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ECOSYSTEM SERVICES

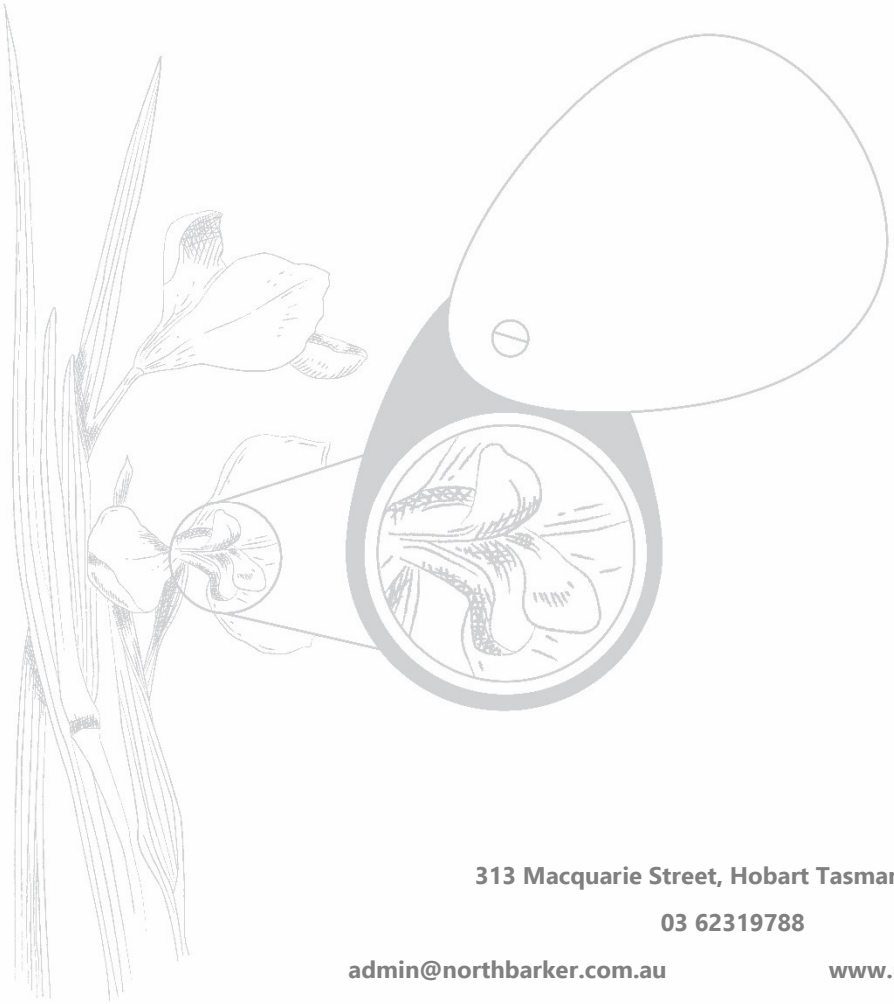
Blue Lagoon

Weed Management Plan 2025-2035

14th August 2025

For Sorell Council

SOR008



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ACKNOWLEDGEMENTS

Project name	Blue Lagoon Weed Management Plan 2025-2035
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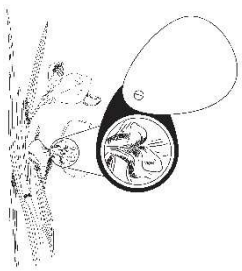
Version	Date	Author	Position	Comment
Version 0.1	15/05/2025	Sandy Leighton	Manager Land Services & Weed Management	Draft report & delivery to client
Version 1.0	25/07/2025	Kelly Simpson	Land Services Co-ordinator & Ecologist	update with Council and stakeholder comments
Version 1.1	14/08/2025	Kelly Simpson	Land Services Co-ordinator & Ecologist	update with additional comments



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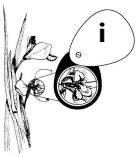

SUMMARY

The Blue Lagoon Weed Management Plan was developed to provide direction on the proactive management of declared weeds listed under the Tasmanian *Biosecurity Act 2019* and *Biosecurity Regulations 2022* as well as non-declared environmental weeds currently impacting the area. As the Sorell NRM Strategy and Municipal Weed Strategy are currently being reviewed/ written, no reference is made to priorities from these strategies.

North Barker Ecosystem Services have mapped weeds on site and noted the occurrence of five declared weed species, four of which are also listed as Weeds of National Significance, and an additional 18 non-declared environmental weeds.

Species specific management actions and control methods, using a combination of physical and chemical techniques, are outlined for the systematic removal of declared and significant non-declared environmental weeds recorded during the site survey at Blue Lagoon. An implementation schedule outlines responsibility and timelines whilst maintenance, monitoring and rehabilitation measures, including specific performance indicators are defined.

As requested by Sorell Council, the plan provides detailed management recommendations for radiata pine and cumbungi removal from Blue Lagoon and provides detailed staging and recommended treatment methods for the longer-term eradication of these weeds. In addition, the plan provides weed control timing and control methods for all declared and invasive environmental weeds at Blue Lagoon.

Weeds recorded from Blue Lagoon:

<u>Weeds of National Significance and declared weeds</u>:

- African boxthorn (*Lycium ferocissimum*)
- blackberry (*Rubus fruticosus* agg.)
- boneseed (*Chrysanthemoides monilifera*)
- Montpellier broom (*Genista monspessulana*)

<u>Declared weed</u>:

- Californian thistle (*Cirsium arvense*)

<u>Non-declared environmental weeds</u>:

- African daisy (*Osteospermum* sp.)
- agapanthus (*Agapanthus praecox* subsp. *orientalis*)
- blue butterfly bush (*Psoralia pinnata*)
- candelabra aloe (*Aloe arborescens*)
- coastal tea tree (*Leptospermum laevigatum*)
- Cootamundra wattle (*Acacia baileyana*)
- cumbungi (*Typha latifolia*)
- garden asparagus (*Asparagus officinalis*)
- gazania (*Gazania* sp.)
- marram grass (*Ammophila arenaria*)
- mirror bush (*Coprosma repens*)
- New Zealand cabbage tree (*Cordyline australis*)
- polygala (*Polygala myrtifolia*)
- radiata pine (*Pinus radiata*)
- spear thistle (*Cirsium vulgare*)
- sweet pittosporum (Pittosporum undulatum)
- tree lucerne (*Cytisus proliferus*)

Key messages

- ✓ Blue Lagoon is a valuable social, mental and environmental resource for the Dodges Ferry community.
- ✓ Southern Beaches Landcare Coastcare (SBLC) volunteers have previously undertaken weed control work and their ongoing interest, with support from the Dodges Ferry community, is required to assist with the removal of weeds and revegetation activities.
- ✓ Ongoing communication by Council on intent and progress is essential to bring the community along with the planned rehabilitation works, as well as providing opportunities for people to attend working bees.
- ✓ Staged, mechanical removal of pines and cumbungi will be strategic, zone by zone removal, aimed at minimising on-site damage and off-site impacts, and enable increased water storage
- ✓ Timely and staged revegetation using local native species is essential to prevent further degradation of Blue Lagoon, support threatened species and improve biodiversity values.
- ✓ Educational signage is important to engage our next generation of land carers.
- ✓ Council will actively support working bees to rehabilitate Blue Lagoon
- ✓ Long term financial commitment from Council is required for the effective implementation of this plan and to achieve desired outcomes. This should be factored into Council's long term financial planning/budgeting.
- ✓ It is recommended that Council formalise the Blue Lagoon site as a formal reserve, to ensure the long-term protection of natural values of the site are integrated into Council's operations.

Blue Lagoon prior to invasion by cumbungi (Photo: Gwen Egg, SBLC)

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1. INTRODUCTION

1.1. BACKGROUND

North Barker Ecosystem Services (NBES) have been engaged by Sorell Council to prepare the Blue Lagoon Weed Management Plan 2025-35. The plan will outline the goals, objectives and strategies for an effective integrated weed management approach to weed management, including revegetation recommendations. The plan has been prepared in consultation with Council as well as relevant stakeholders including Southern Beaches Landcare/ Coastcare Inc. (SBLC) and a community meeting at Okines House, Dodges Ferry.

Blue Lagoon is an important ephemeral wetland and dune system located in an ever-expanding urban environment at Dodges Ferry (Figure 1). Blue Lagoon is included in the Tasmanian Reserve Estate as an informal reserve and is owned and managed by Sorell Council. Areas such as this are becoming more important for conservation and community connection to nature. Plate 1 shows an aerial image of Blue Lagoon in February 2024.

In the eastern corner adjacent to Tiger Head Road are the St Johns Ambulance and Coastal Patrol buildings.

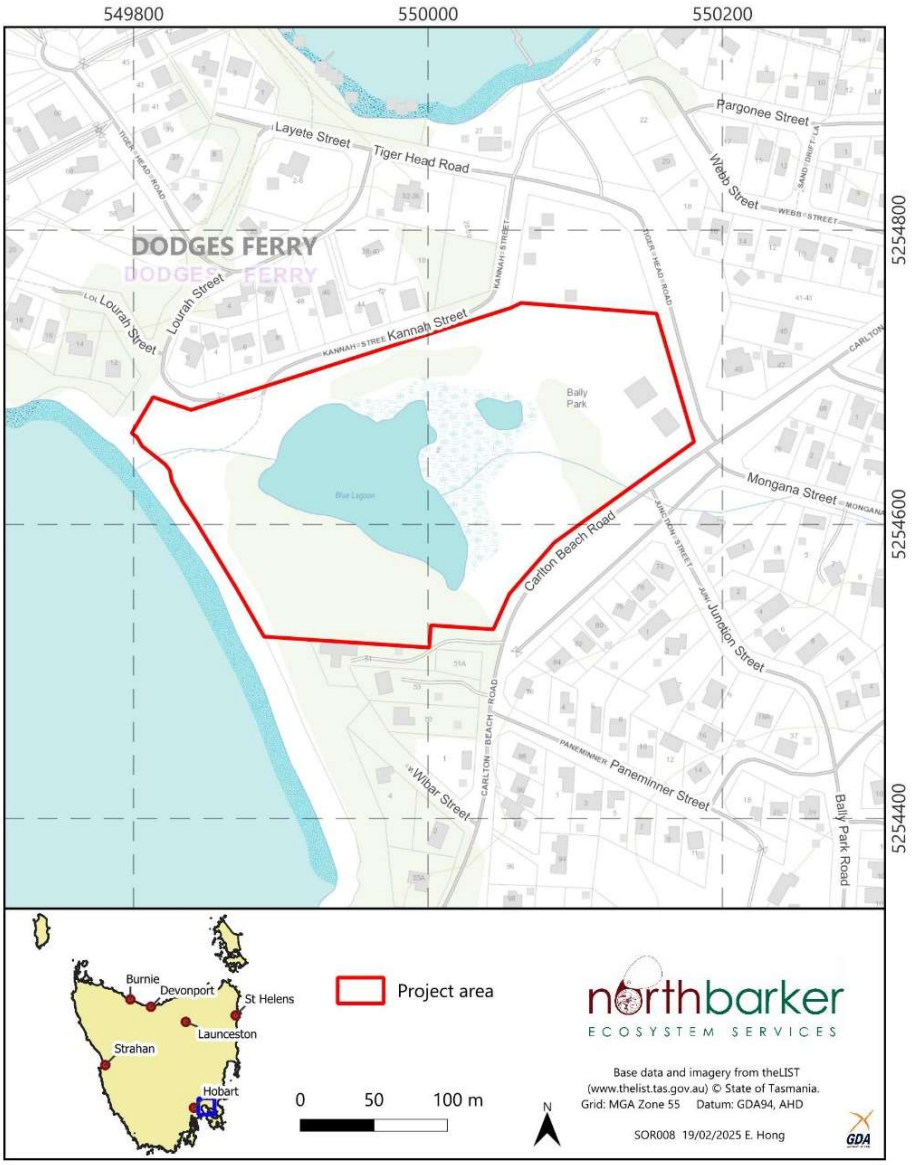

Figure 1. Location of Blue Lagoon, Dodges Ferry

Plate 1: Aerial image of Blue Lagoon, February 2024

Early settlers cleared most of the native vegetation near Blue Lagoon and used the area for various purposes; which at one time included the development of an orchard. At this time *Pinus radiata* was planted as a wind break (Plate 2) and the water used for irrigating the fruit trees. With changes in land use the pines have self-seeded and created the dense forest seen today.

Plate 2: Original radiata pine windbreak planted around an orchard to the north of Blue Lagoon, Dodges Ferry

In living memory of some people in the community, Blue Lagoon was a saltwater lagoon. There are photos of 'regattas' being held on the lagoon[1]. Later the Lagoon was a popular place for holiday makers; children used small watercraft in the Lagoon; it also contained small fish. At this time the Lagoon held water permanently and was up to waist deep in places during the 1950s[2].

More recently Sorell Council has, in response to urban development in Dodges Ferry, altered the natural drainage of the Lagoon both within the Lagoons' wider catchment area and in the outlet to Fredrick Henry Bay.

Reduced rainfall during a 15-year period from the 1990s onwards dramatically reduced the water level. By the early 2000s the Lagoon only held water for short periods of time, usually only ankle deep (20-30 cm). This enabled 4WD vehicles to degrade the wetland area and allowed the dumping of garden waste [3]. Despite the general degradation of Blue Lagoon over time, the wetland remained an important habitat for wildlife, particularly frogs, invertebrates and native flora. Sea birds nesting on nearby Spectacle Islands State Nature Reserve use the Lagoon for water and preening.

The removal of pine trees in 2009 combined with a La Nina event resulted in the lagoon filling and an abundance of frogs. During the early 2020s above average rainfall over several years refilled the Lagoon, however by mid-2025 the water level had become very low (Plate 3).

Plate 3: Blue Lagoon water level April 2025

Blue Lagoon has large infestations of radiata pine (*Pinus radiata*), marram grass (*Ammophila arenaria*) and more recently the wetter areas are being increasingly invaded by cumbungi (*Typha latifolia*). In addition, there are a variety of other declared and non-declared environmental weeds present across the area, some spreading from adjoining private properties (African daisy, agapanthus, blue butterfly bush, Cootamundra wattle, gazania, mirror bush, Montpellier broom, New Zealand cabbage and tree

[1] Gwen Egg SBLC, pers. comm. (18/03/2025)
[2] S & C Johns (2009)
[3] S & C Johns (2009)

lucerne) and others spread by birds from nearby areas (African boxthorn, blackberry boneseed, garden asparagus, mirror bush and sweet pittosporum).

1.1.1. Past management plans and reports for Blue Lagoon

1.1.1.1. Cultural

- Aaron Everett (Aug 2008). Blue Lagoon Dodges Ferry Recreation Reserve Aboriginal Cultural Heritage Assessment. A B Everett Heritage Consultancy.

1.1.1.2. Plans that refer to weed management and natural values

- Sorell School (2000). Blue Lagoon Management Plan.
- Sally & Chris Johns (November 2009). Action Plan for Blue Lagoon Reserve Dodges Ferry (on behalf of SBLC).
- Sorell Council (2014). Blue Lagoon Draft Management Plan.
- Sorell Council (2022). Blue Lagoon Management Plan – Draft for Consultation.
- ERA Planning & Environment (February 2022). Blue Lagoon Dodges Ferry. Ecological Assessment.
- Elgin Associates (August 2024). Blue Lagoon Water Quality & Ecological Review. Report to Sorell Council. Elgin Associates Pty. Ltd.

1.1.2. Past management activities at Blue Lagoon

Southern Beaches Landcare / Coastcare (SBLC) have been working on conservation of the coastal land in the Sorell municipality from Lewisham, Forcett, Dodges Ferry, Carlton, Primrose Sands to Connelly's Marsh since 1991. The group has been actively weeding at Blue Lagoon since then. The group initially became involved to support teacher and local Dodges Ferry resident, Moya Sharpe and students from Sorell School with their "Adopt a Patch" project when students regularly bussed to Dodges Ferry for "cumbungi busting" sessions and removing pine seedlings, pinecones from fallen pines and mirror bush[4]. SBLC, Sorell School Landcare and Sorell Council have jointly worked to remove weeds and undertake some revegetation at the lagoon since the early 2000s. Sorell School Landcare developed a Blue Lagoon Management Plan 2000-2002 to help guide these works[5] (Appendix A). SBLC received grants to develop the Action Plan for Blue Lagoon (2009), for local contractors to remove over 100 pine trees as well as held working bees to plant over 400 local native shrubs and grasses to rehabilitate the area between 2008-2012.

Friends of Blue Lagoon have also been fundamental in advocating for the Blue Lagoon site and collaborating with Council on its management. The community group consisting of local residents was formed in response to the August 2020 flooding. Since then they have formed a strong relationship with Council and continue to work together for the safety and health of the community and the environment.

After 2011, cumbungi started to spread within the lagoon (see aerial photos in Appendix B). Conservation Volunteers Australia (CVA) removed cumbungi from the Lagoon and also pines and boneseed plants after this time. SBLC has continued to hold working bees, a minimum of one per year, including cumbungi removals as recently as 2019 (Plate 4), however the cumbungi has increased to such a degree that it is no longer physically possible nor effective for the group to continue with manual removal.

1.1.2.1. Funded projects

- 2007: Restoration and rehabilitation of Blue Lagoon (weeding and revegetation) - SBLC working with Sorell School

[4] Gwen Egg SBLC, pers. comm. (18/03/2025)
[5] Sorell School (2000)

- 2008: Action Plan for Blue Lagoon Reserve Dodges Ferry (draft) and Aboriginal Cultural Heritage Assessment - SBLC sponsored
- 2011: Weeding and revegetation ($2,500) – SBLC, working with Sorell School and Green Corps
- 2014: Blue Lagoon Wetland Rehabilitation and Restoration Stage 3 ($5,000)
  - ✓ Contractors to fell and chip *Pinus radiata* (sponsored by SBLC, some large logs placed to prevent vehicle access, some logs used to provide shelter for fauna and smaller logs chipped)
  - ✓ SBLC members/volunteers to revegetate with local provenance flora species, including basic water quality tests.
  - ✓ SBLC members/volunteers to undertake follow-up weeding
  - ✓ Sorell School students to undertake follow-up weeding

Plate 4: SBLC removing cumbungi from Blue Lagoon, February 2019 (Photo: Gwen Egg SBLC)

1.2. RESERVE DETAILS

Blue Lagoon is approximately 6.2 ha and is bounded by Carlton Beach Road (southern side), Tiger Head Road (eastern side) and Kannah Street (northern side) and Blue Lagoon Beach (western side) (Figure 1). The land is owned by Sorell Council.

Blue Lagoon connects to native vegetation along the foreshore of Carlton Beach and the broader coastal corridor (Plate 5,6). There is an informal, circular track that meanders from the Kannah Street entrance carpark (near Blue Lagoon Beach) eastwards to Carlton Beach Road then parallel to this road towards the Fire Station to the north where the track petters out. There is an interpretation sign south of the children's playground, however no track leads to this sign (Plate 7).

SBLC Inc. currently undertake a working bee in the reserve once a year. This generally focuses on weed management.

Plate 5: Coastal area (Informal Reserve) to the south of Blue Lagoon

Plate 6: Coastal area (Informal Reserve) to the south of Blue Lagoon

Plate 7: Interpretive sign at Blue Lagoon south of the Kannah Street playground and west of the Fire Station

1.3. STAKEHOLDER CONSULTATION

A consultation session was undertaken between stakeholders, Council staff and NBES on the 20th February 2025 at Okines House, Dodges Ferry. An open invitation was sent by Council to local residents, SBLC and Councillors who were invited to attend and provide information on Blue Lagoon. In addition, a field meeting with three members of SBLC was held on 27th March 2025. Key points from these discussions are included in Appendix C.

The community feedback reflects a strong desire to be involved with Blue Lagoon working bees. Effective communication and collaboration by Council with local residents, groups and volunteers are seen as crucial for successful management. There is a clear emphasis on managing weeds and undertaking revegetation works to improve the natural values of Blue Lagoon as well as interpretive signage and a single maintained track to reduce damage from walking in rehabilitating areas. The feedback also highlights the importance of public engagement and education to foster a deeper appreciation for the ecological and historical value of the reserves.

Community values include use of the area for recreational walks and better understanding the natural values of Blue Lagoon.

1.4. OBJECTIVES

The objectives of the Blue Lagoon Weed Management Plan 2025-35 are to:

- Identify and outline priority weed management activities to be undertaken by Council, community groups and/or volunteers as resources are allocated through annual planning.
- Ensure Blue Lagoon is sustainably managed to preserve and enhance its natural, cultural and social values.
- Protect, maintain and enhance habitat for flora and fauna species.
- Ensure the longer-term management and enhancement of all values.
- Identify opportunities for community engagement, collaboration and involvement.

The objectives outlined above and the long-term investment into enhancing and protecting the Blue Lagoon Reserve align with the core strategies outlined in the recently released Sorell Council Natural Resource Management Strategy 2025-2035. These include:

- Protect natural landscape and promote sustainable land use
- Restore and preserve healthy waterways and water bodies
- Conserve biodiversity and manage invasive species
- Prepare for a changing climate
- Engage and support community

1.5. KEY MESSAGES

- ✓ Blue Lagoon is a valuable social, mental and environmental resource for the Dodges Ferry community.
- ✓ SBLC volunteers have previously undertaken weed control work and their ongoing interest, with support from the Dodges Ferry community, is required to assist with the removal of weeds and revegetation activities.
- ✓ Ongoing communication by Council on intent and progress is essential to bring the community along with the planned rehabilitation works, as well as providing opportunities for people to attend working bees.
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- ✓ Educational signage is important to engage our next generation of land carers.
- ✓ Council will actively support working bees to rehabilitate Blue Lagoon
- ✓ Long term financial commitment from Council is required for the effective implementation of this plan and to achieve desired outcomes. This should be factored into Council's long term financial planning/budgeting.
- ✓ It is recommended that Council formalise the Blue Lagoon site as a formal reserve, to ensure the long-term protection of natural values of the site are integrated into Council's operations.

1.6. REVIEW

This plan can be reviewed and added to at any time. A full plan review should occur every five years.

2. WEEDS

2.1. LEGISLATIVE CONTEXT

2.1.1. Biosecurity Act 2019 – General Biosecurity Duty

Under the *Tasmanian Biosecurity Act 2019* a General Biosecurity Duty operates as a statutory "duty of care". This means that a person (which includes all levels of government, individuals, and private corporate entities) has to take all reasonable and practical measures to prevent, eliminate, or minimise biosecurity risks including weeds. The general biosecurity duty supports the principles of shared responsibility.

2.1.2. Weeds of National Significance

Weeds of National Significance (WoNS) are those weed species which have been listed under the *Australian Weed Strategy 2017-2027*. These nationally recognised weeds have significant environmental and economic impact at a national scale[6]. All WoNS are declared weeds in Tasmania. Management of WoNS may be supported by nationally funded strategies and programmes. It is expected that State and regional weed management planning will pay particular attention to the management of WoNS. Their presence, however, does not confer any additional requirement on landowners beyond State weed legislation.

2.1.3. Declared Weeds

The Tasmanian *Biosecurity Act 2019* (*BA 2019*) and associated *Biosecurity Regulations 2022* include a list of declared weeds. Statutory weed management plans exist for the majority of listed species. These include a classification of each weed at the municipal level and provide direction as to their management intent.

Class A municipalities for a particular weed are those that are yet to be detected or are limited to localised infestations that are deemed to be eradicable. Therefore, the objective is the eradication of infestations.

Class B municipalities are those which host moderate or large and widespread infestations of the declared weed that are not deemed eradicable because the feasibility of effective management is currently low. Therefore, the objective is containment of infestations. This includes preventing spread of the declared weed from the municipality or into properties currently free of the weed or which have developed or are implementing a locally integrated weed management plan for that species. As well there is a requirement to prevent spread of the weeds to properties containing sites for significant flora, fauna and vegetation communities.

In this report, weeds have been classified according to their declaration status in the Sorell municipality.

3. WEED SPECIES AND DISTRIBUTION

A weed survey was undertaken by two ecologists on 20 February 2025. A total of five declared and 17 non-declared environmental weeds were recorded within Blue Lagoon (Figure 3). Declared weeds recorded were African boxthorn (*Lycium ferocissimum*), blackberry (*Rubus fruticosus* agg.), boneseed (*Chrysanthemoides monilifera*), Montpellier broom (*Genista monspessulana*) and Californian thistle (*Cirsium arvense*) of which African boxthorn, blackberry, boneseed and Montpellier broom are WoNS.

Non-declared priority environmental weeds recorded from the site were African daisy (*Osteospermum* sp.), agapanthus (*Agapanthus praecox* subsp. *orientalis*), blue butterfly bush (*Psoralea pinnata*), candelabra aloe (*Aloe arborescens*), coastal tea tree (*Leptospermum laevigatum*), Cootamundra wattle (*Acacia baileyana*), cumbungi (*Typha latifolia*), garden asparagus (*Asparagus officinalis*), gazania

[6] Invasive Plants and Animals Committee (2016)

(*Gazania* sp.), marram grass (*Ammophila arenaria*), mirror bush (*Coprosma repens*), polygala (*Polygala myrtifolia*), New Zealand cabbage tree (*Cordyline australis*), radiata pine (*Pinus radiata*), spear thistle (*Cirsium vulgare*), sweet pittosporum (*Pittosporum undulatum*) and tree lucerne (*Cytisus proliferus*).

The native aquatic plant, azolla (*Azolla rubra*), was also noted in the lagoon. While this species is native it can become a problem and usually indicates high nutrient levels in the water. Dence infestations will reduce light levels and can cause the death of aquatic plants and animals through the reduction of available oxygen[7], although for an infestation to reach this density, water quality conditions are likely to be already affecting other aquatic species. Reducing/diverting nutrient rich run-off and establishing deep-rooted perennial vegetation around the lagoon will assist with controlling the density of azolla in the lagoon.

Plate 8: African boxthorn (*Lycium ferocissimum*). Inset - fruits

Plate 9: blackberry (*Rubus fruticosus* agg.)

[7] DPIPWE (undated)

Figure 2: Distribution of declared weeds at Blue Lagoon, Dodges Ferry

Figure 3: Distribution of cumbungi at Blue Lagoon, Dodges Ferry

Figure 4: Distribution with zones for radiata pine at Blue Lagoon, Dodges Ferry

Table 1. Weed species recorded within Blue Lagoon

Species	WoNS	*BA 2019*	Extent
Declared weeds			
African boxthorn *Lycium ferocissimum* (Plate 8)	Yes	Class B	4 isolated plants in the northwestern
blackberry *Rubus fruticosus* agg. (Plate 9)	Yes	Class B	1 isolated area in the north near the children's playground
boneseed *Chrysanthemoides monilifera* (Plate 10)	Yes	Class B	Scattered seedlings and mature plants in the western area between the Lagoon and Blue Lagoon Beach, scattered plants adjacent to Carlton Beach Road and isolated plants in the northeastern area underneath pine trees
Montpellier broom *Genista monspessulana*	Yes	Class B	Isolated plants in the western and southeastern areas
Californian thistle *Circium arvense* (Plate 11)	No	Class B	Isolated plants and areas in the north, widespread area in the south between the Lagoon and adjacent residential block
Environmental weeds			
African daisy *Osteospermum* sp.) (Plate 12)	No	-	Isolated plants in the southeast adjacent to Carlton Beach Rd and along the Blue Lagoon Beach track
agapanthus *Agapanthus praecox* subsp. *orientalis*	No	-	Isolated plants in the north and west
candelabra aloe *Aloe arborescens* (Plate 13)	No	-	1 large plant in the southeast adjacent to Carlton Beach Road
coastal tea tree *Leptospermum laevigatum*	No	-	1 isolated plant in the northwestern corner along Blue Lagoon Beach access track off Lourah Street
Cootamundra wattle *Acacia baileyana* (Plate 14)	No	-	1 isolated plant near the Kannah Street/ Lourah Street junction
cumbungi *Typha latifolia* (Plate 15)	No	-	Widespread plants around the Lagoon divided into 4 management zones (see Figure 5)
garden asparagus *Asparagus officinalis* (Plate 16)	No	-	Widespread areas in the north and east consisting of scattered fruiting plants and isolated plants in the west (see Figure 3)
gazania *Gazania* sp. (Plate 17)	No	-	Isolated plants in the west in the sand dunes adjacent to Blue Lagoon Beach

Species	WoNS	*BA 2019*	Extent
marram grass *Ammophila arenaria* (Plate 18)		-	Widespread area in the foredune adjacent to Blue Lagoon Beach spreading further inland to the northeast in some areas
mirror bush *Coprosma repens* (Plate 19)	No	-	Isolated immature plants in the southwest
New Zealand cabbage tree *Cordyline australis* (Plate 20)	No	-	2 isolated plants in the north adjacent to the children's playground
polygala *Polygala myrtifolia* (Plate 21)	No	-	1 isolated flowering plant just south of the Blue Lagoon Beach track off Kannah Street
radiata pine *Pinus radiata* (Plate 22)	No	-	Widespread mature plants with some seedlings divided into 3 management zones (see Figure 4)
spear thistle *Cirsium vulgare* (Plate 23)	No	-	Isolated areas of rosettes and spent flowering plants west of the Fire Station
sweet pittosporum *Pittosporum undulatum*	No	-	Isolated immature plants
tree lucerne *Cytisus proliferus* (Plate 24)	No	-	Isolated area of mature and seedling plants adjacent to Carlton Beach Road

Plate 10: boneseed (*Chrysanthemoides monilifera*). Inset - seedling

Plate 11: Californian thistle (*Cirsium arvense*). Inset - flower

Plate 12: African daisy (*Osteospermum* sp.). Inset – flower with skipper butterfly

Plate 13: candelabra aloe (*Aloe arborescens*)

Plate 14: Cootamundra wattle (*Acacia baileyana*)

Plate 15: cumbungi (*Typha latifolia*). Inset - seedhead

Plate 16: garden asparagus (*Asparagus officinalis*). Inset - fruits

Plate 17: gazania (*Gazania* sp.)

Plate18: marram grass (*Ammophila arenaria*). Inset - seedhead

Plate 19: mirror bush (*Coprosma repens*)

Plate 20: New Zealand cabbage tree (*Cordyline australis*)

Plate 21: polygala (*Polygala myrtifolia*). Inset - flower

Plate 22: radiata pine (*Pinus radiata*). Inet – pine seedling

Plate 23: spear thistle (*Cirsium vulgare*). Inset – flower with honeybee

Plate 24: tree lucerne (*Cytisus proliferus*).

4. WEED CONTROL OBJECTIVES

The primary objectives of weed control at Blue Lagoon are:

(1) Control and containment of all Class B declared weeds to an extent that conforms to the principles of the *Biosecurity Act 2019* – African boxthorn, blackberry, boneseed, Montpellier broom
(2) Control and containment of non-declared highly invasive weeds – African daisy, agapanthus, blue butterfly bush, candelabra aloe, coastal tea tree, Cootamundra wattle, garden asparagus, gazania, marram grass, mirror bush, New Zealand cabbage tree, spear thistle, sweet pittosporum and tree lucerne.
(3) Staged removal of radiata pine and cumbungi

5. WEED MANAGEMENT

This section outlines the methods of primary and follow up treatment for all declared weeds and non-declared highly invasive weeds recorded during the survey (Table 1). A schedule of weed control is outlined in Section 6.

5.1. WEED CONTROL METHODS (EXCLUDING RADIATA PINE AND CUMBUNGI)

In general, control of weeds before they seed will minimise the risk of their spread within Blue Lagoon.

5.1.1. Primary control

Primary control will focus on the treatment of all plants and infested patches within Blue Lagoon. Treatment involves mechanical removal and/ or targeted spraying.

5.1.2. Follow up control

Follow up control will largely be focussed on seedlings germinating from the soil seed bank. This includes a maintenance treatment (manual and/ or herbicide) of weed seedlings every six months following primary treatment and ideally in spring and autumn following rain when the plants are actively growing. Follow up treatment is required across the entire area.

5.1.3. Weed disposal

Any flowering and/ or seed bearing or fruiting declared weeds must be separately double bagged at the control site to avoid spreading seed across the area and added to the material to be collected by Council. All woody material and groundcover vegetation comprising WoNS and/or declared weeds should be collected by Council and taken to a nearby waste transfer station for disposal in the general waste (not green waste)[8].

5.2. REMOVAL OF CUMBUNGI FROM BLUE LAGOON

From historic photos it appears that cumbungi started to invade Blue Lagoon sometime after 2011. Cumbungi was not recorded in the 2009 Action Plan for Blue Lagoon Reserve Dodges Ferry. Once plants were present at the Lagoon, cumbungi quickly colonised large areas of the foreshore and other periodically inundated areas. See Appendix B images for more detail.

[8] Refer to Section 3 for details of weeds present and/or the online NRE weed resources available at: https://nre.tas.gov.au/invasive-species/weeds.

Plate 25: Native *Eleocharis acuta* in foreground currently being progressively displaced by invasive introduced cumbungi (*Typha latifolia*) in background

Mapping of cumbungi was done as part of the general Blue Lagoon weed survey (Figure 5). During the survey, no native narrowleaf cumbungi (*Typha domingensis*) was observed within the survey area. The infestations have been divided into four zones. A review of potential control methods was undertaken. From this review, the various control options were taken into consideration. Mechanical removal is considered the best and most effective method of controlling the current largescale cumbungi infestation. Any other method would not remove the massive biomass that includes the rotting plant material at the base of every cumbungi plant. Biomass removal will enable increased water retention within the Lagoon. Mechanical removal will also limit the use of herbicides.

The current cumbungi infestation is well advanced and has a considerable rhizomatous root mat under the ground, the decaying spent plant material as well as the massive seedbank in the underlying soil areas that has resulted from over a decade of seeding at the Lagoon.

Mechanical removal will need to be done by machinery, preferably with soft tracks, capable of deep digging the plants and soil to capture the rhizomes and soil seedbank. The removed biomass then needs to be placed into an awaiting truck that has a secure and enclosed tray area where the plants can be directly deposited once dug out. It was suggested by a member of the Sorell Council that the Copping tip may be agreeable to receiving the biomass.

To minimise ecosystem disturbance with the Lagoon itself, cumbungi removal will be conducted in stages. This approach allows for the gradual restoration of the habitat including both vegetation (flora) and associated wildlife (fauna) habitat. See Section 7 Blue Lagoon Natural Values for further information on the flora and fauna.

5.2.1. Staged removal of cumbungi

The following section outlines the staged approach recommended for cumbungi removal. Primary works should ideally be undertaken when the lagoon water level is low or dry. Depending upon resources available it may be possible to initially install temporary bunding around each stage and drain the area prior to works. It is recommended that an ecologist surveys any areas of standing water in the

proposed works area to determine the presence/absence of the state listed rare species, fennel pondweed (*Stuckenia pectinata*) which has previously been recorded in the lagoon, prior to any works.

Depending upon the success of the primary removal and the degree of regrowth, the following methods may be employed for follow-up control:

- Hand-pull or dig out new/resprouting plants.
- If standing water is present, cut all leaves 50-150mm below the water surface. If this method is used then additional resources will be required and it must be repeated at 4-6 weekly intervals for the first year.
- Alternatively, wipe leaves with a registered herbicide that is safe to use near waterways. Chemical treatment should be undertaken in summer to Autumn when the water level is low and most of the plant is exposed to ensure complete coverage.

Ideally once the primary works in Zone 1 commence, seed heads from surrounding zones should be removed to prevent reseeding of the treated area. Seed head management should be undertaken before the seed has fully developed and dried out to prevent dispersal, this is likely to be January/February but may vary seasonally.

NOTE

In order to prevent any additional weeds being introduced to Blue Lagoon, any machinery must be cleaned down prior to entering the area. Ideally machinery is to be cleaned down at the Works Depot in Sorell. It must be inspected for soil, mud and weed seeds by the Works Supervisor or similar and determined to be clean.

Year 1

1. Zone 1 cumbungi removal – Council NRM Facilitator and SBLC to be on-site to oversee the removal works. Machinery to enter site from the grassy 'car park' at the end of Kannah Street.

   Deep dig all plants and associated soil to a minimum depth of 50 cm and deposit in awaiting truck(s). Check that this is sufficient to remove all rhizomes. Dig deeper if necessary, removing biomass and depositing in the waiting truck(s).

2. Zone 1 follow-up cumbungi control – Council to check site regularly to ensure no flowering occurs prior to working bee(s). Council to organise Working bee(s) to remove any resprouting plants, flowerheads and rhizomes. Double bag seedheads. Council to organise removal of biomass to the Copping tip or similar general waste facility.
3. Zone 1 revegetation – Council to organise Working bees to use local native plants (see Table 4 for planting list) to revegetate any dryland areas damaged by machinery. Transplant clumps of the nearby native *Eleocharis acuta* into the wet areas.

Year 2

1. Zone 2 cumbungi – Only start this work once the radiata pines have been removed from this area (see 5.3.1 below). Council NRM Facilitator and SBLC to be on-site to oversee the removal works. Machinery to enter site from the grassy verge alongside Kannah Street.

   Deep dig all plants and associated soil to a minimum depth of 50 cm and deposit in awaiting truck(s). Check that this is sufficient to remove all rhizomes. Dig deeper if necessary, removing biomass and depositing in the waiting truck(s).

2. Zone 2 follow-up cumbungi control – Council to check site regularly to ensure no flowering occurs prior to working bee(s). Council to organise Working bee(s) to remove any resprouting plants, flowerheads and rhizomes. Double bag seedheads. Council to organise removal of biomass to the Copping tip or similar general waste facility.

3. Zone 2 revegetation – Council to organise Working bees to use local native plants (see Table 4 for planting list) to revegetate any dryland areas damaged by machinery. Transplant clumps of the nearby native *Eleocharis acuta* into the wet areas.

Year 3

1. Zone 3 and 4 - Council NRM Facilitator and SBLC to be on-site to oversee the removal works. Machinery to enter site from the edge of Carlton Beach Road at the southern end.

   Deep dig all plants and associated soil to a minimum depth of 50 cm and deposit in awaiting truck(s). Check that this is sufficient to remove all rhizomes. Dig deeper if necessary, removing biomass and depositing in the waiting truck(s).

2. Zone 3 and 4 follow-up cumbungi control – Council to check site regularly to ensure no flowering occurs prior to working bee(s). Council to organise Working bee(s) to remove any resprouting plants, flowerheads and rhizomes. Double bag seedheads. Council to organise removal of biomass to the Copping tip or similar general waste facility.
3. Zone 3 and 4 revegetation – Council to organise Working bees to use local native plants (see Table 4 for planting list) to revegetate any dryland areas damaged by machinery. Transplant clumps of the nearby native *Eleocharis acuta* into the wet areas.

Years 4 -10

Council to continue organising biannual working bees (spring and autumn) to monitor and remove resprouting cumbungi and remove any seedheads and tend/ supplement native vegetation plantings.

5.3. REMOVAL OF RADIATA PINE FROM BLUE LAGOON

As previously mentioned in the plan, there has been some very successful removal of large pine trees from Blue Lagoon adjacent to Carlton Beach Road. In addition, pine seedlings have been targeted at SBLC working bees in the past as well as pinecone collection from felled trees, by Sorell School, to minimise additional seedling formation. Plate 26 shows pine removal in 2009 and Plate 27 show this area now successfully rehabilitated following native plantings by SBLC.

To minimise ecosystem disturbance, pine removal will be conducted in stages. This approach allows for the gradual restoration of the habitat including both vegetation (flora) and associated wildlife (fauna) habitat. Pines provide habitat and food sources for some native species and removal will cause a level of disturbance to these species. However, long term strategic benefit of removal far outweigh the current short-term impact.

Some of the trunks need to remain on site and be strategically placed to provide suitable fauna and seedling flora habitat, remembering that too many trunks will prevent weed control in some areas especially where there are blackberry, Californian thistle and/ or garden asparagus in particular.

5.3.1. Staged removal of radiata pine

NOTE
In order to prevent any additional weeds being introduced to Blue Lagoon, any machinery must be cleaned down prior to entering the area. Ideally machinery is to be cleaned down at the Works Depot in Sorell. It must be inspected for soil, mud and weed seeds by the Works Supervisor or similar and determined to be clean.

Year 1

1. Zone A radiata pine removal – Council NRM Facilitator and SBLC to be on-site to oversee the removal works. A suitable qualified and insured arborist/ tree faller needs to be contracted for this work. Tree tops/ branches and other unwanted material can be pulled out of the site to an awaiting truck(s) on Kannah Street. This would be best done after the felling of each tree so that unwanted plant material is not trapped under large trunks. This will also make it easier for the feller to have a

clear area to work in. Awaiting truck(s) can be on the adjacent Kannah Street grassy verge for loading once each tree is felled and then move away a safe distance until the next tree is felled.

2. Zone A follow-up radiata pine control – Council to organise Working bee(s) to remove any pinecones and pine seedlings. Council to organise removal of biomass to the Copping tip or similar general waste facility.
3. Zone A revegetation – Council to organise Working bees to do local native plantings (see Table 4 for planting list) to revegetate areas.
4. Zone C dead pine removal – Up to 6 large dead pine trees located in Zone C have been recommended for removal by an arborist at the request of Council and the adjacent landowner due to risk to property and fire risk. These trees will be removed as a priority from this zone.
5. Zone C revegetation - Council to organise Working bees to revegetate foredune using suitable species including *Allocasuarina verticillata*, *Myoporum vulgare*, *Poa poiformis*, *Leucopogon parviflorus* etc (see Plates 5,6 and Table 4) to stabilise the area. This MUST be done well in advance of pine tree removal to assist with stabilising the foredunes. With careful felling of mature pines the majority of revegetation should survive and/ or resprout if damaged

Year 2

1. Zone B radiata pine removal - Council NRM Facilitator and SBLC to be on-site to oversee the removal works. A suitable qualified and insured arborist/ tree faller needs to be contracted for this work. Tree tops/ branches and other unwanted material can be pulled out of the site to an awaiting truck on Carlton Beach Road. This would be best done after the felling of each tree so that unwanted plant material is not trapped under large trunks. This will also make it easier for the feller to have a clear area to work in.
2. Zone B follow-up radiata pine control - Council to organise Working bee(s) to remove any pinecones and pine seedlings. Council to organise removal of biomass to the Copping tip or similar general waste facility.
3. Zone B revegetation – Council to organise Working bees to do local native plantings (see Table 4 for planting list) to revegetate areas.

Year 3

1. Zone C radiata pine removal - Council NRM Facilitator and SBLC to be on-site to oversee the removal works. A suitable qualified and insured arborist/ tree faller needs to be contracted for this work. Tree tops/ branches and other unwanted material can be pulled out of the site to an awaiting truck on Carlton Beach Road. This would be best done after the felling of each tree so that unwanted plant material is not trapped under large trunks. This will also make it easier for the feller to have a clear area to work in.
2. Zone C follow-up radiata pine control - Council to organise Working bee(s) to remove any pinecones and pine seedlings. Council to organise removal of biomass to the Copping tip or similar general waste facility.
3. Zone C revegetation – Council to organise Working bees to do local native plantings (see Table 4 for planting list) to revegetate areas. Revegetate foredune using suitable species including *Allocasuarina verticillata*, *Myoporum vulgare*, *Poa poiformis*, *Leucopogon parviflorus* etc (see Plates 5,6 for adjacent area native vegetation species and Table 4). Interplant amongst older revegetation.

Years 4 -10

Council to continue organising biannual working bees (spring and autumn) to monitor and remove pine seedlings, pinecones and tend/ supplement native vegetation plantings.

Plate 26: Blue Lagoon pine removal, 2009

Plate 27: Blue Lagoon rehabilitated, 2025

5.4. HERBICIDES

Only registered herbicides and those listed under an off-label permit issued by the Australian Pesticide and Veterinary Medicines Authority (APVMA) (Permit PER84775) for control of environmental weeds are legally allowed to be used in the control of weeds in Tasmania.

Broad spectrum herbicides, with active ingredients such as glyphosate will potentially result in more off target damage as they will affect all plants. For control sites that are highly sensitive due to their proximity to waterway such as Blue Lagoon, control may be restricted to glyphosate products that are registered for use near waterways. Where woody weeds occur in these areas, the Cut & Paint technique should be used. This technique minimises the risk of off-target damage to surrounding plants and waterways.

The NRE weed website can also provide advice[9]. Up to date information should always be sought as products and recommendations can change regularly.

Recommendations for all weed species are outlined in Table 2 These recommendations are based on an expectation that all declared and non-declared invasive weeds will need to be treated at the site. This will result in a significant improvement in the Blue Lagoon habitat including both flora and fauna.

[9] NRE online weed resources are available at: https://nre.tas.gov.au/invasive-species/weeds.

5.5. SPECIFIC WEED CONTROL RECOMMENDATIONS

Table 2. Weed Management Recommendations[10]

Species	Treatment*	Recommended Timing	Further Advice / Comment
African boxthorn *Lycium ferocissimum*	Large plants such as near the Lourah St/ Kannah St junction: Mechanical removal using heavy machinery. Dig to minimum of 500 mm where possible to ensure major roots are removed. Alternatively, the small and/ or resprouting tree can be cut & painted with a selective woody weed herbicide. Cut the tree off at ground level and paint stump immediately with an undiluted herbicide such as glyphosate 360 or Vigilant II GEL®.	Biannual survey and control in spring and autumn prior to winter dormancy	Recruitment from soil seedbank and resprouting of large, removed trees is likely to occur in the following years. Follow-up control of all resprouting and germinants from soil seedbank is essential. **Treat before seeding.**
blackberry *Rubus fruticosus*	Manual removal of canes, deep dig out tap roots or Cut & Paint with glyphosate. Not removal all canes and tap roots will reduce the effectiveness of the treatment. Double bag any fruit. Dispose of all material in general waste.	Biannual survey and control in spring and autumn prior to winter dormancy	Treat before fruiting **IMPORTANT NOTE – Do not apply herbicides to blackberry plants that are carrying fruit to reduce the risk of secondary poisoning.**
boneseed *Chrysanthemoides monilifera*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	Biannual survey and control in spring at early flowering (August/ Sept) and autumn	**Control well prior to seeding.** Revisit site and follow-up until regularly at any time of the year.
Californian thistle *Cirsium arvense* var. *arvense*	Consider employing a qualified commercial weed control operator to do this work. SBLC have been working with Land by Hand at Jacks Flat and have been impressed with Will Fagan, Land by Hand - Bushland Services landbyhandtas@gmail.com Foliar spray with registered herbicide with extreme care. If available, source one that is safe to use near waterways. For newly establishing seedlings, treatment should be applied as soon as germination is complete. For rosettes that have regrown from root stock, delay treatment until the plants have grown flowering stems and are at the bud stage. At this point root reserves are at a minimum and the plant begins to move nutrients (and herbicide) down into the roots. A practical indication of timing is to spray as soon as the first flowers are seen in an infestation, usually between December and January.	early spring and summer	Monitor and treat biannually. **DO NOT cultivate area** as this will spread the root fragments and create a bigger problem into the future.

[10] Further weed resources and guidelines can be accessed via NRE - https://nre.tas.gov.au/invasive-species/weeds/weed-publications-and-resources/weed-links-and-resources.

Species	Treatment*	Recommended Timing	Further Advice / Comment
	OR Foliar spray with clopyralid early bud to flowering		
Montpellier broom *Genista monspessulana*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	biannually in spring and autumn	Revisit site and follow-up as needed. **Control well prior to seeding.**
African daisy *Osteospermum* sp.	Mechanical removal with a mattock can be used to remove isolated plants, provided all root material is taken to ensure regrowth cannot occur.	biannually in spring and autumn	Avoid dumping the soil and plant matter elsewhere, as this will further distribute the weed. **Treat before seeding.**
agapanthus *Agapanthus* sp.	Mechanical removal with a mattock can be used to remove isolated plants, provided all root material is taken to ensure regrowth cannot occur. Remove all flowerheads to prevent seeding	biannually in spring and autumn	Avoid dumping the soil and plant matter elsewhere, as this will further distribute the weed. **Treat before seeding.**
Candelabra aloe *Aloe arborescens*	Mechanical removal with a mattock can be used to remove isolated plants, provided all root material is taken to ensure regrowth cannot occur.	biannually in spring and autumn	Avoid dumping the soil and plant matter elsewhere, as this will further distribute the weed. **Treat before seeding.**
Coastal tea tree *Leptospermum laevigatum*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	biannually in spring and autumn	**Treat before seeding**
Cootamundra wattle *Acacia baileyana*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	biannually in spring and autumn	**Treat before seeding**
cumbungi *Typha latifolia*	Refer to 5.2.1 for details of staged removal plan.		**Treat before seeding**

Species	Treatment*	Recommended Timing	Further Advice / Comment
garden asparagus *Asparagus officinalis*	A combination of methods can be used, including manual removal, herbicide application, and mulching. For smaller infestations, hand-pulling or digging out the plants, including their entire root system, can be effective. For larger infestations or regrowth, spot spraying with herbicides can be used, but be mindful of off-target damage. Mulching can also help suppress weed growth.	biannually in spring and autumn	Avoid dumping the soil and plant matter elsewhere, as this will further distribute the weed. **Treat before seeding.**
gazania *Gazania* sp.	Mechanical removal with a mattock can be used to remove isolated plants, provided all root material is taken to ensure regrowth cannot occur.	biannually in spring and autumn	Avoid dumping the soil and plant matter elsewhere, as this will further distribute the weed. **Treat before seeding.**
marram grass *Gazania* sp.	Do not control at this stage. Resources are better spent on the declared and other environmental weeds. Additionally, marram grass is stabilising the foredunes. Consider once the foredune has been revegetated with suitable species including *Allocasuarina verticillata*, *Myoporum vulgare*, *Poa poiformis*, *Leucopogon parviflorus* etc (see Plates 5,6 and Table 4).		
mirror bush *Coprosma repens*.	Cut the shrub off at ground level and paint stump immediately with Vigilant II GEL®.	biannually in spring and autumn	**Treat before seeding**
New Zealand cabbage tree *Cordyline australis*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	best in spring or autumn when plant is actively growing	**Treat before seeding**
radiata pine *Pinus radiata*.	Volunteers can safely cut down small (up to 3m) trees. Larger trees seek services of an arborist/ qualified tree feller. Refer to 5.3.1 for details of staged removal plan.	Any time	Recruitment from pinecones is likely to occur in the following years around larger tree. Follow-up control of seedlings germinating from soil seedbank is essential.
spear thistle *Cirsium vulgare*	Mattocking is effective for individual plants and small patches provided the growing point and the top 20 to 40 mm of the tap root are removed.	autumn to spring	**Treat before seeding**

Species	Treatment*	Recommended Timing	Further Advice / Comment
sweet pittosporum *Pittosporum undulatum*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	biannually in spring and autumn	**Treat before seeding**
tree lucerne *Cytisus proliferus*	Cut the shrub off at ground level and paint stump immediately with an undiluted herbicide safe to use near waterways such as glyphosate 360.	biannually in spring and autumn	**Treat before seeding**

* All herbicide selection and application should be in accordance with herbicide labels. Refer to NRE Herbicides for Control for recommended application[11].

Only registered herbicides and those listed under an off-label permit issued by the Australian Pesticide and Veterinary Medicines Authority (APVMA) (Permit PER84775) for control of environmental weeds are legally allowed to be used in the control of weeds in Tasmania.

[11] NRE Herbicides for Control of weed resources are available at: https://nre.tas.gov.au/invasive-species/weeds.

6. BLUE LAGOON NATURAL VALUES

This section describes the natural, social and cultural values of the reserve.

6.1.1. Vegetation

Vegetation in Blue Lagoon is more accurately represented by TASVEG live (Figure 5) though even this masks the extensive radiata pine and cumbungi infested areas. The mapped vegetation comprises five categories: *Acacia longifolia* coastal scrub (SAL), Fresh water aquatic herbland (AHF), Fresh water aquatic sedgeland and rushland (ASF), Marram grassland (FMG), Regenerating cleared land (FRG) and Urban areas (FUR).

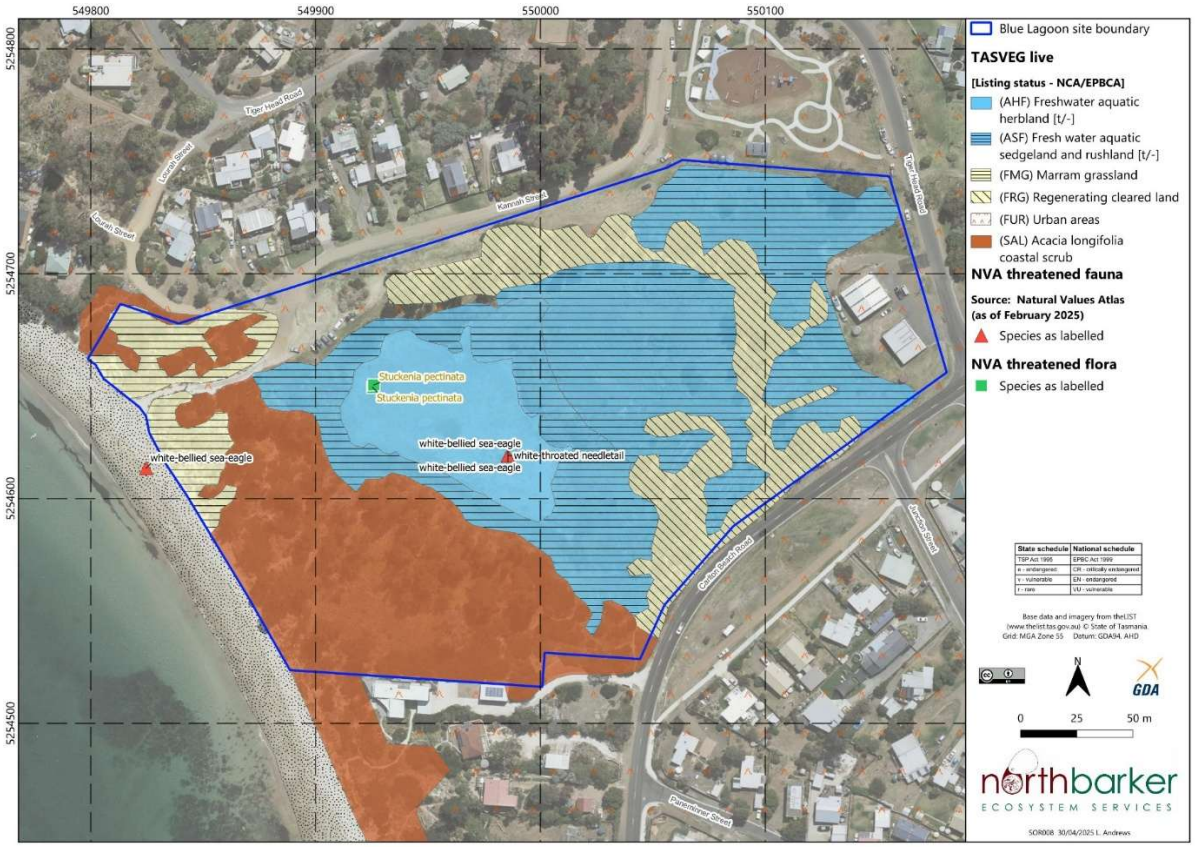

Figure 5. TASVEG live vegetation classification and threatened flora and fauna records for Blue Lagoon

Acacia longifolia subsp. *sophorae* is prevalent in the foredune areas whilst isolated *Dodonaea viscosa*, *Banksia marginata*, *Myoporum insulare*, *Leucopogon parviflorus*, *Acacia verticillata*, *Acacia mearnsii* and *Acacia melanoxylon* are present under the pines and in the regenerating cleared land especially in the southern and eastern areas of the lagoon itself. The eastern side of the lagoon has had pine removal in the past and was revegetated by SBLC using local native species. The understorey varies through the reserve with some parts dominated by *Rhagodia candolleana* and *Tetragonia implexicoma*. Other parts of the site are more open with a prevalence of monocots in the groundlayer including *Lomandra longifolia*, *Austrostipa bigeniculata* and *Poa labillardieri*, as well as *Juncus pallidus*, *Ficinia nodosa*, *Acaena novae-zelandiae*, *Pelargonium australe* and *Carpobrotus rossii*.

Table 4: Native plant species recorded at Blue Lagoon

Scientific name	Common name	Type
Acacia longifolia subsp. *sophorae*	coastal wattle	shrub
Acacia mearnsii	black wattle	tree
Acacia melanoxylon	blackwood	tree
Acacia verticillata	prickly moses	shrub
Acaena novae-zelandiae	common buzzy	ground cover
Allocasuarina verticillata	bull oak	tree
Atriplex cinerea	coastal saltbush	shrub
Austrostipa stipoides	coast spear grass	grass
Banksia marginata	silver banksia	shrub/ tree
Carpobrotus rossii	pigface	ground cover
Dodonaea viscosa	hop bush	shrub
Ficinia nodosa	knobby club rush	rush/ sedge
Juncus pallidus	pale rush	rush/ sedge
Leucopogon parviflorus	coast beard-heath	shrub
Lomandra longifolia	basket grass	grass
Myoporum insulare	boobialla	shrub
Pelargonium australe	wild geranium	herb
Poa labillardierei	silver tussock grass	grass
Poa poiformis	coast tussock grass	grass
Rhagodia candolleana	seaberry saltbush	shrub
Tetragonia implexicoma	bower spinach	ground cover

6.1.2. Threatened flora

Fennel pondweed *Stuckenia pectinata* is recorded from the lagoon area. It is listed as rare under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) (Figure 5). It grows in fresh and brackish water and has a vigorous rhizome system that penetrates mud to around 1 meter and produces numerous fleshy root tubers

6.1.3. Threatened Fauna

The migratory white-throated needletail *Hirundapus caudacutus*, listed as vulnerable under the EPBCA, is recorded from Blue Lagoon (Figure 5).

The white bellied sea-eagle *Haliaeetus leucogaster*, listed as vulnerable under the TSPA, is recorded from Blue Lagoon (Figure 5).

6.1.4. Fauna habitat

Blue Lagoon is likely to offer habitat for more generalist fauna species which are common within urban bushland. Dense groundcover vegetation and fallen timber are likely to support more localised and sedentary species of reptile and macroinvertebrates. Dense shrubs provide habitat for small birds and flowering banksias are likely to be used seasonally by larger avifauna. At least 62 species of avifauna have been previously recorded within the reserve[12]. The threatened Eastern barred bandicoot may utilise the site and is known to occur in peri-urban environments and has been recorded in the Dodges ferry area.

6.1.5. Threatened fauna habitat

The eastern barred bandicoot may utilise the site for foraging and nesting as part of a larger home range and is common in peri-urban environments.

Blue Lagoon provides some moderate quality habitat for many fauna species as it provides foraging habitat for water birds, and for birds of prey such as the white bellied sea eagle (*Haliaeetus leucogaster*) and the masked owl (*Tyto novaehollandiae*)[13]. Threatened species have been observed in the local area that may use Blue Lagoon, including the Eastern barred bandicoot (*Perameles gunnii*) listed as vulnerable under EPBCA, and the Green and gold frog (*Litoria raniformis*) listed as vulnerable under the EPBCA and the TSPA. Urbanisation of the Blue Lagoon catchment has impacted the native flora and fauna in the Reserve, particularly via changes to the lagoon's biotic environment is a natural phenomenon in response to changes in the reserve's abiotic environment[14].

6.2. OTHER VALUES

6.2.1. Cultural and Community values

Information about community values were collected through the stakeholder consultation (Weed Management Community Workshop for Blue Lagoon) (Appendix A) held at Okines House on 20 February 2025 and cultural values outlined in a letter from Aunty Colleen and Cheryl Mundy (Appendix C). Blue Lagoon offers opportunities for passive recreation and general nature enjoyment. This is particularly important given the increased population growth and subsequent urban expansion.

An informal, circular walking track meanders from the Kannah Street entrance carpark eastwards to Carlton Beach Road then parallel to this road towards the St Johns Ambulance/ Coastal Patrol buildings to the north where the track petters out.

The reserve is in a highly visible spot and adjacent to a popular children's playground, the Tiger Head boat ramp and the beach access track to Blue Lagoon Beach which provides opportunities to raise the profile of Blue Lagoon within the community and the importance of small reserves for biodiversity conservation including weed management.

7. FOREDUNE REVEGETATION

Due to the need to better stabilise the foredune along Blue Lagoon Beach, the following list provides recommended species for ground cover, shrub and trees. This stabilisation is required to augment pine removal from this area of Blue Lagoon.

[12] Bird List - Blue Lagoon (Dodges Ferry), Sorell, Tasmania, Australia - eBird Hotspot
[13] Sorell Council (2022)
[14] Elgin associates for Sorell Council (2024)

Plates 5 and 6 show adjoining foreshore vegetation from areas to the south of Blue Lagoon Beach. Additional recommended plants are shown in Plates 28 -33.

See Table 4 for the native plant list for Blue Lagoon. These plants are suitable for revegetation of the foredunes.

Plate 28: banksia *Banksia marginata*

Plate 29: native geranium *Pelargonium australe*

Plate 30: pigface *Carpobrotus rossii*

Plate 31: pigface *Carpobrotus rossii* colonising the foredune

Plate 32: seaberry saltbush *Rhagodia candolleana* colonising bare ground

Plate 33: bower spinach *Tetragonia implexicoma*. colonising the foredune

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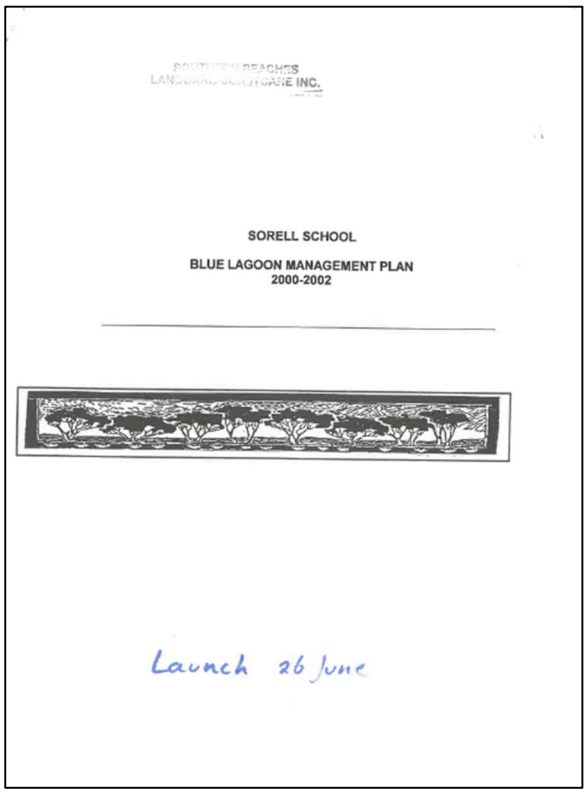
APPENDIX A – SORELL SCHOOL BLUE LAGOON MANAGEMENT PLAN 2000-2002

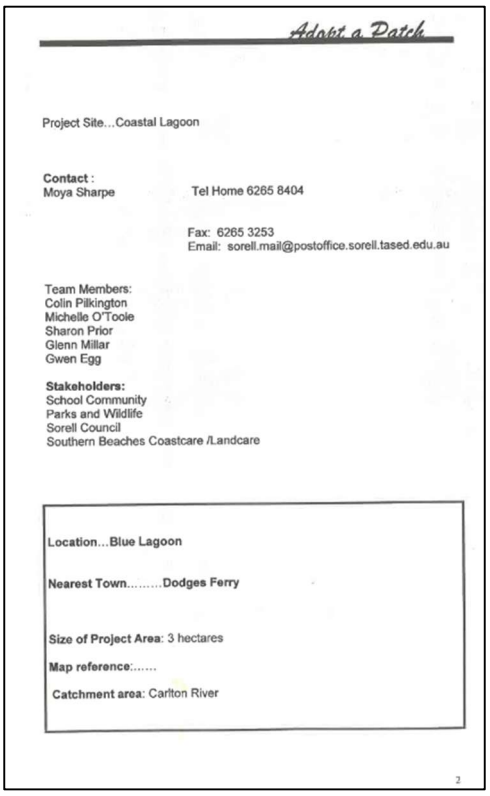


SOUTHERN BEACHES LANDCARE/COASTCARE INC.

SORELL SCHOOL

BLUE LAGOON MANAGEMENT PLAN
2000-2002

Launch 26 June



Adopt a Patch

Project Site…Coastal Lagoon

Contact :
Moya Sharpe Tel Home 6265 8404

Fax: 6265 3253
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Team Members:
Colin Pilkington
Michelle O'Toole
Sharon Prior
Glenn Millar
Gwen Egg

Stakeholders:
School Community
Parks and Wildlife
Sorell Council
Southern Beaches Coastcare /Landcare

Location…Blue Lagoon

Nearest Town……**Dodges Ferry**

Size of Project Area: 3 hectares

Map reference:……

Catchment area: Carlton River

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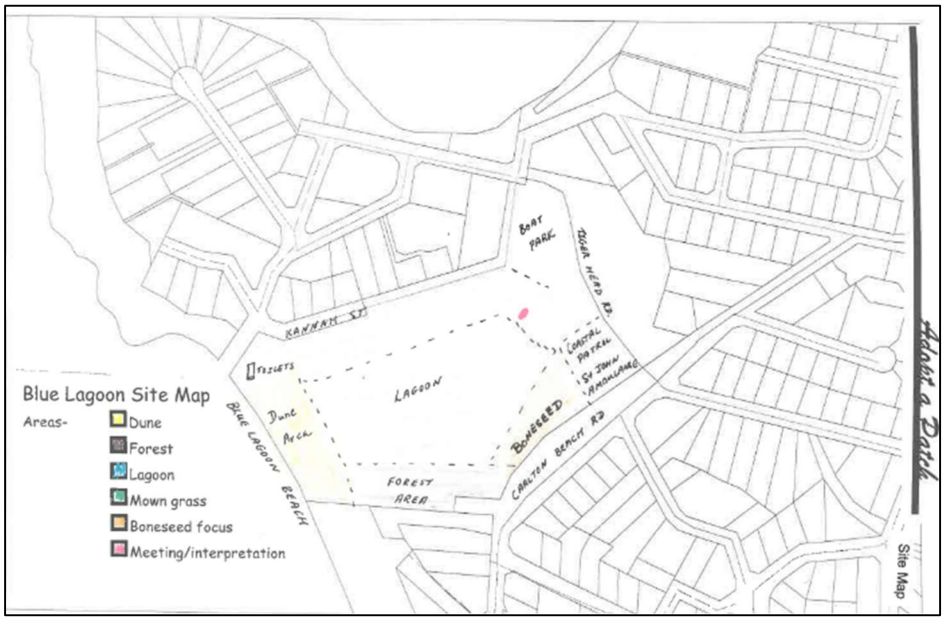

Adopt a Patch

What is it all about?

- To create a healthy lagoon with a native habitat for wildlife
- Promote the site as a valuable, local community asset
- Educate the local community about a natural ecosystem and the impact of people
- To promote the area as a resource for education
  To empower children to take action for the environment-including project ownership. Develop a sense that children can make a difference.

BACKGROUND

- Southern Beaches changed from a holiday/shack area to residential suburb over the last 20 years.
- Impact of development on fragile coastal environment has increased dramatically.
- Remnant bush wetlands are disappearing.
- **Blue Lagoon** is a degraded wetland site which is an important habitat for animals such as birds, insects and amphibians.
- Blue Lagoon is an important recreational site linking with the coast in a densely populated area.
- Development in the area of Dodges Ferry has increased pressures on the lagoon eg storm water drains directly into the wetland through concrete drains.
- Radiata pines have been extensively planted throughout the area plus introduced weeds such as Boneseed flourish.
- Sorell School has been involved with numerous community projects for many years. There is an on-going commitment from staff and parents to environmental education community programs. The school has twice won the State Landcare Education Award and National Tidy Town Award.

What is there?
Blue Lagoon is a coastal lagoon which is mostly covered in shallow water which dries up in the summer months. It is an accessible site, a place of recreation and renewal, and an opportunity for responsible community action to promote biodiversity.

Value of Blue Lagoon

- Peaceful atmosphere
- Natural beauty
- Close proximity to beach and bushland
- Isolation from urban development
- Important habitat for wildlife

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Adopt a Patch

ACHIEVEMENTS SO FAR

- Site used as focus of activities with Grade 5 students
- Removal of bone seed
- Involved Southern Beaches Coastcare/ Landcare Network
- Involved Parks and Wildlife and Council in discussions.
- Micheal Rowland began seed collection and site visits with students.
- Prep and Grade 1 students used site for identifying environmental problems and the importance of wetlands

PROJECT AIMS

- Restore coastal wetlands area
- Develop a sense of wonder and celebration of the natural environment
- Actively involve students with the wider community in the local environment

BELIEFS AND VALUES-Intended outcomes for students

- An appreciation for and understanding of their unique local environment
- A sense of responsibility and caring for the local environment
- Actions to conserve and improve the quality of the environment with the support of the community.

KEY QUESTIONS

- Why is this area important?
- Why be involved?
- What is here?
- What is a weed?
- What is native?
- What are the seasonal changes in plants & animals?
- What is the water quality?
- How can we maintain a healthy ecosystem?
- How can we help care for our place?
- How are we connected to our natural environment?
- What are your rights and responsibilities as citizens?

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Adopt a Patch

SHORT TERM OBJECTIVES

- Keep rubbish out of the Lagoon
- Reduce African Boneseed
- Monitor water quality
- Raise community/school awareness and involvement
- Involve children in an understanding of a wetlands ecosystem
- Produce brochure on Blue Lagoon
- Develop management plan to approval stage to replace radiata pines
- Collect provenance seed of all species to be planted
- Begin plant propagation
- Start replanting program using local provenance.
- Involve local council and all other stakeholders in the planning process
- Begin removal of radiata pine

LONG TERM OBJECTIVES

- Rehabilitate the area to a healthy habitat for the wildlife and the community
- Develop value of the area within community.- a sense of custodianship
- That the area becomes an active on-going teaching resource throughout the school.
- Develop responsible citizenship

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Adopt a Patch

MAIN ISSUES and WHAT WILL WE DO ABOUT IT?

Issue	Action
Weed infestation of pines, boneseed, asparagus fern, mirror bush, cumbungi.	Removing weeds such as pines and boneseed and finding best management practices Gradual Removal at each visit
Informing the community	Develop a plan to talk to Council and community about removing pines
People impacts-Rubbish and trampling-vision for walkways	Community education leaflet and community involvement
Water quality of the lagoon	Assess inputs the lagoon to system using water watch. Develop plans to improve inflow issues with Council.
Planning procedure	To be approved by all stakeholders including the Progress Association, the Tasmanian Parks and Wildlife Service, Local Council and the Landcare group. Submit plan to these bodies for comment.
Loss of native species	Replanting of local provenance native vegetation.
Domestic animal usage/ bring back wildlife	Encourage domestic animal awareness and responsible pet ownership through signage and public education.
Whole School and Community Involvement	Promoting student problem solving and decision making. Students develop specific class management plan with appropriate courses of action including monitoring for the site. Promoting environmental awareness in the community through student involvement and brochure distribution. Community members to work with students and staff. Promotion of the project in the community through displays. Council partnership agreement detailing ground-staff involvement.

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Adopt a Patch

TECHNICAL ADVICE

Micheal Rowland, Greening Australia Tel. 6223 6377 Fax
Alison Moore, Understorey Network Tel/ Fax 6399 3593
Cindy Hansen, State Weeds Education Officer Tel. 6336 5414
Kim Willing, Coast care Officer 6233 6427 Fax 62 240884
Brian Campbell, Parks and Wildlife, Tel.
Wayne Mason, Sorell Council Tel. 6265 2201
Nel Smit, Education Department Tel. 6233 7725 Fax 6233 6979

RESOURCE IDEAS

BOOKS

Guide to Flowers and Plants of Tasmania, Launceston Field Nats, available from Tasmanian Environment Centre $21.95

Common Grasses of Tasmania, Lane , Morris and Shannon, from Tasmanian Environment Centre $14.00

Gardener's Companion to Weeds, S Ermert. Ken Fin, 1988

Waterwise: Whizzies Incredible Journey
Available from Resources Science Centre, 80 Meiers Rd 4068 Indooropilly, Queensland Tel. 0738969506 $45.00

MATERIALS:
50 Gloves – available from Nel @ $1.00 each

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Adopt a Patch

PROGRAM TIME LINE Sorell Adopt a Patch 2000

When	*Activity*	*Participants*
Feb	• Seed Collection • Meeting with stakeholders on site • Produce Brochure. • Staff opportunities to be involved. • Develop management plan as a partnership agreement with Council • Weed removal	All stake-holders Moya Colin Pilkington, Michelle O'Toole, Sharon Prior, Glenn Millar
March	• Further develop management plan • Vegetation plan development. • Public communication brochure. • Propagate seeds with students • Develop management plans for each class- for action re weeds, community participation and information. • Set up Adopt a Patch Diaries- • Identification of opportunities for staff. • Negotiate pine replacement • Weed removal • Children to identify names for sectors, develop and begin photo point monitoring.	Moya, Nel, Micheal Micheal Moya and students Micheal Moya Moya and students Moya Micheal Moya and students Moya and children
April	• Submit Management Plan to council • Grow seeds • Weed removal – cumbungi heads, Asparagus fern heads • Erect Adopt-a-Patch signage • Erect Pine signs(following approval from community)	Micheal Rowland Moya and students Council Council Moya and students
May	• Launch-signing of partnership agreement • On-going weed removal • Review pine situation • Identify learning opportunities for community to work with students. • Pine removal at two sites • Site preparation and Tree planting–last week of term	Team, Nel, Micheal Moya and children Micheal Moya ? Micheal, Moya and childstudents, Landcare Group
June/ July	• Tree planting • Weed removal	Moya and students
Aug/ Sept	Weed removal Proposed regeneration burn and replanting. • Inspect and maintain planted trees Weed removal	Moya and students Dodges Ferry Fire Brigade Moya and students
Oct/ Nov	• Arbor Week 11 Oct – Tree celebration • Weed Buster Week - Weed removal • Water Week- Water celebration/quality testing • Display of students work	Moya and students Moya and students

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Adopt a Patch

On going Program

Activity	Participants
Site visits	Moya, students, Landcare group members
Documenting project and Patch visits	Moya
Inviting other schools/classes on site trails	
Accessing Internet	Teachers, Mr Pilkington, Ms O'Toole, Moya
Publicity	Students with staff

DETERMINING AND MAINTAINING OUTCOMES.

1. Development of management plan with specific tasks determined by class groups.
2. Reduce weed species in the wetlands area- removal of pines and boneseed.
3. Promoting program though communication with parents, staff and community
4. Incorporation of program across the curriculum- Language Arts Mathematics, Science Technology and Studies of Society and Environment.
5. On-going support from Landcare Group- 2 working bees with 10 participants annually.
6. Planting out of 300 wetland plants.
7. Regular use by classes of the area. Grade 5 to make 6 working bees with 60 participants during the year. 4 visits by early childhood classes.
8. On-going photographic records.

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Adopt a Patch

Identified plant species and species for site rehabilitation

Site	*Habit*	*Propagation*	*Fire Retarda*
E = exposed or dry sand	sh=shrub	s=seed	F
I = inner, sheltered site	t = tree	c=cuttings	
M = moist flats, heavier soils	g = ground cover		

PLANT SPECIES TO BE ESTABLISHED

Species: Common Name	Botanical Name	Growth Form
Pigface	*Carpobrotus rossii*	e,i g, c, f
Seaberry Saltbush	*Rhagodia cnadolleane*	e, sh, g, c, f
Natice Spinach	*Tetragonia implexicoma*	e,g,c,f
Coast Wattle, Boobyalla	*Acacia sophorae*	e,i,t,s
Boobyalla	*Myoporum Insulare*	e,i, t,c,f
Sheoak	*Allocasuarina verticillata*	e,i,t,s
Banksia	*Banksia Marginata*	e,i,t ,s
Hop Bush	*Dodenea viscosa*	e,i,sh,s
White gum	*Eucalyptus viminalis*	t,s
Black gum	*Eucalyptus ovata*	t,s
Cutting Grass	*Gahnia filum*	g,s
Spear Grass	*Stipa stipoida*	g,s
Silver tussock	*Poa Cabilliardira*	g,s
Prickly box	*Bursaria spinosa*	t,s

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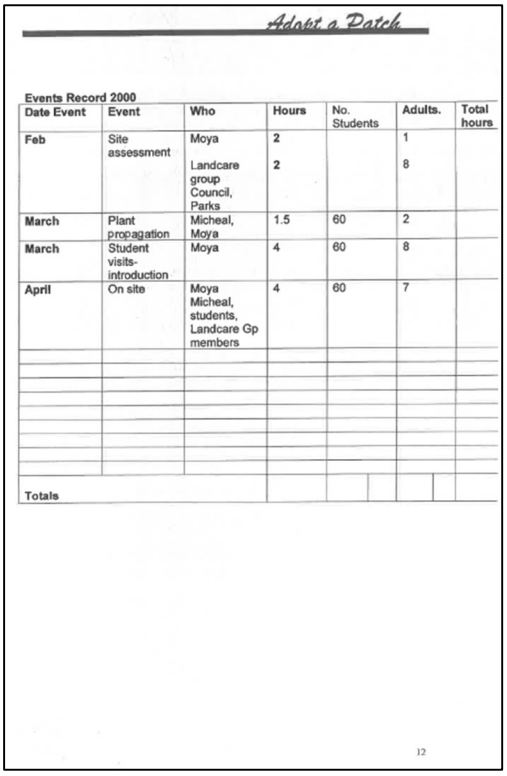

Adopt a Patch

Events Record 2000

Date Event	Event	Who	Hours	No. Students	Adults.	Total hours
Feb	Site assessment	Moya Landcare group Council, Parks	**2** **2**		1 8	
March	Plant propagation	Micheal, Moya	1.5	60	2	
March	Student visits- introduction	Moya	4	60	8	
April	On site	Moya Micheal, students, Landcare Gp members	4	60	7	
Totals						

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APPENDIX B – SPREAD OF CUMBUNGI AT BLUE LAGOON

Blue Lagoon, 2011 - pre cumbungi invasion

Blue Lagoon, 2015 – cumbungi present

Blue Lagoon, 2025 – cumbungi widespread

APPENDIX C - STAKEHOLDER CONSULTATION

Feedback received at the community meeting on 20th February 2025 held at Okines House, Dodges Ferry

Notes from Sorell Council –

Blue Lagoon Weed Management Plan – Community Workshop

Consultants Sandy and Kelly: presentation – North Barker Ecosystem Services

Study area: Blue Lagoon

- Looking at weed aspect, and rehabilitation of the area – wishing to support Council in planning for what action is required going forward

2011 example of good remedial action to address weeds/invasive species

Cumbungi – 2 native species; 1 introduced

- Currently, the introduced species is thriving and taking over. Sheds vegetation and rots = decreasing the depth of water. *Consideration on what mgmt. measures are needed
- Seeds blow up to 2km radius *unknown what level of further growth is outside of study area

Pines originally planted as wind breaks for orchid that was located next to lagoon.

Weed management plans

- usually, you address weeds that are least common in an area: i.e.
    - boneseed; mirror bush; psoralea; gazania; African daisy, NZ cabbage tree; aloe plants; tree lucerne; boxthorn; canary broom; asparagus etc
    - Californian thistle (declared species)
- Woody weeds – cut & paint mgmt.
- Pine trees – birds impacting weed seed

2009 – proposal to remove pines completely.

Strategy/plan now – progress in staged management plan

- Peter: physical removal question. More efficient/beneficial in long run to do the large-scale plant/equipment exercise upfront
- Waterway remediation – cumbungi removal will need larger scale intervention

What is the aim/vision is for Blue Lagoon:

- Lotti (Marion Bay Coastal care) – most natural state we can get it to. What it was like before. Would like to be involved with restoration.
    - Removal of pines in Marion Bay successful.
    - Eating cumbungi? Are there any options?

- Verginia – is it a realistic aim to restore fully to original state? Sandy/Kelly – long term maintenance aim.
    - Aware of stormwater/drainage infrastructure – maybe this means its not possible to fully remediate
- Sandy (in response to Peter's suggestion) – too great of an impact in terms of sediment impacts if we were to remove in one go. Need to be mindful of unintended consequence, i.e. destroying habitats for threatened species.
    - Peter – damage associated with access?
    - Sandy – the low-lying area full of Californian thistle etc has very little native vegetation currently to be damaged
    - Melinda – high water levels from 5 years ago. Has photos
- Melinda – min. approach is to see the intent of the 2009 review implemented
    - The better the lagoon functions as natural environment system, the better it functions as stormwater area
    - Need a cohesive long-term plan
    - Removal of pines – Rick Birch
    - Any issues with allowing pines to rot in situ? No real concerns. Maintenance will be required
- Marisol – echidnas / wildlife use. Important to relieve the pressure of the stormwater so lagoon can be remediated – need to shift/share the stormwater movements elsewhere (adjacent areas).
    - Bigger picture focus required: community buy-in to ensure surrounding areas don't repopulate weed populations
    - Need strategy to incorporate wind patterns and seed spreading
    - Would like to see it become the example of best practice management strategies
    - Middle of DF town – make it more of a community use/ownership approach, the better chance of success
- Peter – how much ongoing maintenance/sustainability can community assist with?
    - Land care group – couldn't keep up with the cumbungi growth
    - Stormwater infrastructure needed – Kannah St onflow issues
        - Capital works: something needed to allow for natural reopening of waterway flow paths
- Janet G – outfall for lagoon being planned for boat ramp (c/f blue lagoon beach). To address red hand fish issues
    - Could we manage outflow into lagoon to assist with mgmt. / drowning weeds
    - Personally supportive of a staged approach.
    - Community education required – children/school campaign

- Q. Jannet: will removing the pines impact the stability of the sand dunes? Marram grass – locking up sand profiles (dunes) rather than the pines
- Verginia – what timeframe is the plan? Dibas – 10-year plan. Sandy – this timeframe could result in considerable improvement

Sandy – Management actions for cumbungi (hardest weed to remove)

- Chemical and mechanical removal options (glyphosate)

Further onsite workshop – Peter French et al (Friends of Blue Lagoon) – later in March

Local aboriginal elders/community reps – involved in previous reviews/plans

Marisol – preferred approach for non-chemical options to be exhausted; chemical approach as last resort.

- Future planting; watering issues. Sandy suggesting water tanks to facilitate watering in first 2 establishment years
    - Water crystals, fertiliser tablets, water wetter soil? When planting to increase survival rate

- Play Park: lost opportunity for park users / children education about lagoon. Information / panels/lookouts onto the lagoon

Signage around Southern Beaches – weed management information on signs.

Consultants looking for discussions of past exercises of removal of cumbungi – Gwen? And others from Friends of Blue Lagoon group suggested as good contact for prior work carried out in the lagoon

Notes from Sandy Leighton (North Barker) -

- Neighbouring properties are having impacts on weeds within Blue Lagoon i.e. "garden escapes"
- Aboriginal elders Auntie Cheryl and Kylie Mundie involved in original 2009 plan management plan
- Friends of Blue Lagoon no longer an active group
- Council will support working bees at Blue Lagoon
- There is interest from neighbours and broader community to be involved in working bees at Blue Lagoon
- Weed Management Plan needs to be a working document that people/ groups can be a part of
- Need a list of key messages
- Need on-ongoing communication on intent of works and progress at Blue Lagoon
- Suggestion for an Information Board in adjacent children's playground to educate them about Blue Lagoon
- Potential for public art installations (e.g. murals) south of children's playground in area next to Ambulance Station – hand fish, green and gold frog

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Feedback received from the SBLC field meeting on 27 March 2025 held at Blue Lagoon, Dodges Ferry

Notes from Sandy Leighton (North Barker) –

Gwen Egg:

- Originally SBLC assisted Moya Sharpe Sorell School teacher when she bussed students from Sorell to Blue Lagoon for working bees
- Sorell School students wrote a Blue Lagoon Management Plan back in 2000-2002
- In the past SBLC received several grants and held many working bees over the years targeting weeds including pines and cumbungi. Many large pines were cut down adjacent to Carlton Beach Road (by professionals) and revegetation plantings were done. The area has now been rehabilitated
- Fallen pine trees can provide habitat for fauna, however if too many trees are left it can make access to remove weeds very difficult, especially blackberry and garden asparagus
- SBLC sold pine chips to community then contractor delivered. Funds reinvested back into Blue Lagoon rehabilitation works
- Cumbungi follow up control was done when the lagoon was dry using a brush cutter. Seedheads were cut and bagged and disposed at the tip, whilst rhizomes were hand pulled
- Due to current on-going commitments, SBLC no longer have the capacity organise working bees at Blue Lagoon, though happy to join in
- Working bees for cumbungi, Council to advertise and organise
- Have held frog ID days in past with lots of interest from the community and well attended
- 1840 artist Elizabeth Hudspeth painting of Blue Lagoon Beach foreshore show low dunes and sheoaks. When full, Blue Lagoon drained naturally onto Blue Lagoon Beach
- Mirror bush and boneseed controlled in the past as easy for working bee participants

- Potential for involving schools
    - "Bush School" (approx. 25 children) – home schooling group currently work 1 day/ month at Dodges Ferry Recreational Reserve "Flora Park". Students have done Citizen Science activities
    - Dodges Ferry Primary School (Angela Buckley, assistant Principal) – SBLC has an established relationship with the school for Flora Park
    - Steiner School starting up

Peter French:

- Chance for Council to drive actions
- Community Service people could work with Council at Blue Lagoon on weed removal and revegetation

All:

- Blue Lagoon is one of the best natural assets that Council has
- Key to success of implementing Weed Management Plan will be that Council drives and funds works
- Must get broader community engaged in follow up weed control
- Need to have community directly involved in follow up control of cumbungi once areas are mechanically removed otherwise regrowth will prevent longer term eradication
- Asparagus officinalis (garden asparagus) at Blue Lagoon is used as a "wild harvested food" in during cooking classes by the Tasmanian Tusedo Mic Giuliani (South Sorroco www.siroccosouth.com.au)
- Council needs to publish continuous articles on the aim of proposed weed control works, planned mechanical removal of both pines and cumbungi (Sorell Council newsletter included in rates notices, regular and timely Website/ Facebook page updates, Eastern Shore Sun articles etc.) and opportunities for people to attend working bees
- Sorell Council works crew
    - Land Improvement Officers (7-8 staff), some with Conservation Land Management Certificate qualifications
    - Works Supervisor Odessa Barwick
    - Responsible for maintenance of Reserves and Public Open Space
    - Every Tuesday morning 2-3 staff work at Flora Park

APPENDIX D – CULTURAL VALUES

Friends of Blue Lagoon Submission to Sorell Council

Notes from Auntie Colleen and Cheryl Mundy-Primrose Sands

Blue Lagoon lies in the land of the Mumirimina people of the Oyster Bay tribe. The Oyster Bay people travelled through their territory on well-defined routes following seasonal foods and resources for traditional practices such as collecting and trading ochre, making stone tools, collecting reeds and grasses for baskets and ropes.

They went to the coasts for shellfish and marine vegetables, to the marshes and lagoons for riverine birds and their eggs, and inland to the open forest and plains for kangaroo, wallaby and possum. The Mumirimina were dispossessed and massacred. The pakana community of lutruwita are the traditional owners and custodians of these lands.

The lagoon is part of the living cultural landscape of all lutruwita (Tasmania), and was a much-used area for camping gathering and hunting shellfish and other food sourced from the coastal surrounds. Changes in climate, and archaeological evidence of pakana presence in the southern beaches area provides some context to the age of the lagoon (See attachment 1).

In 1910 farmer Willian Thorne from *Moriston* in Carlton was interviewed by visiting English geologist Ernest Westlake. Thorne's father was part of the Black Line. [i] Thorne described seeing the blacks stripping bark and gathering grasses preparing shelters and making camp. Thorne said, "The mouth of the Carlton River used to be a great place for the blacks"

It still is a great place for the blacks! There is a small population of pakana people, and people from other Aboriginal nations outside lutruwita living in the southern beaches area in Primrose Sands, Dodges Ferry, Carlton and Sorell. [ii] The pakana community has been advocating protection of cultural heritage in the southern beaches for years.

Background

There were a number of heavy rain events in 2020. Blue Lagoon was raised to flood levels. The fast pace and large quantity of water draining onto the beach concerned residents and the *Friends of Blue Lagoon* was formed and raised this with Sorell Council. Council undertook some repairs around Blue Lagoon and along Kannah Street.

Temporary drainage was inserted down the walkway onto Blue Lagoon Beach, and the road in Kannah Street was elevated with gravel. Storm water pipes and headwalls on the boat ramp at the side of Tiger Head road have been improved. (The impact of flooding near the current interpretation sign is exacerbated by mountain bikes, with foliage apparently cut back for this reason).

Council is further responding with a natural values assessment and survey and is updating flood modelling. We understand an engineer's report is almost completed.

1

Natural and cultural heritage

Significant cultural materials have been reordered from a number of site surveys around the Carlton River area. Department of Parks & Wildlife surveyed the Carlton River mouth and along the Carlton river around 20 years ago. An assessment of Steele's Island middens was conducted by the Aboriginal Heritage Unit in 2006.
Yet we sadly know that two 8000 year-old fireplaces have eroded away in the past 20 years on the Carlton River. Also, in December 2006 Sorell Council approved a permit that resulted in a midden and other materials being bulldozed. An Aboriginal Heritage Officer was called in by pakana residents to address the issue. The works were ceased, and charges were laid.

The Tasmanian Aboriginal Land Council photographed and GPS'd sites on Carlton Bluff and at Carlton River Mouth also. Yet two huge eroding middens have been destroyed in Primrose Sands by trail bikes and residents cutting their own private steps through the midden down to the river. The erosion of the dunes on Primrose Sands beach has increased intensively in the pat 15 years. We are not aware of any stabilisation plans?

Where the Carlton River and the wetland in Primrose Sands merge there has been extensive erosion. The swan breeding wetland on Tamarix Road needs recognition and protection. Works go on around it as though it may have related private ownership. There is a notable increase in noxious weeds and flowers planted outside boundary fences that are carried by wildlife and weather down to the river and into the waterways.

Cape Weed in 2019 and 2020 on low lying land and hills and down to the river in Primrose Sands was the worst we have seen in 20 years. These broader situations interconnect with Blue Lagoon and Blue Lagoon Beach and beyond.

Planning laws

Dune erosion at Blue Lagoon Beach and around the Carlton River, human interventions and climate change are rapidly changing the coastline and the wetlands in the southern beaches area. Houses are the unnatural element in the Dodges landscape and in the Blue Lagoon landscape, as are the pine trees and weeds. In hindsight have housing and development permits allowed construction too close to the beach and the lagoon?

Is Blue Lagoon where the problem is? The lagoon is natural with a solid rock bottom. Is the flooding caused 'up stream' with the result at Blue Lagoon? Is there leaking or leaching septic tanks in the Red Ochre Beach area? Is silt build up also impacting flood levels in the lagoon?

In lutruwita the current planning approvals process (Planning Scheme) provides for discretionary council approved applications for works yet appears to lack any real community engagement requirements. More often than not Aboriginal heritage issues are ignored. This lack of engagement is justified by Councils as following the Land Use and Planning Approvals Act process (LUPAA).

2

However, whilst LUPPA does address Aboriginal heritage management issues, it does not provide clear instructions on how. It just states that approvals must consider the Aboriginal Relics Act 1975 when addressing applications that may impact on Aboriginal Heritage sites.[iii] The Aboriginal community continue to voice major concerns over deficiencies and interpretation of the Act.

Summary

The World Health Organisation (WHO) estimates that environmental factors account for an estimated 24% of the global disease burden and 23% of all deaths. Air quality, drinking water quality, food safety, chemical use and soil and ground water contamination contribute to these health outcomes. [iv]

The south eastern wetlands system relies on healthy individual bodies of water and land interconnected with the health of the animals and people. Habitat is both known as habitat for a species, and potential habitat. It is vital that potential habitats with appropriate characteristics for a species are protected.

The southern beaches area is rich in plant and other materials that are gathered for cultural purposes by the pakana community today. The land offers bush tucker and plants for weaving and ochre for cultural use. Local Aboriginal people hunt and gather from the land and waterways, and monitor changes from natural sources and human interventions. Our stories lie in the land.

Every time the land is disturbed, we are disturbed. We surely need to see its current condition against the backdrop of indigenous 'management' versus recent neglect and also as part of the wider landscape where it is impacted by changes in the catchment. The role of the lagoon where fresh water meets salt water must be recognised.

If Aboriginal Heritage Officers and Land Management Teams are not involved early in planning processes and on site, there is increased potential for damage or total destruction of pakana heritage. This is a risk management strategy. There are so many things local people and land managers can do to support the health of the lagoon and the marine environment next door and there are many people in the community who are motivated to look after it.

Development of a management plan

Council to address Catchment, Stormwater and Outflow Management upholding the same standards it has placed on residents in the area.

We cannot see a practical or environmental argument to support further development at the lagoon such as car parks and ablutions buildings.

Collaboration with local community groups is needed to ensure community processes are respected, and input is reflected in planning and policy. Whilst protocols may exist, there is always room for improvement and positive interpretation.

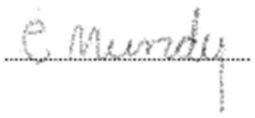
3

Engaging Aboriginal Heritage Officers and Land Management teams in both the decision-making process and the physical aspects of land management on site could introduce cultural land management practices such as cultural burning to assist the sustainability of Blue Lagoon and its catchment.

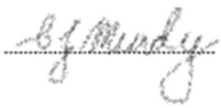
Weeds and pine trees need eradicating, and a new interpretation sign could be installed. There needs to be directions given on signage to encourage the public to stick mainly to one path, and trail bikes should not be used in the area.

These comments are informed by shared local pakana knowledge, discussions with Aboriginal heritage Officers and Aboriginal Land Management workers, site visits, and conversations in Friends of Blue lagoon.

Colleen Mundy *minungkana*



Cheryl Mundy *tremanya*



4

ATTACHMENT 1

43,000 BP (Before the present) lutruwita was joined to mainland Australia by a land bridge between Wilson's Promontory in Victoria and northeast Tasmania.

42,000 BP Aboriginal people were living on the banks of the Jordan River. (Tasmanian government built a major bridge across that site *kutalyng* in 2011).

36,000 BP the climate briefly warmed, and the land bridge was flooded until 30,000 BP **when the** climate began to cool, sea-levels began falling, and the land bridge grew in size.

18,000 BP Aboriginal people are well established throughout coastal and mainland Australia and Tasmania and in 11,000 BP land bridge between mainland Australia and Tasmania are flooded. Tasmanian Aboriginal people isolated for the next 12,000 to 13,000 years.

10,000 BP Wetter and warmer conditions caused rapid forestation of much of the island, rainforest in the west, eucalyptus in the east, old coastal camp sites were slowly flooded over the following 4,000 years.

8,400 BP Camp sites and controlled firing were established at Rushy Lagoon in northeast Tasmania. 8000 BP-Present day Australian climate established and warmer wetter conditions peak and forests are thicker for the following 3,000 years.

By 7,600 BP shellfish sites are well established at Carlton River.

6,000 BP Sea-levels stabilised, the island assumed its present coast, and all older coastal camp sites were now flooded; people lived mostly on a diet of shellfish, seal, mutton birds, land mammals & plant foods. 5,000 BP = The climate became cooler and drier; forest cover decreased, grasslands increased; new sites were established at oyster grounds on the east and southeast coasts; use of controlled firing increased, and new inland sites in the island's east and central midlands were established

4-2,000 BP for 2,000 years the climate was under the influence of an El Nino with unpredictable rainfall and long droughts.

4,000 BP THE 'shape' of Australia's coastline is defined by present sea level

3,500 BP Parrot fish (about 10% of the Aboriginal diet) developed a disease which made the fish fatally toxic for humans and were dropped from the diet.

5

References

[i] https://www.nma.gov.au/defining-moments/resources/the-black-line

[ii] In the 2016 Census Aboriginal and/or Torres Strait Islander people made up 4.2% of the population) approximately 605 people, and local pakana knowledge

[iii] Indigenous Environmental Health Mapping Project 2002

[iv] Environmental Health Standing Committee (enHealth) Strategic Plan 2016 to 2020 [iv] Environmental Health Standing Committee (enHealth) Strategic Plan 2016 to 2020

https://tasmaniangeographic.com/a-timeline-of-tasmanian-aboriginal-history/

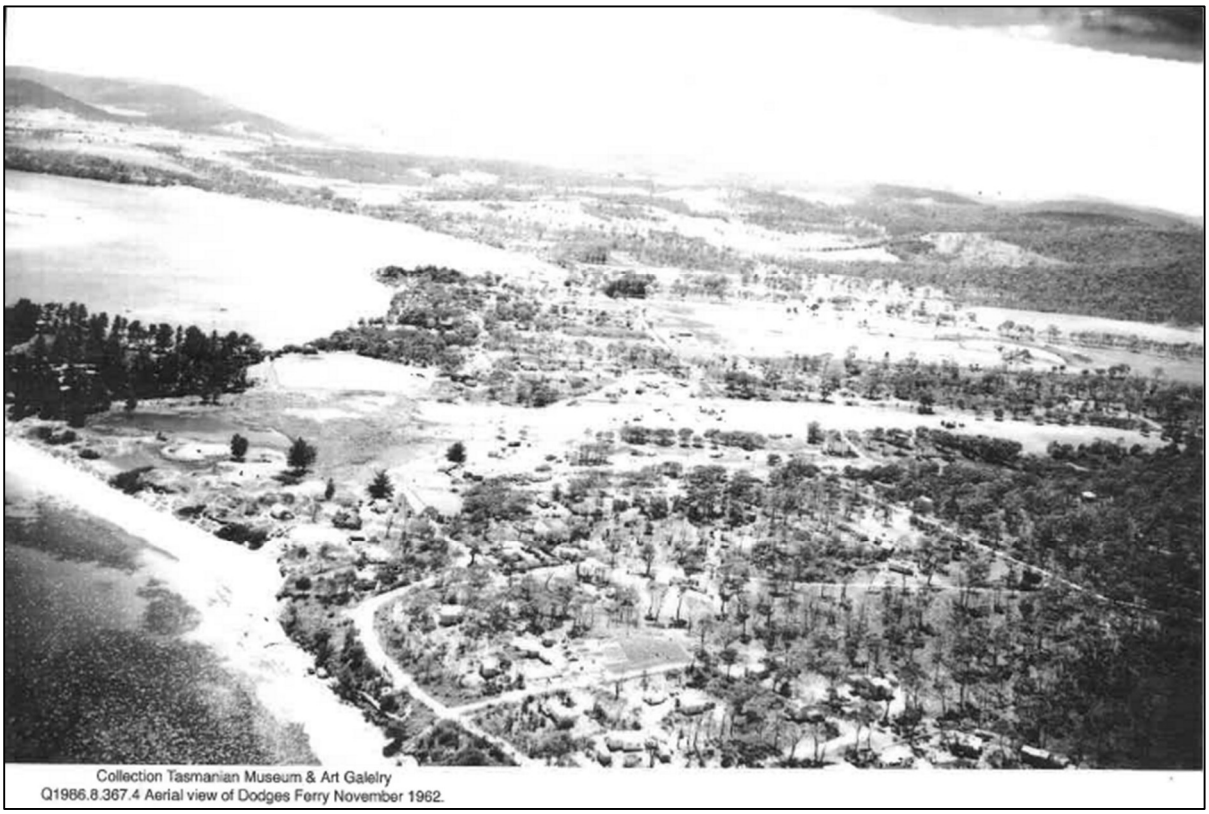
https://bth.humanrights.gov.au/significance/historical-context-ancient-history

6

APPENDIX E – INVASION OF RADIATA PINE AT BLUE LAGOON

Undated – initial orchard windbreak planting of pines to the north of Blue Lagoon

Undated – pines starting to spread around the northern edge of Blue Lagoon



1962 – pine trees now visible south of Blue Lagoon

1986 **1991**

Pine trees now becoming widespread around Blue Lagoon

2007 – pine trees widespread around Blue Lagoon

Comparison 2011 to 2024