

12/01/001



BURNIE

CITY COUNCIL

May 2009

Burnie Municipal Weed Management Plan



ACKNOWLEDGEMENTS

The review of the *Burnie Municipal Weed Management Plan (2005)* has been facilitated with the helpful assistance given by Burnie City Council staff including Mick Eastley, Weeds Officer; Patrick Earle, Director Land and Environmental Services; and Col Gadsden, GIS Officer.

Advice and direction was also received from Greg Taylor, Weed Strategy Officer with Cradle Coast NRM, and Kiowa Fenner, Regional Weed Management Officer with Department of Primary Industries and Water.

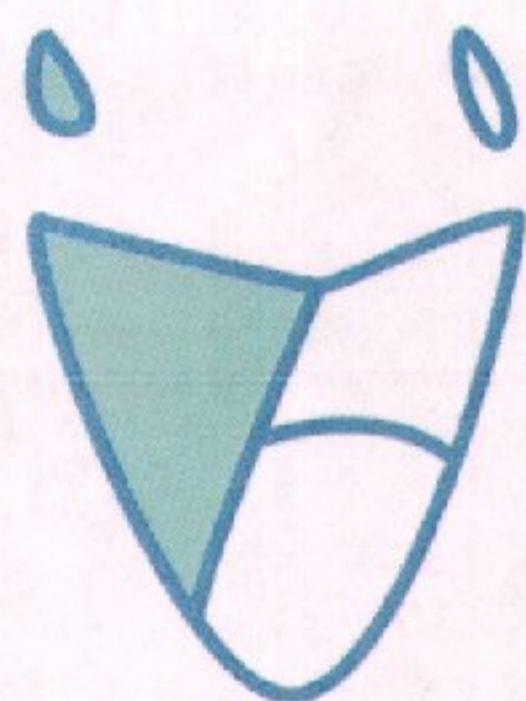
Thank you to all persons who have provided input to this document.

Thank you also to Greg Taylor, who prepared the initial *Burnie Municipal Weed Management Plan (2005)*, for permission to use that plan as the basis for this document; and to Marty Bower, Project Officer for the West Coast Weed and Fire Management Group, for permission to use parts of the *West Coast Weed and Fire Management Strategy (2009)*.

The Weed Management Plan review is funded by the Australian Government, Cradle Coast NRM and Burnie City Council.

Prepared by Anthea Fergusson
Natural Values Consulting
May, 2009

NRM
Cradle Coast



Natural Resource Management
in North West Tasmania



Australian Government

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 acknowledgment of source and it not being used for commercial purpose or sale. Reproduction for purposes other than those given above requires the prior permission of Burnie City Council.

EXECUTIVE SUMMARY

This document, the Burnie Municipal Weed Management Plan (2009) (MWMP) is a scheduled review of the original plan developed for the Burnie City Council in 2005. The plan has been very successful with the majority of goals being achieved; however during the interim period following the inception of the original plan several documents have been developed or updated at a national or regional level which relate to the Burnie WMP. These include the *Australian Weed Strategy* (2006), the *Regional Weed Hygiene Action Plan* (2007), and the *Coastal Weed Strategy* (2008).

The Burnie MWMP operates within the context of the *Cradle Coast Regional Weed Management Strategy* (2005), and provides the framework for long term coordinated weed management in the Burnie Municipality. Specific outcomes are also described for the following three years of implementation. Some of the goals described in the reviewed plan are ongoing benchmarks, in addition new goals have been established.

The Burnie Municipal Weed Management Plan identifies key management issues and addresses eight principal goals.

- To facilitate a cooperative municipal weed management program involving all relevant government, industry and community stakeholders
- To provide a platform for municipal implementation of Statutory weed management responsibilities
- To maintain a map based database of priority weeds in the Burnie Municipality
- To facilitate a strategic approach to weed management across the Burnie municipal area
- To identify best practice for sustainable weed management, including effective hygiene practices
- To reduce the incidence and impact of priority weeds
- To increase community awareness and encourage ownership and participation in weed management
- To ensure continued support and funding for weed management activities

Key outcomes over the next three year period include:

- Implementation by Burnie City Council (BCC) of best practice weed management
- Participation by Burnie City Council in regional weed management processes
- Continuation of Burnie Municipal eradication programs for ragwort and pampas
- Eradication of primary gorse, followed by ongoing control, in Municipality north of Highclere
- Maintenance of roadside weed management, the control of existing weeds and prevention of further spread

- Regularly update the weed mapping database for the Burnie Municipality, expanding to include additional weeds and locations. Utilize the management reminder system to prompt follow-up of previously controlled sites
- Assess weed corridors throughout the municipality, and encourage best practice methods to prevent weed spread through these corridors
- Foster the establishment of a weed management advisory group consisting of representatives from various land manager organisations such as Burnie City Council, Forestry, Department of Infrastructure, Energy & Resources, industry and the utility services, specifically Transend and rail services, and possibly community (North-west Environment Centre)
- Development of a Weeds page on the Burnie City Council web page, with links to control information at the Department of Primary Industries website, and processes for community reporting
- Provide support and education to the community on weeds, garden escapes and weed spread prevention
- Participate in coastal weed management through liaison with Coastcare and community groups.
- Promote the prevention of new infestations of weeds through the awareness of vehicle and machinery wash-down procedures
- Review, monitor and evaluate the actions and outcomes of this plan to achieve continued benchmarking

This plan will be reviewed in three years time to determine how successful it has been in meeting the specified objectives.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
EXECUTIVE SUMMARY	3
1 VISION	7
2 GOALS	7
3 INTRODUCTION	7
3.1 The Municipality of Burnie	7
Figure 1 - National, State and Regional Context	8
Figure 2 - Burnie Municipality and its Neighbours	9
3.2 Development of a Municipal Weed Management Plan	9
4 BACKGROUND	10
4.1 Definition	10
4.2 Legislation	10
Plant Quarantine Act 1997	10
Weed Management Act 1999	10
4.3 Links to National, State and Regional Weed Strategies	10
Australian Weed Strategy	10
National Weed Spread Prevention draft Action Plan	10
Tasmanian Biosecurity Strategy	10
State Weed Plan	11
The Tasmanian Beach Weed Strategy	12
Cradle Coast Natural Resource Management Strategy (2005)	12
Cradle Coast Regional Weed Management Strategy (2005)	12
Coastal Weed strategy for the Cradle Coast NRM Region	12
Weed Hygiene Action Plan	12
4.4 Municipal Documents of Relevance	12
5 WEEDS OF THE BURNIE MUNICIPALITY	13
5.1 Overview	13
5.2 Weeds of Neighbouring Municipalities	14
5.3 Mapping and Data Management	14
5.4 Priority Weeds	15
WoNS	15
Declared Weeds	15
Figure 3 - Proposed sub-Municipal zoning for gorse	16
Table 1 - Declared Weeds of the Burnie Municipality	17
Table 2 - Environmental Weeds of the Burnie Municipality	21
Table 3 - Other Weeds	22
5.5 Coastal Zone	23
5.6 Vehicle and Machinery hygiene	24
5.7 Summary of on ground Weed Management Priorities	25
5.8 Achieving effective control of weeds	26
Resources	26
Weed identification and treatment methods	27

6	KEY ISSUES AND GOALS	28
6.1	Table 4 Key Issues and Goals	28
6.2	Goal 1	29
6.3	Goal 2	29
6.4	Goal 3	30
6.5	Goal 4	30
6.6	Goal 5	31
6.7	Goal 6	32
6.8	Goal 7	33
6.9	Goal 8	34
6.10	Table 5 - Three year Action Table	35
7	MONITORING, EVALUATION AND STRATEGY REVIEW	37
8	LIST OF ABBREVIATIONS	38
	Bibliography	38
	APPENDIX Weed Control Methods	39

1 VISION

To implement an effective, coordinated and practical weed management program that minimises the environmental, social and economical impacts of weeds within the Burnie Municipality.

2 GOALS

- To facilitate a cooperative municipal weed management program involving all relevant government, industry and community stakeholders
- To provide a platform for municipal implementation of Statutory weed management responsibilities
- To maintain a map based database of priority weeds in the Burnie Municipality
- To facilitate a strategic approach to weed management across the Burnie municipal area
- To identify best practice for sustainable weed management, including effective hygiene practices
- To reduce the incidence and impact of priority weeds
- To increase community awareness and encourage ownership and participation in weed management
- To ensure continued support and funding for weed management activities

3 INTRODUCTION

3.1 The municipality of Burnie

The municipality of Burnie is located in north-west Tasmania and covers an area of approximately 61,000 hectares. The municipal area reaches southward from Bass Strait to the hinterland south of Hampshire; the western boundary is the Cam River, and the Blythe River forms the boundary to the east. From the records of the Bureau of Statistics, the municipality recorded a population of 19,057 in the 2006 Australian Census with the majority of the population residing in the city of Burnie.

Average daily maximum temperature varies from 21° Celsius in summer to 13°C in winter, with average daily minimum temperature ranging from 13°C in summer to 6° C in winter. The annual average rainfall is 994 mm, and throughout the year the periods of sunshine average out to 6 hours daily.

Diverse landscapes and natural ecosystems occur ranging from inland mountainous regions to the coastal zone. These regions support an array of native vegetation communities and habitats. The municipality supports the rural based industries of farming, forestry and nature-based tourism, and a dynamic range of ecological, cultural and economic values overlay the area.

The majority of the Municipality's population live close to the coast, where there are some isolated pockets of remnant native vegetation. Further inland are highly productive cropping and grazing rural properties, forestry plantations and remnant native bush land.

The municipality of Burnie is part of the broader Cradle Coast Region, which encompasses nine municipalities; Burnie shares a border with the Waratah/Wynyard Municipality to the west and south, and the Central Coast Municipality to the east.

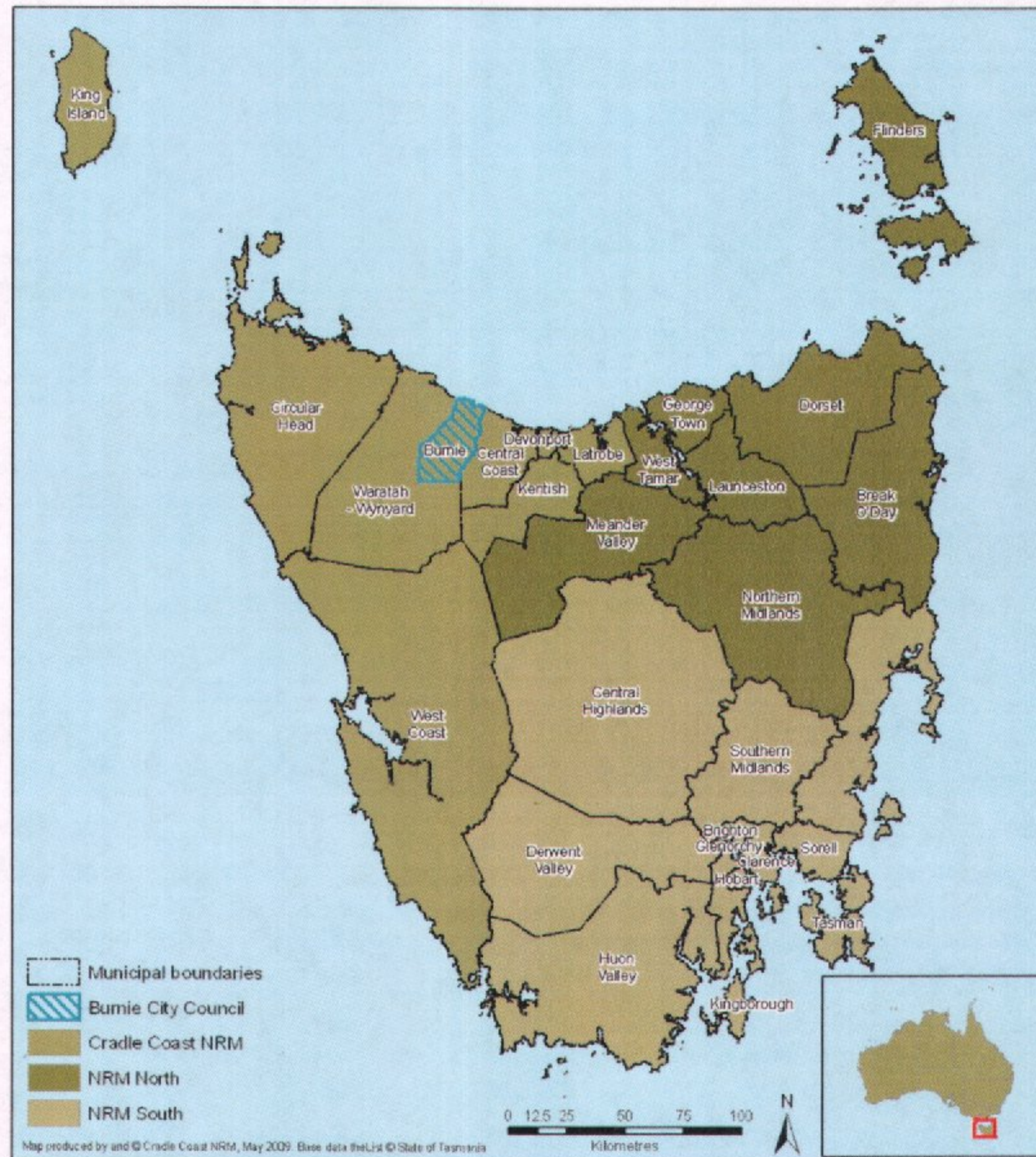


Figure 1: National, State and Regional context



Figure 2: Burnie Municipality and its Neighbours. Map: Burnie City Council

3.2 Development of a Municipal Weed Management Plan

Successful weed management requires industry, land managers and the community to work in partnership. Now is the designated period for review of the initial plan, in order to evaluate existing weed management processes and ensure consistent weed management at the regional and municipal levels. In addition, during the period since the initial Burnie Municipal Weed Management Plan (MWMP) (2005) the *Regional Weed Hygiene Action Plan* (2007), and the *Coastal Weed Strategy* (2008) which encompass the entire Cradle Coast Region are being implemented.

A coordinated approach to weed control at the regional level achieves best practice in weed management at the municipal level, and optimises environmental, social and economic outcomes for the municipality.

Funding has been made available through the Cradle Coast NRM Local Government Incentive Program to conduct this review.

4 BACKGROUND

4.1 Definition

In the *Australian Weed Strategy* (2006) a weed is considered pragmatically as a plant that requires some form of action to reduce its harmful effects on the economy, the environment, human health and amenity.

4.2 Legislation

Plant Quarantine Act (1997)

The *Plant Quarantine Act 1997* provides for the quarantine of plants and the control of pests and diseases. Quarantine Tasmania regulates and prohibits the importation of pest plants, animals and diseases into Tasmania.

Weed Management Act (1999)

The principal legislation relating to weed management in Tasmania is the *Weed Management Act (1999)*.

The Act provides for the eradication and control of 'declared weeds'. There are currently 102 weeds declared under the Act. The importation and sale of these plants is prohibited under the Act. All declared plants have a Statutory Weed Management Plan (WMP). These plans outline the minimum management requirements of each species across each municipality. With respect to each declared weed, municipalities are either zone A or B. In zone A municipalities, eradication is required, while in zone B municipalities the goal is containment to prevent further spread.

Declared plants can be categorised into three groups:

1. Plants that present a threat to Tasmania but are not naturalised yet. The Act provides for rapid response to any incursions.
2. Plants that present a threat and are of limited distribution. Eradication is required state-wide for these plants.
3. Plants that are widely naturalised in Tasmania, requiring management due to their ongoing threat to Tasmania's native environment and/or agricultural productivity. These plants have varying distributions across the state and management is either eradication or containment depending on the Statutory Weed Management Plan.

The Department of Primary Industries and Water (DPIW) Weeds Section is responsible for the preparation and revision of Statutory Weed Management Plans for declared weeds. The plans, and a list of Tasmanian declared weeds are found at www.dpiw.tas.gov.au/weeds. Declared weeds known to be in the Burnie Municipality are listed on the following pages (p 17-20).

4.3 Links to National, State and Regional Weed Strategies

Recent years have seen the development of coordinated weed management planning structures, with increasing consistency between National, State and Regional levels.

Australian Weed Strategy (2006)

This strategy is a revision of the *National Weeds Strategy* first developed in 1997. The *Australian Weed Strategy (2006)* was endorsed by the Natural Resource Management

Ministerial Council on the 24th November 2006. The Australian Weeds Strategy provides a framework to establish consistent guidance for all parties, and identifies priorities for weed management across the nation with the aim of minimising the impact of weeds on Australia's environmental, economic and social assets. The Australian Weeds Strategy emphasises the importance of preventing new weeds from establishing and the need to respond quickly to incursions. Seven key principles exist:

1. Weed management is an essential and integral part of the sustainable management of natural resources for the benefit of the economy, the environment, human health and amenity.
2. Combating weed problems is a shared responsibility that requires all parties to have a clear understanding of their roles.
3. Good science underpins the effective development, monitoring and review of weed management strategies.
4. Prioritisation of and investment in weed management must be informed by a risk management approach.
5. Prevention and early intervention are the most cost effective techniques for managing weeds.
6. Weed management requires coordination among all levels of government in partnership with industry, land and water managers and the community, regardless of tenure.
7. Building capacity across government, industry, land and water managers and the community is fundamental to effective weed management.

A major component of the Strategy is the identification of 20 Weeds of National Significance (WoNS). National and state strategies for each of the WoNS have been developed, and funding has been made available for implementation of those strategies. The WoNS found in Tasmania are:

- *Asparagus asparagioides* (bridal creeper)
- *Chrysanthemoides monilifera* (boneseed)
- *Rubus fruticosus* agg. (blackberry)
- *Ulex europaeus* (gorse)
- *Nassella trichotoma* (serrated tussock)
- *Salix* sp. (willows)

Apart from serrated tussock and bridal creeper, these WoNS are all found within the Burnie Municipality.

National Weed Spread Prevention draft action plan (2006)

A National Weed Spread Prevention Action Plan will establish a framework to prevent weed spread. The draft objectives are to identify and address all pathways for weed spread; achieve national consistency in weed spread prevention; minimise the spread of weeds by human agency; and meet the requirements of the Strategy.

Tasmanian Biosecurity Strategy (2006)

The above strategy underpins and implements the Tasmanian Biosecurity Policy. The co-ordination of biosecurity activities across Tasmania is seen as vital to maintain and build on the State's biosecurity status.

State WeedPlan (2005)

Tasmania's Weed Management Strategy - WeedPlan - aims to achieve coordinated, collaborative and effective weed management across the whole state. The Tasmanian Weed Management Committee oversees the implementation of Weed Plan. The plan was revised in 2005 and the second edition of WeedPlan is now in circulation.

The Tasmanian Beach Weed Strategy (2003)

This strategy focuses on marram grass, sea spurge, sea wheatgrass and pyp grass, and identifies eradication and containment zones for each species.

Regional Guidelines

Cradle Coast Natural Resource Management Strategy (2005)

A *Natural Resource Management Strategy* (NRM) for the Cradle Coast region was developed in 2005. The Strategy plans for the long term and sustainable management of the region's natural resources, based on achieving a balance of environmental, social and economic factors. The *NRM Strategy* (2005) outlines short, medium and long term goals. Progress towards the realisation of these goals will be determined by a monitoring and evaluation program. Information regarding the NRM process can be accessed at: www.nrmtas.com.au

Cradle Coast Regional Weed Management Strategy (2005)

As part of the NRM process, a *Cradle Coast Regional Weed Management Strategy* (RWMS) was launched in May 2005. Similar RWMS have been developed for Tasmania's other two NRM regions. The RWMS employs principles similar to the broader NRM strategy, but with a focus on weed issues.

The Cradle Coast RWMS assists municipal weed management by setting the context for municipal weed management plans within the region. The Strategy establishes a management framework (e.g. a network of weed officers, information exchange) and promotes a coordinated, cooperative approach to weed management across all land tenures. Implementation of the Strategy establishes supportive programs to assist land managers control weeds (eg through awareness raising programs, training opportunities, incentive schemes, etc).

Coastal Weed Strategy for the Cradle Coast NRM Region (2008)

The Strategy identifies weeds causing significant impact on coastal areas. The main priority of the Strategy is to protect important coastal assets and encourages mapping, targeted control actions and education programs.

Weed Hygiene Action Plan – preventing weed spread in the Cradle Coast Region (2007)

This document is designed to build awareness of the importance of weed hygiene and to minimise the threat of new weed incursions. Information is also provided on the threat of weed corridors and other weed vectors.

Good Neighbour Charter for Commercial Forestry in Tasmania (2008)

The Charter was originally developed in 2000 by Tasmanian forestry companies and explains how the signatory companies will communicate with adjoining landholders. Weeds are address under the Charter.

4.4 Municipal Documents of Relevance

Several documents have been developed by and for Council to guide Council's management of natural resources within the Burnie Municipality. A summary of weed management issues in each document is provided below.

Parks and Reserves Service Level Standards (2008-09)

Burnie City Council operates and maintains a significant network of Parks and Gardens. Amongst other issues, this document provides detailed recommendations for the control of environmental weeds within Council's reserves.

Transport Services, Service Level Standards, Burnie City Council (2008-09)

This document details prescriptions for roadside, paving and nature strip weed control within the Burnie Municipality.

Bushland Management Guidelines (2003)

These Guidelines highlight and recommend approaches to a variety of management issues which include weed management; to be incorporated in the ongoing protection and rehabilitation of Burnie City Council managed Reserves.

Bushland Action Plans 2001 - 2013 for the Burnie Municipality (2003)

This document details management programs for the ongoing management of seven bushland areas in the Burnie Municipality. These areas are: Shorewell Creek, Romaine Reserve, Parsonage Point, VDL Hill, Fern Glade Reserve, Round Hill Reserve and Guide Falls Reserve. In each area invasive weeds are seen as a management issue.

Burnie Vegetation Management Tool Kit (2003)

This tool kit provides practical information for protecting and enhancing remnant vegetation in the Burnie Municipality, and includes sections on weed control.

5 WEEDS OF THE BURNIE MUNICIPALITY

5.1 Overview

The Burnie municipal area covers approximately 14 kilometres of coastline between the Cam River and the Blythe River. The coastal area is frequented by walkers, dog owners and swimmers, and an active surf life-saving club is located in Burnie. To be balanced with this human interaction are the natural values of the area which includes two *Eudyptula minor* (Little Penguin) rookeries. In recent years a lot of volunteer effort has been put into rehabilitating and preserving the native vegetation of the coastal zone. These efforts need to be maximized, because increasingly the economic benefits created through tourism are being realized, and areas of native vegetation degraded by weeds can create adverse publicity. Further information on the Coastal Zone is covered in Section 5.5 on page 23.

The area of freehold land within the municipality is approximately 50,000 hectares. The majority of the agricultural land in the municipal area is fertile and productive, and weed incursions reduce productivity and economic return of farming enterprises. Weeds also degrade the natural values of bushland, waterways and coastal reserves and impact on the ecosystem services provided by those areas. The agricultural and bushland weeds posing significant threats include *Ulex europaeus* (gorse), *Senecio jacobea* (ragwort), *Cortaderia jubata* (pampas), *Cytisus scoparius* (English broom) and *Genista monspessulana* (Montpellier broom), *Rubus fruticosus* agg. (blackberry), *Leycesteria formosa* (Elisha's Tears) various thistles and *Erica lusitanica* (Spanish heath).

Several river systems dissect the municipal area, providing water for agricultural and industrial use, as well as towns and the city of Burnie. The native biota dependant on the rivers includes species listed as vulnerable under both the State *Threatened Species Protection Act* (1995) and the Commonwealth *Environment Protection and Biodiversity Conservation Act* (1999); these are *Astacopsis gouldi* (Giant freshwater crayfish) and

Engaeus yabbimunna (Burnie Burrowing Crayfish). The major aquatic weeds include *Salix* spp., (willows), *Glyceria maxima* (*Poa aquatica*) and *Typha latifolia* (Cumbungi).

Plantation forestry is a major component of rural land-use, with an area of approximately 15,640 hectares supporting tree-farms, which equates to 25.6% of the municipal land area (Private Forests Tasmania, 2006). Tree farms are just as vulnerable as farming land to weed incursions, perhaps more so because the initial planting disturbance creates a seed bed in which soil and wind borne seed can germinate, and regular monitoring and control of weeds is essential. The Good Neighbour Charter (2008) states the willingness of the signatory forestry companies to utilize best practice management in their operations, and this includes weeds.

In the peri-urban area many plants have 'escaped' from gardens and are invading native bush-land and reserves, as well as coastal land. This problem is addressed through various booklets which inform the public about species with the most potential to spread, however the established "weedy areas" still need to be controlled and maintained.

5.2 Weeds of Neighbouring Municipalities

The Burnie Municipality shares boundaries with the Waratah/Wynyard Municipality to the west and south, and the Central Coast Municipality to the east. The three municipalities share many weed problems, and in recent years quarterly meetings organised by Cradle Coast NRM for municipal Weed Officers has facilitated a coordinated approach to weed management. In addition to the efforts of the various municipal councils, over the past two years Cradle Coast NRM has coordinated programs to control/eradicate boneseed and pampas on private property across the region.

The Central Coast and Burnie municipalities share similar species lists for declared weeds. However the DPIW Weed Management Plans indicate that the Waratah/Wynyard municipal area does not contain nodding thistle, saffron thistle, pampas lily of the valley and viper's bugloss, all of which are recorded in Burnie. Waratah/Wynyard is also zoned A for gorse, Spanish heath, ragwort and boneseed.

A complete list of declared weeds known in each municipality of the Cradle Coast Region can be found in the *Cradle Coast Regional Weed Management Strategy* (2005).

5.3 Mapping and Data Management

Weed mapping is carried out in the Burnie municipal area for the priority weeds of gorse, ragwort and pampas. The Burnie City Council has a digital mapping program where data is uploaded and updated as required. As resources permit mapping data of other weeds will be incorporated.

A comprehensive weed mapping program:

- Enables the development of individual weed strategies that make most effective use of available resources
- Provides objective descriptions of weed control achievements
- Provides a long term record of sites containing weeds with long seed life, enabling reliable long term monitoring and control actions through a management reminder system
- Provides an objective record which maintains knowledge that may otherwise be lost due to staff turnover
- Provides a way of recording and integrating community weed reporting
- Enables weed distribution data to be provided to regional and state-wide bodies

Currently verbal reports made to the Council regarding weeds are passed on to the Weeds Officer for verification and action. It is proposed to establish an internal data management system to track the response to a complaint. An electronic reporting system on the Burnie City Council website is also visualized, on the same page as a link to the DPIW website to aid weed identification and control guides for declared weeds.

A Management Reminder System is in place which prompts the issuing of letters to listed landholders at particular times of year. Sites containing weeds with long seed life, such as gorse and broom, require annual and ongoing inspection. The reminder system is linked to such sites and their land managers, and prompts the issuing of letters to land managers that a particular site is due for its annual inspection.

There are also a number of properties covered by funded landholder agreements where initial gorse and ragwort control has been carried out by Council, and follow up work for the ensuing three years becomes the responsibility of the landholder. The Management Reminder System can ensure a timely reminder to the landholder of his/her obligations.

5.4 Priority Weeds

WoNS

There are significant populations of blackberry, gorse and willow within the Burnie Municipality. Small infestations of boneseed exist in the Burnie municipality, however due to a program run by the Cradle Coast NRM all known boneseed sites in the Cradle Coast Region, including those in Burnie and Central Coast, are now controlled.

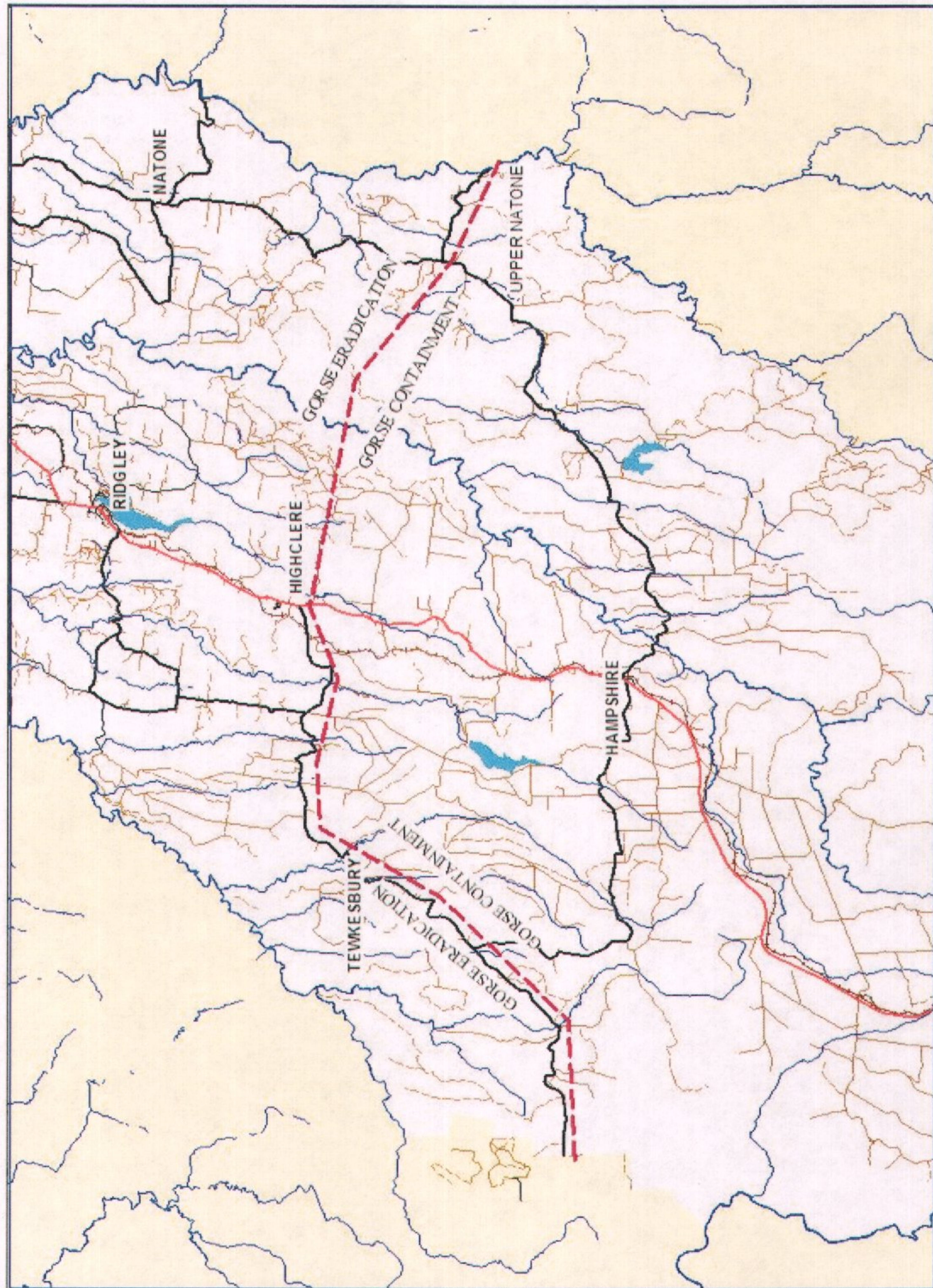
Declared Weeds

Each WoNS in the Burnie Municipality is also a declared weed.

Twenty other plants declared under the *Tasmanian Weed Management Act* (1999) have been identified within the Burnie Municipality, as below (Table 1, pages 17 - 20). Included in Table 1 are minimum management requirements for each weed as outlined in the current Statutory Weed Management Plans under the Act, together with specific actions to be undertaken by Council.

As a minimum under the Legislation, Zone A weeds are to be eradicated, while Zone B weeds are to be contained. However, in some cases setting of sub-municipal Zone A/Zone B boundaries can be greatly advantageous to the management of weeds. This method has been utilized at Highclere for the management of gorse, south of Highclere gorse is widespread, and this area is designated as Zone B classification. However, north of Highclere, the weed is relatively isolated, and a Zone A classification for this area is appropriate. Statutory Weed Management Plans are being reviewed by DPIW in 2009 and the Burnie City Council and DPIW Weeds Section propose that this sub-municipal boundary be included in the Statutory WMP for Gorse (Figure 3).

Other declared weeds for which sub-municipal boundaries may be appropriate include: willow, English broom (and possibly Montpellier broom), and Spanish heath. As the Burnie Municipal weed mapping program becomes more comprehensive, it is recommended that the Advisory Group, in conjunction with Council and DPIW, move to establish and enforce other appropriate sub-municipal Zone A and Zone B boundaries.



PLOT CREATED
10/3/2005

DISCLAIMER
Original data captured from aerial photography 1996
Therefore it may not truly represent current features
This plan shows GIS data time of printing.
Please report erroneous data to Infrastructure Services



MAP 3 - Gorse Eradication Boundary

Figure 3: Sub-Municipal zoning for gorse

Table 1: Declared Weeds of the Burnie Municipal Area

WoNS are listed first in bold print. Individual weeds are shaded to indicate that a DPIW Control Guide is available. When this is the case, management of the particular weed should follow the recommendations of the Control Guide.

The zones allocated to Declared Weeds in the Management Plans are currently being reviewed

COMMON NAME <i>BOTANICAL NAME</i>	STATUS	WMP RECOMMENDATION	BURNIE CITY COUNCIL ACTION
BLACKBERRY <i>Rubus fruticosus</i> <i>agg.</i>	Widespread - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries <i>Surrounded by Zone B municipalities</i>	Control on council managed land as per DPIW Service Sheet. Liaise with landowners as required, provide control information. Access funding programs if available. Identify and record sites.
WILLOW <i>Salix species</i>	Widespread Crack Willow - Zone B Other Taxa - Zone A	Containment within municipal boundaries, protection of specified areas within municipal boundaries. <i>Surrounded by Zone B municipalities</i>	Control on council managed land. Liaise with landowners as required, provide control information. Access funding programs if available. Identify and record sites. A WoNS Willows Management Guide is available (2007)
GORSE <i>Ulex europaeus</i>	Zone A north of Highclere; Widespread - Zone B elsewhere	Containment within municipal boundaries, protection of specified areas within municipal boundaries & prevention of spread to Zone A municipalities. Waratah/Wynyard is Zone A	Control on council managed land as per DPIW Service Sheet. Liaise with landowners as required, provide control information. Access funding programs if available. Identify and record sites.
BONESEED <i>Chrysanthemoides monilifera</i>	Localised infestations - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries & prevention of spread to Zone A municipalities. Waratah/Wynyard is Zone A	Control on Council managed land as per DPIW Service Sheet with aim of eradication. Access funding programs if available. Identify and record sites.
BRIDAL CREEPER <i>Asparagus asparagoides</i>	Localised infestations	Implement integrated control program for eradication	Liaise with DPIW RWMO if potential sites are identified and implement actions as required. Identify and record sites.
CROW GARLIC <i>Allium vineale</i>	Localised infestations	Implement integrated control program for eradication	Liaise with DPIW RWMO if potential sites are identified and implement actions as required. Identify and record sites.

COMMON NAME BOTANICAL NAME	STATUS	WMP RECOMMENDATION	BURNIE CITY COUNCIL ACTION
NODDING THISTLE <i>Carduus nutans</i>	Isolated occurrences	Eradicate existing infestations & prevent future occurrences	Liaise with DPIW RWMO if potential sites are identified and implement actions as required. Identify and record sites.
PAMPAS GRASSES <i>Cortaderia species</i>	Localised infestations	Implement integrated control program for eradication	Continue to implement Council eradication program. Implement control on Council land as per SLS. Liaise with landowners as required. Identify and record sites.
SLENDER THISTLE <i>Carduus pycnocephalus</i>	Widespread - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries & prevention of spread to Zone A municipalities. Surrounded by Zone B municipalities.	Control on Council managed land as per DPIW Service Sheet. Liaise with landowners as required, provide control information.
SLENDER THISTLE <i>Carduus tenuiflorus</i>	Widespread - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries & prevention of spread to Zone A municipalities.	Control on Council managed land as per DPIW Service Sheet. Liaise with landowners as required, provide control information.
CALIFORNIAN THISTLE <i>Cirsium arvense</i>	Localised infestations - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries Surrounded by Zone B municipalities	Control on Council managed land as per DPIW Service Sheet. Liaise with landowners as required, provide control information.
ENGLISH BROOM <i>Cytisus scoparius</i>	Widespread - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries Surrounded by Zone B municipalities	Control on Council managed land as per DPIW Service Sheet. Identify and record sites. Liaise with landowners as required, provide control information.
DATURA <i>Datura species</i>	Isolated occurrences	Eradicate existing infestations & prevent future occurrences	Liaise with DPIW RWMO. Control on Council managed land as per SLS. Liaise with landowners as required, provide control information.

COMMON NAME BOTANICAL NAME	STATUS	WMP RECOMMENDATION	BURNIE CITY COUNCIL ACTION
PATERSON'S CURSE OR SALVATION JANE <i>Echium plantagineum</i>	Isolated occurrences	Eradicate existing populations & prevent future occurrences	Liaise with DPIW RWMO if potential sites are identified and implement actions as required.
SPANISH HEATH <i>Erica lusitanica</i>	Localised infestations - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries & prevention of spread to Zone A municipalities. Waratah/Wynyard is Zone A	Control on Council managed land as per SLS. Liaise with landowners as required, provide control information. A weed management guide is available from www.weeds.crc.org.au
VIPER'S BUGLOSS <i>Echium vulgare</i>	Isolated occurrences	Eradicate existing populations & prevent future occurrences	Liaise with DPIW. Control on Council managed land as per SLS. Liaise with landowners as required, provide control information.
FENNEL <i>Foeniculum vulgare</i>	Widespread - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries Surrounded by Zone B municipalities	Control on Council managed land as per SLS. Liaise with landowners as required, provide control information.
MONTPELLIER BROOM <i>Genista monspessulana</i>	Widespread - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries Surrounded by Zone B municipalities	Control on Council managed land as per DPIW Service Sheet. Identify and record sites. Liaise with landowners as required, provide control information.
CAPE TULIP <i>Homeria species</i>	Localised infestations	Implement integrated control program for eradication	Liaise with DPIW RWMO if potential sites are identified and implement actions as required.
ST JOHN'S WORT <i>Hypericum perforatum</i>	Isolated occurrences	Eradicate existing infestations & prevent future occurrences	Liaise with DPIW RWMO if potential sites are identified and implement actions as required.
AFRICAN BOXTHORN <i>Lycium ferocissimum</i>	Localised infestations - Zone B	Containment within municipal boundaries, protection of specified areas within municipal boundaries Surrounded by Zone B municipalities	Control on Council managed land as per DPIW Service Sheet. Liaise with landowners as required, provide control information.

COMMON NAME BOTANICAL NAME	STATUS	WMP RECOMMENDATION	BURNIE CITY COUNCIL ACTION
ELISHA'S TEARS <i>Leycesteria formosa</i>	Localized infestations - Zone B	Surrounded by Zone B municipalities	
PARROT'S FEATHER <i>Myriophyllum aquaticum</i>	Previously recorded, none known now	Prevention & early detection	Liaise with DPIW RWMO if potential sites are identified and implement actions as required.
PAMPAS LILY-OF-THE-VALLEY <i>Salpichroa organifolia</i>	Isolated occurrences	Eradicate existing infestations & prevent future occurrences	Liaise with DPIW RWMO if potential sites are identified and implement actions as required.
RAGWORT <i>Senecio jacobaea</i>	Currently - Zone B Could be reclassified as Zone A	Containment within municipal boundaries, protection of specified areas within municipal boundaries & prevention of spread to Zone A municipalities. <i>Waratah/Wynyard is Zone A</i>	Continue to implement Council program with aim to eradicate from municipality. Liaise with landowners as required, provide control information. Identify and record sites.
WHITE-EDGED NIGHTSHADE <i>Solanum marginatum</i>	Isolated occurrences	Eradicate existing infestations & prevent future occurrences	Liaise with DPIW RWMO if potential sites are identified and implement actions as required.

The majority of the environmental weeds are 'garden escapes' and are impacting on the integrity of native bushland and coastal areas. The following list (Table 2) indicates the plants known to jump the garden fence. Individual weeds are shaded to indicate that a DPIW Control Guide is available. When this is the case, management of the particular weed should follow the recommendations of the Control Guide.

TABLE 2: Environmental Weeds found in the Burnie Municipal Area

BOTANICAL NAME	COMMON NAME
<i>Allium triquetrum</i>	Three-Cornered Garlic
<i>Cedronella canariensis</i>	Balm of Gilead
<i>Coprosma repens</i>	Mirror Bush
<i>Cotoneaster species</i>	Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn
<i>Crocrosmia x crocrosmiiflora</i>	Montbretia
<i>Cytisus palmensis</i>	Tree Lucerne
<i>Delairea odorata</i>	Cape Ivy
<i>Euphorbia paralias</i>	Sea Spurge
<i>Fushia magellanica</i>	Fushia
<i>Glyceria maxima</i>	Poa Aquatica
<i>Hedera helix</i>	English Ivy
<i>Ilex aquifolium</i>	Holly
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Lupinus arboreus</i>	Tree Lupin
<i>Paraserianthes lapantha</i>	Cape Wattle
<i>Passiflora mollissima</i>	Banana Passionfruit
<i>Pinus radiata</i>	Radiata Pine
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Psoralea pinnata</i>	Blue Butterfly-Bush
<i>Rosa rubiginosa</i>	Briar Rose
<i>Tradescantia albiflora</i>	Wandering Jew
<i>Typha latifolia</i>	Cumbungi
<i>Vinca major</i>	Blue Periwinkle
<i>Watsonia species</i>	Watsonia

Glyceria maxima (Poa aquatica) is a waterway weed identified as being of particular concern within the Burnie (and adjoining Waratah/Wynyard) Municipality. This weed has severely degraded several waterways within the Municipality and spreads quite rapidly, therefore creating the potential to greatly expand its range. It is recommended that the distribution of this weed be mapped as a priority, and that it is considered for nomination for declaration under the Weed Management Act. During 2008 and 2009 a study has been conducted by Cradle Coast NRM to determine the impacts of herbicide use and Poa aquatica control works on water quality, and to gather empirical data to assist in determine long term changes in waterways.

The following weeds (Table 3) occur in the Burnie municipal area, and while they are not declared weeds, in certain situations they may require control programs. Individual weeds are shaded to indicate that a DPIW Control Guide is available. When this is the case, management of the particular weed should follow the recommendations of the Control Guide.

Table 3: Other weeds found in the Burnie area which may require management programs to be implemented

BOTANICAL NAME	COMMON NAME
<i>Acer pceudoplatannus</i>	Sycamore maple
<i>Achillea millefolium</i>	Yarrow / Milfoil
<i>Amaranthus species</i>	Amaranthus
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Arctotheca calendula</i>	Cape Weed
<i>Chenopodium album</i>	Fat Hen
<i>Cirsium vlgare</i>	Spear Thistle
<i>Conium maculatum</i>	Hemlock
<i>Convolvulus arvensis</i>	Bindweed
<i>Conyza species</i>	Fleabanes
<i>Erodium species</i>	Storkbills
<i>Euphorbia species</i>	Spurges
<i>Fumaria species</i>	Fumitory
<i>Hypochoeris radicata</i>	Flatweed
<i>Malva species</i>	Mallow
<i>Oxalis species</i>	Oxalis
<i>Papaver species</i>	Opium Poppy
<i>Plantago species</i>	Plantain, Ribwort
<i>Ranunculus repens</i>	Buttercup
<i>Raphanus raphanistrum</i>	Wild Radish
<i>Rumex species</i>	Docks, Sorrel
<i>Solanum nigrum</i>	Blackberry Nightshade
<i>Spergula arvensis</i>	Spurry
<i>Stellaria media</i>	Chickweed
<i>Taraxacum officinale</i>	Dandelion
<i>Veronica species</i>	Speedwells
<i>Vicia species</i>	Vetches

5.5 Coastal Zone: the following section is taken from the *Coastal Weed Strategy for the Cradle Coast NRM region (2008)*

Weeds can dramatically alter coastal landforms, displace native vegetation, affect sites of cultural significance, biodiversity and landscapes, and reduce recreational amenity. Changes to beach landform and vegetation may also adversely affect shorebird nesting and feeding sites. Weeds can dominate the coastal environment.

Marram grass, sea spurge and sea wheatgrass are spread by ocean currents. Pyp grass has the potential to become widespread, and may possibly be spread by ocean currents, but it is currently restricted in distribution

Other weeds [also] significantly impact coastal areas, but their principal means of dispersal is not by ocean currents but by other means including 'escapes' from residential gardens, and inappropriate dumping of green waste. Mirror bush (*Coprosma*), boxthorn, boneseed, cape ivy, gorse, cape wattle, blackberry and broom are some of the weeds currently impacting coastal areas in the Cradle Coast region. Boneseed, blackberry, boxthorn, gorse and broom are declared under the *Weed Management Act (1999)*. Generally this strategy (Coastal Weed Strategy) recommends that management of these weeds be subject to site specific weed management plans, however management should also be consistent with National, State and Regional priorities.

On-ground weed control needs to be carefully planned, with due regard to all relevant social, environmental and economic factors. Planning needs to be informed by accurate identification of plant species, and include consideration of revegetation subsequent to on-ground control. In many cases revegetation is essential to re-establishing a healthy and sustainable site, and planning, including financial budgets, should reflect this reality.

Despite the widespread affection held by the general community for our coastline, the presence and impact of weeds in these areas is not widely recognised. Raising community awareness and maintaining ongoing interest and motivation to participate in management partnerships is both a challenge and an opportunity. Social conflicts have occurred within coastal communities in relation to management of coastal vegetation. These conflicts can be deeply divisive, and undermine community goodwill and motivation. Careful planning, community consultation, and ongoing public education programs will help to minimise these conflicts.

Coastal weed management has drawn heavily on the human resources of Coastcare and other community groups, and individuals. Their ongoing involvement will be important for the success of this Strategy (Coastal Weed Strategy). Given the general affection of our community for our coastal areas, there is significant potential for wider community involvement in the management of coastal weeds, especially if the impacts of these weeds are more widely understood.

The impacts of coastal weeds are so widespread that effective management is beyond the voluntary resources of the community. Significant financial resources are required from all levels of Government and other coastal managers, otherwise the degradation of coastal assets will continue. Solutions to most current problems will involve long term management, and a corresponding commitment to financial resources.

For a complete list of the Goals, Objectives and Actions please consult the Coastal Weed Strategy (2008); however the following **Goals, Objectives and Actions** are considered particularly relevant to the Burnie municipal area

GOAL 1: TO MINIMIZE ADVERSE IMPACTS OF COASTAL WEEDS

Objective 1.1 Identify priority sites for protection

Action 1.1.6 Identify sites of social and recreational amenity

Objective 1.2 Protect priority sites from invasion or adverse impact by coastal weeds

Action 1.2.2 Implement a planning process which sets out to eradicate or reduce weed impacts at priority sites, but takes into account significant values and ensures the long term maintenance, rehabilitation and management of those sites.

GOAL 2: TO CONTAIN THE DISTRIBUTION OF MARRAM GRASS, SEA SPURGE, SEA WHEATGRASS.....

Objective 2.1 Establish and maintain eradication zones for marram grass, sea spurge and seawheat grass

Objective 2.2 Establish a monitoring and control program

Action 2.2.4 Within the eradication zone, initiate control within 1 year of new coastal weed reports.

GOAL 3: MAINTAIN STAKEHOLDER COMMITMENT AND INCREASE PUBLIC AWARENESS

Objective 3.2 Involve and support stakeholders in coastal weed management

Objective 3.3 Co-ordinate coastal weed management in the Cradle Coast Region

Action 3.3.2 Integrate this Strategy (Coastal Weed Strategy) with local government and other weed management programs

GOAL 4: ENSURE AVAILABILITY OF FINANCIAL RESOURCES FOR COASTAL WEED MANAGEMENT

5.6 Vehicle and Machinery Hygiene: the following sections considered relevant to the Burnie municipality are taken from the *Regional Weed Hygiene Action Plan (2008)*

The *Cradle Coast Regional Weed Management Strategy (2005)* identifies the modes of weed spread related to human activity. They include:

- **Transport and utilisation of materials contaminated with weeds (stock, fodder, grain, soil, quarried materials, mulch, primary produce, boats, boat trailers and fishing gear, vehicles, machinery, equipment, boots, etc.)**
- **Inappropriate disposal and management of weed material, including garden waste and aquatic plants**
- **Retail and trade of weeds and potentially weedy species**
- **Vegetation management practices (eg. Inappropriate slashing, mowing)**

The spread of weeds along natural and artificial corridors – roadside verges, railways, utilities (transmission lines, gas pipelines), waterways, recreational trails and drainage lines – is a significant avenue for increasing weed distribution throughout the region. A key area of concern is the spread of weeds along road and rail corridors, where they may then provide a source of infestation for neighbouring properties.

Ultimately this WHAP (Weed Hygiene Action Plan) aims to bring about a shift in community thinking. The aim is to move from low or moderate awareness of preventative weed management practices, to fully compliant work practices brought about by education, the development of community responsibility and the strategic enforcement of legal provisions.

For a full list of the Strategic Actions please consult the WHAP, however the following **Strategic Actions** are considered to particularly relate to the Burnie municipality:

Goal 1: Motivate government, industry and business to implement their weed hygiene practices

Goal 2: Provide support, training & education on weed spread prevention

Action 5 Provide education and awareness training in weed prevention responsibilities for relevant Local Government staff in each municipality, and their contractors, and industry stakeholders.

Action 7 Develop and distribute guidelines for best practice disposal of weed and garden material and promote onsite domestic composting and mulching

Goal 3: Support a strong legal and strategic framework for weed spread prevention

Action 14 Investigate the incorporation of weed hygiene assessment and management procedures into local government development applications

Goal 4: Develop and implement weed management plans for priority weed corridors, and reduce threats posed by other weed vectors

Action 19 Provide training and support to managers of road corridors, with the aim of improving roadside mowing and slashing practices so that the spread of roadside weeds is minimised

Action 23 Recommend and promote the use of certified weed free material from building and development sites, quarries, landscape and garden suppliers, refuse stations and 'farm gate' suppliers of manure and other farm products

Action 25 Develop incentives for provision of free garden waste disposal at tip sites, green waste collection days and mechanisms for reporting illegal dumping sites

Goal 5: Establish new weed hygiene facilities

Action 27 Establish a working group from government and industry to determine appropriate number, location and category of weed hygiene facilities, and oversee their establishment or upgrade

5.7 Summary of on ground weed management Priorities

A great deal has been achieved during the period covered by the inaugural Burnie MWMP, including the mapping of gorse, pampas, ragwort and sea spurge. Landholder agreements have been negotiated with a number of private property owners to cover control programs for ragwort and gorse. The control of woody weeds on all municipal road-sides is carried out twice a year and a management reminder system is in place, facilitating the process of sending letters to landholders with specific weed problems or to stimulate the monitoring of a particular site at the correct time. Over the past two years Cradle Coast NRM has also conducted regional programs to eradicate Boneseed and pampas from the Cradle Coast Region. It is critical that ongoing annual maintenance is implemented for probably the next five years, with the aim of eradicating this weed.

A voucher system exists to cover free disposal of green waste at municipal refuse sites, up to four times per year. In addition to controlling weeds on Council managed land, Burnie City

Council provides information on weed control, employs a weeds officer, and supports community groups actively involved in weed management in the municipality.

A protocol to guide the management of weed corridors is currently being prepared by Cradle Coast NRM which will include sections on ways to minimize weed spread, and promote the strategic clean-down of machinery. When this document is released the guidelines which can be applied in the Burnie municipal area should be initiated.

In Burnie, eradication programs are in place for ragwort and pampas, along with an eradication zone for gorse which has been upheld following the Burnie WMP (2005). The eradication zone is proposed for inclusion into the revised Statutory Weed Management Plan for gorse in 2009.

In summary, on-ground Municipal Weed Management priorities should be as follows:

1. Utilise measures to prevent the introduction of new invasive weed species into the Municipality or to weed free areas through machinery hygiene
2. Eradicate declared weeds known in the Municipality in isolated or localised distribution (eg boneseed, Paterson's curse, ragwort, pampas grass, St John's wort, Pampas Lily of the Valley and gorse)
3. Eradicate newly identified high-risk incursions (ie declared weeds not previously recorded in the strategy area)
4. Adhere to strict follow-up control measures once a program is initiated, with specific emphasis on the negotiated landholder agreements for gorse and ragwort control.
5. Eradicate where possible or contain high priority non-declared environmental weeds that pose a significant threat to the integrity of coastal, riparian and bushland habitats, including those occurring in areas where active 'Care' and other environmental groups are effectively working on eradication (eg beach weeds, ivy, cotoneaster, pittosporum, blue butterfly bush, coprosma, agapanthus).
6. Maintain up-to date weed records and maps to catalogue changes in distribution and incorporate reports of new infestations (weeds or new localities)

5.8 Achieving effective control of weeds

Resources

The community is an invaluable resource in effective weed control, assisting through the reporting of weeds and also contributing to on ground control works. At present there are three community Care groups in the Burnie municipal area:

Cohee to Camdale Coastcare Contact: Lexie Paul
Penguin Monitoring Group Contact: Perviz Marker
Friends of Parsonage Point Contact: Perviz Marker

Generally resources to directly implement weed control are the responsibility of the land manager. However, coordination of efforts at the Regional and Municipal levels, and good sources of information on identification and treatment methods, can greatly improve results of weed control actions. Additionally, funds are occasionally available from Government and Industry sponsorship. For example, a successful funding application was made to the Australian Government under the Caring for our Country program by Cradle Coast NRM for

coordination and on-ground control of the WoNS in priority areas of Tasmania, including the Burnie Municipality. In recent years funds have been made available to local government by Cradle Coast NRM under the Local Government Incentive Program.

Weed management is often a long-term process and a correspondingly long-term commitment to funding is required. Failure to allocate sufficient funds for follow-up monitoring and maintenance works often leads to a waste of the initial investment. Preparation of weed management plans will assist land managers to overcome many of these issues. Amongst other things, a weed management plan assists in predicting the level of resources required over time to adequately address particular weed management issues, thereby assisting planning and budgetary processes. Alternatively, if the weed problem is greater than available resources can initially control, the preparation of a weed management plan enables funding to be used to greatest effect by prioritising available resources.

Weed identification and treatment methods

There is a range of information available to assist with identification and treatment of weeds, including:

DPIW Service Sheets - Web Page

DPIW prepares and publishes a variety of service sheets detailing best practice control measures for declared weeds as listed in the declared weeds section on p 17-20 of this document. Sheets for other weeds and many environmental weeds are also available, these Service Sheets should be used as the primary guide to weed control. They can be accessed at the DPIW website www.dpiw.tas.gov.au/weeds

Waterways and Wetland Manual - DPIW

These documents provide guidelines for best practice management of waterways and wetlands in Tasmania. Together with the associated Rivercare Guidelines, they incorporate legislative requirements, and provide advice on many aspects of management of waterways, including herbicide usage in or near waterways, and control of willows. In the Burnie Municipality, an awareness of the possible presence of the Burnie burrowing crayfish (*Engaeus yabbimunna*) and the freshwater lobster (*Astacopsis gouldi*) should be considered in on-ground works. The documents can be accessed at the DPIW website www.dpiw.tas.gov.au/weeds

Washdown guidelines for Weed and Disease Control

This useful booklet provides guidelines and a check list for machinery washdown procedures. The document can be accessed at the DPIW website www.dpiw.tas.gov.au/weeds

Coastal Weeds of the Cradle Coast Region

This booklet describes control methods and includes colour pictures for fifty coastal and environmental weeds of the Cradle Coast Region, and is available from Cradle Coast NRM. It is currently being reprinted, as is a useful identification tool.

Burnie Vegetation Management Tool Kit (2003)

This tool kit provides practical information for protecting and enhancing remnant vegetation in the Burnie Municipality. It includes pictures of many environmental weeds of the Burnie Municipality, and provides details of various control methods applicable to those weeds. Available from Council.

Two useful websites for weed identification and control methods are:

Co-operative Research Centre for Weeds website www.weeds.crc.org.au

Or

www.weeds.org.au

The Natural Values Atlas is a very useful tool which gives specific site records for any threatened flora, fauna or geoconservation sites of significance. A search of an area can be conducted before disturbance/spraying of the area thereby alerting land managers to the potential presence of threatened species. www.naturalvaluesatlas.dpiw.tas.gov.au

Tasmanian Herbarium

The state herbarium employs staff who specialises in environmental and agricultural weeds and can assist in identifying unknown plants if a specimen is sent to them.

6 KEY ISSUES AND GOALS

There are many challenges for weed management in the Burnie Municipality. The general weed management priorities and issues described above have been grouped into four key issues with eight related goals. These are summarized below (Table 4).

6.1 Table 4: The key issues and goals identified by the Burnie Municipal Weed Management Plan

ISSUE	GOALS
Implementation of the Municipal Weed Management Plan	1. To facilitate a cooperative municipal weed management program involving all relevant government, industry and community stakeholders
	2. To provide a platform for municipal implementation of statutory weed management responsibilities
	3. To maintain a map based database of priority weeds in the Burnie Municipality
	4. To facilitate a strategic approach to weed management across the Burnie municipal area
Effective Weed control	5. To identify best practice weed management procedures, including effective hygiene practices
	6. To reduce the incidence and impact of identified priority weeds
Community Engagement	7. To increase community awareness and stewardship by all land managers in weed management
Continuing Resources	8. To ensure continued support and funding for weed management activities

A detailed description of strategies and actions required to achieve these goals is contained in the following tables, with actions for the next three years summarized (page 35 - 37)

ISSUE: Implementation of the municipal weed management plan

6.2 Goal 1: To facilitate a cooperative weed management program, involving all relevant government, industry and community stakeholders

Action	Performance indicator	Responsibility
Support the Burnie Municipal Weed Management Plan (BMWMP)	Plan adopted by Council	Council
Establish and support conduct of Burnie Municipal Weed Management Advisory Group (inc. Council, Community, Industry, DPIW, DIER, NRM) to oversee implementation of the BMWMP	Advisory Group meetings held quarterly and documented	Council
Continue employment of Officer with responsibility for Municipal Weed Management, at least 0.5 FTE	Staff member employed	Council
Participate in Regional Weed Management meetings	Attendance at quarterly regional meetings of Municipal weed officers	Weeds Officer
Maintain cooperative relationship with adjoining municipalities	Attendance at quarterly regional meetings of Municipal weed officers	Weeds Officer

6.3 Goal 2: To provide a platform for Municipal implementation of Statutory weed management responsibilities

Action	Performance indicator	Responsibility
Meet Statutory weed management responsibilities	Declared weeds managed as per Table 1	All Stakeholders
Use enforcement under <i>Weed Management Act</i> , 1999 where appropriate. Liaise with DPIW RWMO	All enforcement documented	Council, DPIW
Work with DPIW to review current zoning classifications, and designate sub-municipal zonings as appropriate	Reviews conducted, sub-municipal zonings designated	Advisory Group DPIW Council

6.4 Goal 3: To maintain a map based database of priority weeds in the Burnie Municipality

Action	Performance indicator	Responsibility
Maintain existing Burnie Municipal weed mapping program, to show distribution of WoNS and other priority weeds	Database updated and priority weed distribution maps produced	Council, Advisory Group
Integrate existing mapping data from other sources (eg, Community, Industry, CCNRM) as appropriate	Mapping data integrated	Council Advisory Group
Maintain a management reminder system, based on known infestations, to inform land managers when and how to treat particular infestations	System in place and functioning	Council Advisory Group
Develop and implement a system for community reporting of weeds within the Municipality, incorporating web based and verbal reporting	Reporting system established, new reports recorded and mapping database updated	Council, Advisory Group
Map <i>Poa aquatica</i> in key sites	Mapping data integrated	Council, Advisory Group

6.5 Goal 4: To facilitate a strategic approach to weed management across the Burnie municipal area

Action	Performance indicator	Responsibility
Prioritize weed management programs according to funding, and priority of weeds involved	Planned approach	Weeds Officer
Develop weed management plans (WMP's) for key areas and encourage all stakeholders to do the same	WMP's in place	Weeds Officer & Advisory Group
Liaise with suppliers of gravel and sand, conduct an assessment of quarries for weeds, create weed management plans as required	Assessment carried out	Weeds Officer & Council
Identify priority coastal sites for protection	Sites identified and mapped	Weeds Officer & community groups

ISSUE: Effective Weed Control

6.6 Goal 5: To identify and promote best practice for sustainable weed management, including effective hygiene practices

Action	Performance indicator	Responsibility
Make available and promote the use of DPIW service sheets as available	Links established between Council Weeds Web page and DPIW Weeds Web page Hard copies available at Council, Library and herbicide retailers	Council Advisory Group
Request that DPIW prepare service sheets for priority Municipal weeds for which best practice control is not currently identified	Request made	Advisory Group
Participate in the development and implementation of Regional programs to improve weed hygiene, eg, Regional Hygiene Plan, development of guidelines for movement of soils contaminated with weed material, best practice weed dumps etc	Attendance at Regional meetings of Municipal Weeds Officers Improved weed hygiene practices	Weeds Officer Council
Develop and implement a roadside marker system that identifies areas of roadside infected by weeds, and signals appropriate control and hygiene practices	To be implemented	Council
Review current practices, and implement best practice control of priority weeds along corridors, including road, rail and waterways	Current practices reviewed Implementation of ongoing programs to contain /eradicate priority weeds along road and rail corridors, and waterways	Advisory Group Council DIER, Pacific National, Transend, Industry Community

6.7 Goal 6: To reduce the incidence and impact of priority weeds

Action	Performance indicator	Responsibility
Participate in Regional Weed Management Programs	Regional Weed Management Programs accessed within Burnie Municipality	All stakeholders
Review and implement planning documents of Burnie City Council relating to weed management, including Reserve Management plans	Plans reviewed and implemented	Council
Implement rapid control programs for new priority weed incursions and isolated infestations	Rapid response to incursions and isolated infestations controlled /eradicated Sites monitored	Relevant land manager (inc Council), DPIW, Advisory Group
Seek funding to map and initiate control of Elisha's Tears. Develop weed control plan	Weed control plan developed and being implemented by land managers / owners	Advisory Group Relevant land managers Weeds Officer
Continue ragwort/pampas eradication programs. Follow up on landholders agreements for gorse and ragwort	Coordinated, active programs in place	Council
Maintain sub-municipal zoning for gorse, and coordinated control program		
Continue to support community, Coastcare and Landcare/ NRM programs / field days	Continuation of community programs	All stakeholders
Protect priority coastal sites from invasion by coastal weeds	Six monthly monitoring	Council & community groups
Establish and maintain eradication zones for marram grass and sea spurge	Six monthly monitoring	Council & community groups
Expand mapping of declared weeds and priority environmental weeds	Expanded database of weed locations	All stakeholders

ISSUE: Education, Awareness and Ownership

6.8 Goal 7: To increase community awareness and encourage ownership and participation in weed management programs

Action	Performance indicator	Responsibility
Ensure that relevant weed information (pamphlets, booklets, profile sheets, posters) is available to the community	Information available at Council, Library and herbicide retailers	Advisory Group Council
Support Community groups in their weed control efforts	Support provided to Municipal Community groups	Weeds Officer
Promote the removal of environmental weeds in gardens and planting of non-invasive species Investigate funding incentives	Reduction of environmental weeds in private gardens	Advisory Group Community Weeds Officer
In conjunction with Cradle Coast NRM, produce media releases re Weed Management Issues	Media releases printed and broadcast	Advisory Group
Participate in Regional and Statewide programs to provide school education re weeds, eg Weedbuster Week	Schools visited and documented	Advisory Group
Develop weed displays for exhibit at local shows, festivals, retailers, tipsite, demonstration sites	Weed displays exhibited	Advisory Group
Develop OH&S guidelines for volunteers participating in weed management activities on Council managed land	Guidelines produced	Council
Provide options for weed management training and workshops for Council staff and Community	Weed workshops held	DPIW Council
Develop and promote a 'Weed Management in Burnie' page on the Council web site with links to other sites (ie DPIW, Cradle Coast NRM)	Web page established	Council Advisory Group
Raise community awareness for Pampas lily of the Valley	Media releases printed and broadcast	Council Advisory Group

ISSUE: Resources and Continuity of the Weed Program

6.9 Goal 8: To ensure continued support and funding for weed management activities

Action	Performance indicator	Responsibility
Continue to involve elected members of Council in weed management.	Quarterly progress reports from Municipal Weed Management Advisory Group to Council Continued support for program	Advisory Group Council
Participate in regional weed management initiatives	Involvement in regional programs	Weeds Officer Advisory Group
Develop applications for funding (eg. Caring for our Country, WoNS, Community Grants) to implement specific projects	Relevant applications submitted	Advisory Group Land Managers
Liaise with stakeholders and investigate sponsorship possibilities.	Letters to stakeholders and support gained.	Advisory Group

THREE YEAR ACTION TABLE

It is expected that all actions described above will be achieved within three years. Timelines for implementation of actions are summarized in the following Action Table.

6.10 TABLE 5: Indicates the timeline for the implementation of actions described in the previous eight goals

Year	Action No.	Action	Yes /No
ONE			
	1	Reviewed plan adopted by Council	
	2	Weed Officer employed	
	3	Advisory Group formed, quarterly meetings held, reports to Council	
	4	Weed management web page on Council web site established, to include the facility for community reporting of weeds	
	5	Maintain mapping database of priority weeds	
	6	Develop a standard proforma to record all verbal weed reports, and develop an internal data management system to track the response to weed reports	
	7	Identify priority coastal sites for protection	
	8	Protect priority sites from invasion by coastal weeds	
	9	Establish and maintain eradication zones for marram grass and sea spurge	
	10	Participate in review by DPIW of municipal zones for declared weeds	
	11	Weed Officer participates in quarterly Regional meetings	
	12	Maintain cooperative relationship with adjoining municipalities	
	13	Council weed management implemented as per Service Level Documents	
	14	Liaise with suppliers of gravel and sand, assess quarries for weeds	
	15	Continue pampas and ragwort eradication programs, including follow up with landholders where landholder agreements for weed control are active	

	16	Continue eradication program for gorse north of Highclere	
	17	Participate in Regional weed management programs, including hygiene programs	
	18	Provide support to Municipal community groups active in weed management	
	19	Develop OH & S guidelines for volunteers working on Council land	
	20	Make available and promote the use of DPIW service sheets	
	21	Promote weed activities with media releases	
	22	Use enforcement under <i>Weed Management Act</i> , 1999 where appropriate	
	23	Meet Statutory Weed management responsibilities	
Year	Action No.	Action	Yes /No
TWO		All year one actions ongoing, plus	
	24	Expand mapping of declared weeds and priority environmental weeds	
	25	Integrate existing mapping data from other sources, as appropriate	
	26	Prioritize weed management according to funding	
	27	Implement rapid control programs for new priority & isolated weed incursions	
	28	Develop weed control plans for priority weeds with a wider distribution	
	29	Request that DPIW prepare additional service sheets, as appropriate	
	30	Implement a roadside marker system for weedy roadside areas	
	31	Review management of weed corridors, and implement best practice management	
	32	Liaise with stakeholders and investigate sponsorship possibilities	
	33	Develop applications for funding to implement specific projects	

	34	Participate in programs to provide school education re weeds	
Year	Action No.	Action	Yes /No
THREE			
		All year one and two actions ongoing, plus	
	35	Promote the removal and replacement of environmental weeds in gardens	
	36	Review planning documents of BCC relating to weed management	
	37	Review Burnie Municipal Weed Management Plan	

7 MONITORING, EVALUATION AND STRATEGY REVIEW

Regular (quarterly) reports to Council from the Advisory Group will document progress of the Plan's implementation and indicate to what extent goals are being achieved in the short term. Should the establishment of the Advisory Group take some time to bring into effect, then the Weeds Officer should submit the quarterly report to Council in the interim period. Performance indicators and time lines have been identified for each of the actions in this Plan.

The Weed Management Advisory Group will review this Plan in three years. This review will identify to what extent goals are being met, and whether any changes need to be made.

8. LIST OF ABBREVIATIONS

BCC	Burnie City Council
BMWMP	Burnie Municipal Weed Management Plan
DPIW	Department of Primary Industries and Water
DIER	Department of Infrastructure, Energy and Resources
FT	Forestry Tasmania
NHT	Natural Heritage Trust
NRM	Natural Resource Management
CCNRM	Cradle Coast NRM
RWMO	Regional Weed Management Officer
RWMS	Regional Weed Management Strategy
SLS	Service Level Sheet
WO	Weed Officer (Municipal)
WoNS	Weeds of National Significance

Bibliography

- Natural Resource Management Ministerial Council (2006), *Australian Weeds Strategy – A national strategy for weed management in Australia*. Australian Government Department of the Environment and Water Resources, Canberra ACT.
- Blood, K., (2001): *Environmental Weeds – A field guide for SE Australia*. C.H. Jerram & Associates, Victoria, Australia.
- Bryant C. (2003) *Bushland Management Guidelines for the Burnie Municipality*. Greening Australia (Tasmania)
- Bryant C. (2003) *Bushland Action Plans 2003 - 2013* Greening Australia (Tasmania)
- Bryant C. (2003) *Burnie Vegetation Management Tool Kit* Greening Australia (Tasmania)
- Burnie City Council (2008-09) *Parks and Reserves Service Level Standards*
- Burnie City Council (2008-09) *Transport Services Service Level Standards*
- Cradle Coast Natural Resource Management Committee (Tasmania) (2008): *Coastal Weed Strategy for the Cradle Coast NRM Region*
- Good Neighbour Charter (2008) *Good Neighbour Charter for Commercial Forestry in Tasmania*
- Greening Australia (Tasmania) and the Cradle Coast Regional Weed Management Steering Committee, (2005): *Cradle Coast Regional Weed Management Strategy*, Greening Australia (Tasmania) and the Cradle Coast Regional Weed Management Steering Committee, Burnie
- National Weed Spread Prevention Committee (2006) *National Weed Spread Prevention draft action plan*
- Private Forests Tasmania (2007) *Private Property Plantations in the Landscape in Tasmania as at 31 December 2006*. Private Forests Tasmania Information Paper No. 1 June 2007
- Rudman T. (2003) *Tasmanian Beach Weed Strategy for marrum grass, sea spurge, sea wheatgrass, pyp grass and beach daisy* Nature Conservation Report 03/2, Nature Conservation Branch Department of Primary Industries, Water and Environment, Tasmania
- Tasmanian Weed Management Committee (2004) *WeedPlan: Tasmania's Weed Management Strategy (Revised Edition)*
- Tasmanian Biosecurity Committee (2006) *Tasmanian Biosecurity strategy; Ensuring Tasmania's Biosecurity Future*
- Taylor G., (2005) *Burnie Municipal Weed Management Plan*
- Weed Hygiene Action Plan – preventing weed spread in the Cradle Coast Region (2007)*: Cradle Coast Natural Resource Management Committee (Tasmania).

Appendix 1: Weed Management Guidelines

Principles to guide weed management actions:

- Where possible, control of weeds at each specific site should be guided by a weed management action plan. The plan should build from a map of weed distribution to detail and prioritize actions for a period equivalent to the seed life of the particular weed. The plan should aim to ensure that weeds are contained to the site, and that the need for ongoing control decreases annually.

Action plans should also consider:

- Possible causes of weed infestations, and actions to remove these causes
- 'Off target' effects, such as those on other species, water quality, soil stability and erosion, and heritage sites and values.
- Whether revegetation of a particular site will be effective (considering environmental, social and economic factors) in reducing the weed infestation - if this is the case then revegetation works should be conducted as an adjunct to weed control actions.
- Monitoring and evaluation, and sensible amendment to proposed actions in the light of unexpected changes.
- The likely availability of resources (financial, equipment, human) over the years of the plan.
- Timing - weed control actions should as far as possible be implemented prior to the set of new seed bearing material. When this is not possible, care should be taken that seed bearing material is not spread beyond the area of the current weed infestation. This is particularly significant to roadside slashing operations.
- Generally, control works should aim to minimize the potential for further spread, by controlling weeds in active transport corridors, and/or commencing in areas where weeds are occasional, and proceeding towards dense weed populations.
- Use of herbicides should be minimized, to minimize unintended impacts. Where effective, non-residual herbicides should be used in preference to residual herbicides.
- For isolated weed occurrences of woody weeds, the cut/paint method or physical removal should be considered as the first options.
- Weed control actions around waterways require special consideration, and should be guided by Rivercare Guidelines.
- Newly identified sites containing priority weeds should be reported to the Weeds Officer for inclusion into the Municipal weed mapping program, so that their location is documented, and follow up actions can be prompted by an automated reminder system.

Integrated Weed Control

Usually a range of weed control techniques will be needed in order to achieve the best outcomes at any given site. Rarely will a single technique achieve this. A range of techniques and their advantages and disadvantages are discussed below.

- **Planting shading or competing vegetation:** Can help to achieve long term control of weeds in some areas. If planting tall species with this goal in mind, control of weeds will take a long time, and in the interim control of weed species may be more difficult. In many instances, competing vegetation such as grasses (native or pasture) are the most helpful
- **Hand pulling, hoeing or grubbing:** Often a simple, safe, cost effective although labour intensive method of dealing with weeds, especially newly emergent seedlings, though timely actions are required
- **Biological** - If available, may assist the control of weeds
- **Grazing** - Very effective in some situations, though fencing/care of animals may be difficult, and this method is generally unsuitable for bushland
- **Burning:** Occasionally useful to open up weed infestations, and rarely useful to reduce seed banks, but always risky - never to be used without proper planning and professional advice
- **Scalping:** Removing the top layer of soil and its seedbank - rarely useful
- **Mowing and slashing:** Useful in containing and occasionally eradicating some species, though great care should be taken to ensure that weed material capable of promoting weed regeneration (eg cuttings, seed) is not spread beyond the weedy area. Can therefore be costly, when equipment cleaning time is taken into account
- **Mulching:** Tractor mounted mulchers can be very useful and cost effective in controlling dense infestations of woody weeds, and generally achieve greater weed kill than comparable slashing operations. However, not suited to rocky or steep terrain, or bushland
- **Solarizing/Smothering:** Useful as an alternative to herbicide control in sensitive areas, though windy conditions can create difficulties
- **Steam control:** Useful on herbaceous or juvenile woody weeds, as an alternative to herbicide treatment, though availability of water and cost would need to be considered
- **Cut/paint:** Very useful and cost effective for control of isolated and/or sensitively placed woody weeds
- **Wiping** - Useful in some circumstances, particularly where off target impacts resulting from foliar spray cause concern, eg, control of waterway weeds such as *Poa aquatica*
- **Foliar spray:** Boom and/or spot spray can be very effective, though off target impacts need to be carefully considered. Relevant MSDS to be followed at all times
- **Stem injection and frill cuts:** Useful in control of larger plants
- **Granular herbicides:** Useful for specific plants, though off target impacts need to be carefully considered. Relevant MSDS to be followed at all times