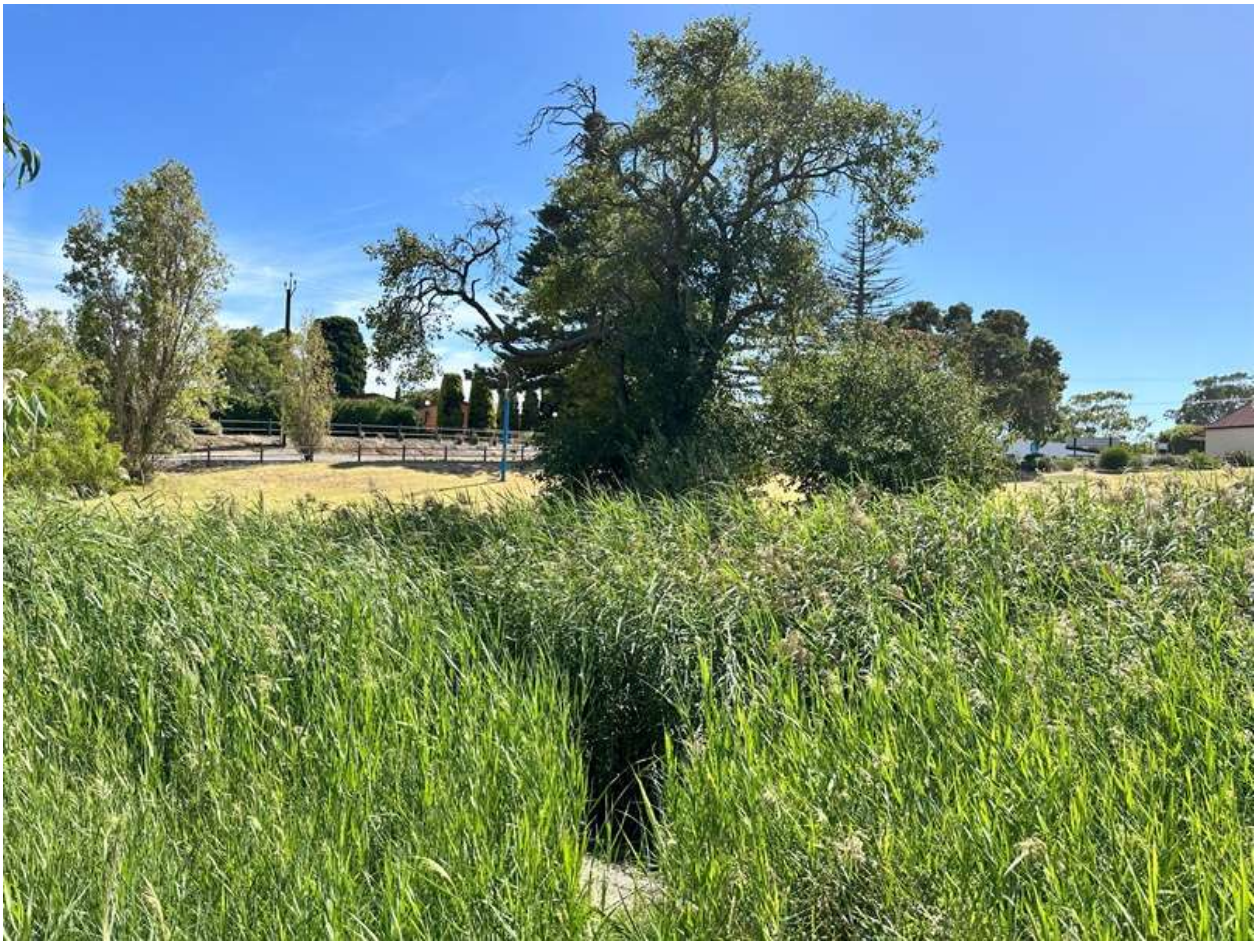


Figure 3. Exisiting stormwater outfall that needs upgrading + potential deeper, open/low-reed pool

Zone 2 – "John Croser Wetlands"

For this area the plan aims to focus on the following:

- Maintain livestock management to reduce grazing pressure and general disturbance (inc"pugging") on the riparian zone, but not eliminate it, to help balance fire hazard risk, weed control and natural regeneration.
- Significantly escalate woody weed control, without exacerbating erosion or flood risk (Fig 4).
  - Use "cut-stump" or "drill-fill" methods where possible, to reduce soil disturbance/erosion risk and leave dead standing lower trunks and some entire dead bushes and trees as debris-traps, "leaky weirs" and habitat/perching structure.
  - Leave some dense pockets of woody weeds, including olives and briars, as temporary wildlife habitat, while other native habitat recovers.
- Utilise road-runoff to contribute to ephemeral inundation of the billabong area.
- Limit or avoid revegetation to give natural regeneration an opportunity via competition (weed) and grazing pressure control and reduce the likelihood of unnecessary extra costs and effort.

Note - these activities are considered "water affecting" and consultation and permits with be required from Landscape Board in advance.

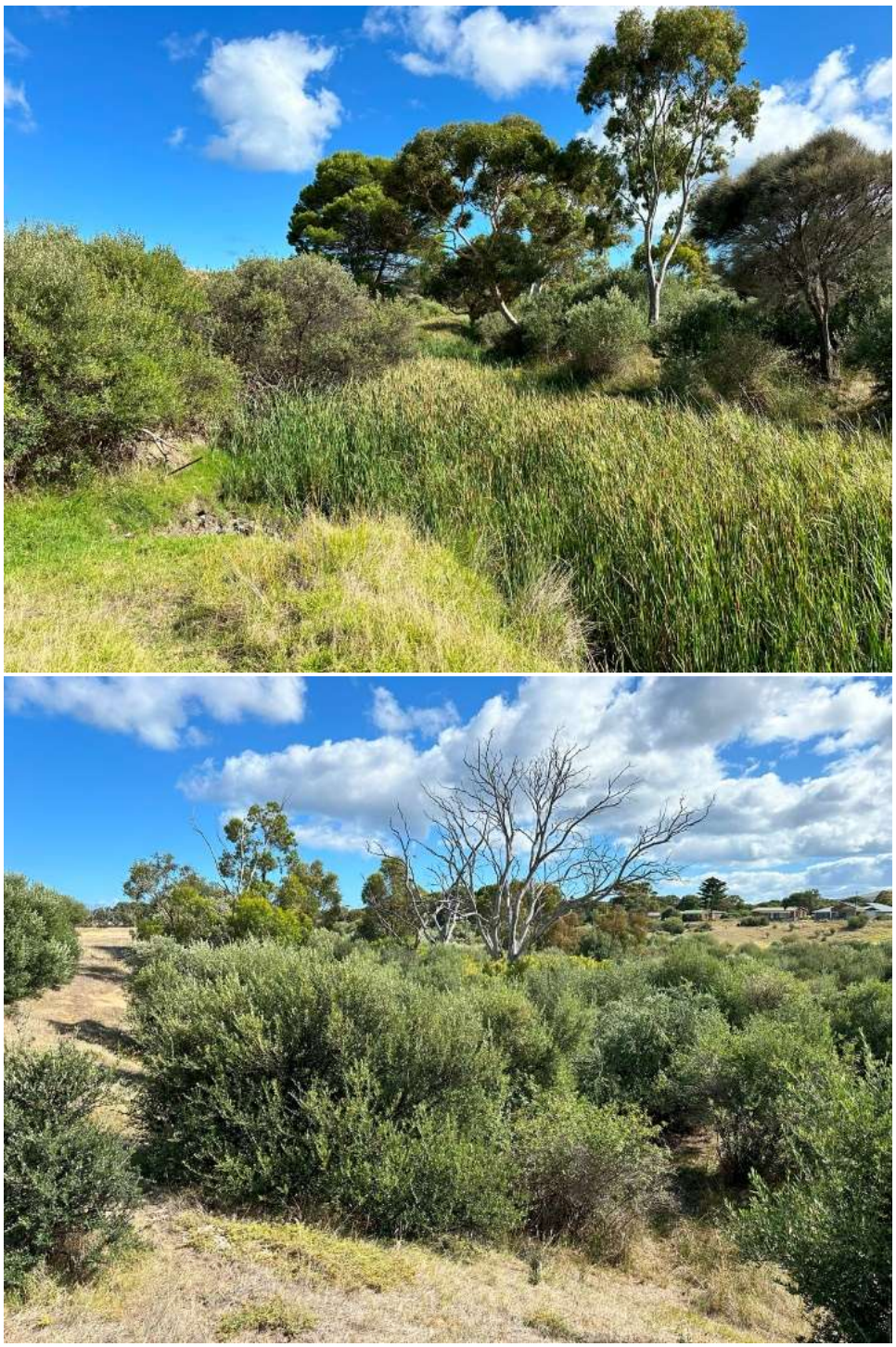


Figure 4. High woody weed levels in Zone 2

The Plan should be reviewed, with monitoring conducted, and updated 5 years after commencing.

References

Under construction

Bungala River Estuary Action Plan (2010) AMLR NRM Board.

Yankalilla Bay Catchment Action Group Revegetation Guidelines (2007).

Colville, S. (2005) Community Response to Shading a Phragmites australis Reedbed. University of Ballarat, PhD Thesis.

Appendix 1. More detailed action plan

Bungala River Lower Reaches Action Plan (incorporating Estuary and Bungala Park) - 5 Year Action Plan					
Zone 1	**Upstream/Bungala Park precinct**				
	Action	**How**	**Who (lead responsibility)**	**Priority level**	**Achievability likelihood**
1.1	Monitoring and Maintain invasive weed and pest control.	Patrol and intercept.	**FOBR** - part of regular working bee or rostered patrol?	**HIGH**	HIGH
1.2	Encourage on-going spread of native grasses & other species.	- ID better patches and conduct careful weed conrol in & around them. - cut mature seed stalks and "thatch" or place on weed control spot nearby. - consider small and well-timed patch burns of key patches (see also below about burning).	**FOBR** - part of regular working bee?	**HIGH**	HIGH
1.3	Limited revegetation of specific “bushfire unfriendly” understorey species that aren’t recovering on their own.	Limit revegetation to small patches within existing areas .	**FOBR**, with support from the **Fleurieu**	**HIGH**	HIGH if scale is appropriate
		Carpobrotus rossii, Karkalla or Pigface	**Coast Community Nursery**		
		Carex bichenoviana, Notched or Plains Sedge			
		Themeda triandra, Kangaroo Grass (maintained by slashing/brush cutting)			
		Wahlenbergia sp, Native blue bells			
		Etc TBC			

1.4	Simultaneously Create reed-free deeper open pool(s) and Improve stormwater outfalls in the river, between the footbridge and Main South Rd bridge.	Needs consultation with the Landscape Board & Council.	**FOBR and Yankalilla Council** , but will need a high level of support, inc funding	**HIGH**	Depends on levels of support and funding
	This is for the following reasons: - Improve habitat diversity for native fish and other native flora and fauna species. - improve pollution management for the river, esturary and ultimately the marine environment. - Improve aesthetics for the picnic area. - Keep impact area small, so the overall size of the reedbeds and their filtering and habitat benefit are maintained.	Create at least 2 reed-free pools, via: - Utilise the opportunity to upgrade a stormwater outlet in the western side of the River in the Park. - De-reed around a natural spring just west of the footbridge (possibly by hand - wading in)			
		Heavy shading of patches is an alternative to excavating pools, but takes time. It is recommended to bolster shade by companion planting shrubs around existing tree saplings to create denser shady patches, while maintaining the generally open views of the River.			
Zone 2	**Downstream / Estuary / "Croser Wetland"**				
	Action	**How**	**Who (lead responsibility)**	**Priority level**	**Achievability likelihood**
2.1	Focus an extensive, intensive and long-term effort of <u>woody weed control</u> and maintenance on the river channel and push the front inland and out from the channel.	Use "cut-stump" or "drill-fill" methods where possible, to reduce soil disturbance/erosion risk and leave dead standing lower trunks and some entire dead bushes and trees as debris-traps and habitat/perching structure.	**FOBR** but with extensive assisance from contractors (& landowner?). Will need a high level of support, inc funding, that may include a	**HIGH**	Depends on levels of support and funding

			part-time project officer/coordinator.		
		Leave some dense pockets of woody weeds, including olives and briars, as temporary wildlife (small bird) habitat, while other native habitat recovers.	Volunteers can provide labour support and assist with supporting actions, like the "leaky weirs".		
		"Grab" and pull up some briars in the billabong section to create pools but avoid that method on the fragile cracking clay soils.			
		Leave large feral pines on the banks of the river that are maintaining an open-water pool by shading out reeds but control any of its progeny. Ringbarking to control it could be considered if native plants can be established to maintain shading and the open pool in its immediate vicinity.			
		Use some woody weed material (especially Olive branches) to construct a "leaky weir" just downstream of the Main South Rd bridge to help direct water into the billabong area during high flows.			
2.2	Grazing pressure management to simultaneously encourage natural regenration and assist with weed control.	- maintain fencing, including keeping the fence close to the river channel to control livestock and kangaroo access. This is to enable strategic or crash grazing on the floodplain while protecting the river channel, for weed biomass control which enabling natural regeneration.	As above, with landowner support	**HIGH**	Depends on levels of support and funding

		- maintain feral pest control (ie rabbits, hares)			
2.3	Limited initial revegetation in lieu of focusing on weed control and allowing time for natural regeneration to occur.	However, this could be except for establishing some dense pockets on adjacent/opposite banks of the river, to try to eventually shade out pockets of reeds and improve aquatic habitat. This could be using the following species:	**FOBR**	**intially LOW**	HIGH if scale is appropriate
		Acacia provincialis, Swamp wattle.			
		Leptospermum lanigerum, Silky Ti-tree.			
		Melaleuca brevifolia, swamp honey myrtle.			
		Possibly *Eucalyptus camaldulensis*, River Red Gum but this may regenerate by itself and if planted, do no closer than 50m apart and "companion-plant" with above species.			
		Etc, TBC			
2.4	Stormwater Management.	Upgrading infrastructure and direct storm water runoff from the south side of main South Rd into the billabong area.	**Council & landowner**	**HIGH**	?
2.5	Monitoring and Maintain invasive weed and pest control.	Patrol and intercept.	**FOBR** - part of regular working bee or rostered patrol?	**HIGH**	HIGH
3	**Whole site**				
3.1	Flora and fauna baseline survey and photopoints	Ramble survey for plants and birds, using standardized methods (to be determined) + limited photopoints, woulld be very important for long-term monitoring	**FOBR** - part of regular working bee or rostered patrol?	**VERY HIGH**	Needs funding
3.2	Re-evaluate program after 5 years.		**FOBR**, with support	**HIGH**	HIGH

Appendix 2. 2024 FOBR “Fire wise” revegetation species list

Species	Common names		Area Planted
GRASSES and SEDGES			
Poa poiformis		**4**(18/4)	Bungala Park - Frogpond
GROUND COVERS and CLIMBERS			
Dianella brevicaulis	Coast Flax-lilly		Bungala Park - Frogpond + NW of Horizon Sign
Hardenbergia violacea		**14**(20/4) + **2**(18/4)	Estuary - Sth rd fenceline, Bungala Park - Frogpond
Kunzea pomifera	Muntries		Bungala Park - Frogpond, south of Hay Flat rd sandy bank
Scaevola crassifolia	Cushion Fanflower	**9**(18/4) + **10**(18/4)	Bungala Park - Frogpond, south of Hay Flat rd sandy bank
Senecio odoratus	Scented Groundsel	**2**(20/4)+**10**(18/4)	Estuary - Sth rd fenceline, Bungala Park - Frogpond
Tetragonia implexicoma	Bower Spinach	**10**(18/4) + **40**(18/4)	Bungala Park - Frogpond + south of Hay Flat rd sandy bank
Themada triandra	Kangaroo Grass		Bungala Park - NW of Horizon Sign + Eastern end of Footbridge
SHRUBS			
Acacia rupicola	Rock Wattle		Bungala Park - Frogpond
Adriana klotzscii	Coastal Bitter Bush		Bungala Park - NW of Horizon Sign
Banksia ornata		**1**(20/2)+**1**(2/4)	Bungala Park - south of Hay Flat rd sandy bank
Enchylaena tomentosa	Ruby Saltbush		Bungala Park - Frogpond + NW of Horizon Sign
Rhagodia parabolica	Fragrant Saltbush		Bungala Park - Frogpond,NW of Horizon Sign, South of Hay Flat rd sandy bank
Vittadinia gracilis	Woolly New Holland Daisy	**4**(18/4)	Bungala Park - Frogpond
TREES			
Acacia pycnantha	Golden Wattle		Bungala Park - Nth of Horizon Sign along old fenceline
Banksia marginata		**9**(20/2)+**4**(5/3)+**3**(2/4)	Bungala Park - south of Hay Flat rd sandy bank, nth Horizon sign riverbank,frogpond
Callitris gracilis	Native pine	**3**(5/3)+**4**(2/4) + **3**(16/4)	Bungala Park - south of Hay Flat rd sandy bank, nth Horizon sign riverbank,frogpond
Eucalyptus camaldulensis	River Red Gum	**5**(20/4)	Estuary - Sth rd fenceline
Leptospernum lanigerum	Woolly Tea-tree		Bungala Park - Frogpond