

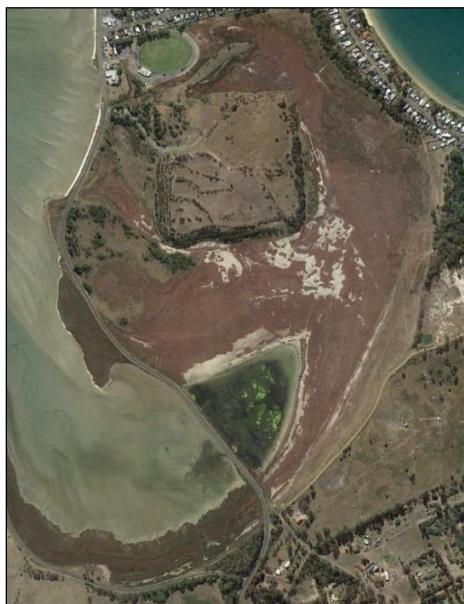


# Executive Summary

# Reserve Activity Plan

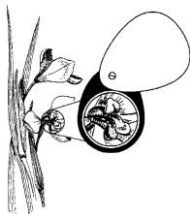
2020-2030

## LAUDERDALE SALTMARSH RESERVE



ADVICE PREPARED BY NORTH BARKER  
ECOSYSTEM SERVICES FOR CLARENCE  
CITY COUNCIL

December 2020



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Cover photo acknowledgements and copyrights: Aerial view of Lauderdale saltmarsh system – Google Earth (4/12/2019); pied oystercatchers – Eric J Woehler; lateral view of Doran's Road saltmarsh – Derwent Estuary Program.

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# 1 Objectives and Outline

Clarence City Council intend for the Lauderdale Saltmarsh Reserves Activity Plan (RAP) 2019-2029 to fulfil three main objectives:

- Ensure the reserve is sustainably managed to preserve and enhance its natural, cultural and social values;
- Identify priority management activities to be undertaken within the reserve by Council and/or volunteer groups as resources become available; and
- Encourage community engagement through raising awareness of the reserve's values and encourage participation in activities to minimise threats to these values.

To facilitate these objectives, a process of extensive consultation has been undertaken within the local community and the extended scientific community. From this process, a detailed background document has been produced to review the site-specific literature (see core reference list), summarise consultation, and outline the recommended management actions. Key themes derived from the process and the management outcomes are summarised here.



Lauderdale saltmarsh reserve area (red outline)



## 2 Key Themes

Environmental issues within the reserve area were a prominent theme within the literature and within feedback from the community and external stakeholders. Environmental issues primarily related to three core concepts of tidal flushing, protecting the future of the saltmarsh, and conservation significant natural values.

In addition to environmental themes, passive recreation opportunities within the old tip site were a high priority amongst community respondents.

It is also critical to acknowledge that saltmarsh components are part of an interconnected ecosystem complex including tidal mudflats, seagrass beds, rocky foreshores, marine ecosystems and adjacent terrestrial habitats. Due to this connectivity and inter-reliance, the RAP in several cases includes reference to the supporting habitats and makes specific management recommendations in relation to them when there is a benefit to the RAP area.

### 2.1 Tidal flushing

- Tidal connectivity and the resultant flushing action of tidal movements is a key factor in maintaining ecological condition within saltmarshes.
- Alteration of tidal flushing rates influences plant and animal communities within saltmarshes, as well as ecosystem functions such as carbon storage, greenhouse gas emissions, and soil protection.
- Tidal connectivity to Racecourse Flats has been impeded since the construction of South Arm Road in the 1930s.
- Extensive research since then has established a detrimental link between the lack of tidal flushing in the area and the declining condition of numerous environmental values.
- Both the community and external stakeholders strongly emphasised the importance of tidal flushing in maintaining priority ecosystem values.
- The restoration of tidal flushing (either by new engineering solutions or an improved management regime) was thus determined to be a high priority management goal, with recommended actions 1-5 covering flushing solutions and contingencies required for associated monitoring (Section 3).



**Blocked culvert under South Arm Road (from DEP 2017)**



**Impacts to vegetation from lack of tidal connectivity, with Racecourse Flats above and Dorans Road saltmarsh below (from DEP 2017)**

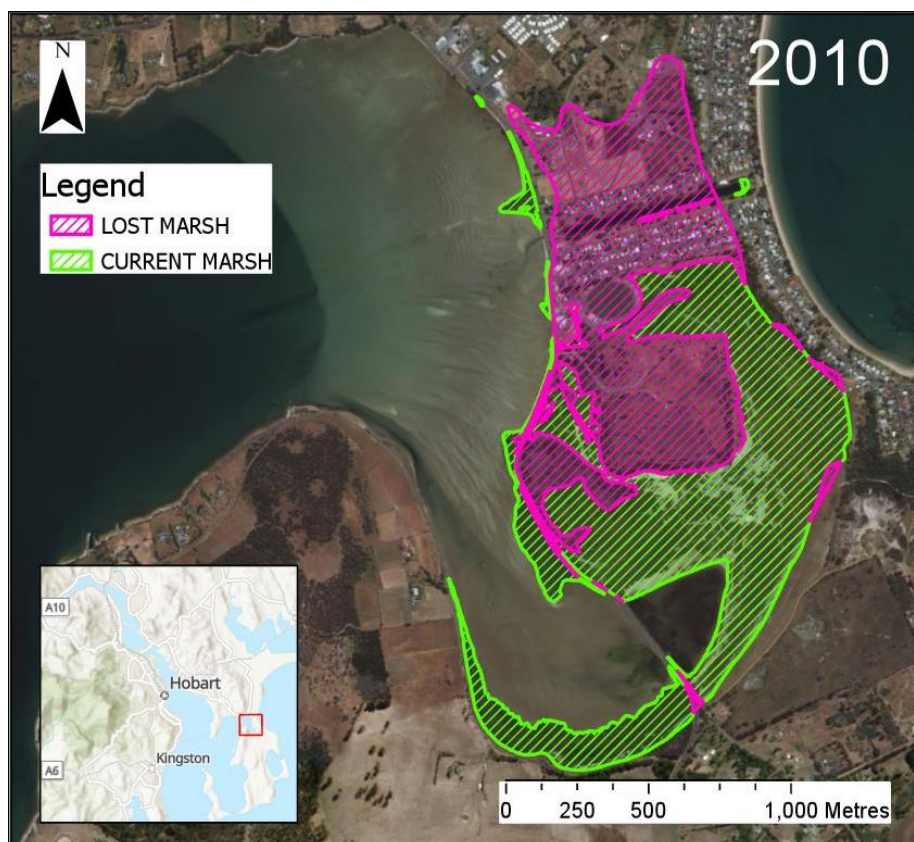
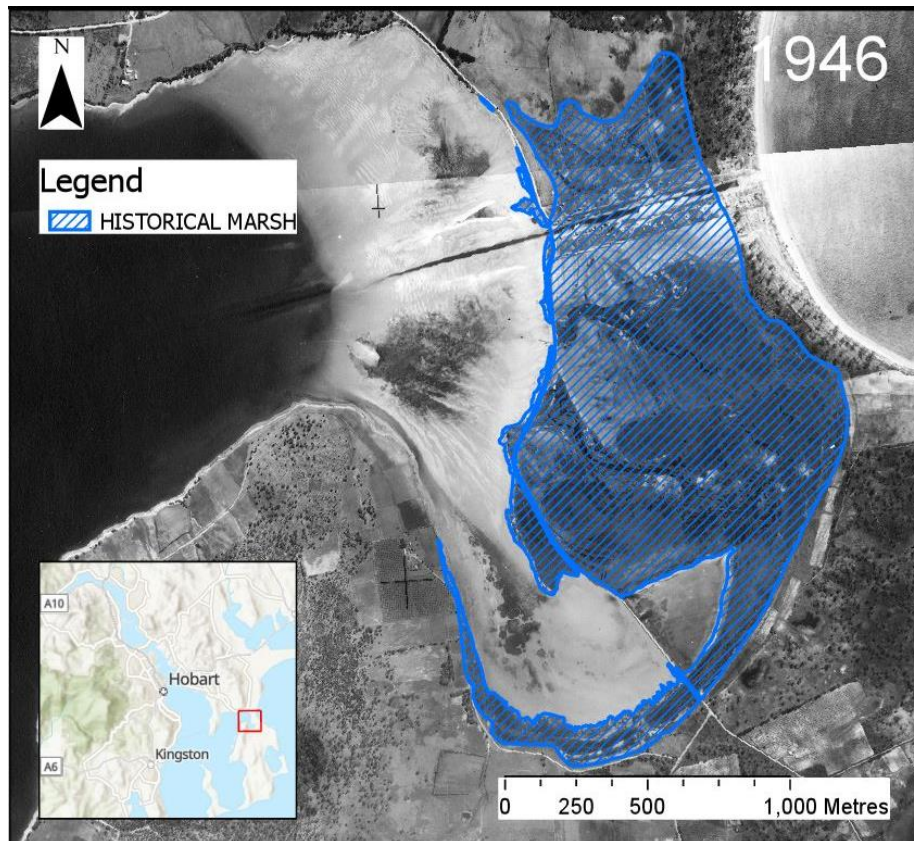
## **2.2 Protecting the future of the saltmarsh**

- In addition to being vulnerable to human disturbance, saltmarshes are at threat from rising sea levels, requiring migration pathways inland as the shoreline moves.
- The area around the Lauderdale Saltmarsh System is one of the few areas in the Derwent Estuary where surrounding landuse density is sufficiently low that the saltmarsh may be able to migrate inland in response to changing sea levels.
- Protecting the future of the Lauderdale Saltmarsh System through targeted management and alteration of the planning scheme was strongly supported by the community and external stakeholders.
- Protecting the current and future extent of the saltmarsh can also help offset some past losses due to development and other factors.
- Protecting the future of the saltmarsh was thus determined to be a long-term priority management goal, with recommended actions 6-10 covering planning and management solutions to potential threats (Section 3).

## **2.3 Conservation significant natural values**

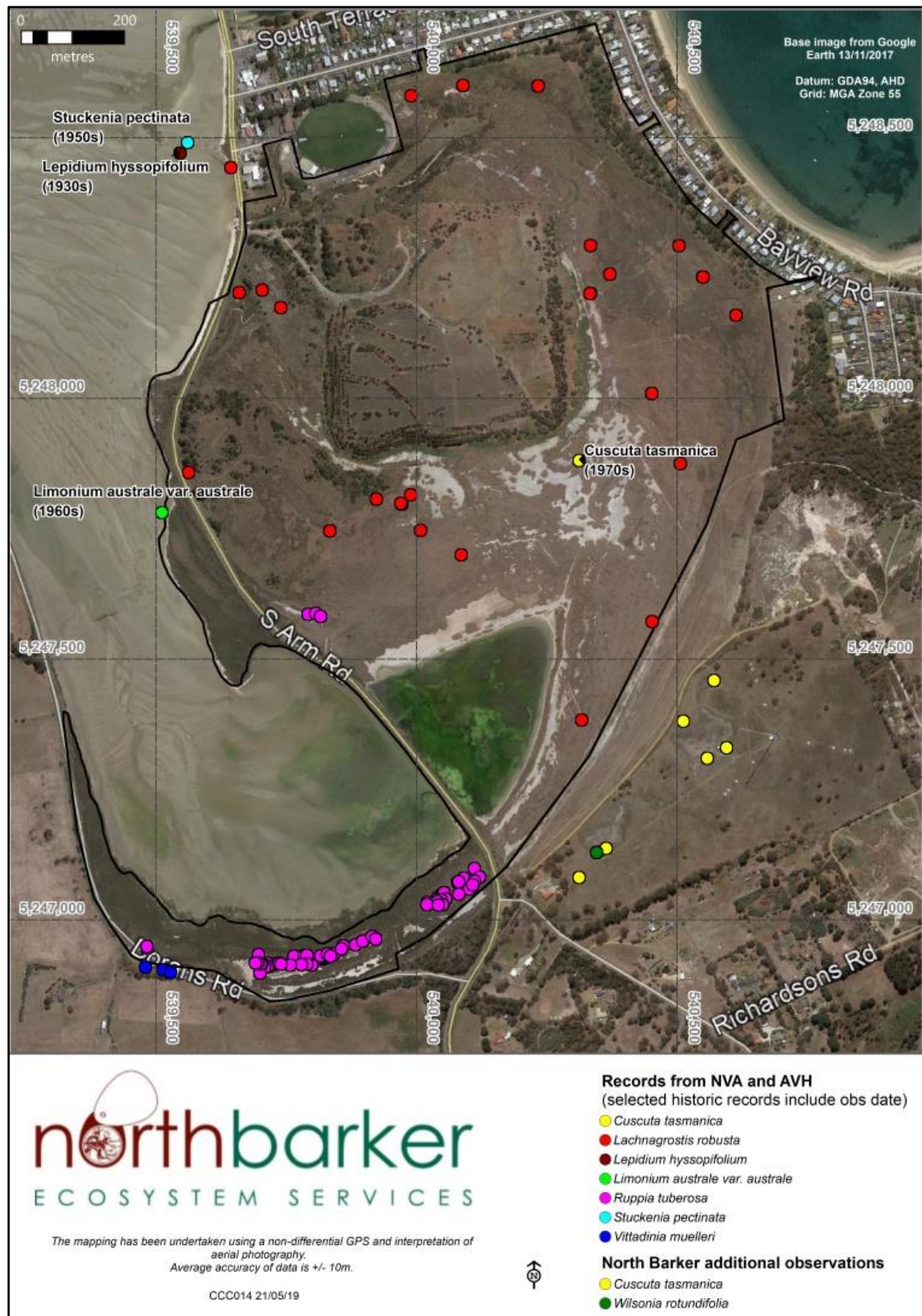
- The Lauderdale Saltmarsh System contains a large number of conservation significant values, including:
  - A nationally threatened ecological community;
  - Several occurrences of two species of threatened flora;
  - Habitat for other species of threatened flora, some of which occurred in the broader ecosystem complex in the past;
  - Known occurrences of two threatened moths and a threatened butterfly;
  - Internationally important habitat for shorebirds, utilised by threatened and migratory species; and
  - Suitable habitat for a nationally threatened bandicoot.
- Protecting and encouraging conservation significant values was strongly supported by the community and external stakeholders.
- Protecting and improving populations of conservation significant natural values, as well as their habitat, was thus determined to be a priority management goal, with recommended actions 11-20 covering various scientific, community, and management actions to facilitate this (Section 3).





Loss of past saltmarsh extent due to development (including old tip site) and other processes  
(from Wang and Prahalad, unpublished data)





Records of listed threatened flora within the Lauderdale Saltmarsh System





The rare tall blowgrass, *Lachnagrostis robusta*, recorded on Racecourse Flats in 2013



The endangered spotted handfish (photo from DPIPWE Threatened Species Link)





**Pied oystercatcher with young (photo © Eric J Woehler)**



**Chequered blue butterfly on a coastal saltbush (photo by David Ziegler on [DPIPWE Threatened Species Link](#))**



Double-banded plover at Ralphs Bay, (photo © Alan Fletcher)

## 2.4 Passive recreation opportunities within the old tip site

- The old tip site represents an outstanding opportunity for a community passive recreation area, in conjunction with opportunities for the restoration of natural values.
- This concept received significant community support and design suggestions during consultation.
- Based on the available space and community preferences, management actions 21-33 have been recommended to develop the area for community use. The recommendations cover almost all of the community desires, with a minor number of preferences being overlooked due to minimal support, stakeholder opposition, and/or being incompatible with other uses.
- Key components of the passive recreation area will be a disc golf course, a dog exercise area, shared use trails, nature spaces, and a family picnic hub.





## Lauderdale Tip Passive Recreation Concept Plan

South Arm Highway, Lauderdale



## Lauderdale Tip Passive Recreation Precedents

South Arm Highway, Lauderdale

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### Passive Recreation in Clarence

Clarence City Council has an established strategy for passive recreational activities that encourages healthy lifestyles within the community (Community Health and Wellbeing Plan 2013-2018). Key findings from recent community consultation for the Lauderdale Saltmarsh RAP reflected this priority and led to the identification of possible passive recreational uses for the old Lauderdale Tip site and its perimeter threshold to the saltmarsh.

#### Shared Trails



Two of the top five priorities for passive recreation responses\* were for increased walking and bike trails. The nearby Tangara Trail offers evidence of a successful shared-use trail approach locally. The proposal is to continue the shared trail use, via a large site circuit, and link this to the greater Tangara Trail network.

#### Wetlands Raised Walk + Education



A large proportion of responses asked for a raised platform or boardwalk to experience the saltmarsh with minimal impact. Many of these submissions asked for education and interpretation of this sensitive ecosystem to be incorporated.

Tamar Island wetland walk provides a Tasmanian example of raised walkway + educational experience highlighting the critical importance of a healthy wetland system with minimal disturbance. A lightweight, smaller scaled link is proposed for the Lauderdale Saltmarsh site with a series of wider bays and a feature outlook point.



An embedded thematic interpretation strategy is recommended to encourage artful and targetted communication of key messages. Sculptural story seats from the Three Capes Trail demonstrate a study of the intended audience and a play with media to ensure a memorable narrative.

#### Disc Golf



Over 25% of respondents put forward a proposal for a nine hole disc golf course on top of the old tip site. The Australian Disc Golf association and its Tasmanian chapter have supported a 'beginner friendly' course here for the south eastern region and have indicated a minimal equipment footprint is required for the sport.\*\* Bald Hill Park in Victoria demonstrates a similar condition where the course is played amongst native vegetation.



Whilst no fences are required for the playing area, other recreational pathways / activities may need to be spatially separated from the main course.

\*Sourced from 2019 Lauderdale Tip community 'have your say' submission summary.  
\*\* Sourced from above submission responses, + ADO letter 4/02/2019.

## Lauderdale Tip Passive Recreation Precedents

South Arm Highway, Lauderdale

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### Mountain Bike Single Track Section



Several respondents expressed a desire for separate mountain bike trails. Considering the nearby South-Arm & Meehan Range mountain bike networks this site may only need to offer a small introductory course allowing families to complete a short loop in combination with the proposed shared trail circuit to reduce impact of overall track duplication.

### Dog Exercise Area



Close to 10% of submissions asked for a separated dog exercise area within the reserve as there are few in Lauderdale that offer year round safe off-leash spaces. If an area was to be reserved for this purpose it is recommended it be fully fenced, with two exit points and located close to the carpark end of the reserve yet separated spatially from both the Picnic Hub & proposed Disc Golf zone to avoid conflicts between different user groups. It is important to ensure its final location is directed away from existing native fauna burrows / nests.

### Climate Resilient Revegetation



The raised tip site soil is predominately a deep clay-based cap and along with the dry, exposed conditions it requires resilient species to revegetate. There is an opportunity to continue the Council's approach of selecting robust native species and to further this with input from University of Tasmania's climate provenance trial projects from the midlands of Tasmania.

### Future Family Gathering / Nature Play Area



A landscaped area for family gatherings and play appeared frequently in the community responses, becoming one of the top five priorities for passive recreation for the raised tip site; an opportunity worth investigating in the longer term.

Consolidating these potential future uses together and siting nearby to the carpark end of the reserve is recommended to enable ease of access to short term use and rationalisation of maintenance.



## 3 List of Recommended Management Actions

### 3.1 Tidal flushing

**Management action 1:** As a precautionary measure it is recommended to install a short (20-50 cm high) bund around 10 m from the base of the landfill, to capture any surface runoff from the site and to prevent inundation from tidal or freshwater sources.

Note that alternative measures are available to this solution, such as controlling inundation to a level where the landfill isn't compromised. As such, the installation of a bund is only a contingency action in a scenario where full tidal flushing is to be restored and the need for a bund is identified in soil and water monitoring results (relating to management actions 2 and 3).

**Management action 2:** Develop a ground and surface water monitoring program

**Management action 3:** A survey of Potential Acid Sulphate Soils should be undertaken on site to accurately quantify the oxidation and acid potential.

**Management action 4:** Reinstate, using a staged approach, the tidal flushing to Racecourse Flats.

**Management action 5:** Implement a maintenance program to remove blockages from three existing drains flushing into the saltmarsh and investigate potential long-term engineering solutions.

### 3.2 Protecting the future of the saltmarsh

**Management action 6:** Amend local planning scheme to extend Biodiversity Protection Area overlay to cover all areas predicted to be occupied by saltmarsh following sea level rise induced migration – this should include a buffer to protect from disturbance from local landuse.

These amendments will be consistent with the Southern Tasmanian Regional Land Use Strategy (STCA 2011) regional policy:

*C 2 Ensure use and development in coastal areas is responsive to effects of climate change including sea level rise, coastal inundation and shoreline recession.*

*C 2.3 Identify and protect areas that are likely to provide for the landward retreat of coastal habitats at risk from predicted sea-level rise.*

Depending on the nature of the amendment, it may be possible to stratify areas in relation to the saltmarsh:

- Current saltmarsh habitat (priority natural values).
- Near future saltmarsh habitat (modelled extent at a future point in time, taking into account predicted movement and migration constraints).
- Long term refugia corridors for saltmarsh<sup>1</sup>.

**Management action 7:** Engage with surrounding landowners on the detrimental impacts of grazing saltmarsh habitat and the limits this could have on migration of the community in response to climate change.

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<sup>1</sup> See Whitehead (2012)

**Management action 8:** Maintain and monitor the integrity of the saltmarsh boundaries to stop trail bikes and 4WD access.

**Management action 9:** Complete weed survey and produce a Weed Management Plan.

**Management action 10:** Support a partnership with key stakeholders to develop a seagrass restoration program in Ralphs Bay.

### 3.3 Conservation significant natural values

**Management action 11:** Include soft peppercreep in plantings within the passive recreation area of the old tip site<sup>2</sup>.

**Management action 12:** Undertake systematic survey for threatened lepidopterans, particularly looper moths.

**Management action 13:** Engage citizens scientists to look for and lodge observations of threatened lepidopterans via signage.

**Management action 14:** Consider potential for keeping some African boxthorn as a food plant for chequered blues where the presence of the weed won't breach obligations under the Tasmanian *Weed Management Act 1999*.

**Management action 15:** Include habitat plants for these species in ornamental plantings and revegetation efforts where possible, in particular where plantings are close to viable natural habitat.

**Management action 16:** Design and implement a bird monitoring program that builds upon existing data and monitoring by Mike Newman, reflects methods and priorities of Birdlife Tasmania regional shorebird counts, and utilises power of citizen science for data collection.

**Management action 17:** Explore options for creation of roosting habitat around East Marsh Lagoon following some restoration of tidal flushing.

**Management action 18:** Explore infrastructure options for enabling flightless chicks and walking adults to cross the road.

**Management action 19:** Include educational signs in passive recreation area detailing broader ecosystem connectivity, whale and whaling history in the area and nearby threatened species such as handfish.

**Management action 20:** Include educational sign aiding identification of eastern barred bandicoots and encouraging reporting of observations.

### 3.4 Passive recreation opportunities<sup>3</sup>

**Management action 21:** Design trailhead landscape and signage for reserve with path map and reserve use guide signage, including signage directing walkers to other nearby trails such as the Tangara trail. Include adjacent saltmarsh species and threatened species for education.

**Management action 22:** Design and implement an entrance trailhead design.

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<sup>2</sup> Note this is likely to require permit approval under the TSPA and will require some consideration of optimal propagation methods and likelihood of persistence.

<sup>3</sup> All actions in this section are contingent of successfully seeking funding

**Management action 23:** Design and construct a sensitively sited boardwalk to act as a saltmarsh interpretation trail.

**Management action 24:** Design and construct a shared use gravel pad path circuit track with seating.

**Management action 25:** Design and construct a single-track mountain bike connection track.

**Management action 26:** Design and construct a carpark using Water Sensitive Urban Design principles over several stages to suit growth in usage.

**Management action 27:** Design and construct a fenced dog exercise area.

**Management action 28:** Develop a detailed design for a children's nature play area and family picnic hub.

**Management action 29:** Create dense revegetation areas using local native species within the nature spaces.

**Management action 30:** Sensitively design and develop a 9-hole disc golf course on the tip site.

**Management action 31:** Extend existing wildlife corridors/ shelter belt planting with climate resilient native plants.

**Management action 32:** Develop a feasibility study for a Wetland Interpretation Centre (similar to Tamar Wetland Interpretation Centre), which should include cultural interpretation panels acknowledging traditional land occupants.

**Management action 33:** Develop a Bushfire Management Plan for the tip site.



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