



Tamar Natural Resource Management

Tamar Region Boneseed Eradication Strategy



Forward

Boneseed, like many weeds, create havoc in our environment.

Weeds are slow and silent invaders of the landscape. They become invisible to many in our community through their normality.

However, once established native fauna and flora are squeezed out and biodiversity is changed significantly and in some cases forever.

Past estimates have put the cost of lost production from weeds in the Tamar Region at approximately two million dollars a year. If we measured the control costs, the loss of biodiversity, human health and social issues, the dollar losses would be immense. However, we, as a community must realise these costs and losses are not invisible. They are, in fact, borne directly and indirectly by the community.

Tamar **Natural Resource Management** (Tamar NRM) in conjunction with three councils - Launceston City, George Town and West Tamar - have a long history of positive and proactive weed activity and management characterised by community engagement, on-ground action, education and the use of best practice support tools.

Local Government is at the forefront of weed management. It is clear the only way to combat weeds is through a combined strategic approach involving all land managers and the community.

It is this inclusive approach which has seen weed awareness increase within the community. Due to this awareness weeds have decreased in many areas around the Tamar Region.

With weed vigilance from the community there is an increase of benefits for the environment.

Tamar Natural Resource Management

Contents

1.	Introduction and Purpose of the <i>Tamar Region Boneseed Eradication Strategy</i>	4
2.	Area Covered by the <i>Tamar Region Boneseed Eradication Strategy</i>	4
3.	Biology, Ecology and Impacts of Boneseed	5
	Description	5
	Ecology	5
	Impacts.....	6
4.	Boneseed Distribution in the Tamar Region.....	6
5.	Legislation	7
	Zone A Municipalities	7
	Procedures for Notification of the Occurrence of the Weed	7
6.	Links to Broader Strategies and Management Plans	8
7.	Planning	9
8.	Implementation - Measures to Eradicate Boneseed	10
9.	Prevention and Early Detection Measures	11
10.	Communication and Community Awareness.....	11
11.	Review of the <i>Tamar Region Boneseed Eradication Strategy</i>	12
	Contact	12
	References	12
	Action Plan (appendix 1)	13

1. Introduction and Purpose of the Tamar Region Boneseed Eradication Strategy

Action on Boneseed in the Tamar Region has largely been driven by the community through a bottom up management approach. It is a testament to the community and their actions that the *Tamar Region Boneseed Eradication Strategy* is now conceivable.

In 2005 Tamar Natural Resource Management (Tamar NRM)'s Weeds Working Group started co-ordinating an annual 'Boneseed Blitz'. Tamar NRM approached its network of Landcare and 'Friends of' groups establishing a program of events and promoting these within the region. State and Local Governments also came on board with their own Boneseed activities. The 'Boneseed Blitz' has been successful in drawing attention to this weed and the annual activities have maintained the focus. Boneseed is now significantly reduced within the region particularly around Green's Beach, Rowella and Trevallyn's public reserves.

Despite these efforts, action to date has largely occurred in isolation. Interest groups have been dealing with the weed as it affects their own assets and interests with the majority of successful works being undertaken in areas with few management hurdles. There has been little or no co-ordination between stakeholders to prioritise resources, maximise labour productivity and address strategic targets. Monitoring and follow up has largely been left to the individual stakeholders involved (mostly volunteers). The Strategy aims to address these issues.

In the Tamar Region, Boneseed distribution is largely concentrated along the coastal and estuarine strip. However, even these vague boundaries are starting to falter with the spread of the weed starting to push away from the estuary into Prospect and Punchbowl.

The majority of the remaining infestations have associated management issues. The largest infestations are located in the urban areas of Trevallyn and Riverside and the peri-urban areas at Deviot and Hillwood. These urban and peri-urban areas require significant amounts of co-ordination to access the numerous freehold titles. Other management issues include traffic control required on the West Tamar Highway between Riverside and Exeter; ropes may be required at Brady's Lookout and the Cataract Gorge and a boat is required for access to Egg Island.

Boneseed, *Chrysanthemoides monilifera* subspecies *monilifera*, is a South African plant imported to Australia for ornamental purposes. It has since invaded a wide range of vegetation types across southern Australia. Based on its invasiveness, impacts on biodiversity and potential for spread, Boneseed is regarded as one of Australia's worst weeds and one of the inaugural Weeds of National Significance (WoNS).

Given the appropriate commitment and resources it is possible to eradicate Boneseed from the Tamar Region. Thus, the implementation of the Strategy in the Tamar Region is feasible under current conditions. It fulfils State and National goals and will provide long term protection to the unique environmental assets.

2. Area Covered by the Tamar Region Boneseed Eradication Strategy

The Strategy covers the Tamar Region which includes the municipalities of:

Launceston City
West Tamar and
George Town.

Launceston City, West Tamar and George Town municipalities are all currently classified as Zone A with the management objective of eradication for Boneseed under the Department of Primary Industry, Parks, Water and Environment (DPIPWE) 'Statutory Management Plan for Boneseed' (see section 5 - Legislation).

3. Biology, Ecology and Impacts of Boneseed

Description

- Boneseed is an erect perennial shrub in the ASTERACEAE (daisy) family growing to 3m high.
- The plant has alternate fleshy leaves, 3–9cm long, oval-shape and tapering towards the base with irregular toothed margin towards the tip. New growth is covered with white downy hairs that are shed as the leaves mature.
- The yellow, daisy flowers are 2–3cm in diameter with 4–8 'petals' (ray florets). In Tasmania flowers start appearing in August-December.
- Boneseed plants normally start flowering at 18 months of age.
- The round, fleshy fruits turn from green to black once mature. In Tasmania fruit mature in December-April. The fruit is attractive to a number of bird species.
- The seed is hard, smooth and round, 6–7mm in diameter and bone coloured when dry. A single plant can produce up to 50,000 seeds per year.
- Seeds can remain dormant in the soil for over ten years.

Ecology

- Boneseed prefers winter rainfall regions.
- Boneseed occurs on a range of soil types but does not tolerate waterlogged soils.
- It is found in a wide range of vegetation communities including coastal dunes, estuarine areas and dry and wet sclerophyll forest.
- It is tolerant of saline conditions and hence thrives in coastal regions.
- Seedlings can tolerate shade and mature plants will grow in moderate shade to full sun.
- Plants may live for 30 years or more.
- Seedlings grow rapidly and will establish in the absence of disturbance.
- Fire and physical soil disturbance can trigger mass germination events.



Photo 1: Young Boneseed plant in flower at Lanena, Tasmania

Impacts

Boneseed has a number of traits which make it a successful invader of native bushland:

- It will grow in an extremely broad variety of environmental conditions.
- Its vigorous growth is aided by the absence of natural enemies in Australia.
- It produces large quantities of seed readily dispersed long distances by birds allowing it to establish in undisturbed vegetation.
- Its rapid regeneration and quick spread after disturbance such as fire or clearing allows it to outcompete and displace native species.
- Boneseed can alter habitat and replace the food plants of native fauna.

*** For more detailed information on Boneseed biology and ecology please refer to Boneseed Management Manual (Brougham, et al. 2006) ***

4. Boneseed Distribution in the Tamar Region

In the Tamar Region, Boneseed distribution is largely concentrated along the coastal and estuarine strip and the more densely populated urban and peri-urban areas. The largest infestations are located in Trevallyn, Riverside, Deviot and Hillwood.

There is the potential for Boneseed to become widespread across the entire Tamar Region if left uncontrolled.

See attached map (Appendix 2). This map has been developed from the Tasmanian Government *Natural Values Atlas* database. The map has been reviewed by Tamar NRM Weeds Working Group and is considered to be an accurate representation of Boneseed distribution with the exception of the Deviot area which to date is largely unmapped.



Photo 2: Boneseed infestation at Lanena, Tasmania

5. Legislation

Administration of weed legislation is the responsibility of State and Local Government. The *Weed Management Act 1999* is the principle legislation concerned with the management of declared weeds in Tasmania. For further information on this legislation please refer to the following links:

<http://www.dpiw.tas.gov.au/inter.nsf/webpages/tpry-4zv4bs?open>
www.thelaw.tas.gov.au

Under the Act it is necessary for declared weeds such as Boneseed to have a documented Weed Management Plan. The *Weed Management Plan for Boneseed* can be found at the following link:

<http://www.dpiw.tas.gov.au/inter.nsf/Attachments/LBUN-8EZ2EK?open>

Launceston City, West Tamar and George Town municipalities are all classified as Zone A under the Weed Management Plan for Boneseed.

Zone A Municipalities are those where eradication is deemed to be the most appropriate management objective. Zone A municipalities have little or no Boneseed or have a credible plan for eradicating existing infestations being developed and/or implemented. The ultimate management outcome for Zone A municipalities is achieving and maintaining the total absence of Boneseed from within municipal boundaries.

Individuals have responsibilities under the *Weed Management Act 1999*

A person **must not**:

- Import or allow to be imported into Tasmania any Boneseed or item (including livestock) carrying Boneseed.
- Sell, purchase or offer to purchase Boneseed.
- Grow, propagate or spread Boneseed.
- Store Boneseed.
- Hire, offer for hire or use any material or thing containing or carrying Boneseed.
- Deal with Boneseed in any manner likely to result in the spread of the declared weed.

Procedures for Notification of the Occurrence of the Weed:

Inspectors shall notify a Regional Weed Management Officer of any Boneseed occurrences in municipalities where the weed is not yet recorded.

For further information on Weed Management Legislation please contact:

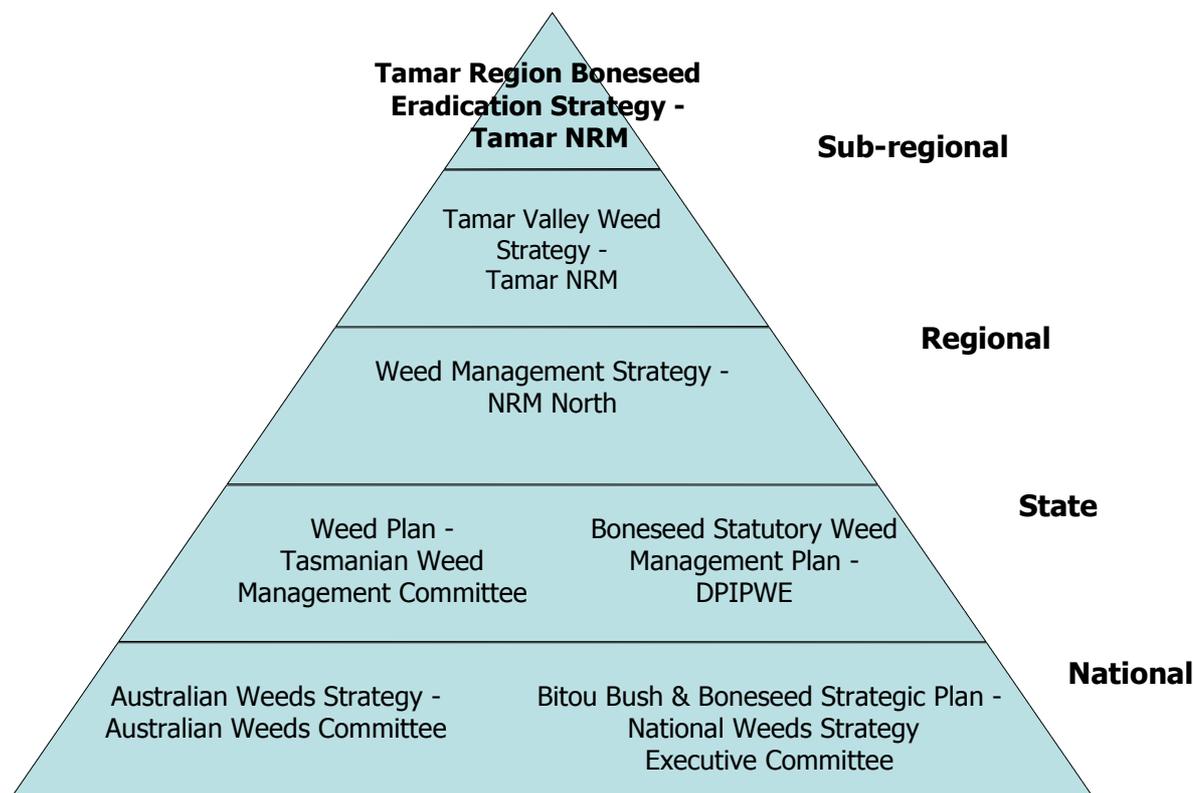
Department of Primary Industries, Parks, Water and Environment (DPIPWE)

Contact: David Lane
Title: Regional Weed Management Officer - North
Address: 165 Westbury Road, Prospect TAS 7249
Tel: 03 6336-5429
Fax: 03 6336-5365
Mobile: 0417 348 912
Email: David.Lane@dpiw.tas.gov.au
Website: www.dpiw.tas.gov.au

6. Links to Broader Strategies and Management Plans

The *Tamar Region Boneseed Eradication Strategy* integrates with many other relevant weed strategies. The figure below illustrates the relationship between different strategies as they progress from the Australian Weed Strategy. This covers the entire nation with its many climatic regions and many weeds species moving up the pyramid.

The *Tamar Region Boneseed Eradication Strategy* covers a relatively small geographical sub-region and a single specific weed species.



Information:

Boneseed Management Manual

KJ Brougham, H Cherry and PO Downey

The Boneseed Management Manual is the definitive guide to Boneseed management.

Hard copies are available on request or downloaded from

<http://www.weeds.org.au/WoNS/bitoubush/index.html#nmm>

Weeds Australia

The Weeds Australia website is the 'National Portal' for weed information and contains information on all of the WoNS including Boneseed.

The following information on Boneseed can be found at this website:

- National Funding Priorities
- National Management Maps
- Boneseed Management Manual
- National Co-ordinator contact details
- Documents and Resources
 - ❖ Brochures
 - ❖ Weed Management guides

developed by:

Tamar Natural Resource Management - Weeds Working Group
March 2013

- Biological Control Information
<http://www.weeds.org.au/WoNS/bitoubush/>

The DPIPWWE website has extensive state specific information on Boneseed including:

- Identification information
- Boneseed distribution
- Boneseed Control Guide
- Herbicides for Boneseed
- Legal status of Boneseed

<http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LBUN-7YM63Q?open>

There are several organisations which can provide assistance in a range of areas including:

- Legislative authority and enforcement, where necessary
- Advice on Boneseed control techniques
- Site planning and management advice
- Potential sources of funding or assistance with funding applications
- Assistance with co-ordinating efforts on public and private land
- Liaison with state, regional and local bodies
- Policy tools such as the State Weed Plan
- Weed mapping tools and information

Community Groups can provide:

- Local knowledge including history of Boneseed invasion and control
- Primary Boneseed control
- Long term monitoring and follow up control
- Advice on managing other weeds in conjunction with Boneseed and on native flora
- Links to the greater community to promote education and awareness

Organisations include:

Tamar Natural Resource Management (Tamar NRM)	Launceston City Council (LCC)
West Tamar Council (WTC)	George Town Council (GTC)
Department of Primary Industries, Parks, Water & Environment (DPIPWE)	NRM North
Tasmanian Farmers and Graziers Association (TFGA)	Tasmanian Parks and Wildlife (PWS)
Landcare	Wildcare
Conservation Volunteers Australia (CVA)	Other community groups

If the community has any queries regarding the *Tamar Region Boneseed Eradication Strategy* or Boneseed management in general contact **Tamar NRM** on **6323-3310**.

7. Planning

Eradication is a long-term proposition requiring a detailed plan updated on a regular basis. The principles below outline the necessary inclusions in the planning process and Appendix 1 outlines a detailed Action Plan for Boneseed eradication in the Tamar Region.

The strategy should:

- Contain a detailed map including Boneseed infestations and assets.
 - ❖ Consultation and utilisation of volunteers and community groups for mapping purposes should be considered.
- Take account of the operating conditions on and around the site.

For example:

 - ❖ Roadside work on the West Tamar Highway may require traffic control.
 - ❖ Brady's Lookout and Georges Reserve may require rope work.

- Start with outlier infestations and work back towards the largest infestations.
- Make co-operative arrangements with neighbouring stakeholders and community groups.
- Identify links with other stakeholders who can assist with eradication.
- Identify resources needed (financial, operational and educational).
- Identify available control methods and select appropriate methods for the site.
- Prioritise efforts.
- Identify risks and a means for abating those risks.
- Contain provisions for monitoring.

A good Monitoring Plan will, not only, assist land managers in assessing the effectiveness of their program but with the overall effectiveness of the Strategy. Monitoring data can also be used to maintain the relevance of the Strategy as it will provide the ability to evaluate changes in the status of Boneseed and update this information accordingly.

The Strategy should be implemented as soon as possible to prevent further spread of Boneseed. Each site will require several years of follow up to ensure no new seedlings have germinated and the 'seed bank' is exhausted.

Larger Boneseed infestations may require the preparation of a detailed site specific plan.

Opportunistic control of Boneseed sites should be undertaken following fire as mass germination of the 'seed bank' will occur. Seedlings are easier to locate on the ground. With appropriate treatment the 'seed bank' can be significantly reduced.

Seeds may remain viable for over ten years and this should be considered when planning follow up control.

Eradication programs are often more costly towards the final stages of the program. Costs per unit area may actually increase after initial control. New seedlings will be small and hard to find thus labour costs will increase as time spent searching for plants increases. In addition, it is often difficult to maintain commitment in the later stages of an eradication program when the weeds are not visible.

It is critical to ensure long-term commitment to eradication as seeds may continue to germinate for up to 10-15 years after the last flowering plant has been removed.

8. Implementation - Measures to Eradicate Boneseed

Eradication is the most appropriate management objective for areas that have little or no Boneseed such as the Tamar Region. The ultimate management outcome is to achieve and maintain the total absence of Boneseed in the Tamar Region.

To do this, land managers must:

- Prevent all seed production in the infested area.
- Suppress and destroy new establishment (germination).
- Search for and destroy all plants and propagules over the long-term.

The technology for complete removal of Boneseed is available. Information can be found in the Boneseed Management Manual (Brougham, et al. 2006).

Methods include:

- Site planning
- Manual removal (hand pulling, etc)
- Herbicides
- Burning
- Timing (when to return, seed longevity, when to control, etc)
- Revegetation
- Monitoring

As mentioned above, this program will need to continue for up to 10-15 years after the last seed bearing plant is controlled. Because Boneseed reproduces only by seed, eradication cannot be declared until all visible plants are controlled and no viable seeds remain.

9. Prevention and Early Detection Measures

To ensure the success of the Strategy, land managers should undertake prevention measures on land currently free of Boneseed especially when the land is suited to its establishment. This is the case for most of the Tamar Region.

These prevention measures include:

- Develop the community's ability to identify Boneseed
- Encourage the reporting of Boneseed on both private or public land to DPIPW and
- Undertake control of Boneseed outbreaks completely and without delay.

Early detection and community awareness are critical to the success of the Strategy. Because Boneseed is not abundant in the Tasmanian landscape it is not well known nor is it readily recognised as a weed. Due to low awareness landowners do not recognise Boneseed as a declared weed and allow it to remain on their properties from where it can easily spread.

Eradication efforts over large areas such as this one have a greater chance of success when all infestations are known and action to control is rapid. Increasing awareness of Boneseed will allow new infestations to be reported.

10. Communication and Community Awareness

As part of the Strategy an awareness program is proposed as outlined below:

Awareness Raising Plan for Boneseed in the Tamar Region

1. Create or update awareness flyers and posters aimed at general audience which contain photos and identification information, an impact summary and contacts to report sightings.
2. Establish network of Boneseed stakeholders (including community, NRM regions, Local and State Governments and transport corridor stakeholders).
3. Distribute flyers and other awareness materials to all stakeholders through above network and encourage further distribution via their own and complementary networks.
4. Organise media coverage for Boneseed (newspaper, community newsletters, radio and television).
5. Provide information and establish website links from local council, regional NRM and other agency websites to the Boneseed WoNS webpage which contains updated information on identification and control.
6. Organise a 'Boneseed Blitz' during the August/September when Boneseed is at its most recognisable (i.e. during flowering):
 - a. The 'Boneseed Blitz' will be an intensive one week campaign
 - b. A series of organised community group events to be compiled on a Calendar of Activities for distribution to the general community encouraging their participation
 - c. The concentrated nature of the 'Boneseed Blitz' is designed to attract media attention and thus has far-reaching effects

Increased awareness will allow efficient and early detection of Boneseed

As awareness increases more Boneseed is likely to be discovered. Land Managers will be able to eradicate infestations early when they are small and easy to control.

11. Review of the Tamar Region Boneseed Eradication Strategy

A review of this *Tamar Region Boneseed Eradication Strategy* should be undertaken at least once per year during the first five years of implementation.

It is important to review the Strategy on an annual interval to ensure its ongoing relevance and to update revised priorities, control methods and changing community needs and expectations when necessary.

As a consequence of the review new knowledge and experience will assist with the development of a constantly evolving Strategy. The review can also serve to identify gaps in the planning or implementation process impeding eradication of Boneseed. This can be achieved through surveys and discussions with stakeholders to assess the progress of their site specific eradication programs. Once identified, these gaps can be addressed in the revised Strategy.

Contact

For further information regarding the *Tamar Region Boneseed Eradication Strategy*, Boneseed management or sightings please contact:

Organisation: Tamar **Natural Resource Management**
Address: PO Box 396, Launceston TAS 7250
Tel: 03 6323-3310
Email: tamarnrm@launceston.tas.gov.au

References

Brougham, KJ, Cherry, H & Downey, PO (eds) 2006, *Boneseed management manual: current management and control options for boneseed (Chrysanthemoides monilifera ssp. monilifera) in Australia*, NSW Department of Environment and Conservation, Sydney.

2010, *Western Australia Boneseed Eradication Strategy*.

http://www.weeds.org.au/WoNS/bitoubush/resources.htm#wa_eradication

Department of Primary Industries Parks Water and Environment (DPIPWE) 2011, *Boneseed - Statutory Weed Management Plan*, DPIPWE, Hobart Tasmania.
DPIPWE

DPIPWE 2012, *Boneseed*, DPIPWE, Hobart Tasmania, sited August 2012,

<http://www.dpiw.tas.gov.au/inter-nsf/WebPages/LBUN-7YM63Q?open>

Appendix 1 Action Plan

Action	Responsible Stakeholder	Priority	Timeframe
1.0 Mapping			
1.1 Map all known infestations			
Outliers and small infestations	DPIPWE, Councils, Tamar NRM	High	Dec 2013
Large and urban infestations	DPIPWE, Councils, Tamar NRM, NRM North	Medium	2014
1.2 Create a working map (updated as areas are treated)	Tamar NRM	High	Dec 2013
1.3 Create detailed maps of smaller geographical areas (as required)	Tamar NRM	Low	Unspecified
1.4 Train community in weed mapping	Tamar NRM, Community Groups		
1.5 Create a process for lodging and compiling mapping information	Tamar NRM, NRM North, DPIPWE		
2.0 Prioritise Resources			
2.1 Identification of outlier vs. large infestations			
Large Infestations: Greater Urban Launceston Trevallyn and Riverside Deviot Hillwood and Egg Island	DPIPWE, Councils, Tamar NRM, NRM North	Low	Unspecified
Outlier infestations	DPIPWE, Councils, Tamar NRM	High	Dec 2013
2.2 Identify areas suitable for community volunteer works	Tamar NRM, Community Groups	Medium	Unspecified
2.3 Identify areas with special needs i.e. traffic control, rope access, boat access			
West Tamar Highway - traffic control Cataract Gorge - rope access Brady's Lookout - rope access Egg Island - boat access	DPIPWE, Councils, Tamar NRM, NRM North, Land Owner	Site specific	Site specific
2.4 Identify areas under management			
Green Beach Gravelly Beach - Deviot	Tamar NRM	Low	Dec 2013
2.5 Monitoring of areas under treatment	DPIPWE Tamar NRM	High	Ongoing
3.0 Legislative			
3.1 Identify freehold land tenures for notification	DPIPWE, Councils	High	Site specific
3.2 Council planning regulations, DA conditions	Councils	Medium	unspecified
3.3 Gazetted Weeds Inspectors	DPIPWE, Councils	High	To be negotiated
4.0 Communication and Community Engagement			
Advertising Media - newspaper articles etc Letterbox drops Workshops Information days University Volunteers 'Boneseed Blitz'	DPIPWE, Tamar NRM	High	Ongoing
5.0 On-ground Activities			
'Boneseed Blitz' Targeted activities through Tamar Weeds Working Group	DPIPWE, Councils, Tamar NRM, Community Groups	Medium	Annual
Boneseed control	Landowner	Site specific	Site specific