



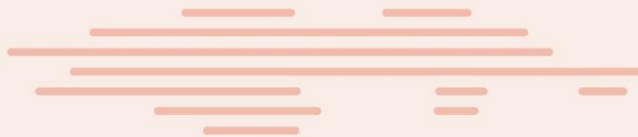
# Brighton Council

---

## Draft Weed Management Strategy 2021-2026



APRIL 2022



We acknowledge the traditional owners who once walked this country: the Mumirimina people.

The Mumirimina belonged to the Oyster Bay tribe. This was the largest tribe in Tasmania and covered 8000 square kilometres. kotalayna levee in Brighton was a significant meeting place where hundreds of generations of Aboriginal families hunted, gathered, corroboreed, camped and traded.

In the course of colonisation, dispossession of the Mumirimina was early, rapid and extensive.

We acknowledge the Tasmanian Aboriginal Community today as the continuing custodians of this land, and pay our respects to Elders past and present.

Through our words and actions we strive to build a community that reflects and respects the history and hopes for all the people of Brighton.



# Contents

Mayor foreword.....	6
Key strategies and plans.....	7
Introduction.....	8
The Brighton region .....	8
Legal requirements of landholders.....	9
Principles of weed management .....	10
An adaptive and innovative approach to weed management.....	12
Changing context of managing weeds.....	12
Brighton Council weed management program scope .....	14
Plan objectives .....	14
Brighton Council's weed management strategy objectives are:.....	14
Key stakeholders .....	15
Survey methodology.....	16
Regional priorities.....	16
Promoting weed awareness.....	17
Protecting high-value conservation areas .....	19
Protecting agricultural and horticultural regions.....	21
Maintaining green spaces and promoting pride in the area people live.....	22
Futureproofing for infrastructure and urban development and asset management.....	22
Eradication zones .....	23
Zone 1: Estuary .....	23
Zone 2: Dromedary.....	23
Zone 3: The Industrial Hub .....	24
Zone 4: Foreshore/Walking trails .....	24
Zone 5: Agriculture and Horticulture .....	24
Limitations.....	25
Cause of weed spread.....	25
Results.....	27

---

Sites significant as seed sources ..... 28

Action table summary ..... 29

References ..... 30

Appendix I Weed eradication zones ..... 32

Appendix II Stakeholder action tables ..... 38

(excluding Brighton)..... 38

Department of State Growth weed action table ..... 39

Tas Rail weed action table..... 40

Crown Land Services weed action table ..... 40

Appendix III Weeds in the region ..... 42

Appendix IV Causes of weed spread ..... 46

Appendix V Brighton Council weed action table ..... 48



Image: Fennel is a weed found throughout Brighton. Derwent Catchment Project, 2022



## Partnering with the Derwent Catchment Project

At around one-fifth the total area of Tasmania, the Derwent Catchment is a vast region with extraordinarily diverse landscapes. Within its borders are hydro-electricity operations, agriculture, forestry and aquaculture, and it's also one of the state's favourite tourist destinations. The bulk of Hobart's drinking water originates here.

The Derwent Catchment Project (DCP) was set up to assist landholders to restore and maintain natural and agricultural landscapes across this challenging environment, to ensure a prosperous and sustainable future for the Derwent Catchment.

The DCP works team is available for weed control and revegetation projects for private landowners.



## Authors

For further information about this plan please contact the Derwent Catchment Project via: [facilitator@derwentcatchment.org](mailto:facilitator@derwentcatchment.org).

This plan was compiled by Morgan McPherson & Josie Kelman

## Publication Details

This document may be reproduced in whole or in part for the purpose of study or training, subject to the inclusion of an acknowledgement of source and it not being used for commercial purposes or sale. Reproduction for purposes other than those given above requires the prior permission of the Derwent Catchment Project and Brighton Council.

## Disclaimer

The Derwent Catchment Project does not certify that this publication, or any part of it, is correct or complete. To the extent permitted by law, the Derwent Catchment Project excludes all liability to any person for any consequences, including but not limited to all losses, damages, costs, expenses and other compensation, arising directly or indirectly from using, in part or in whole, any information or material contained in this publication.

---

## Mayor foreword

I'm very pleased to present Brighton Council's Weed Management Strategy as part of our ongoing work towards a more sustainable environment for our communities.

Our municipality has a proud Tasmanian Aboriginal history of effective land management, with the Mumirimina people's custodianship of country. The kutalayna/Jordan River area was a significant meeting place where hundreds of generations of palawa people hunted, gathered, corroboreed, camped and traded.

Caring for the land and current weed invasion threats needs strong partnerships and we are proud of our community volunteers for stepping forward. Residents are volunteering their time and resources to work with the Derwent Catchment Project (DCP), Derwent Estuary Program and Landcare Tasmania to eradicate weeds and restore the Bridgewater and Old Beach foreshore.

We look forward to supporting these groups to connect with more community volunteers and improve the health and wellbeing of our communities through immersion in our captivating environment.

At Brighton Council we collaborate and celebrate the skill, passion and knowledge in our local area. In the last year, we have come a long way. Part of this effort is working with natural resource management experts, such as our partners in this strategy from the Derwent Catchment Project to develop clear future pathways.

The Brighton Council Weed Management Strategy will help curb the spread of weeds and shows our care for the Brighton area and our role in reducing invasive weed species in our area.

Our community has told us of their commitment to true change and sustainability progress, through the 2050 Vision. This strategy will help us measure our success in this area.

Not only does removing weeds make way for native habitat growth for bandicoots and other animals, but it also improves the overall resilience of the landscape to shocks. More extreme and frequent climate change impacts are expected; heatwaves, droughts, storm events and flooding are likely to hasten the spread of weeds and put pressure on the survival of the natural environment.

Children, through the Brighton Council sustainability program often write and present about the state of our environment. They say quite simply we must look after the environment... as we depend on it, and it is our future.

We truly value our wonderful environment, our wildlife, plants, and waterways and look forward to doing our best for a sustainable future.



Mayor Leigh Gray

Brighton Council

---

## Key strategies and plans

Brighton Council has a range of natural resource management work with strategic ties to this strategy:

- Draft Natural Resource Management Strategy in development
- Climate change resilience program – the *Brighton Council Climate Change Resilience Strategy 2019*
- Street tree program – the *Greening Brighton Strategy 2016-2021*
- Derwent Estuary Program participation and estuary weed management program
- Regional Urban Tree Managers group (Kingborough Council, City of Hobart, Glenorchy City Council)
- The National Environment and Sustainability Program via a partnership with the University of Tasmania to work on nature-based solutions: [About the National Environmental Science Program - DAWE](#)
- Working with volunteer groups through Landcare Tasmania
- The MONA Institute Botanica, Material Institute and Bond Place
- Sustainability education program working with local schools
- Work collaboratively with regional landscape management agencies to effectively manage natural assets (e.g. Property Services, PWS, NRM South, DNRE, Tas Water)



Image: Old Beach, Derwent River foreshore. Brighton Council, 2022



## Introduction

This weed management plan is a working document that can be updated as new information becomes available. The focus of the plan is to provide a strategic framework to guide priority weed management and investment into the region.

This plan also considers climate change as a management issue as the increasing intensity of events such as fire and floods are creating reactive weed management issues. These event and associated management issues can absorb resources, funding and time that is unanticipated.

This plan also supports the implementation of individual Statutory Weed Management Plans and relies on the Southern Tasmanian Weed Management Strategy for the broader direction. The plan provides a strategy for managing weed threats on-ground by identifying priority weeds and the regionally specific causes of weed spread.

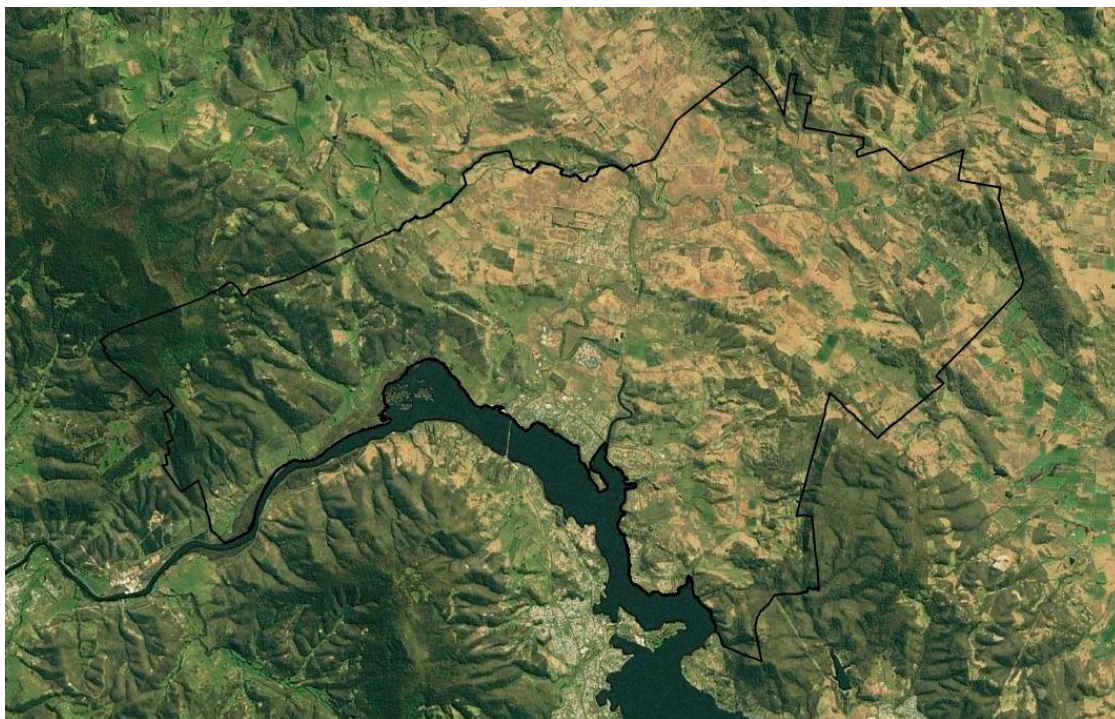


Image: Brighton Council municipality. Spectrum Mapping System, Brighton Council, 2022

### The Brighton region

Brighton municipality is located approximately 20 kilometres north-east of Hobart on the eastern side of the Derwent River and forms part of the urban-rural interface of Greater Hobart. The municipality is bordered by Derwent Valley, Southern Midlands and Clarence Councils and is traversed by the Midland Highway and the East Derwent Highway.

The municipality consists of nine suburbs. Dromedary, Honeywood and Tea Tree are predominantly rural. Bridgewater, Brighton, Gagebrook, Herdsmans Cove and Old Beach are predominantly urban and house most of the population, and Pontville is a significant colonial-era village.

The rural qualities of Brighton are various with the municipality hosting wineries, cherry growers, sheep graziers and a range of small farm businesses. Industry plays a vital role in the municipality, and Brighton is well placed to take advantage of future growth in the industry.

## Legal requirements of landholders

The *Weed Management Act 1999* was proclaimed on 1 September 2000. It is the principal legislation concerned with the management of declared weeds in Tasmania. This legislation states that "landholders must take all reasonable measures to prevent their land being infested with a declared weed and prevent a declared weed on their land from spreading. All landholders must also meet the management requirements as outlined in Statutory Weed Management Plans in order to comply with the *Weeds Management Act 1999*".

The objectives of the Act are:

To minimise the negative effects of weeds on the sustainability of Tasmania's productive capacity and natural ecosystems. This will be achieved by promoting a strategic and sustainable approach to weed management which encourages community involvement in weed management; and promotes the sharing of responsibility for weed management between government, natural resource managers, the community and industry in Tasmania.

As of the 31st of March 2021, the General Biosecurity Duty (GBD) came into effect as part of the Biosecurity Act 2019. The GBD operates as a statutory "duty of care" in respect to biosecurity. This means that a person (which includes all levels of Government, individuals, and private corporate entities) must take all reasonable and practical measures to prevent, eliminate, or minimise biosecurity risks. The introduction of the GBD does not mean that you now must know everything about biosecurity, however you do need to know about the biosecurity risks that apply to your specific industry, business, work environment or pastimes - and how to manage or minimise those risks to the best of your ability.

The GBD does not directly replace the *Weed Management Act 1999*. It maintains the responsibility of landholders to manage weeds. Where the GBD differs is the responsibility it places on contractors, visitors, and persons responsible to contain, reduce and eradicate, if possible, the presence of environmental and declared weeds. In most instances a person or business will have to develop a biosecurity plan that allows them to action steps which will lead to a positive environmental outcome. If a person/business is found to not being performing their GBD in relation to weed control, a weed notice can be issued on the grounds that they did not attempt to comply and follow the appropriate steps to reduce weed burden.

Further details can be found on the Biosecurity Tasmania | Department of Natural Resources and Environment Tasmania (nre.tas.gov.au) website  
<https://nre.tas.gov.au/biosecurity-tasmania>

---





Image: Samuel Shelley, 2019

## Principles of weed management

Best practice principals are based on minimising weed spread and reducing the risk of new introductions. Preventing the introduction and spread of weeds is the most effective form of weed management. Many thousands of dollars can be saved by taking a precautionary approach particularly by implementing pre-emptive hygiene practices.



Image: Tea Tree winery, Brighton municipality, Brighton Council, 2022

Weed management requires a continuous, long-term commitment. Early detection of weed infestations followed by immediate control is the most successful weed management practice. It is also important to work from areas of low infestation and to address individual outliers before moving to more dense infestations. This approach ensures that light infestations do not become more difficult to address or provide a source of ongoing infestation. Topography should also be considered moving from upslope to downslope to reflect the movement of water (and seed) in the landscape. It is also important to factor in the maintenance of weed control efforts as part of budget allocation to successfully tackle weed problems.



In planning weed control works the environmental setting and local sensitivity should be considered. For example, in or near wetland areas foliar spray of large plants is inappropriate and mechanical control or hand control methods such as cut and paste or drill and fill should be undertaken. It may be that foliar spray is required on small plants after initial control measures due to large numbers of small seedlings appearing. If so, herbicide should be water and frog safe, e.g., Round Up Biactive. At times the most pragmatic approach may also be to remove weeds using manual removal such as digging out plants or scalping the top layer of soil and the associated seed bank in these instances, restoration will be required. It is important that an adaptive approach to management is taken to ensure outcomes are achieved and long-lasting.

If the weed control activities involve digging or ground disturbance an Aboriginal Heritage Assessment may be needed. The Dial Before You Dig referral service can assist landowners determine whether there is a need to seek further advice about the presence of Aboriginal relics in an area. An Unanticipated Discovery Plan should always be kept on site during the works. <https://www.aboriginalheritage.tas.gov.au/>

A key component of successful weed management is a cooperation between landholders and land users to ensure a strategic approach. Legally, landholders and land users are responsible for weed management, and collective action is necessary where boundaries meet and adjacent landholders' impact upon or are impacted by others. Similarly, cooperation between government agencies and landholders is vital to establish the research, educational and legislative framework required for successful weed management.

This plan focuses on council and landholder responsibilities including the General Biosecurity Duty however, additional efforts will be made to ensure that all stakeholders are engaged and informed of weed control activities to develop a collaborative approach across the municipality and between municipalities.



Image: Patterson's Curse, Derwent Catchment Project, 2022

## An adaptive and innovative approach to weed management

Different land managers will have different approaches to controlling weeds, and the plan recognises that controlling weeds by using chemicals is not always the preferred or best approach. Suppressing weed growth through grazing, fire and mechanical control can be effective if used singularly or in combination with chemical control.



Image: Tea Tree, Brighton municipality, Brighton Council, 2022

Pre-emptive controls such as hygiene practices and public awareness are effective at reducing weed spread. Creating policies and procedures to reduce the possibility of weed spread through dirty vehicles, machinery, and persons will stop the spread of weeds, resulting in a reduction of follow-up weed treatment. Engaging with the public and land managers to identify and treat weeds is essential for preventing and reducing the general weed burden. To support the implementation of this plan's objectives, the Derwent Catchment Project regularly produces interpretation material about weed management and best practice to help raise awareness and support on-ground outcomes on private land.

## Changing context of managing weeds

Climate change is already influencing the spread of weeds as witnessed by the increase in fires and 2016 floods in Tasmania. These events require a reactive management response that is not generally budgeted and can absorb resources from strategic programs. However, more frequent and intense fire events provide a complex management challenge, where wind-dispersed weed infestations are nearby.

These events, coupled with changes in structure and composition of ecosystems, are impacting the condition of native vegetation communities.



Climate change is also modifying how plants behave. The growing seasons are changing which will impact when and how weeds can be treated. Changes in weather may also impact the effectiveness of herbicides. Drought-stressed plants will thicken their leaf cuticles resulting in a restriction in the uptake of the herbicide. With the shift in climate, invasive plants will continue to move south on the mainland; however, in Tasmania, we will see an increase in the dispersal of drought-tolerant grasses such as serrated tussock and Chilean needle grass, with the latter posing a major threat due to its expanded temperature range (AdaptNRM, 2014).



Image: Bushfire is one of Brighton's key climate change impacts, Stock image 2022

Further local climate change impacts information can be found in the Information for Decision-Makers Report 2019, available at the Brighton Council website: [Environment – Brighton council](#)



Image: Boneseed weed removal, Old Beach Clean Up Australia Day March 2022. Brighton Council, 2022



Image: Boneseed weeds, Derwent Catchment Project 2022

The Brighton municipality is one of the fastest expanding regions in southern Tasmania and will likely see further growth in tourism, agriculture, and urban development. New developments and expansion pose a threat for weed management as land-use change can lead to weed biological material being disturbed and spread around the municipality if hygiene protocols are not strictly observed.

## Brighton Council weed management program scope

### Plan objectives

Brighton Council's weed management strategy objectives are:

- Map the distribution of weeds within the Brighton municipality
- List regional priorities and how they align with Brighton Council's strategic plans
- Develop weed eradication zones for the next five years
- Provide estimates on costs to perform weed management within the Brighton municipality

This weed management plan is a living document that can be adapted to include new information and changing weed management requirements. The plan seeks to align with Brighton Council's 2050 vision to ensure works completed on-ground contribute to the holistic management of the municipality.

---



## Key stakeholders

**Brighton Council** is the principal manager of local community infrastructure, including roads, waste collection, public recreation facilities and area planning. The council is responsible for weed management across council-owned land and council managed roads.

**Crown Land Services (CLS)** facilitates the appropriate management, use and development of Crown land, including the licensing, leasing, and sale of Crown properties. CLS is also responsible for the management of unallocated Crown land.

**Department of State Growth** is responsible for maintenance and works along the State managed road network.

**The Parks and Wildlife Service (PWS)** manages a range of reserved lands, including national parks, regional reserves, and conservation areas across Tasmania.

**Tas Networks** is a Tasmanian Government Business Enterprise that supplies power from the generation source to homes and businesses through a network of transmission towers, substations and powerlines. They undertake weed control and vegetation maintenance under transmission lines as part of their contract as land managers

**Tas Rail** is a Tasmanian Government Business Enterprise that manages and operates on the rail network. As part of the management of rail corridors, Tas Rail is responsible for vegetation management along rail corridors and infrastructure such as rail yards.

**Tas Water** is Tasmania's water and sewage utility and has infrastructure across the municipality.

---

## Survey methodology

Weed distribution data (points and polygons) were collected using Global Positioning System (GPS) & Geographical Information System (GIS) by vehicle along maintained roads, council land and private land adjacent to roadways in core areas of the municipality. State Growth roads were also mapped where possible to capture a holistic picture of weed distributions. The survey was conducted during late spring.

Information was collected on the area occupied by the weed, the number of individuals and the infestation density, in accordance with the Natural Values Atlas record proforma (DPIPWE).

The focus of the mapping was declared weed species listed under the Tasmanian Weed Management Act 1999. Other weeds of significance were captured to create a more comprehensive picture of the extent of commonly occurring invasive species. Where recent records exist in the Tasmanian Natural Values Atlas (NVA) on land beyond roadsides, this information has been included to build a broader understanding of weed distribution. We have also erred on the side of caution and included records of species recently recorded in the NVA but which may not have been observed due to seasonality.

The following list of recorded weed species is categorised as to whether they are: declared under the Weed Management Act 1999; recognised environmental weeds; or introduced species which are non-declared weeds. These non-declared species are often weeds of roadsides and degraded areas. In some instances, thistle mapped is representative of thistles that were treated in 2021. This has been done to rectify issues with the weed survey timing, and the sites will require follow-up treatment due to the longevity of thistle sites.

## Regional priorities

The survey results showed a variety of weeds across the Brighton municipality with varying levels of threat. To help guide the prioritisation of weed control, the key themes from the 2050 Vision for Brighton have been combined with a strategic weed management approach. The key themes and the appropriate sub-themes that were selected can be seen below.

### A good life at every age

- Supporting opportunities for recreational and leisure for everyone... – 'green space'
- Creating child friendly environments including parks and playgrounds

### A proud community

- Inspiring pride in where we live
- Building connections with communal events spaces

### A thriving place

- Enabling major infrastructure project for a growing community

### A caring council

- Matching infrastructure and services as our population grows
- Managing efficient and cost effective regulation, design and planning for growth, affordability and amenity

### A comfortable home

- Ensuring safe, clean and tidy neighbourhoods
- Boosting community health and wellbeing
- Ensuring an abundance of trees and open spaces in urban areas
- Maintain a semi-rural feel with views of the Mountain and river



Image: 2050 Vision, Brighton Council, 2022

## Promoting weed awareness

Successful weed management depends on everyone work together. Helping people identify weeds and understand their impacts is a critical first step in minimising weed spread and reducing the risk of new introductions. Schools, community groups and existing stakeholder networks can help promote weed awareness.

Fostering a collaborative approach where different stakeholders share, knowledge, experience and expertise about weeds and effective weed management increases the community's capacity to undertake safe and effective control works and to manage weeds across tenure.



Image: Landcare Tasmania and MONA's Botanic Institute working together to replant the Eddington Street, Derwent Foreshore Area, National Tree Day, Brighton Council 2021

Promoting weed awareness and facilitating community participation in weed management builds support for weed management programs. Evidence of community and stakeholder support is often requested to support applications for weed funding.

High value conservation areas – facilitating community involvement in the recognition and removal of weeds such as boneseed, blackberry, sweet briar and boxthorn will reduce impacts on the natural values



Agricultural and horticultural regions – Weeds such as Chilean needlegrass and serrated tussock are often hard to identify, particularly at different times of the year. The more people who have learnt to recognise these weeds and are actively controlling them, the greater the chance of reducing their spread and impact.



Image: African Boxthorn, Derwent Catchment Project 2021

For smaller hobby farms and rural residential properties, landholders may not be aware of some of the biosecurity risks associated with the movement of hay, straw and livestock and may inadvertently be spreading weeds.

In residential areas, educating people about the impacts of dumping garden waste and controlling weeds, such as African boxthorn, in their backyards, can reduce the impacts on and improve the amenity of surrounding areas.

For industrial and commercial areas where there is movement of machinery and equipment increasing awareness of how weeds travel and the importance of good hygiene practices can also help reduce the spread. For annual weeds such as Paterson's curse it is important to know where infestations have been. Although the plants may not be visible at all times of year, the seeds will remain in the soil ready to be transported by machinery and slashers moving from one area to another.

Weed alerts. With changes in climate it is predicted that new weeds will arrive and thrive in Tasmania (Derwent Catchment Project, 2021). Building a network of people interested in weeds and reporting possible incursions is a great way to identify weeds and trigger early interventions to prevent new weeds becoming established.



## Protecting high-value conservation areas

*2050 key themes: A sustainable environment – nurturing natural place for people and wildlife, A proud community – inspiring pride in where we live*

Brighton is located along the foreshore of the Derwent estuary and is the interface between urban and rural landscape and has unique habitat. The Dromedary saltmarshes (located at the western end of the Brighton municipality) and the saltmarshes near the Jordan River/Gagebrook are critical habitats. Saltmarshes are wetland habitats generally defined by the presence of halophytic communities (salt-tolerant plants) that can tolerate high salinity levels and are subject to waterlogging. The saltmarshes provide ecosystem services such as supporting biodiversity, including crucial feeding, roosting and breeding habitats for resident and migratory shorebirds, water birds and many terrestrial bird species, providing feeding, resting and nursery habitat for fish.



Image: Saltmarsh area Old Beach Derwent River foreshore. Brighton Council, 2022



Saltmarshes also provide human-centric benefits including providing flood protection and tidal surge, improving the coastal water quality by intercepting land-driven nutrients and stabilising nutrient flows and reducing the likelihood of nutrient spikes in the system that can cause algal blooms; intercepting and settling down suspended sediments in the water column, which is critical for maintaining and enhancing coastal water quality; and for providing opportunities for recreation and education. Ensuring saltmarshes have low weed burden will allow them to function to their fullest and benefit the ecosystem. Climate change poses risks to saltmarshes by sea-level rise, which will force saltmarshes further inland. In some instances, saltmarshes will not be able to migrate due to steepness and/or infrastructure. It is essential to ensure that future locations are free of weeds to mitigate future weed management and allow minimal disturbance to native vegetation in areas where migration is possible.

Another valuable ecological community is wetlands which found throughout the Brighton municipality. Natural and artificial wetlands provide habitat for local wildlife, add visual appeal to an area and can provide essential ecosystem services such as treating stormwater if used correctly. The Derwent estuary has lost most of its wetlands to development, land clearing and altered waterflow changes. Wetlands like saltmarshes pose a challenge when managing weeds as herbicide use should be kept to a minimum and only aquatic safe chemical should be used. Keeping wetlands free from weed and maintain weed free creeks, streams, and rivers means that likelihood of weed infestation is reduced.



Image: Riverside Drive, Bridgewater. Brighton Council, 2022

## Protecting agricultural and horticultural regions

*2050 key themes: A sustainable environment – supporting locally grown fresh products*

Brighton municipality supports a wide range of horticultural growers, including cherry farms and a growing collection of vineyards. The locality of the region to other wine regions and Hobart in a combination of climate makes Brighton an ideal vineyard producing landscape. Weeds can pose a risk through competition for nutrients and land. Climate change is adding a layer of management complexity for existing and new weeds to the region and will also increase the chances of biosecurity hazards such as fruit fly entering Tasmania. Managing weeds that are alternative hosts to fruit fly means that there is less chance of fruit fly being able to establish in the region. The DCP has developed a biosecurity plan for the Derwent Catchment, and this plan has the potential to be expanded into the Brighton municipality.

Another key threat for agricultural and native areas are the invasive *Nassella* grass species which can invade grasslands and pasture reducing productivity. These grasses can also contaminate crops including hay, and the seeds can injure livestock, in particular sheep. The two main species of concern are Chilean needle grass (*Nassella neesiana*) and Serrated Tussock (*Nassella trichotoma*), both are declared weeds within Tasmania and are Zone A weeds for Brighton municipality. Early detection and eradication are a priority for these invasive grasses.

Agriculture is an important component of Brighton municipality's industry and weeds can have a big impact on the sector's profitability. It is important that farmers, both commercial and hobby, are supported with awareness, knowledge and skills to identify and control weed pests on their land and can collaborate across property boundaries to address threats.





Image: Cherry orchard, Samuel Shelley, 2019

## Maintaining green spaces and promoting pride in the area people live

*The 2050 vision themes: as A comfortable home, A sustainable Environment, A caring council, A good life at every age, A proud community*

Weeds can quickly dominate desirable green spaces, reduce the habitat and health benefits for the public, restrict access for walk/bikeways, decrease views, create fire hazards, and increase the workload for park maintenance teams. This weed plan will identify where weeds are decreasing the benefits of green spaces and non-vehicle transitways and prioritise weeds that have the most significant impact.

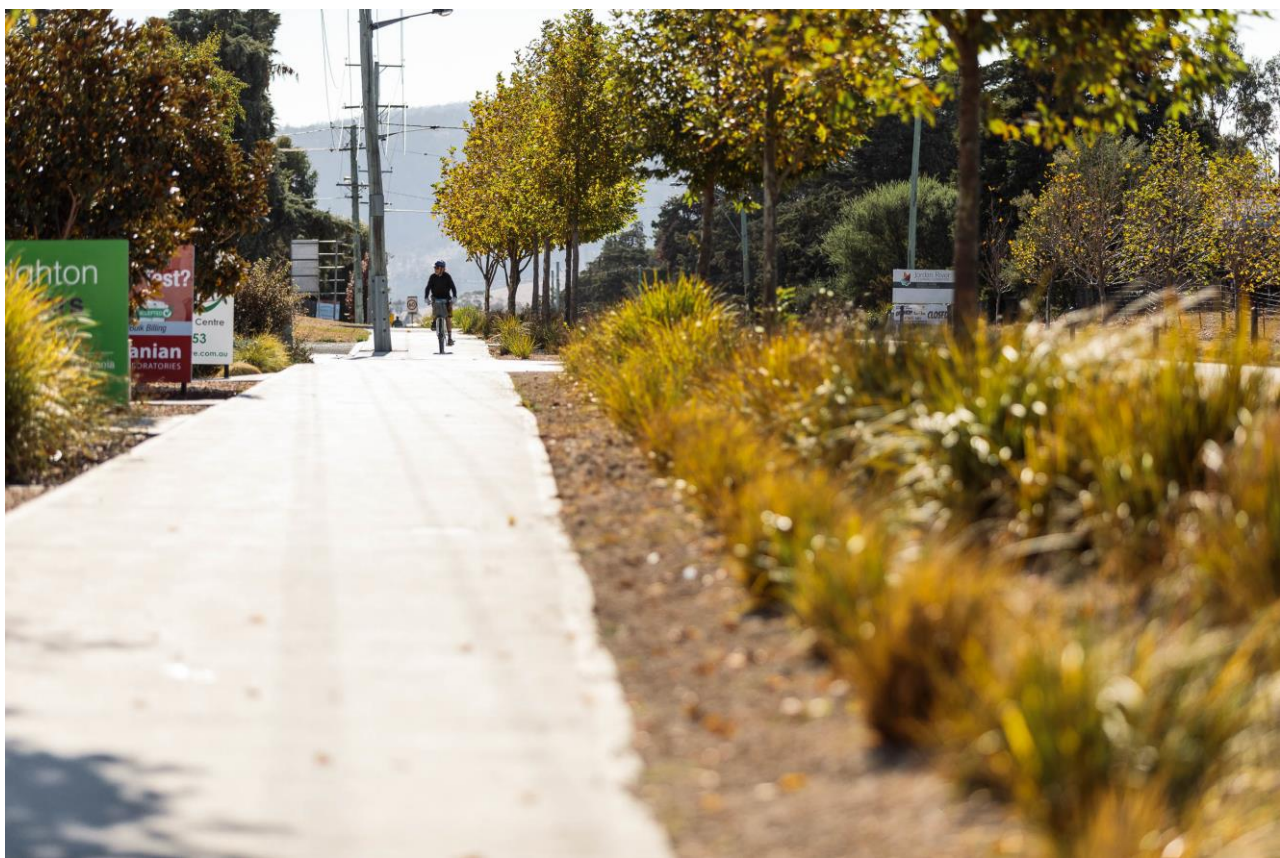


Image: Brighton cycle and walkways, Samuel Shelley 2019

## Futureproofing for infrastructure and urban development and asset management

*2050 key themes: a thriving place – enabling major infrastructure for a growing community*

Infrastructure and urban development are two activities that are set to increase in the Brighton municipality and will impact how weeds grow and spread around the municipality. In addition, earthworks and the associated machinery can become contaminated with weed material and act as vectors to spread weed. Understanding and knowing what weeds are in current industrial and urban environments will give town planners and developers greater confidence and create procedures that will help reduce the spread of weeds.

The industrial hub is an area of concern, as the survey showed a large infestation of weeds with a high potential for dispersal. The industrial area has high traffic volume and vehicles



going onto undeveloped areas (unused lots) where they can unintentionally pick up seeds or contaminated dirt. These vehicles are likely to then drive to other areas being developed and spread biological material creating new weed hotspots.

## Eradication zones

Figure 1 shows an overview of the eradication zones suggested for the Brighton municipality. Detailed maps of the weed eradication zones can be found in **Appendix I Weed eradication zones**.

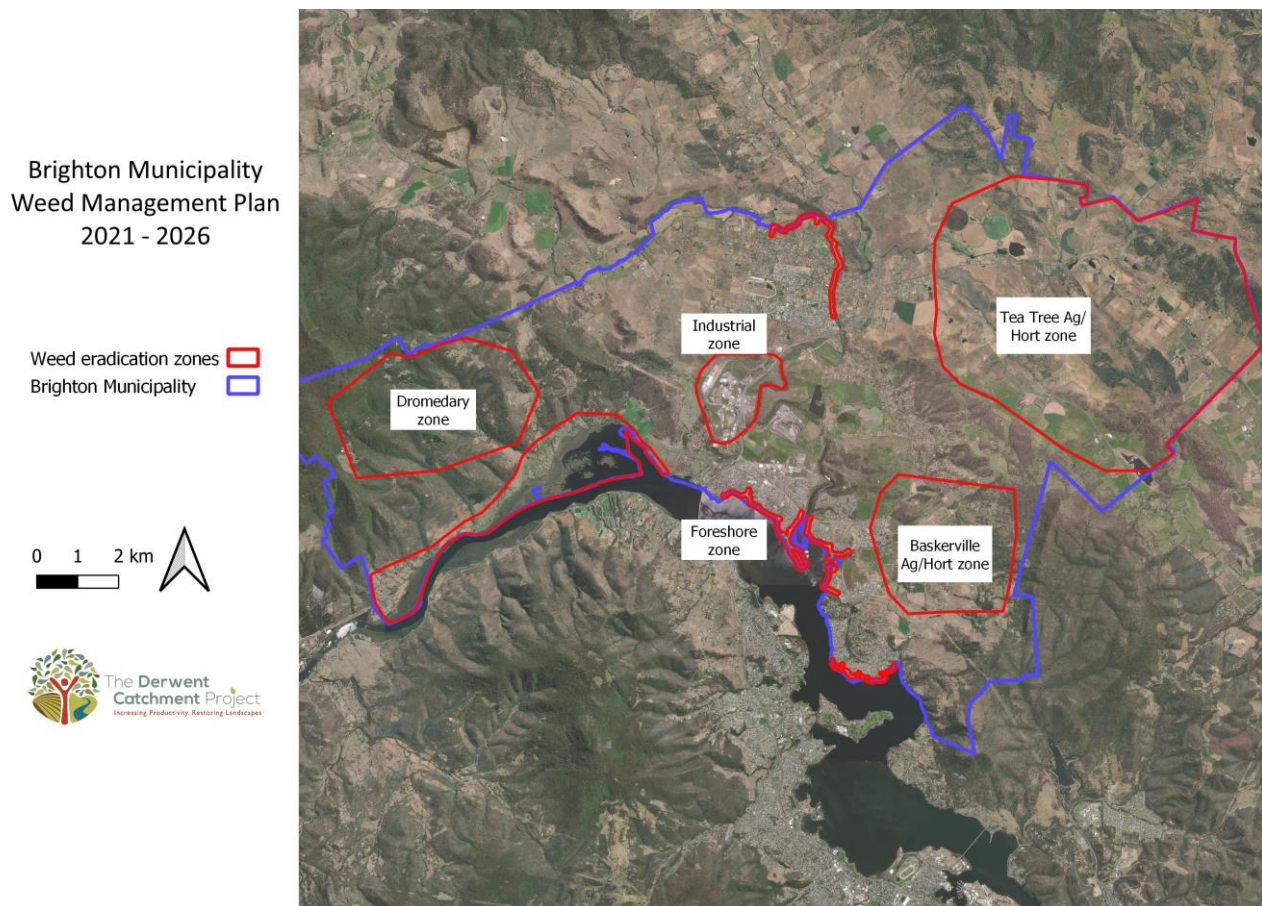


Figure 1: Overview weed eradication zones. Derwent Catchment Project, 2022

## Zone 1: Estuary

The estuary zone has been selected to help protect the ecologically sensitive wetlands along the riverbanks of the Derwent River. The estuary zone will also complement the eradication zone of the Derwent Valley Council and help protect the entrance road corridors to the Tasmanian Wilderness World Heritage area from the urban regions. The Derwent Estuary Program has a strategic weed working group that focuses efforts along the foreshore, benefiting any works conducted within the estuary eradication zone. The stakeholders include State Growth, Tas Rail, Crown Land Services, Parks and Wildlife Services, Brighton Council, and private landowners.

## Zone 2: Dromedary

The Dromedary zone is a densely populated peri-urban area that borders the Mount Dromedary Forest Reserve. The zone does not have many roads, and the current weed

burden is at a manageable level. Environmental weed species such as Foxglove are not yet declared but are becoming a management issue in the zone and would quickly infest the area without active control.

By managing weeds along the roads and encouraging landholders to manage on their land, there will be a reduced cost in the long-term. Stakeholders include Parks and Wildlife, Brighton Council, and private landholders.

### **Zone 3: The Industrial Hub**

The hub is projected to grow substantially and therefore it is essential to manage and control the weed burden currently within this zone. The industry and traffic within the area are key vectors for weed spread especially the likelihood of seed to be collected on vehicles leaving unmanaged 'empty' blocks. The rail corridor also traverses this zone and has the potential to spread weeds into other zones. Stakeholders include Tas Rail, State Growth, Crown Land, Brighton Council, and private landholders.

### **Zone 4: Foreshore/Walking trails**

As part of maintaining green spaces and promoting pride in the areas where people live, the walking trails along foreshores and the Jordan River have been selected as weed management zones. Reducing weed burden will reduce the number of resources needed to manage vegetation around pathways whilst ensuring the pathways themselves provide a safe and enjoyable feeling for users. These zones will also help protect the ecological communities in the associated wetlands. These wetlands are of high value to Tasmania and provide critical habitat for local wildlife. Reducing the weed burden on the riverbanks means native vegetation will not be outcompeted and will allow for natural regression away from rising seawater levels. Stakeholders include Crown Land Services, Parks and Wildlife Services, Brighton Council, and private landholders.

### **Zone 5: Agriculture and Horticulture**

These zones are based on providing protection to the agricultural and horticultural industries in the municipality's eastern region. A few key roads act as vectors to neighbouring agricultural/horticultural regions and managing weeds along the roads will help reduce any potential creep from neighbouring municipalities. Invasive grasses are likely to gain more habitat through the increase in temperatures from climate change and could cause economic and environmental issues if they creep into paddocks through the road corridors. Weed management of alternative fruit-fly hosts such as Blackberry and Sweet Briar will help manage any potential future fruit-fly outbreaks. Stakeholders include Tas Rail, State Growth, Brighton Council, and private landholders.

---



Image: Weeds can contaminate crops. Samuel Shelley, 2022

## Limitations

Although all care was taken to capture data of weed locations, the nature and timing of this survey (being undertaken by a vehicle driving slowly along the road in late summer and early autumn) means the possibility of smaller stature weeds, some grasses and weeds not in flower may have been overlooked.

Due to budget constraints, a comprehensive survey across all land tenures was not possible. To address this, weed distribution data in the Natural Values Atlas was added to data collected during the survey. As a result, it will not be comprehensive, and many weeds will have a more extensive distribution than mapped in this process. However, based on the available information, we can only plan and treat this document as a living document to be added to when new priority weeds and locations for control arise.

## Cause of weed spread

Weeds are typically spread by propagules which can be transported by wind, water, animals and people. Understanding the life cycles of weed species is vital in implementing effective management. Whilst there are natural causes of weed spread, a growing threat is seed distribution via vehicles and machinery. Currently, there is a lack of hygiene implementation in the municipality, which is contributing to the weed spread. Training and educating personnel and the community in how vehicles and machinery can be vectors is crucial to reducing weed infestations and limiting large-scale distribution. The establishment of washdown facilities in key locations would also help to address the current limitations in hygiene practices. A detailed description of weed spreading activities can be found in Appendix IV Causes of weed spread.





Image: Blue periwinkle is difficult to control. Stem fragments take root in the soil. Derwent Catchment Project

## Results

Table 1 Weed species recorded in the Brighton municipality

Species name	Common name	Status
<i>Acacia baileyana</i>	Cootamundra wattle	Environmental weed
<i>Amsinckia calycina</i>	Yellow Burrweeds	Declared
<i>Carduus pycnocephalus</i> , <i>C. tenuiflorus</i>	Slender Thistle	Declared
<i>Chamaecytisus palmensis</i>	Tree lucerne	Non-declared
<i>Chrysanthemoides monilifera</i>	Boneseed	Declared
<i>Conium maculatum</i>	Hemlock	Environmental weed
<i>Coprosma repens</i>	Mirror bush	Environmental weed
<i>Cotoneaster glaucophyllus</i>	Cotoneaster	Environmental weed
<i>Cytisus scoparius</i>	English broom	Declared
<i>Digitaria purpurea</i>	Foxglove	Environmental weed
<i>Echium candicans</i>	Pride of madeira	Environmental weed
<i>Echium plantagineum</i>	Paterson's curse	Declared
<i>Eragrostis curvula</i>	African lovegrass	Declared
<i>Foeniculum vulgare</i>	Fennel	Declared
<i>Genista monspessulana</i>	Montpellier broom	Declared
<i>Kniphofia uvaria</i>	Red hot poker	Environmental weed
<i>Lepidium draba</i>	Whiteweed	Declared
<i>Lycium ferocissimum</i>	African boxthorn	Declared
<i>Malva parviflora</i> and <i>M. sylvestris</i>	Mallow	Non-declared
<i>Marrubium vulgare</i>	Horehound	Declared
<i>Nassella neesiana</i>	Chilean Needle Grass	Declared
<i>Nassella trichotoma</i>	Serrated Tussock	Declared
<i>Opuntia</i> Cacti	Prickly pear	Declared
<i>Paraserianthes lophantha</i>	Cape Leeuwin wattle	Environmental weed
<i>Pinus radiata</i>	Pine	Environmental weed
<i>Rosa rubiginosa</i>	Sweet briar	Non-declared
<i>Rubus fruticosus</i>	Blackberry	Declared
<i>Salix</i> species	Willow	Declared
<i>Sollya heterophylla</i>	Bluebell creeper	Environmental weed

Species name	Common name	Status
<i>Ulex europeaus</i>	Gorse	Declared
<i>Verbascum thapsus</i>	Mullien	Environmental weed
<i>Vicia major</i>	Blue periwinkle	Environmental weed
<i>Zantedeschia aethiopica</i>	Arum lily	Environmental weed

## Sites significant as seed sources

The weed survey identified species across the whole Brighton municipality however there are three locations that pose a threat as sites of significant sources of seed and biological material. Whilst these areas may not be feasible control straight away due to resource constraints it is important that management plans be created for them. Having strategic plans to manage these locations will ensure the weed control efforts elsewhere are not compromised or hindered by these weed infested areas.

The land surrounding the potable water storage above Jordan River and underneath the transmission lines is heavily infested with a wide range of weeds. The area is hilly with a network of vehicle tracks running through it, making it hard to manage. This area is a risk as there was no locks on the boom gates controlling access and persons can be entering the site and leaving with seeds and material attached the vehicle. Hygiene protocols for work vehicles would also have to be assessed for all stakeholders to ensure weeds are not being transported.

Brighton municipality is in the process of developing and increasing urban and industrial areas which poses management issues if the weeds on these sites are not treated correctly. Invasive grass species can hide within the grasslands and their seeds can be transported around the municipality especially when earthworks are undertaken. It is advised that future developments undergo a thorough weed inspection and treatment if required with the appropriate hygiene protocols followed.

The willows along the Jordan River in Pontville pose a significant management challenge. Due to the infestation and density, there would be removal costs of over \$50,000. This cost relates to the amount of biological material that would be left standing once the trees were poisoned; this would pose a risk to the public walking along the tracks. To best manage this weed burden it is advised that external funding such as grants be applied for.





Image: Grassy weeds like serrated tussock are difficult to distinguish from native grasses. Derwent Catchment Project

## Action table summary

Below is a summary of the works required by each stakeholder for each eradication zone. A detailed list of the weeds surveyed within the Brighton municipality and the estimate cost for control and management can be found in Appendix I. Weed surveys could not be conducted across all stakeholders managed land and therefore have been left blank. Further surveys will be required to develop a complete cost for all stakeholders.

Table 2 Summary of weed management for each stakeholder

Stakeholder	Eradication zone	Hours (Year 1)	Cost (including Traffic management if needed)
Brighton Council	Estuary	5	700
	Dromedary	7	1,450
	Foreshore	192	26,880
	Industrial	7	980
	Agriculture/Horticulture	28	7,870
			Total \$37,880
State Growth	Estuary	16	5400
	Dromedary	-	-
	Foreshore	-	-
	Industrial	4	750
	Agriculture/Horticulture	4	1,350

			Total \$7,500
Dept. of Natural Resources and Environment Tasmania	Estuary	TBC	TBC
	Dromedary	-	-
	Foreshore	40	5600
	Industrial	-	-
	Agriculture/Horticulture	-	-
			Total \$5,600
Tas Rail	Estuary	80	12,000
	Dromedary	-	-
	Foreshore	-	-
	Industrial	TBC	TBC
	Agriculture/Horticulture	TBC	TBC
			Total \$12,000

## References

Adapt NRM, 2014 [AdaptNRM | Resources \(csiro.au\)](#)

[Brighton Council Climate Change Resilience Strategy 2019](#)

[Greening Brighton Strategy 2016-2021](#)

Inger Visby (Derwent Estuary Program) & Vishnu Prahalad (University of Tasmania) July 2020, *Planning for the future. Derwent Estuary Saltmarsh Baseline Monitoring and Management*

Derwent Catchment Project, 2021. *Draft Derwent Catchment Biosecurity Action Plan: Climate change preparedness and community action 2021-26.*

Nature Conservation Branch, Department of Primary Industries, Water and Environment 2000, *Threatened Species Strategy*

Statutory Weed Management Plans [Weed Legislation and Management Plans | Department of Natural Resources and Environment Tasmania \(nre.tas.gov.au\)](#)

[Southern Tasmania Weed Management Strategy 2011-2016](#)

[Weed Management Act 2019](#)

[General Biosecurity Duty](#)

Aboriginal Heritage Tasmania <https://www.aboriginalheritage.tas.gov.au/>

The Derwent Catchment Project <https://www.derwentcatchment.org>

Department of Natural Resources and Environment Biosecurity Tasmania website <https://nre.tas.gov.au/biosecurity-tasmania>

Invasive Species Branch Department of Primary Industries, Parks, Water and Environment, 2015 *Weed and Disease Planning and Hygiene Guidelines Preventing the spread of weeds and diseases in Tasmania*. (Eds.) Karen Stewart and Michael Askey-Doran.

T.A. Remenyi, N. Earl, P.T. Love, D.A. Rollins, R.M.B. Harris Climate Futures Programme, Discipline of Geography & Spatial Sciences, University of Tasmania, *Climate Change Information for Decision Making – Brighton Council*

### **Weed eradication zones were developed using the following information**

North Barker – Ecosystem Services, *Vegetation Community and Weed Mapping: Upper Derwent Estuary Wetlands*, Brief summary and recommendations for the Derwent Estuary Program, 2008

The Derwent Catchment Project, On-ground surveys and data collection, 2021

Tasmania State Government, *Invasive Species – Weeds*, Department of Natural Resources and Environment Tasmania, 2021

<https://nre.tas.gov.au/invasive-species/weeds/>

Tasmania State Government, *Natural Values Atlas – invasive grasses*, Department of Natural Resources and Environment Tasmania, 2021

<https://www.naturalvaluesatlas.tas.gov.au/>

Blood, k. *Environmental Weeds – A field guide for SE Australia*, CRC Weed management systems, CH Jerram & Associates, Mt Waverley, Victoria

---



# Appendix I Weed eradication zones



0 100 200 m



**The Derwent  
Catchment Project**  
Increasing Productivity. Restoring Landscapes

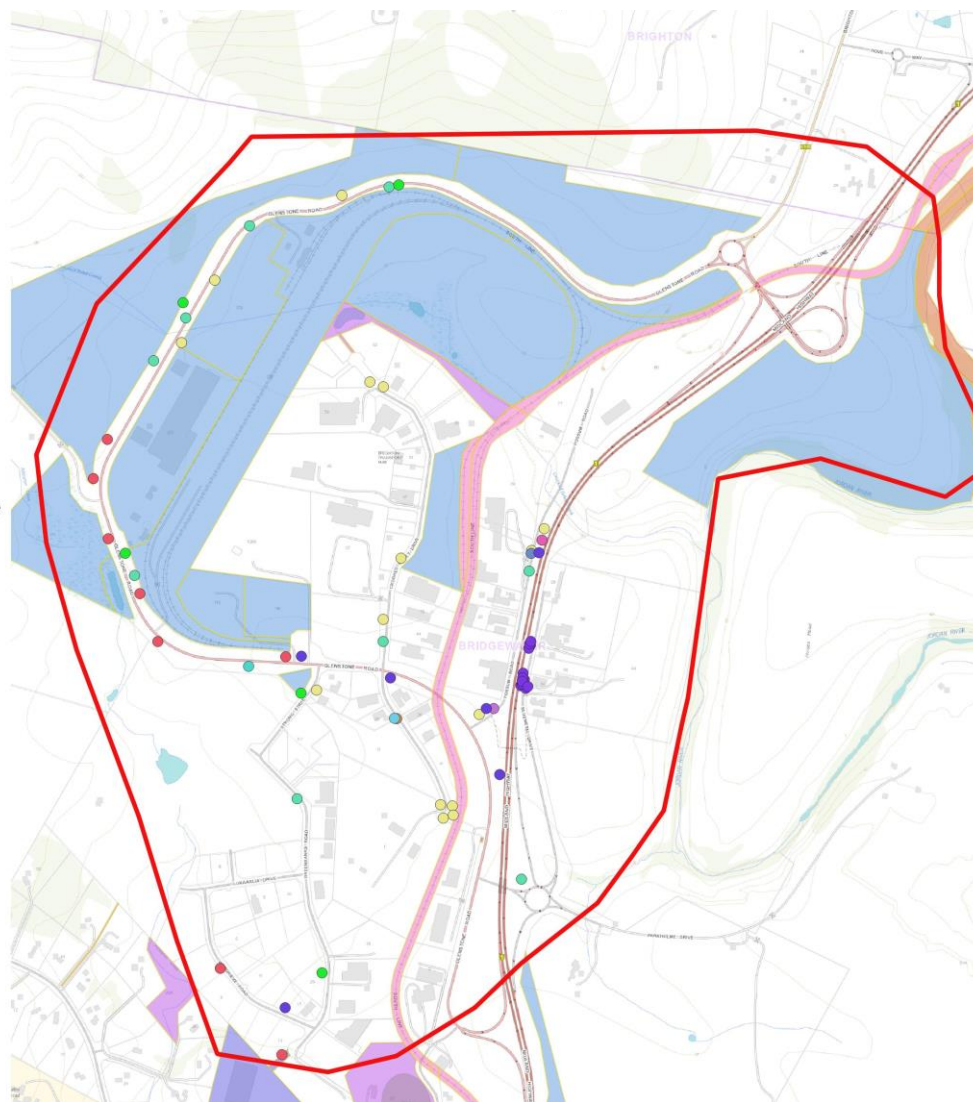


Figure 2: Industrial weed eradication zone, Derwent Catchment Project, 2022

## Brighton Municipality Weed Management Plan 2021 - 2026

Weeds	Land Manager
● African boxthorn	■ Brighton Council
● Arum lily	■ Parks and Wildlife Service
● Blackberry	■ Private Parcel
● Bluebell creeper	■ State Growth
● Boneseed	■ Tas Rail
● English Broom	■ Eradication zone
● Fennel	■ Brighton municipality
● Slender Thistle	
● Sweet Briar	

0 750 1500 m



**The Derwent  
Catchment Project**  
Increasing Productivity. Restoring Landscapes

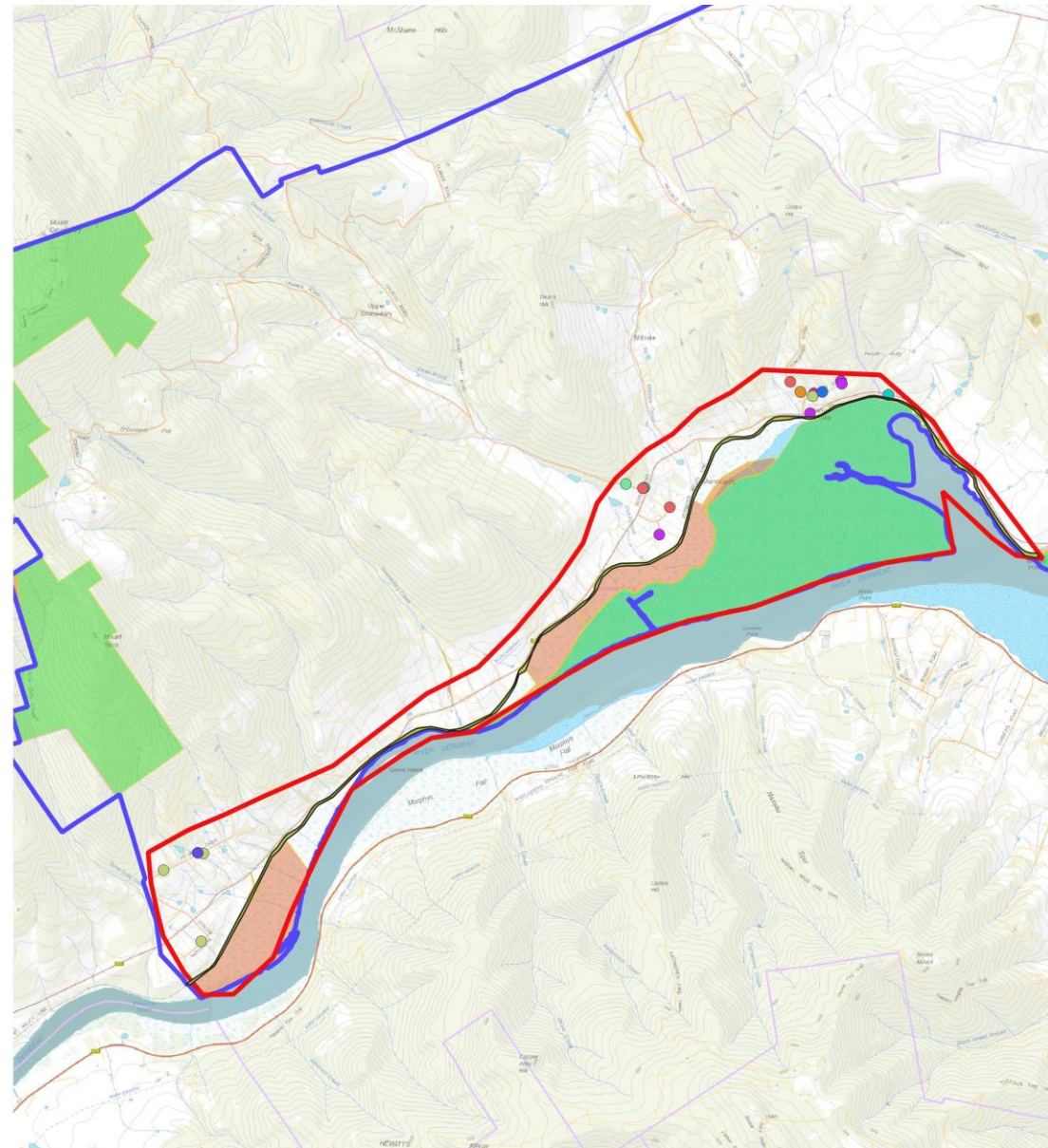


Figure 3: Estuary weed eradication zone, Derwent Catchment Project, 2022



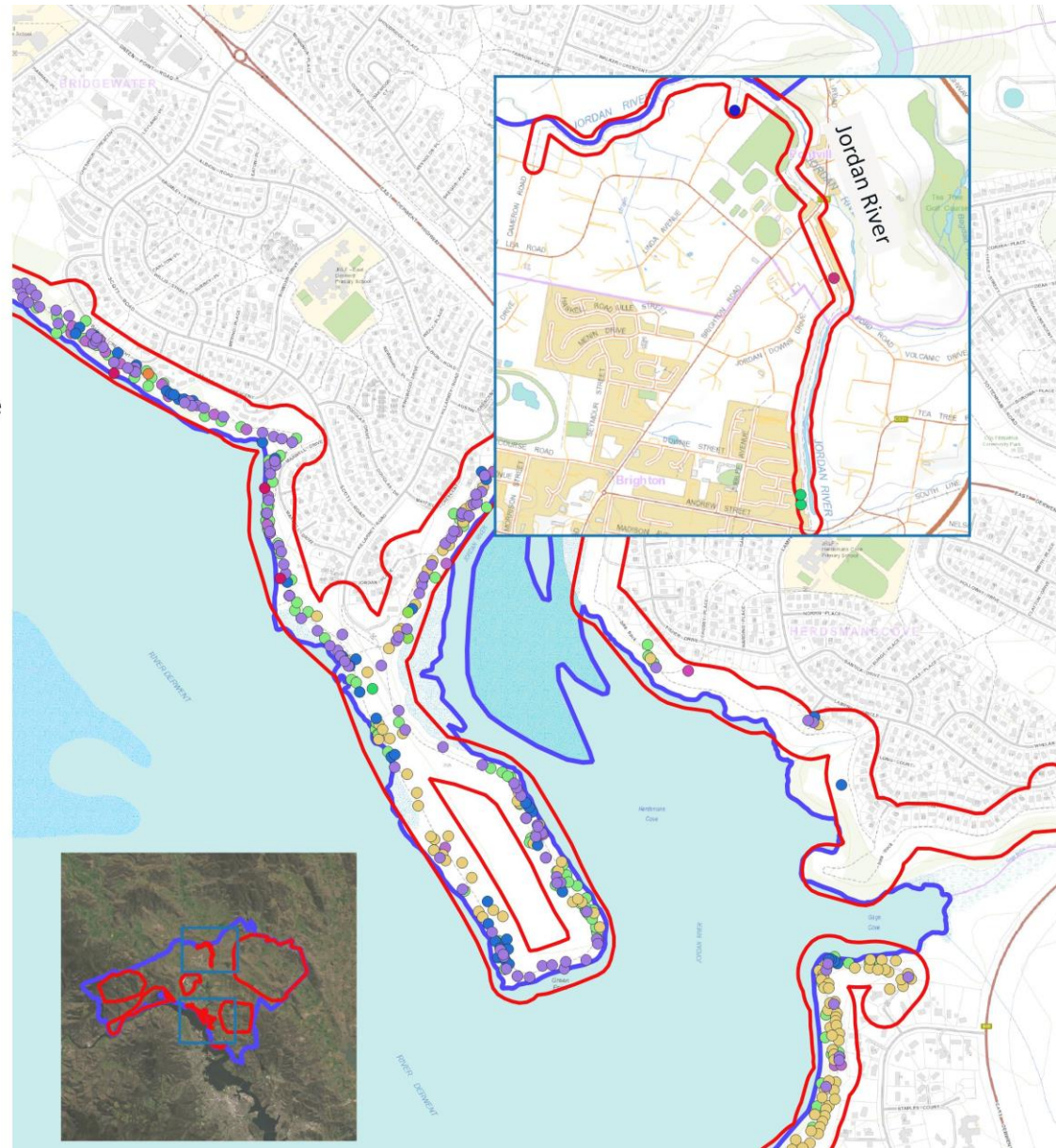


Figure 4: Derwent River foreshore weed eradication zone, Derwent Catchment Project, 2022



## Brighton Municipality Weed Management Plan 2021 - 2026 Dromedary Zone

- | Weeds                 | Land Manager                 |
|-----------------------|------------------------------|
| ● Blackberry          | ■ Property Services          |
| ● Boneseed            | ■ Brighton Council           |
| ● Californian thistle | ■ Parks and Wildlife Service |
| ● English Broom       | ■ Private Parcel             |
| ● Fennel              | ■ Tas Rail                   |
| ● Foxglove            | ■ Eradication zone           |
| ● Montpellier broom   | ■ Brighton municipality      |
| ● Slender Thistle     |                              |
| ● Sweet Briar         |                              |
| ● Willow              |                              |

0 500 1000 m



**The Derwent  
Catchment Project**  
Increasing Productivity, Restoring Landscapes

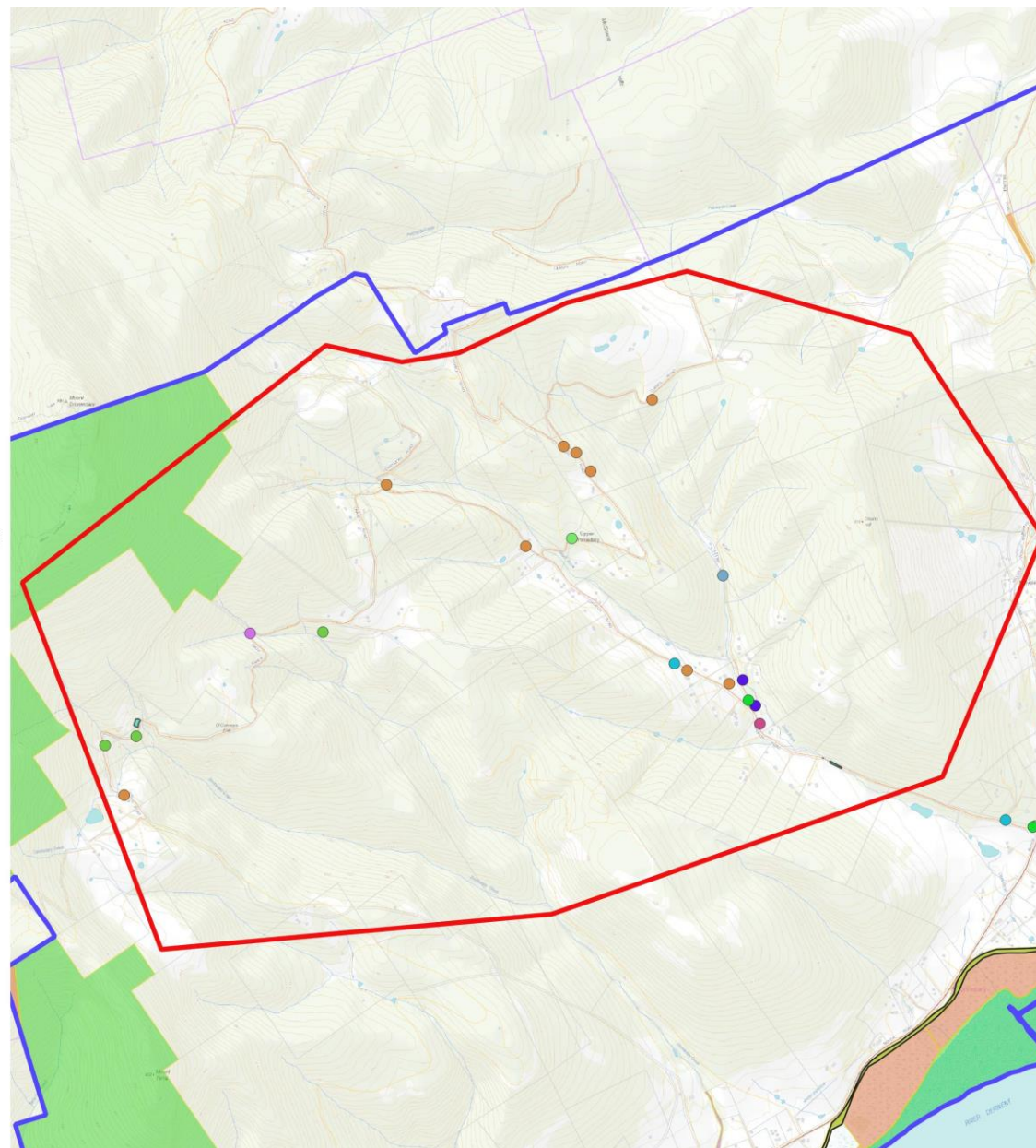


Figure 5: Dromedary weed eradication zone, Derwent Catchment Project, 2022

Brighton Municipality  
Weed Management Plan  
2021 - 2026 TeaTree  
Agricultural/  
Horticulture Zone

Weeds	Land Manager
● African boxthorn	■ Property Services
● Blackberry	■ Brighton Council
● Blue periwinkle	■ Parks and Wildlife Service
● Fennel	■ Private Parcel
● Slender Thistle	■ State Growth
● Sweet Briar	■ Tas Rail
● Tree lucerne	■ Eradication Zone
● Whitweed	■ Brighton Municipality
● Chilean needlegrass	
● Serrated tussock	

0 750 1500 m



The Derwent  
Catchment Project  
Increasing Productivity, Restoring Landscapes

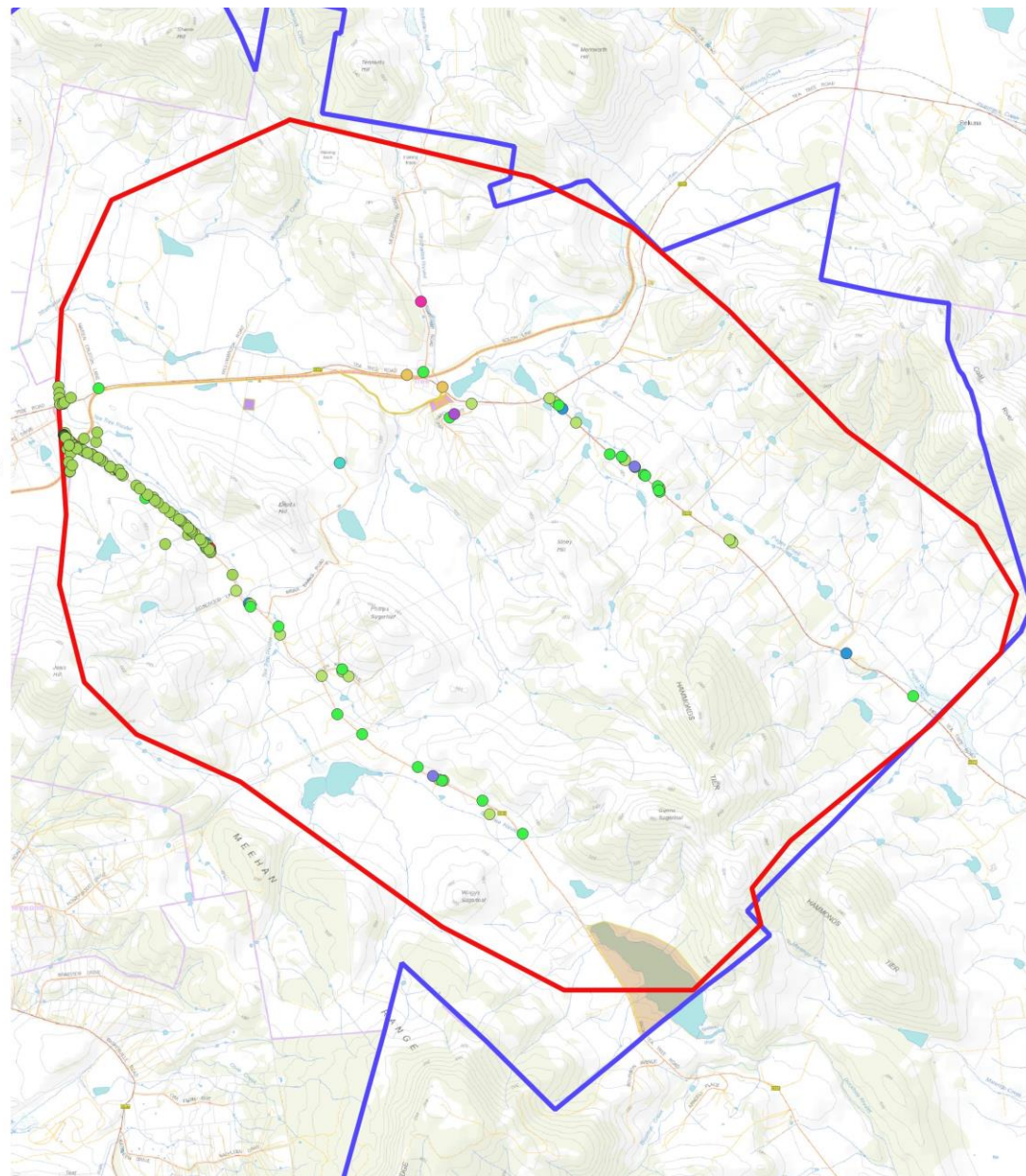


Figure 6: Tea Tree agricultural weed eradication zone, Derwent Catchment Project, 2022



# Brighton Municipality Weed Management Plan 2021 - 2026 Baskerville Agricultural/ Horticucultre Zone

Weeds	Land Manager
<span style="color: purple;">●</span> African boxthorn	<span style="background-color: orange; border: 1px solid black;"> </span> Property Services
<span style="color: green;">●</span> Blackberry	<span style="background-color: purple; border: 1px solid black;"> </span> Brighton Council
<span style="color: blue;">●</span> Boneseed	<span style="background-color: lightgreen; border: 1px solid black;"> </span> Parks and Wildlife Service
<span style="color: red;">●</span> Fennel	<span style="background-color: white; border: 1px solid black;"> </span> Private Parcel
<span style="color: gold;">●</span> Pine tree	<span style="background-color: lightblue; border: 1px solid black;"> </span> State Growth
<span style="color: teal;">●</span> Prickly pear	<span style="background-color: pink; border: 1px solid black;"> </span> Tas Rail
<span style="color: lightgreen;">●</span> Slender Thistle	<span style="border: 2px solid red;"> </span> Eradication zone
<span style="color: green;">●</span> Sweet Briar	<span style="border: 2px solid blue;"> </span> municipality_brighton
<span style="color: purple;">●</span> Tree lucerne	
<span style="color: blue;">●</span> Variegated Thistle	
<span style="color: orange;">●</span> Whitweed	

0 250 500 m



**The Derwent  
Catchment Project**  
Increasing Productivity. Restoring Landscapes

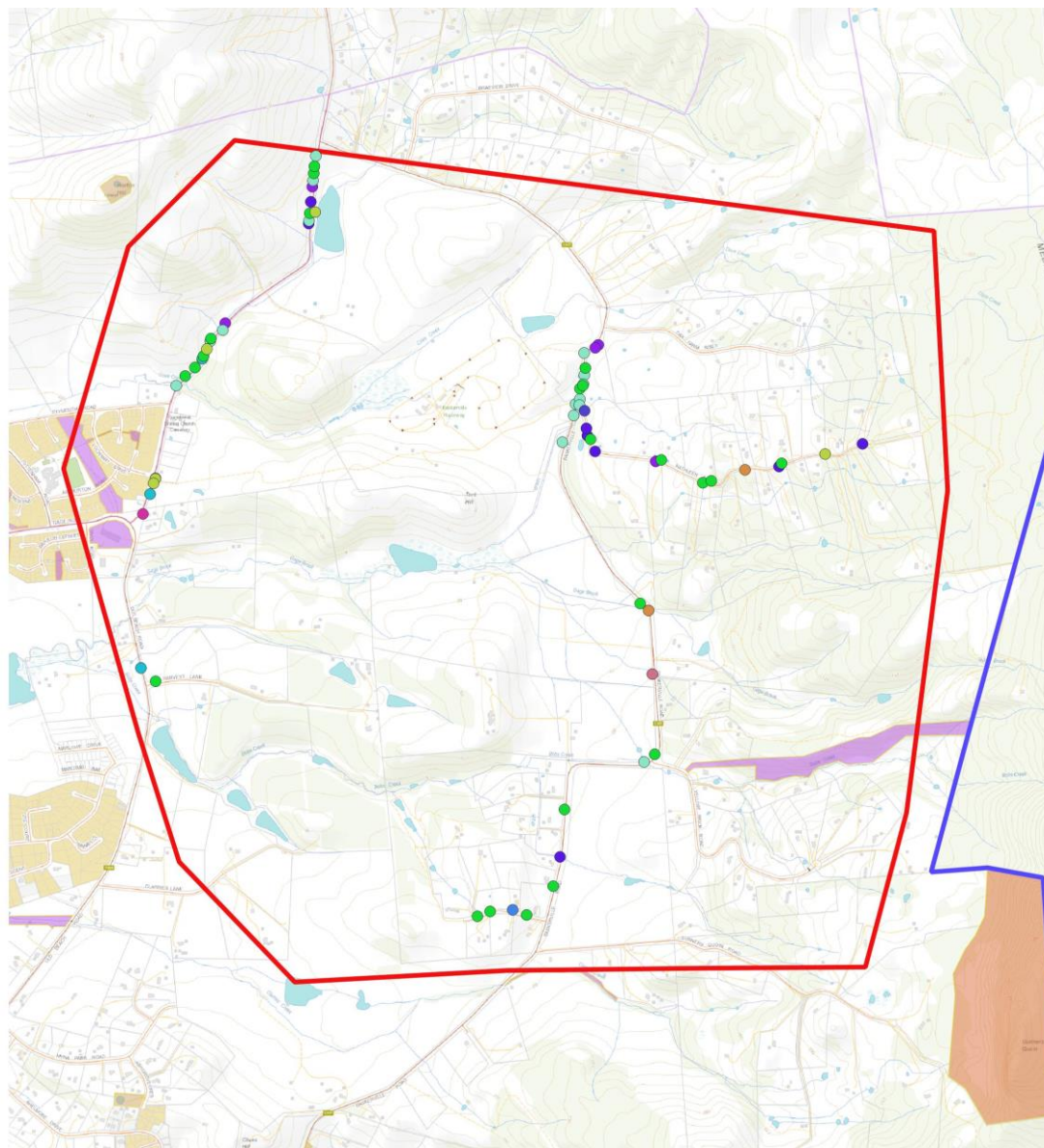


Figure 7: Baskerville weed eradication zone, Derwent Catchment Project, 2022



## **Appendix II Stakeholder action tables**

### **(excluding Brighton)**

Cost have been calculated as a 2 person team, for 8 hours, at a total cost including chemical of \$1200/day. Traffic management has been calculated at \$1500/day.

The Brighton Council action table is attached as spreadsheet Appendix V

## Department of State Growth weed action table

Weed	Eradication Zone	Site in Eradication zone	Eastin g	Northi ng	Year 1	\$/Hr	Year 2	\$/Hr	Year 3	\$/Hr	Ye ar 4	\$/H r	Ye ar	\$/H r
English Broom	Estuary	Boyer Road	515812	5269541	Control with Traffic management	5400/16	Follow up with Traffic management	5400/16	Monit or	DC P	Determin ed by monitorin g	Determin ed by monitorin g		
Variety of weeds	Estuary	Boyer Road	516456.4	5269692										
African boxthorn	Industrial	Glenstone Road	518899.5	5270119	Control	750/4	Follow up	750/4	Monit or	DC P	Determin ed by monitorin g	Determin ed by monitorin g		
African boxthorn	Industrial	Glenstone Road	518486.4	5270394										
African boxthorn	Industrial	Glenstone Road	518601.8	5270155										
Blackberry	Industrial	Glenstone Road	519466.1	5270319										
Blackberry	Industrial	Glenstone Road	518815.3	5271122										
Blackberry	Industrial	Glenstone Road	518666.8	5270908										
Blackberry	Industrial	Glenstone Road	519140	5271213										
Fennel	Industrial	Glenstone Road	518734.2	5270996										
Fennel	Industrial	Glenstone Road	519030.3	5271193										
Sweet Briar	Industrial	Glenstone Road	518526.1	5270360										

Sweet Briar	Industrial	Glenstone Road	519162.6	5271217									
Fennel	Industrial	Glenstone Road	519289.3	5269751									
Whiteweed	Industrial	Glenstone Road	519143.2	5270070									
Blackberry	Agriculture/Horticulture	Tea Tree Road	527026.5	5273571	Control with Traffic management	1350/4	Follow with traffic management	1350/4	Monitor	DCP	Determined by monitoring	Determined by monitoring	
Fennel	Agriculture/Horticulture	Tea Tree Road	527562	5273334									
Sweet Briar	Agriculture/Horticulture	Tea Tree Road	524475.6	5273461									

### Tas Rail weed action table

Weed	Eradication Zone	Site in Eradication zone	Easting	Northing	Year 1	\$/Hr	Year 2	\$/Hr	Year 3	\$/Hr	Year 4	\$/Hr	Year	\$/Hr
Variety of weeds	Estuary	Rail corridor	516456	5269692	Control	1200/80	Control	1200/80	Monitor	DCP	Determined by monitoring		Determined by monitoring	

### Crown Land Services weed action table

Weed	Eradication Zone	Site in Eradication zone	Easting	Northing	Year 1	\$/Hr	Year 2	\$/Hr	Year 3	\$/Hr	Year 4	\$/Hr	Year	\$/Hr
------	------------------	--------------------------	---------	----------	--------	-------	--------	-------	--------	-------	--------	-------	------	-------



African boxthorn	Foreshore	Foreshore	521596.8	5266139	Control	5600/40	Follow up	2800/20	Monitor	DCP	Determined by monitoring	Determined by monitoring
African boxthorn	Foreshore	Foreshore	521643.1	5266140								
African boxthorn	Foreshore	Foreshore	521653.3	5266139								
Boneseed	Foreshore	Foreshore	521642.8	5266128								
Boneseed	Foreshore	Foreshore	521670.3	5266146								
Boneseed	Foreshore	Foreshore	521677.7	5266124								
Boneseed	Foreshore	Foreshore	521728.8	5266115								
Boneseed	Foreshore	Foreshore	521713.9	5266102								
Boneseed	Foreshore	Foreshore	521717.6	5266087								
Boneseed	Foreshore	Foreshore	521685.9	5266119								
Boneseed	Foreshore	Foreshore	521735.8	5266103								
Boneseed	Foreshore	Foreshore	521644.7	5266147								
Boneseed	Foreshore	Foreshore	521661.6	5266124								
Boneseed	Foreshore	Foreshore	521553.6	5266138								
Boneseed	Foreshore	Foreshore	521610.1	5266128								
Fennel	Foreshore	Foreshore	521556.7	5266148								
Fennel	Foreshore	Foreshore	521564.7	5266143								
Fennel	Foreshore	Foreshore	521551.3	5266147								
Fennel	Foreshore	Foreshore	521559.9	5266144								
Fennel	Foreshore	Foreshore	521571.4	5266138								
Sweet Briar	Foreshore	Foreshore	521729.4	5266107								
Sweet Briar	Foreshore	Foreshore	521549.7	5266137								

## Appendix III Weeds in the region

Below are the details of the major declared weeds within the region and environmental weeds that are of concern.

**African boxthorn (*Lycium ferocissimum*)** is a woody shrub reaching up to 4 m in height, with glossy leaves and an extensive root system incorporating a long-branched taproot. The trunk and branches are light brown and smooth when young, turning darker brown or grey with age. The twigs end in a hard, sharp spike or thorn.

The white flowers are usually produced in summer, although flowering can occur through most of the year. The fruit is an oblong berry approximately 10 mm long, going from a smooth green appearance to bright orange-red when ripe. Fruits contain numerous small, oval, flattened seeds. Seeds germinate at any time of the year and generally take two years to reach flowering stage (DPIPWE 2016).

African boxthorn is found throughout most agricultural areas of Tasmania it is common along fence lines and beneath overhead wires as well as along roadsides railways and waterways. Recent surveying around the Brighton municipality showed that African boxthorn is widespread and dominating in some areas. The Statutory Weed Management Plan for African Boxthorn indicates this species is classed as Zone B - 'widespread infestations' requiring containment and control. It is important that urban households are involved eradication and educated on the issues around African boxthorn as it was noted to be regularly in residents' yards.

**African lovegrass (*Eragrostis curvula*)** African lovegrass is a densely tufted, perennial (long-lived) grass growing from 30 to 120 cm high. The leaves are dark green to blue-green, narrow, and 25 to 35 cm long. The flowering stems rise above the tufted leaves and carry a loose fanlike grey-green flower-head. African lovegrass prefers disturbed soils on roadsides, riverbanks, and waste places, from which it can invade adjacent degraded pastures and native grasslands. African lovegrass is generally unpalatable, produces copious seed, and can rapidly spread over and dominate degraded pastures.

African lovegrass was not recorded on the recent survey conducted for this weed management plan however, it has been identified within the municipality and it is a Zone A weed for Brighton, requiring early detection and control. It is important that African lovegrass does not establish itself within Brighton municipality.

**Blackberry (*Rubus fruticosus*)** are spiny, perennial (long-lived) shrubs with trailing stems which can produce dense thickets. The canes may be erect, arching or trailing and they can reach 6 m in length. Blackberries thickets can reach two or more meters in height and cover many square meters in area. Blackberries were noted in most drainage/creek areas within the Brighton municipality.

**Boneseed (*Chrysanthemoides monilifera*)** It is a perennial evergreen shrub, which can grow up to three metres in height and width. It has woody branched stems and oval shaped leaves, with irregularly serrated edges with bright yellow flowers with 5 to 8 petals. Its success is due to its vigorous growth, aided by an absence of natural predators, and the ability to regenerate quickly and outcompete other species, especially after soil disturbance or fire. It is common on roadsides and quarries where mechanical disturbance has occurred.

Boneseed was recorded in high numbers across most of the municipality usually growing with African boxthorn along fence lines, roads, and within people's properties. It was also in large numbers along the Derwent River foreshore competing against native plants.

**Blue periwinkle (*Vinca major*)** has broad-leaved runners that form a dense mat, shading out native plants and competing for moisture and nutrients. Its growth is particularly vigorous in riparian and other moist habitats. It competes with native plants for moisture, light, nutrients and recruitment niches. Its growth is particularly vigorous in riparian and other moist habitats. Once established, periwinkle's rampant growth is very difficult to control, especially in bushland. Blue periwinkle is native to the Mediterranean region. It is widespread in Tasmania but does not extend into the alpine zones. Blue periwinkle spreads by means of creeping stems that take root at the nodes and tips. New infestations can establish from plant fragments when broken off and transported by dumping of garden waste, soil movement or floods and mowing. It spreads from gardens, roadsides, nature strips, firebreaks, fence lines and neglected rubbish dumps into the bush and along waterways. Although Blue periwinkle is a non-declared weed and has limited distribution currently it has the potential to takeover although damp areas if it continues to be transported around by roadside slashing. An educational campaign for private contractors about good hygiene practices would help reduce its spread.

**Chilean Needle Grass (*Nassella neesiana*)** is a perennial (long-lived) tussock-forming grass growing to 1 metre in height. The leaves are 1 to 5 mm wide, flat and strongly ribbed on their upper surface, with leaf edges that are rough to touch. The flowering seed heads are a distinctive purplish colour, and the seeds are very sharp at the point. Chilean needle grass flowers mainly from September to December but can flower year-round. Seed is formed about one month after flowering and most seed has been dropped by February. Seeds mainly germinate in autumn and spring. Spread is by seed. In addition to the normal flower (panicle) seeds, Chilean needle grass produces hidden seeds which are formed in the nodes and bases of the flowering stems. These 'stem seeds' are self-fertilised and account for about one-quarter of total seed production. They enable the plant to survive despite grazing, slashing and fire. Chilean needle grass seeds can persist in the soil for many years even if further seed input is prevented. The seeds are spread by farm machinery, clothing or livestock, by roadside mowing and earthmoving equipment, and by floodwaters. No new sightings were made during the recent survey conducted for this weed management plan however, it is important that known sites are monitored and controlled as required.

**Foxglove (*Digitalis purpurea*)** is a biennial herb with a rosette of soft, blue-grey hairy leaves that produces a tall flower spike of white, pink or purple tubular flowers with dark mottling. It can be dispersed by wind, water, and soil because it has very small seeds. It invades wet forests, riparian and alpine areas, where it replaces native herbs. Extremely toxic to livestock and humans. It has a widespread distribution due to its popularity as a garden plant. It is typically mostly seen along roadsides and rivers in the mountains, and it can invade and become dominant. It is also difficult to control due to its toxic nature and persistence.

The main distribution of Foxglove was in the foothills of Mount Dromedary which has the perfect conditions for the Foxglove to become heavily infested.

There was evidence that a resident was currently potting up Foxglove and planting it around their yard as it was wallaby proof.

---



As Foxglove is not a declared weed, this situation must be handled in a sensitive way to ensure there are no long-term disputes. An educational program explain how and why Foxglove is a problem along with helping residents with selecting and planting natives to avoid wallaby grazing.

**Fennel (*Foeniculum vulgare*)**, Fennel is a significant weed of open, exposed sites like roadsides, railways, wastelands, channels and drains which receive abundant water or runoff. Fennel is also grown as a commercial crop in Tasmania. Fennel is a declared weed in Tasmania under the *Tasmanian Weed Management Act 1999*. It was identified around most of Brighton municipality however, the largest infestations were along the Derwent estuary and within the industrial zone. It is important to control Fennel as its unusual chemical properties means that it not only outcompetes natives for space but it can make the area chemical unsuitable.

**Horehound (*Marrubium vulgare*)** was only located from a couple of surveyed sites although data from Natural Values Atlas indicates that is spread more widely than this survey noted. Horehound is weed of pasture and crops and is particularly troublesome in the Midlands grazing areas. Managing its creep into the municipality will require constant monitoring and management.

**Gorse (*Ulex europaeus*)** Gorse is a prickly evergreen shrub which may grow to a height and diameter more than 3 metres. All the stems and leaves end in a sharp spine. Gorse flowers are bright yellow pea-like flowers and are borne all over the plant. The buds develop during February and March, although flowering tends to occur in spring and autumn. Gorse bears large quantities of brown to black seed in grey, hairy pods. Gorse can quickly dominant agricultural and natural landscapes.

Gorse was only recorded in a few locations around the municipality however, it was noted as being mowed/slashed in some instances. The presence of mown/slashed Gorse means there is a high chance there are seeds in the ground and that seeds may been transported around roadsides. Gorse seeds can stay dominant in the environment for long periods and treated sites need follow up treatment and monitoring.

**Paterson's curse (*Echium plantagineum*)** occurs across Tasmanian agricultural areas as small, scattered infestations. It is a significant pasture weed. Paterson's curse is an erect plant around 60 to 90 cm high. Seedlings appear in autumn and develop into a rosette (a flat whorl of leaves close to the ground) in winter. One or several flowering stems are produced in late winter and flowering occurs in spring. Flowers are trumpet shaped and usually blue/purple but may be pink or white (DPIPWE 2016).

It is toxic to stock where it becomes dominant in pasture and when it is in flower. It can heavily invade disturbed areas becoming pervasive in degraded pasture. It is difficult to control with herbicide and opportunistic grazing before flowering can be an important tool for control. It is typically spread by machinery, livestock and livestock feed. There are historic sites which have received treatment in the industrial zone and along the Jordan River walking tracks. The recent survey showed that Paterson's curse is still at these locations and returning to its original size.

**Serrated Tussock (*Nassella trichotoma*)** Serrated tussock is a perennial (long-lived) tussock-forming grass with a deep root system. The leaves of serrated tussock feel rough (or serrated) if the finger and thumb are drawn down the blade. Flower stalks usually appear in spring but may appear earlier in dry years and later in wetter years.

A tussock in full flower presents a distinctly purple appearance due to the large number of purple florets. Serrated tussock is similar to several of Tasmania's native tussock grasses, and is frequently overlooked until it begins to flower, at which time it is easily recognisable. No new sightings were made during the recent survey conducted for this weed management plan however, it is important that known sites are monitored and controlled as required.

**Slender Thistle (*Carduus pycnocephalus*, *C. tenuiflorus*)** is a spiny, erect herb that grows to between 60 cm and 100 cm high. Another species of slender thistle. Mature slender thistles are upright plants that may branch considerably or be un-branched. The stems have white cobwebby hairs while the flower heads form a cluster on the end of the stem. Slender thistles form a rosette, (a whorl of leaves close to the ground), during winter, and only produce a flowering stem during late spring. Flowering and seed production occur in early summer and the life cycle is usually completed by the end of the year.

**Sweet briar (*Rosa rubiginosa*)** is a member of the rose family. It forms a deciduous shrub 1 - 3 m high with stems carrying prickles and bristles. Suckering occurs freely from the crown, and bushes often exceed 1 m in diameter at the base. The leaves have five to seven oval leaflets, each with serrated edges. The light pink flowers have a pleasant fragrance, while the fruit (called hips) are bright red when ripe and often have bristles. It often occurs along fence lines and in some instances has been formed into a hedge along roads within Brighton municipality. Sweet briar is not a declared plant within Tasmania however, it has the potential to be an alternative host for fruit fly. This is especially important within the Brighton municipality for the horticultural crops that occur close to known infestations and hedges of sweet briar.

**Whiteweed (*Cardaria draba*)** is closely related to crop plants such as cabbages and rapeseed. It is an erect, herbaceous (non-woody) plant growing to 90 cm high with white, umbrella shaped flower heads which appear in October and November. Individual flowers are 4 mm in diameter with 4 white petals (DPIPWE 2016). White weed appears to be spreading in the Highlands, especially along roadsides in the Bothwell area.

Whiteweed is a significant weed of crops in Tasmania, reducing yields through competition with crop plants for moisture and nutrients. It is very difficult to control once it has become established in cropping paddocks. Whiteweed is also thought to taint the meat and milk of grazing animals (DPIPWE 2016). It was identified around all of the municipality and is likely being spread as part of the roadside slashing programs.

**Willow (*Salix species*)** were recorded in most waterways and in some cases were becoming a monoculture. Willows have a drastic impact of river health and can cause localised flooding and erosion. Controlling willows can be difficult especially if there are large amounts of biological material which must be removed for safety concerns or for infrastructure protection. If control has happened or new examples are noted, it is important that new shoots are treated as Willows can quickly grow back in awkward shapes making follow up management more difficult and costly.

**Yellow Burrweeds (*Amsinckia calycina*)** is an erect annual herb, which grows up to 70cm in height, with small yellow trumpet like flowers that develop in early spring, each plant can produce up to 1600 seeds. The burred seeds hook easily onto the coats of animals, which are then dispersed over large areas. It is often found in poorly managed pastures, roadsides and areas other areas where there has been soil disturbance.

Yellow Burrweed was only recorded in a few locations within the municipality however it has the potential to spread along roadsides. It is not often known by the public as a weed of concern and can go unnoticed.



*Image: Sweet Briar weeds, Derwent Catchment Project, 2022*

## Appendix IV Causes of weed spread

### Vehicles, machinery & equipment

Machinery and vehicles are known to be a major vector for weed spread. Earthmoving equipment or maintenance machinery, such as slashers, can carry thousands of viable seeds and fragments to new areas.

### Contaminated sand & gravel

Another major vector is contaminated sand and gravel. Road maintenance often includes the movement of material from quarries around the municipality. This is a common problem associated with all road construction across Australia. It is vital that all quarries, including informal quarries, are not contaminated with weeds.

Stockpile areas should be established with appropriate drainage and maintained free of weeds and should not be established in areas known to be weed infected. Managing quarry sites and sand and gravel stockpiles is a key component of effective weed hygiene.

### Transported livestock feed

Due to fire or drought events, there are times where feed is required to be brought in from other regions. Unfortunately, this is also a pathway for unwanted weeds to be introduced to an otherwise clean area. There are commonly accepted strategies for managing this risk:

- Check the origin of your hay or grain stock feed and ask whether it has come from a known weed infested area.
- Keep records of purchased hay or grain stock feed.
- Store and feed-out in a confined area away from drainage lines (stock containment areas) to reduce the likelihood of weeds being spread throughout your property.
- Monitor storage and feed-out areas regularly and be suspicious of unfamiliar plants that germinate for the next 12 months.

It is important to consider these strategies and to communicate widely about control methods at times of drought, fire and flood to prevent unwanted weed introductions. 75



## Garden escapes

Environmental weeds are often garden escapes and are usually spread by birds, suckering of the plants to nearby areas; and garden waste dumped inappropriately. In the past 30 years, at least 35% of all plants that have become environmental weeds in Tasmania were deliberately introduced as garden plants. Strategies to combat this problem include community education programs and green waste collection scheme

# Appendix V Brighton Council weed action table

See attachment