



Southern Tasmanian Weed Strategy 2005-2010



Southern Tasmanian Weed Strategy

Cover photographs

Left: African boxthorn (*Lycium ferocissimum*)

Middle: Agapanthus (*Agapanthus praecox*)

Right: Cape ivy (*Delairea odorata*) smothering blackwood (*Acacia melanoxylon*)

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Contents

Foreword	vi
Summary	vii
Introduction	1
Purpose of a Regional Strategy	1
Principles	2
Scope	2
Vision.....	2
Weeds in the Southern NRM Region	3
The Southern NRM Region.....	3
What is a weed?.....	3
Impact of weeds in the region	4
Managing weeds in the region	5
Policy and Legislation Framework.....	5
Legislation	5
Links to existing frameworks	6
Outline of Strategy development	8
Implementation of the Strategy.....	9
Targets	10
Funding implementation.....	11
Roles and responsibilities	11
Key Components of the Strategy.....	14
Component 1: Resources	15
Component 2: Biosecurity	18
Component 3: Prioritisation and integration	21
Component 4: Coordination and cooperation	23
Component 5: Education, training and awareness	27
Component 6: Policy support and regulation	31
Component 7: Research and development	33
Component 8: Monitoring and evaluation	36
Conclusion	38
Further Reading	38
Appendices	39
Appendix 1: Strategies relevant to weed management as at January 2005	39
Appendix 2: Weed Lists	41
Contacts	46

List of figures

Figure 1: Framework of policy surrounding <i>Southern Tasmanian Weed Strategy</i>	6
Figure 2: Description of Actions, Outcomes and Targets in the <i>Southern Tasmanian Weed Strategy</i>	9
Figure 3: Roles and Responsibilities of stakeholders in weed management	12

Maps

Map 1: Municipal Weed Strategies in Southern Tasmania as at January 2005	8
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List of Boxes

Box 1. Case study: Washdown guidelines	18
Box 2. Case study: Development of a national protocol for prioritisation	21
Box 3. Case study: How cooperation can help combat weeds	23
Box 4. Case study: Training tailored to meet a specific need.....	27
Box 5. Case study: Aurora Energy's weed management policy	31
Box 6. Case study: How research helps to rapidly identify weeds	33
Box 7. Case study: Monitoring conducted by a community group	36

Abbreviations

EMS	Environmental Management System
CRC	Cooperative Research Centre
DIER	Department of Infrastructure, Energy and Resources
DIW	Directory of important wetlands
DPIWE	Department of Primary Industries, Water and Environment
DTPHA	Department of Tourism, Parks, Heritage and the Arts
MAT	Management Action Target
MAT WPD	Management Action Target for Weeds, Pests and Diseases in the Managing Native Flora and Fauna chapter in NRM Strategy for Southern Tasmania
NRM	Natural Resource Management
NRM South	Southern Regional Committee for Natural Resource Management
RCT	Resource Condition Target
RCT F	Resource Condition Target for Managing Native Flora and Fauna chapter in <i>NRM Strategy for Southern Tasmania</i>
RCT WPD	Resource Condition Target for Weeds, Pests and Diseases in the Managing Native Flora and Fauna chapter in <i>NRM Strategy for Southern Tasmania</i>
RIP	Regional Investment Plan
STWS	Southern Tasmanian Weed Strategy
WONS	Weeds of National Significance
WPD	Weeds, Pests and Diseases

Foreword

Many of the more than 765 exotic plant species that have become naturalised in Tasmania are now serious threats to Southern Tasmania's natural environment and primary production.

Weeds were identified as a priority issue early in the development of NRM South's *Natural Resource Management Strategy for Southern Tasmania*. Public consultation and scientific advice have highlighted the serious impact that weeds have on our economy and our environment.

The *Strategy* gives a high priority to managing weeds in native ecosystems and controlling agricultural and other production system weeds. One of the highest priority Management Actions in the *Strategy* is to:

Develop and implement integrated strategic weed, pest and disease management and prevention plans for terrestrial, marine and freshwater conservation and production areas.

This *Southern Tasmanian Weed Strategy* tackles the management and control of terrestrial and freshwater weeds and is an important foundation for the practical implementation of the regional NRM Strategy.

All members of our community have a role in responsibly controlling and managing weeds for both economic and environmental purposes. The *Southern Tasmanian Weed Strategy* identifies strategic actions relevant to all stakeholders and supports and encourages implementation through recommendations for coordination, incentives and the provision of technical advice. It is not prescriptive as it does not have legislative powers.

To make progress in this war against weeds the whole community needs to recognise their impact on our natural resources. We encourage everyone to become involved in implementing the *Southern Tasmanian Weed Strategy*.

NRM South will continue to work in partnership with all stakeholders in the region to encourage strategic and efficient weed management in a prioritised and integrated manner. We look forward to working with our partners and all weed managers in the Southern NRM Region to implement the strategic actions outlined in this strategy.



Ollie Hedberg
Chairperson, NRM South
January 2005

Summary

The *Southern Tasmanian Weed Strategy* will:

- provide a framework for decision making in the region;
- recommend actions to implement regionally relevant *WeedPlan* Revised Edition directions.
- identify priorities for investment.
- tackle regional priorities that are consistent with national and state priorities.
- provide a framework for consistency in subregional strategies.
- provide opportunities for partnerships and relationships that encourage coordinated weed management.

For each of the eight components in the *Southern Tasmanian Weed Strategy* there are strategic actions listed that will lead to the achievement of a desired outcome. When these actions and outcomes are achieved they will contribute to accomplishing Management Action Targets, Resource Condition Targets and the Aspirational Targets listed in the *Natural Resource Management Strategy for Southern Tasmania* that are relevant to weed management.

Analysis of existing strategies, consultation with stakeholders and the expert panel helped determine and prioritise the strategic actions.

High-priority strategic actions

These high priority strategic actions are listed as they appear in each component. For example, R13 is the 13th Strategic Action listed in the Resources component and can be found on page 16. They are not listed in numbered order here as many of these high priority strategic actions are closely linked with other strategic actions. Within each component the high priority strategic action are highlighted in bold.

Resources

Page Number	Strategic Action
15	R1 Appoint a Southern Tasmanian Weed Strategy Coordinator to coordinate the implementation of strategic actions at regional and subregional levels.
16	R12 Map priority weeds in the Southern NRM Region to facilitate the monitoring and evaluation of weed management activities.
16	R13 Catalogue weed management resources.
16	R17 Promote resources available for sharing amongst weed managers and community.
17	R20 Support and promote long-term consistency in planning, investment and funding of NRM activities, including weed management.

Biosecurity

Page Number	Strategic Action
19	B1 Southern NRM Region to support the undertaking of Weed Risk Assessment at state level.
19	B2 Southern NRM Region to support the dissemination of results of State Weed Risk Assessment to individuals and industry importing plant products into Southern NRM Region.
19	B3 Promote the involvement of all key stakeholders in the Weed Alert Network.
19	B5 Establish and promote a regionally relevant rapid response system for weed incursions.
20	B6 Implement effective weed hygiene measures that prevent weed spread throughout the region.
20	B7 Coordinate implementation of biosecurity measures within and beyond the region.

Prioritisation and integration

Page Number	Strategic Action
22	PI1 Regional involvement in the development and implementation of a prioritisation process for weed species.
22	PI4 Map priority weeds in Southern NRM Region. PI5 Ensure priority is given to nationally significant weeds, declared weeds and weeds listed in strategies relevant to the Southern NRM Region. PI6 Protect natural assets of regional significance from the threat posed by weeds.

Coordination and Cooperation

Page Number	Strategic Action
24	CC1 Establish a representative body to facilitate and oversee implementation of the strategy.
25	CC9 Encourage the development of roadside management plans that incorporates communication and coordination.

Education, training and awareness

Page Number	Strategic Action
28	ETA1 Develop, promote and deliver educational, training and awareness material for planners and managers at a regional and subregional level.
28	ETA4 Develop and deliver educational packages for schools and community groups.
29	ETA 9 Develop awareness package for community.
30	ETA17 Encourage nomination of weed managers in the Southern NRM Region for state and national environmental and weed management awards.
30	ETA18 Encourage local government to support landowners to undertake best practice weed management.

Policy support and integration

Page Number	Strategic Action
32	PSR1 Develop and implement an awareness program to inform all stakeholders of their rights and responsibilities under the <i>Weed Management Act 1999</i> and related policies.

Research and Development

Page Number	Strategic Action
34	RD6 Support research into the costs of weeds in the Southern NRM Region.
35	RD7 Support biological control methods.

Monitoring and Evaluation

Page Number	Strategic Action
34	ME1 Establish a monitoring program addressing Resource Condition Targets to map, monitor and report on high priority weeds to State and Australian Government Standards.

These high priority strategic actions provide a guide for developing and funding individual weed management projects or larger integrated NRM projects. Many of these high priority strategic actions are linked with other strategic actions that, although not an immediate high priority, still need to be incorporated into projects and addressed where they are deemed a local priority.

External funding for NRM and weed management will be limited, and therefore it is vital that all stakeholders utilise this strategy in guiding their weed management activities in the Southern NRM Region, provide their own resources where they are able, and efficiently coordinate and integrate their activities with those of other weed managers.

Introduction

Purpose of a Regional Strategy

The purpose of this Strategy is to identify and consolidate weed management issues in the Southern NRM Region and to set clear achievable outcomes, underpinned by strategic actions. It provides a framework for decision-making in the region to:

- Recommend actions to implement regionally relevant *WeedPlan* Revised Edition directions.
- Identify regional priorities for investment.
- Tackle regional priorities that are consistent with national and state priorities.
- Provide a framework for consistency in subregional strategies.
- Provide opportunities for partnerships and relationships that encourage coordinated weed management.

Although initially a means to direct investment and funding decisions, this Strategy intends to develop and establish a change in weed management structure, process and attitude in the Southern NRM Region so that all stakeholders are fulfilling their responsibilities and the reliance on government funding is minimised.

WeedPlan: Tasmania's Weed Management Strategy addresses weed management at a state level. *WeedPlan* was first published in 1996, with a revised edition published in 2005, and has led to improved coordination and integration of weed management efforts at state, regional and local levels. *WeedPlan* was the first state-level weed strategy in Australia and initiated a regional approach to weed management in Tasmania with the establishment of Regional Weed Officer positions.

Across the nation all levels of government, the community and industry are assisting the development of regional natural resource management (NRM) strategies that:

- assess the relative value of or services provided by natural resources and other assets at risk;
- analyse the causes of threats to those values and services; and
- specify a longer-term vision, goals and targets for NRM to minimise the degradation of resources and, where possible, improve the sustainability and quality of natural resources.

Weeds are a major threat to natural resources and assets important to our economy, community and environment. Therefore it is important that management of these threats is strategic and adequately resourced. Development of a weed strategy for the Southern NRM Region was identified as a high priority Management Action in the *NRM Strategy for Southern Tasmania*.

Principles

The *Southern Tasmanian Weed Strategy* (STWS) is based on principles adopted from the *National Weeds Strategy* and *WeedPlan*. These are:

1. Weed management is an essential and integral part of the sustainable management of natural resources and the environment, and requires an integrated, multidisciplinary approach.
2. Prevention and early intervention are the most cost-effective techniques that can be employed against weeds.
3. Successful weed management requires a coordinated approach that involves all levels of government in establishing appropriate legislative, educational and coordination frameworks in partnership with industry, landholders and the community.
4. The primary responsibility for weed management rests with landholders/land managers, but collective action is necessary where the problem transcends the capacity of the individual landholder/land manager to address it adequately.

Scope

Although the *NRM Strategy for Southern Tasmania* includes marine weeds, pests and diseases along with those in terrestrial and freshwater areas, the *Southern Tasmanian Weed Strategy* limits its scope to terrestrial and freshwater weed species. This is to include estuarine species such as *Spartina* that have the potential to affect wetlands and other important areas.

Marine areas and pests and diseases are not included in this particular strategy because they fall in the domain of separate groups of stakeholders; different science, management techniques and legislation apply to them.

Vision

The vision for the *Southern Tasmanian Weed Strategy* is:

A well-resourced and actively committed region protected from the impacts of weeds through strategic and integrated management involving members of the community, all levels of government and industry.

Weeds in the Southern NRM Region

The Southern NRM Region

The *Tasmanian Natural Resource Management (NRM) Framework* (2002) was developed to provide the state with a systematic way of integrating the wide spectrum of natural resource management issues and improving the condition of natural resources. Tasmania has three NRM Regions based on municipal boundaries. Each region is developing a weed management strategy.

The Southern NRM Region comprises of twelve Local Government Areas in the south of the state and covers 2.5 million hectares of land, which represents just over one-third (38 percent) of Tasmania's land area. The region has a population of 231,854, with 194,341 (84 percent) living in greater Hobart, made up of the municipalities of Hobart City, Glenorchy City, Clarence City, Kingborough, Brighton and Sorell. The remaining municipalities in the Southern Region include Tasman, Huon Valley, Southern Midlands, Glamorgan Spring Bay, Derwent Valley and Central Highlands.

Sixty percent of the region is public land, with 43.3 percent in formal and informal reserves, and the remaining 16 percent in other reserves, state forest and other areas. Forty percent of the region is private land, including the 23 percent of the region that is used for agriculture. Land used for subdivision, urban or industrial and public infrastructure development is 37,400 ha (1.5 percent).

The Southern NRM Region has a total coastline of 3,263 km, including estuaries up to freshwater, all islands and islets, and makes up 39 percent of the Tasmanian coastline.

Natural resources provide significant value to the Southern NRM Region. Commercial enterprises such as tourism, forestry, agriculture, fishing and aquaculture are important to the region's economy and reliant on natural features and resources. Natural resources provide electricity, clean air and water as well as providing a focus for recreation, education, and scientific research. They are also especially important in contributing to the community's 'sense of place', as shown by community participation in over 150 Landcare, Coastcare, Waterwatch and 'friends of' groups.

What is a weed?

The *National Weeds Strategy* definition of a weed has been adopted for this Strategy:

"A weed is a plant which has, or has the potential to have, a detrimental effect on economic, social or conservation values."

Sixty-five percent of plants that are now considered weeds in Australia were introduced deliberately as garden or ornamental plants; others were brought in for other commercial purposes or were accidentally introduced.

Increased movement of Australian native plants throughout Australia has resulted in some mainland natives becoming naturalised in Tasmania. Some of these plants are now considered weeds.

Not all naturalised plants are equally weedy. Some spread aggressively and can completely alter the systems they invade, while others are less competitive with desirable species and have little impact.

There is a potential for some plants that have been introduced and are not yet considered weeds to become weedy in the future. Changing climatic conditions, introduction of new pollinating agents (such as the bumblebee (*Bombus terrestris*)) and other factors could allow some plants to become weeds. These species are known as 'sleeper' weeds.

Impact of weeds in the region

Threats to ecosystems and biodiversity

Weeds out-compete, overwhelm and displace native species in natural environments. They may harbour pests and diseases. Weeds can affect the structure and function of entire ecosystems and so have large and often intractable impacts on local and regional biodiversity.

Weed Invasion directly threatens the Southern NRM Region's internationally recognised natural areas, including four Ramsar wetlands, 27 Directory of Important Wetlands (DIW) sites, the Southwest and Macquarie Island World Heritage Areas, as well as many conservation areas, national parks and private reserves.

Weed invasion is also considered a major risk to threatened species and communities. The Southern NRM Region has 411 of the threatened species listed under the *Tasmanian Threatened Species Protection Act 1995* as well as many species endemic to Tasmania. Much of the forest and non-forest vegetation that is rare, endangered and vulnerable or of critical ecological function at a state-wide level occurs in the region. A total of 57 plants and 26 animals in the region are also listed under the national *Environment Protection and Biodiversity Conservation Act 1999* as threatened with extinction.

Threats to primary production

Agriculture utilises about 340,000 hectares in the Southern NRM Region and includes grazing, superfine wool production, dairies, vineyards, orchards, berries, olives and intensive cropping such as poppies, essential oils and vegetable seed crops. Forestry is also a major land-use on both State and private land.

Weeds can reduce palatability and productivity of pasture, contaminate wool, taint milk and compete with horticultural and forestry crops, reducing product quality and quantity and increasing the cost to both producers and consumers.

Other impacts

Weeds threaten the efficiency of hydro-electricity generation by clogging canals and intake screens. Weeds such as blackberries and willows can reduce access to, and benefits from, many recreational activities such as fishing. Weeds affect human and animal health through chronic or acute poisoning, hay fever, asthma, wounding, dermatitis or photosensitisation. In addition, weeds cause fire and safety hazards, impede access, reduce aesthetic values and cause damage to infrastructure such as roads and buildings.

Economic impact of weeds

The true cost of weeds is not known. In a recent national assessment of the economic impact of weeds to agriculture costs were estimated at more than \$4 billion nationally. The cost of weeds to agricultural production as well as human health and the natural environment needs to be established to highlight the need for resources and funding to conduct efficient weed management.

Benefits of weeds

Irrespective of the risks weeds pose, some weeds do have positive attributes. Some provide significant pollen forage for Tasmania's honey industry, others have beneficial medicinal properties, provide wildlife habitat in areas where native plants are absent or reduce soil erosion.

Managing weeds in the region

More than 765 exotic plant species have become naturalised in Tasmania: 1,829 native species occur in Tasmania. Therefore weeds represent 30 percent of the plants recorded in the state.

Six of the 20 Weeds of National Significance (WONS) are found in the Southern NRM Region. These are blackberry, gorse, willow, boneseed, bridal creeper and serrated tussock. Tasmania has 77 weed species declared under the *Weed Management Act* 1999, with 44 known to occur in the Southern NRM Region. Nine of these weeds are found only in the south of the state.

In addition there are many other plants not declared under the *Weed Management Act* 1999 that have established populations throughout the Southern NRM Region. Many of these plants are ornamental and still available for purchase. The suitability of legislation for these weeds needs to be investigated but for many, other management approaches will be required.

The many weeds already here, as well as those that threaten to invade, pose an immense risk to the condition of the important natural resources of the Southern NRM Region. In order to minimise this threat it is essential that weed management is strategic, integrated, coordinated and well resourced.

Policy and Legislation Framework

Legislation

Weed Management Act 1999

The *Weed Management Act* 1999 (the Act) provides the principal legislative framework for weed management in Tasmania. The Department of Primary Industries, Water and Environment (DPIWE) administers the Act. Three categories of plants threaten Tasmania's economy and environment:

1. Plants that are not naturalised in Tasmania but which have the potential to become weeds, if allowed to enter and establish
2. Plants that are naturalised in Tasmania but in a limited fashion and which have the potential to spread much further and cause greater harm
3. Plants which are widespread, have demonstrable weed impacts and for which strategic control can be usefully undertaken

Currently there are 77 species declared under the Act. More than two-thirds of these fall into the first two categories described above, which demonstrates the high priority placed on preventative action. Weeds currently declared under the Act and their presence and importance in each municipality in the Southern Region are listed in Appendix 1.

The Act requires that the regulation of each declared weed is supported by a statutory weed management plan. Each plan specifies the requirements and prohibitions that relate to importation, sale and control requirements for each declared weed.

Category 1 and 2 weeds are required to be eradicated wherever they occur in Tasmania. The control requirements for Category 3 weeds depend on their distribution status on a municipal basis. Municipalities in which Category 3 weeds are not widely distributed are called Zone A municipalities with eradication being the principal objective. Municipalities in which the plant is widespread are called Zone B municipalities with containment being the principal objective, meaning that the land manager must make efforts to prevent the plant escaping their properties.

For example, Brighton, Clarence and Glamorgan-Spring Bay are Zone A municipalities for Spanish heath, with eradication being the primary objective; the other nine municipalities in the Southern NRM Region are zoned B for Spanish heath, where containment is deemed more appropriate. The zoning status may be reviewed to reflect the changing status of the weed, available resources and the progress of weed management efforts.

Declaration Process

Any individual or organisations can nominate a weed for declaration under the Act. The list of declared plants under the Act is dynamic. The status of some weeds can change, some plants can become weedier or their perception in the community can change, and therefore the list of declared weeds reflects these changes and is regularly updated.

Weed inspectors

The role of Weed Inspectors is to enforce the Act, which involves working with land managers to develop and implement weed management plans, and carrying out a range of regulatory activities as appropriate. Weed Inspectors can be employees of State or local government or other relevant organisations.

Links to existing frameworks

Strategic weed management is undertaken at many different levels and the existence of strategies and plans at all these levels reflects this. The *National Weed Strategy* guides weed management at the national level and *WeedPlan: Tasmania's Weed Management Strategy* (2005) provides the framework and direction for weed management in the state. Figure 1 illustrates the position of the *Southern Tasmanian Weed Strategy* (STWS) in the context of these and other existing weed management frameworks. Additional documents relevant to weed management in the Southern NRM Region are listed in Appendix 1.

LEVEL	STRATEGY		LEADING AUTHORITIES
NATIONAL	National Weed Strategy		Australian Government
STATE	WeedPlan: Tasmania's Weed Management Strategy	Tasmania Together	State Government, Tasmanian Weed Management Committee, Tasmania <i>Together</i> Board
REGIONAL	Natural Resource Management Strategy for Southern Tasmania	Southern Tasmanian Weed Strategy	NRM South
SUB-REGIONAL/ MUNICIPAL	Municipal Weed Strategies	Catchment Management and NRM Plans	Local Government, NRM Committees and Catchment Groups
LOCAL	Property management plans Local area weed plans	Operational plans or schedules	Local Government Parks and Wildlife Service Property Managers, Community Groups; Industry

Figure 1: Framework of policy surrounding *Southern Tasmanian Weed Strategy*.

WeedPlan

WeedPlan Revised Edition provides a framework to achieve more effective management of existing weeds and to limit the introduction and establishment of new weeds. It specifies guiding principles for effective weed management, clear roles and responsibilities for different stakeholders, specific outcomes and strategic actions. The *Southern Tasmanian Weed Strategy* provides a strategic regional operational link to state weed management actions.

Tasmania Together

The *Tasmania Together* process has identified a number of goals and benchmarks that relate to weed management throughout the state and in Southern Tasmania. It is important that the *Southern Tasmanian Weed Strategy* aligns with the *Tasmania Together*.

Natural Resource Management Strategy for Southern Tasmania

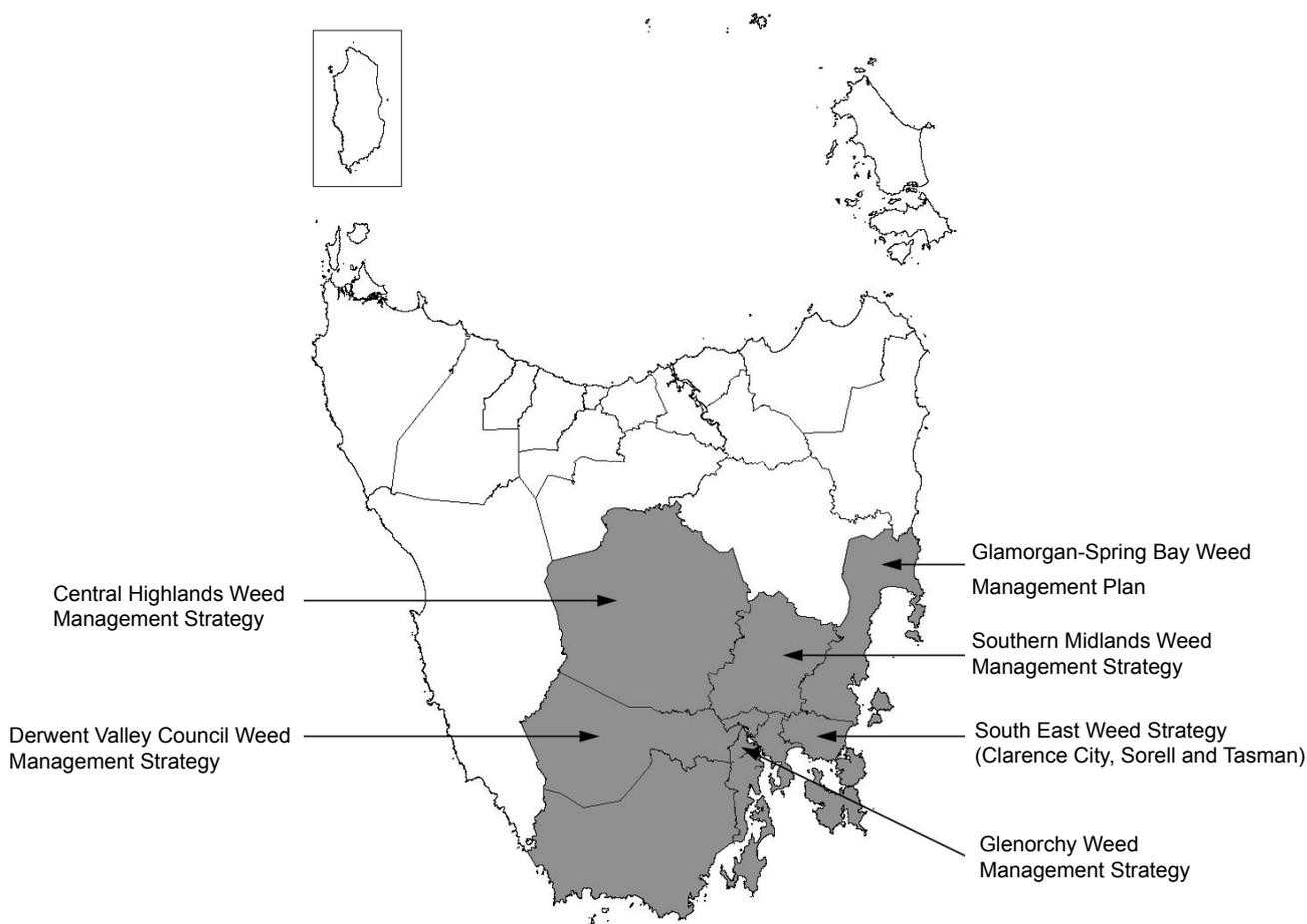
The *Natural Resource Management Strategy for Southern Tasmania (NRM Strategy for Southern Tasmania)* identifies the region's natural resource assets and sets goals and targets for their sustainable management. In the *NRM Strategy for Southern Tasmania* weed management is considered a priority. A key role of the *Southern Tasmanian Weed Strategy* is to refine priorities and set actions for weed management that will contribute to the achievement of targets listed in the *NRM Strategy for Southern Tasmania* (see pages 11 and 12 of this document).

Municipal Weed Management Strategies

Many municipalities in the Southern NRM Region have developed weed management strategies (see Map 1), and others are in the process of doing so. Local government has a major role in encouraging, resourcing, and coordinating weed management activities within and between municipalities. Local government can also provide excellent practical links between subregional/catchment/municipal strategies, regional and state strategies and localised on-ground weed management.

Key documents and plans

There are many weed-related strategies, plans, processes and procedures used by community groups, industry, government departments, public and private land managers and individuals. They are all important links in the overall weed management framework.



Map 1: Municipal Weed Strategies in Southern Tasmania as at January 2005.

Outline of Strategy development

As this Strategy is the principal framework for weed management in the Southern NRM Region it needs to support all documents relevant to weed management in the Southern NRM Region. These include municipal and community weed management strategies; catchment management strategies; organisational weed management plans; private industry weed management plans or procedures; and other strategies that include prescriptions for weed management.

These documents, *WeedPlan* Revised Edition and the *NRM Strategy for Southern Tasmania*, were analysed to identify important weed management issues. In addition, a gap analysis was completed to identify the important weed management issues. Stakeholders were consulted and input was requested from the public using a newspaper advertisement in order to identify issues prior to the development of the Strategy.

A draft Strategy was released for public comment and feedback was used in drafting the final Strategy.

In addition, an expert panel, representing State Government, rural and urban local governments, NRM South, community groups, and community organisations provided the author with support, direction and technical advice throughout the development of the Strategy.

Implementation of the Strategy

The *Southern Tasmanian Weed Strategy* provides a framework for the allocation of resources and the implementation of new and existing weed management strategies. The Strategy determines priority areas of weed management for funding through the Regional Investment Plan, as well as identifying areas in which stakeholders can take action.

The Strategy provides actions that need to be implemented to achieve the desired outcomes of each component, hence contributing to the attainment of relevant Resource Condition Targets set in the *NRM Strategy for Southern Tasmania*.

Definitions of Actions, Outcomes and Targets	
Southern Tasmanian Weed Strategy	
<i>Strategic Actions</i>	These actions describe weed management that needs to be conducted in the Southern NRM Region to achieve the desired outcomes for weed management under each component, and eventually the targets set in the <i>NRM Strategy for Southern Tasmania</i> .
<i>Desired Outcome</i>	Each of the eight components of the <i>Southern Tasmanian Weed Strategy</i> has a corresponding desired outcome, describing what the Southern NRM Region wants to achieve with regard to that particular component.
NRM Strategy for Southern Tasmania	
<i>Management Action Targets</i>	These targets describe what the Southern NRM Region would like to achieve in the next 1-5 years. These targets are also measurable and achievable and provide the first step to achieving the Resource Condition Targets.
<i>Resource Condition Targets</i>	These targets describe how the Southern NRM Region would like to see the condition of its natural resources in 10-20 years. They will provide measurable and achievable steps towards attaining the aspirational targets and eventually realising the long-term vision.
<i>Aspirational targets</i>	These targets describe what the Southern NRM Region is aiming to achieve in 50 years or more. These targets are generally not directly measurable, but are an integral part of the long-term vision for weed management in the region.
Vision	The overall vision for weed management in the Southern Region
	<i>A well-resourced and actively committed region protected from the impacts of weeds through strategic and integrated management, involving members of the community, all levels of government and industry.</i>

Figure 2: Description of Actions, Outcomes and Targets in the *Southern Tasmanian Weed Strategy*.

Targets

The targets for weed management described in the *NRM Strategy for Southern Tasmania* can be found in the Managing Native Flora and Fauna Chapter, in the Weeds, Pests and Diseases section. The most relevant targets are listed below:

Aspirational Target

Existing weeds controlled to the stage they no longer impact significantly on ecosystem function or production and the translocation of existing species and new introductions to the region are prevented.

Resource Condition Targets (RCTs)

- RCT WPD4** By 2020, eradication or effective control of high priority weeds as determined by the *Southern Tasmanian Weed Strategy*.
- RCT WPD5** Reduction in current extent of identified weeds (as listed in the *Southern Tasmanian Weed Strategy*), pests and diseases.
- RCT WPD6** No new establishments of high priority terrestrial and marine weeds, pests and diseases.

Implementation of the *Southern Tasmanian Weed Strategy* will also contribute to several other Resource Condition Targets. The following example is taken from the Managing Native Flora and Fauna chapter:

- RCT F7** Maintain or improve the status of existing species and ecological communities listed on the schedules of the *Threatened Species Protection Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999*.

Management Action Targets (MATs)

- MAT WPD1** By 2010 priority actions in the *Southern Tasmanian Weed Strategy* implemented.
- MAT WPD3** By 2006 likely weed threats for conservation and production areas identified.
- MAT WPD4** By 2008 risk assessment for threatening weeds completed.
- MAT WPD5** By 2006 biosecurity protocols in place to manage and prevent new incursions and manage further spread of weeds.
- MAT WPD6** By 2010 complete eradication of rice grass in the Derwent River [*Tasmania Together*].

The *Southern Tasmanian Weed Strategy* (STWS) provides a framework for weed management that will help to achieve these targets and contribute to many more. Some strategic actions identified in the STWS can be directly linked to one particular MAT. However usually a series or number of strategic actions need to be accomplished to achieve a MAT or RCT. All stakeholders need to contribute to the implementation of the STWS to ensure that these important targets are met.

Funding implementation

Principle 4 of weed management states that *the primary responsibility for weed management rests with landholders/land managers, but collective action is necessary where the problem transcends the capacity of the individual landholder/land manager to address it adequately.*

Collective weed management action can be funded by combining resources of individual weed managers and local sponsoring bodies, as well as through funding support from local, state or federal governments, or the regional NRM body, NRM South.

The STWS will provide a guide to directing funds from all weed management stakeholders. Where there is limited ability for individual stakeholders to fund their own weed management, money may be allocated through a Regional Investment Plan (RIP) for NRM in Southern Tasmania.

RIP funding for weed management will be limited because the total sum must be shared among many NRM issues. Funding for weed management will be prioritised according to priorities identified in the STWS or established through appropriate priority setting processes.

Funding will also be prioritised, where appropriate, for integrated NRM programs that include weed management and deliver on additional RCTs.

Roles and responsibilities

To clarify roles and responsibilities in the implementation of this Strategy, lead and partner responsible parties are named for each Strategic Action. In many instances more than one lead and partner responsible parties have been listed. This is to emphasise the need for a coordinated effort to manage weeds and to encourage all stakeholders to commit to and fulfil their responsibilities.

Landowners and/or land managers need to take responsibility for weeds on the land they manage, as described by Principle 4. However, there are many situations when the problem is beyond the capacity of individual landowners or managers. When this is the case all levels of government, industry and community groups have important supportive roles to play. This is recognised in Principle 3: *Successful weed management requires a coordinated approach that involves all levels of government in establishing appropriate legislative, educational and coordination frameworks in partnership with industry, landholders and the community.*

The Tasmanian Weed Management Committee and Regional Weed Management Committees (in this case the Southern Tasmanian Weed Strategy (STWS) Committee) also have responsibilities to facilitate strategic and effective weed management.

The roles and responsibilities of these stakeholders vary, and are listed in the table below, which has been adapted from those listed in *WeedPlan* Revised Edition. These prescriptions provide not only a guide for implementation of this Strategy, but also for weed management in general.

Figure 3: Roles and responsibilities of stakeholders in weed management.

Individual landowners and land users	<ul style="list-style-type: none"> - Improve their weed knowledge and skills and apply their skills to improve weed management. - Detect and report new weed occurrences. - Integrate economic and environmental values in the management of weed problems on their land. - Plan and cooperate with neighbours to manage weeds. - Support and promote sustainable production practices to minimise the development of weed problems. - Manage weed problems on the land they own or manage
Communities	<ul style="list-style-type: none"> - Coordinate group action and links to plans at a regional level. - Raise awareness and improve education on weed issues. - Encourage participation in local and regional weed management issues.
Community and industry organisations	<ul style="list-style-type: none"> - Represent members' interests on weed issues. - Contribute to coordination and/or delivery of weed management initiatives - Encourage participation in local and regional weed management issues - Provide members with information on weed management issues. - Participate in the development of codes and policies that will reduce the impact of weeds.
Local Governments	<ul style="list-style-type: none"> - Provide information, coordination and support for community groups. - Encourage responsible weed management. - Manage weed problems on their own land. - Develop and apply local weed management strategies. - Exercise statutory and planning responsibilities to encourage responsible weed management.
The State Government	<ul style="list-style-type: none"> - Encourage the development of weed management strategies and other mechanisms for cooperation and coordination of weed management at local, regional, State and national levels. - Provide leadership, coordination and resources for research, assessment, education and public awareness programs on weeds. - Liaise and cooperate with other states and territories and the Australian Government to provide mechanisms and procedures to minimise the risk of new weeds being introduced into Tasmania. - Manage weed problems on its own land responsibly in cooperation with other landowners. - Provide a suitable institutional and legislative framework. - Exercise statutory responsibilities to encourage responsible weed management. - Develop and implement effective policies and programs. - Provide positive support through financial incentives, assistance schemes and appropriate standards and regulations.

<p>The Australian Government</p>	<ul style="list-style-type: none"> - Manage weed problems on their own land responsibly in cooperation with other landowners. - Provide research funding in partnership with industry and other stakeholders. - In cooperation with the State Government, facilitate the development of an economic, social and cultural framework that encourages weed management as an integral part of sustainable land management. - Provide positive financial, structural and education support through programs including, but not limited to, the Natural Heritage Trust and the National Landcare Program - In cooperation with the State Government, provide the appropriate legislative framework necessary to reduce the introduction of new weeds into Australia.
<p>Tasmanian Weed Management Committee</p>	<ul style="list-style-type: none"> - Provide a forum to identify, discuss and resolve weed matters of State significance - Provide advice and make recommendations to government on matters relating to WeedPlan (2005) - Oversee the implementation of WeedPlan (2005) and undertake relevant actions' - Inform member organisations about developments and issues concerning weed management - Provide advice and support to regional weed management committees - Provide advice and reports to Tasmania Together progress board, DPIWE Biosecurity Committee and Australian Weeds Committee where appropriate
<p>Southern Tasmanian Weed Strategy (STWS) Committee (or relevant organisation)</p>	<ul style="list-style-type: none"> - Promote regional weed management coordination with stakeholders - Advise the Tasmanian Weed Management Committee (via membership) on regional matters requiring inter-regional or higher level management and other issues relevant to the region - Provide a forum for the interchange of weed management information - Implement the regional actions within WeedPlan (2005) - Oversee implementation and maintain STWS - Develop and implement action plans for weeds of major regional significance - Coordinate and report on regional funding applications for weed projects - Support the development of community weed management groups - Monitor, evaluate and report on the status of weeds in the region
<p>Southern Tasmanian Weed Strategy (STWS) Coordinator</p>	<ul style="list-style-type: none"> - Facilitate and coordinate the implementation of the STWS - Coordinate the establishment of STWS Committee or relevant organisation - Promote funding and investment opportunities available through NRM process - Promote involvement of stakeholders, encourage their investment in weed management - Promote and encourage the region's involvement in weed management developments beyond the Southern NRM Region - Encourage improved communication and coordination amongst weed managers in the Southern NRM Region - Develop and promote weed management projects that integrate NRM outcomes and reflect high priority strategic actions in STWS

Key Components of the Strategy

The *Southern Tasmanian Weed Strategy* follows a similar structure to *WeedPlan Revised Edition*. The components and the desired outcomes that define them are as follows:

Resources

Desired Outcome: Government, community and industry resources identified, shared, managed and used efficiently throughout the region.

Biosecurity

Desired Outcome: No new weeds established and the spread of current and sleeper weeds prevented.

Prioritisation and integration

Desired Outcome: Regional weed management priorities are defined and addressed in an integrated manner.

Coordination and cooperation

Desired Outcome: All weed management conducted in the region is coordinated and cooperative.

Education, training and awareness

Desired Outcome: A well-informed and actively committed wide network of people incorporating effective weed management into all land and water management activities in the region.

Policy support and regulation

Desired Outcome: Compliance with the *Weed Management Act 1999* and all government, community and industry bodies supporting the Act with adequate weed management procedures and actions.

Research and development

Desired Outcome: A region involved in and encouraging development of excellent weed management knowledge, technology, skills, capacity and ability.

Monitoring and evaluation

Desired Outcome: A region that monitors and fully understands the extent and scope of its weed problem and has a Strategy that is regularly reviewed, and therefore relevant and achievable.



Component 1: Resources

Managing weeds requires many different kinds of resources. These can include:

- people to undertake on-ground work and to make strategic decisions and provide support
- information such as weed maps and management options that will enable the correct decisions to be made
- equipment, which can range from something as simple as a pair of gloves, to a mattock, a chainsaw or a helicopter
- money to purchase further resources and to coordinate successful weed management projects.

It is important that adequate and timely resources are available for weed management. Land and water managers need to invest in their own resources where appropriate. However it is recommended that where possible, resources such as equipment and information are shared to minimise costs to individuals and to maximise efficiency of weed management.

Strategic Actions

Desired Outcome: Government, community and industry resources identified, shared, managed and used efficiently throughout the region.

Effective weed management requires appropriate support and information for weed managers and involvement from the community.

Matters for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Support network	R1 Appoint a STWS Coordinator to coordinate the implementation of strategic actions at regional and subregional levels.	NRM South	Local and State government
	R2 All key land managers to appoint and support officers with dedicated weed management responsibilities.	Local and State government	All large institutional land managers
	Provide ongoing support to: R3 Promote funding opportunities. R4 Coordinate and distribute weed information and data. R5 Coordinate resource-sharing.	STWS Coordinator; STWS Committee	NRM South; NRM Facilitators; local government; DPIWE

Photo above: Gorse mulcher, by Karen Stewart. Gorse (*Ulex europaeus*) is a Weed of National Significance and is difficult to control. The gorse mulcher, being used here on the West Coast, is a valuable resource used to manage large infestations.

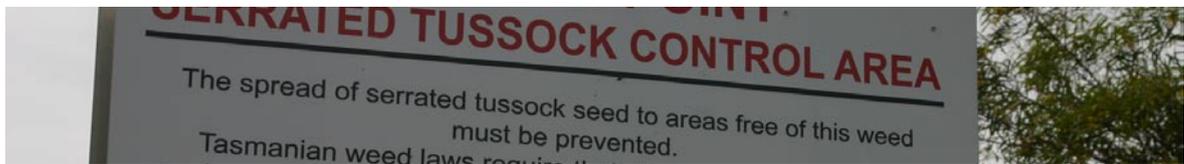
Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Promote and support benefits of participation	<p>R6 Provide support for community groups</p> <p>R7 Support the development and promotion of a simplified insurance process for community groups to enable increased involvement.</p>	STWS Coordinator; STWS Committee; community organisations	NRM Facilitators; local government; DPIWE; Parks and Wildlife Service
Weed management information	<p>R8 Collect weed management data consistently.</p> <p>R9 Provide easily accessible information on standardised mapping methods and tools.</p> <p>R10 Encourage weed managers to contribute to weed management databases.</p> <p>R11 Encourage weed managers to share information on their activities.</p> <p>R12 Map priority weeds in the Southern NRM Region to facilitate the monitoring and evaluation of weed management activities.</p>	STWS Coordinator; DPIWE; Parks and Wildlife Service; local government	NRM South; all land and water managers; community groups

To efficiently manage weeds it is essential that resources are identified, available and shared where appropriate.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Identification of resources	<p>R13 Catalogue weed management resources.</p> <p>R14 Identify gaps where investment in resources is required.</p>	STWS Coordinator	All levels of government; contractors; community groups
	<p>R15 Regularly update an inventory of resources available for sharing.</p>	STWS Coordinator	NRM South; DPIWE
Sharing resources	<p>R16 Include the source of resources in any new weed management plans.</p>	Private and public land and water managers; community groups	
	<p>R17 Promote resources available for sharing amongst weed managers and community.</p>	STWS Coordinator; NRM Facilitators	Resource owners/managers

Effective weed management requires long-term planning, action, investment and funding at all levels.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Land manager resourcing of and investment in weed management	<p>R18 Provide an adequate and coordinated budget allocation for weed prevention and management.</p> <p>R19 Include weed management costs in asset management and risk analysis.</p>	All land and water managers	
Funding support	<p>R20 Support and promote long-term consistency in planning, investment and funding of NRM activities, including weed management.</p>	NRM South; All levels of government; relevant industry	
	<p>R21 Promote available funding sources amongst weed managers and community, including Weeds of National Significance (WONS).</p>	STWS Coordinator; DPIWE; local government	NRM South; NRM Facilitators



Component 2: Biosecurity

Effective hygiene is an essential part of successful weed management. Preventing weeds from establishing is cheaper than reactive weed control after establishment and subsequent spread. Biosecurity includes not only preventing weeds from entering the state, but also preventing the movement of weeds from an infested area to a non-infested area and rapid eradication of any new incursions.

There are many different potential vectors for weed spread. Industries that have land, water or asset managers moving between properties or infestations need to adopt weed hygiene measures to minimise the risk of weed spread. The standard for these hygiene measures needs to be state-wide to ensure consistency between regions: However, the measures need to be regionally applicable and the regions need to encourage industries operating within the region to adopt them.

Managers of conservation areas need to ensure that weed hygiene measures are implemented to prevent the introduction of weeds. Areas with high numbers of visitors may find this difficult, but a vehicle washdown station at the entry points may be one solution.

A state-wide Weed Alert Network was established following *WeedPlan* (1996). Involvement of the Southern NRM Region in such a network is important and increased involvement from all relevant stakeholders needs to be encouraged.

With an appropriate Weed Alert Network, a regionally relevant rapid response system needs to be established and promoted. A state-wide response system is in place: The Southern NRM Region needs to ensure it is regionally relevant and promote its use in the region.

Case Study: Forestry, DPIWE and agricultural contractors implement washdown to stop the spread of weeds

Forestry Tasmania has developed washdown guidelines for weed and disease control in conjunction with DPIWE and Agricultural Contractors of Tasmania, additional input was sought from councils, industry and State Government. The guidelines were brought into effect in April 2004.

The guidelines establish a standard for washdown and provide a guide to prescribing its application where codes of practice or other environmental management plans are not in place.

The guidelines prescribe the equipment necessary for washdown, detail standards and establish very practical procedures and checklists for performing the washdown operation.

Foresters and contractors have been successfully using the guidelines since they were introduced in April 2004. They will be reviewed in 2005 to improve even further practicality for use in the field.

The guidelines can be found on DPIWE's website at www.dpiwe.tas.gov.au

Box 1. Case study: Washdown guidelines.

Photo above: Serrated tussock (*Nassella trichotoma*) washdown station at Lauderdale. Serrated tussock is a Weed of National Significance and only a small area of Tasmania is infested. It is important to prevent its further spread.

Strategic Actions

Desired Outcome: No new weeds established and the spread of current and sleeper weeds prevented.

To minimise the risk of weed incursion and establishment, appropriate Weed Risk Assessment, a Weed Alert Network and appropriate response mechanisms are essential.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Weed Risk Assessment	<p>B1 Southern NRM Region to support the undertaking of Weed Risk Assessment at state level.</p> <p>B2 Southern NRM Region to support dissemination of results of State Weed Risk Assessment to individuals and industry importing plant products into the Southern NRM Region.</p>	STWS Committee; DPIWE	NRM South; research institutions; nursery and landscaping industry
Regional Weed Alert Network	<p>B3 Promote involvement of all key stakeholders in the Weed Alert Network.</p> <p>B4 Conduct regular information and identification sessions for weeds at risk of entering the state for Weed Alert Network members.</p>	STWS Coordinator; DPIWE	NRM Facilitators; NRM South;
Rapid response	B5 Establish and promote a regionally relevant rapid response system to weed incursions to ensure integration with the State approach.	NRM South; DPIWE; STWS Coordinator	local government; DIER; relevant industry

To effectively minimise the introduction and spread of weeds in the Southern NRM Region, all stakeholders with the potential to move weed propagules need to establish appropriate weed hygiene methods.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Biosecurity support	Provide ongoing support to: B6 Implement effective weed hygiene measures that prevent weed spread throughout the region. B7 Coordinate implementation of biosecurity measures within and beyond the region.	STWS Coordinator; local government	DPIWE; Parks and Wildlife Service; DIER; NRM South
Community	B8 Provide community groups with information on preventing weed spread.	Parks and Wildlife Service; DPIWE; local government	STWS Coordinator; community and industry organisations
	B9 Establish 'good neighbour' programs to minimise weed spread between properties.	Local government; SWTS Coordinator; DIER; Parks and Wildlife Service	All land and water managers
	B10 Develop and implement hygiene guidelines to reduce risk of weed spread from weed seed.	Industry organisations	Weed seed importers; State Government
Conservation areas	B11 Investigate opportunities for improving weed hygiene of visitors to parks and reserves.	Parks and Wildlife Service	Any land or water managers working in or affecting conservation areas
Waste disposal	B12 Develop and promote appropriate disposal measures for weed and garden waste that minimises risk of weed spread. B13 Identify and promote weed disposal sites.	Waste departments in local and State government; Southern Waste Strategy Authority	STWS Coordinator; STWS Committee



Component 3: Prioritisation and integration

Prioritisation and integration are two essential elements of weed management in the Southern NRM Region.

Establishment of a priority-setting process is a strategic action in *WeedPlan*, and it is important that the Southern NRM Region is involved in the development of this process, and encourages its utilisation at all levels of planning once established.

Notwithstanding the development of a process for priority-setting, there are already several lists that prioritise weed species. These include the Weeds of National Significance (WONS), species declared under the *Weed Management Act* 1999, and those in the Tasmania *Together* benchmark 24.9.1. Many municipal strategies also identify local priority weed species. Rather than develop yet another list, these lists have been incorporated in Appendix 2 to help guide weed management decisions.

Apart from individual species, the prioritisation of weed problems must also take into account the sites or assets they threaten. There are many lists and categories of species and vegetation that are potentially under threat from weed invasion. Priority will be determined by the legal status of the weed, and its potential impact on natural resources.

Consistency and integration with other plans must not be overlooked. Weed management policy should be consistent throughout the region. This can be achieved by ensuring that all action plans link into weed legislation, priority weed lists and overarching weed strategies and plans.

Case Study: National Protocol for Post-Border Weed Risk Management.

Which weeds or weed infested affected areas do I address first and how? Answering these questions is a complex but crucial task for all weed managers. A recently drafted risk management protocol establishes a simple process for identifying weed priorities. Based on Australian/New Zealand Standards for risk management, it is applicable to regional, state and national levels.

The protocol has six-steps:

- 1. Establish the Weed Management Context.** Identify goals, land use, stakeholders, policies and legislation, resources, existing weed management.
- 2. Identify Weed Risk Candidates.** Review lists of actual and potential weeds and undertake strategic surveillance.
- 3. Assess Weed Risks.** Evaluate on the basis of invasive ability, impacts and potential distribution.
- 4. Assess Feasibility of Coordinated Control.** Evaluate on the basis of current distribution, control costs and duration.
- 5. Determine Weed Management Actions.** Refer to a simple matrix that presents actions (eg. preventing entry, eradication, containment) for various combinations of weed risk/ management feasibility. The matrix is used to help determine weed priorities.
- 6. Implement Weed Management Actions.** Translate the prioritisation results into strategic on-ground action.

Anyone interested in using the protocol should contact the DPIWE Weed Section.

Box 2. Case study: Development of a national protocol for prioritisation.

Photo above: African boxthorn (*Lycium ferosissimum*) threatens valuable pastureland as well as a variety of natural areas. It has been identified as a priority weed in several municipal strategies.

Strategic Actions

Desired Outcome: Regional weed management priorities are defined and addressed in an integrated manner.

To effectively manage weeds with limited resources it is essential that activities be conducted according to identified priorities.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Prioritisation and integration support	Support: PI1 Regional involvement in the development and implementation of a prioritisation process for weed species. PI2 Use of agreed processes to determine localised weed management priorities. PI3 The integration of action plans with other strategies.	NRM South; STWS Committee	State Government
Current weed management priorities	PI4 Map priority weeds in Southern NRM Region. PI5 Ensure priority is given to nationally significant weeds, declared weeds and weeds listed in strategies relevant to the Southern NRM Region. PI6 Protect natural assets of regional significance from the threat posed by weeds.	STWS Coordinator; DPIWE; WONS Coordinators; Parks and Wildlife Service	All weed managers; NRM South

To effectively manage weeds it is important that all weed management activities are integrated.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Integrating weed management within organisations	PI7 Ensure all weed management plans developed by organisations are consistent and integrated.	STWS Coordinator; all weed managers	All stakeholders
Integrating weed management with other NRM	PI8 Promote weed management as an important part of NRM and not as an isolated issue.	NRM South; NRM Facilitators; STWS Coordinator	All weed managers; all natural resource managers



Component 4: Coordination and cooperation

Weeds are not constrained by the borders and fences humans have created.

Cooperation and coordination are especially important to ensure nobody's efforts, time or money are wasted. Plans incorporating weed management need to include the eight components of weed management outlined in this strategy and ensure that actions are coordinated with neighbouring or related activities.

Weed hygiene needs to be addressed in all land and water management or NRM plans, because preventing the spread of weeds between properties is an important aspect of cooperation.

Case Study: Cooperation in Wellington Park

Peter Franklin is an inspirational individual. While surveying tracks near Collins Cap, part of the iconic Wellington Park that overlooks Hobart, he noticed about 40 isolated gorse plants. Knowing he couldn't remove them by himself, he enlisted the help of the Bushland Preservation Society, which is affiliated with the Australian Plants Society. This keen group of volunteers was able to rapidly eradicate this outlying infestation.

Over the next few years, Peter discovered a number of weed infestations that threaten the unique environment in Wellington Park. The main problems are gorse, Spanish heath and broom around the foothills, particularly in disturbed areas. Bringing together a group of volunteers to handle the weed threat and other issues, Peter was a founding member of the Wellington Park Bushcare Group.

This group cooperatively works with the Wellington Park Management Trust, Parks and Wildlife, Glenorchy City Council and Hobart Council to control weeds in the Park. While the Bushcare group supplies keen and willing volunteers, the other organisations supply planning and administration support, insurance, tools, herbicides and professional crews to work alongside the volunteers. In addition the Australian Government has recently contributed funds for equipment and weed removal contractors to work in the areas where the weeds are too thick and extensive for volunteers to handle on their own.

Box 3. Case study: How cooperation can help combat weeds.

Photo above: Mirror bush (*Coprosmma repens*) is a garden plant that invades a variety of bush types. To prevent this plant from spreading garden owners must cooperate by removing it from their gardens.

Strategic Actions

Desired Outcome: All weed management conducted in the region is coordinated and cooperative.

Effective weed management requires the cooperation of land and water managers and coordination of weed management activities

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Coordination support	<p>CC1 Establish a representative body to facilitate and oversee implementation of the strategy.</p> <p>CC2 Promote the establishment of local weed management groups.</p>	NRM South; STWS Coordinator	Regionally relevant stakeholders
	<p>Provide ongoing support to:</p> <p>CC3 Encourage land and water managers to develop and implement weed action plans.</p> <p>CC4 Encourage preparation of simple and clear site specific rehabilitation action plans prior to weed removal, especially in areas where weeds provide benefits.</p> <p>CC5 Encourage and facilitate communication between all regional stakeholders.</p> <p>CC6 Encourage all stakeholders to recognise weed management as an important part of their business and address it strategically.</p> <p>CC7 Facilitate communication with other NRM regions to ensure inter-regional coordination of weed management.</p>	STWS Coordinator; NRM Facilitators; NRM South	Local and State government;
Improved communication	<p>CC8 Promote the establishment of email groups or electronic discussion boards among southern weed managers as a forum to exchange information and ideas.</p>	STWS Coordinator; STWS Committee	All stakeholders

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Improved coordination	CC9 Encourage the development of roadside management plans that incorporate communication and coordination.	DIER; local government	STWS Coordinator
	CC10 Encourage improved communication and coordination of weed management activities in parks and reserves.	Parks and Wildlife Service; managers of land and water in parks and reserves	Community groups
	CC11 Encourage local government to develop planning guidelines that require developers and owners to manage and eradicate weeds on private land as part of their development approval.	Local government	
	CC12 Encourage landowners to coordinate weed management activities with neighbours and adjoining land managers, regardless of tenure. CC13 Organisations managing assets on private property to coordinate weed management activities with landowners/managers.	Individual landowners; all levels of government; Relevant industry	STWS Coordinator

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Coordination of weed management with all NRM	CC14 Integrate weed management with all other NRM activities and plans.	All natural resource managers	NRM South; NRM Facilitators
	CC15 Promote the recognition of weed invasion as a major threatening process to the region's natural resources.	NRM South; STWS Coordinator; TWMC	NRM Facilitators; weed managers; DPIWE
Distributing weedy species	<p>CC16 Provide information to industries involved in the distribution of potential weeds.</p> <p>CC17 Establish a working group of key stakeholders to:</p> <ul style="list-style-type: none"> - cooperate in developing a state-wide list of potential weeds for removal from sale - cooperate in providing community awareness of weed risk of certain plants - cooperate in Weed Risk Assessment of imported species. 	Relevant industry; TWMC; industry organisations	STWS Coordinator; DPIWE
Coordination between community programs	CC18 Provide support for community groups that demonstrate a strategic and coordinated approach to weed management.	Local government; DPIWE	Community groups; NRM South
	CC19 Encourage the involvement of community groups and weed managers in establishing and dispersing biological control agents.	TIAR; community and industry organisations	STWS Coordinator; NRM Facilitators



Component 5: Education, training and awareness

Weed managers need to be able to identify weeds, minimise the risk of spread of weeds and integrate weed management with other land and water management activities. Many stakeholders may be unaware of the role they have to play in weed management. All weed managers, whether they manage weeds simply by adopting weed hygiene methods or actually go out and kill weeds, need to have appropriate training.

The greater community also has a role in weed management and it is important that people are aware of the immense cost of weed management and the threats weeds pose to all our resources. There are many opportunities to increase public awareness and these need to be built upon in order to bring our weed problems to the forefront of community concern.

To be successful in the long-term, weed management needs to be understood by the next generation. Weeds will become a greater problem in the future unless the children and students of today learn how to manage the problem. Therefore weed education should become part of education at all school levels.

Case Study: Training meets a need in the Derwent Valley

The Derwent Catchment Weeds Working Group comprises important weed managers in the Derwent Valley including representatives from DIER, Forestry Tasmania, Central Highlands Council, Shackowners Association, Transend, Upper Derwent Valley Landcare Group, Greening Australia, NRM South, Derwent Catchment NRM Committee, Derwent Valley Council, Parks and Wildlife Service, farmers and DPIWE. They meet every year to discuss various issues of weed management in the valley. Meetings usually occur at the start of spring to coincide with the major period of weed growth.

The group met in late August 2004 at the Hamilton Community Resource Centre. One of the major topics of discussion was prevention of weed spread using hygiene measures. Many of those at the meeting expressed a desire to update their knowledge of these issues. As a result, the DPIWE Regional Weed Management Officer DPIWE, Andrew Crane, prepared a training package to deliver to interested parties.

On 12 November 2004, Andrew presented the training to a number of council staff and elected members, farmers and Landcare members at Hamilton. The training has three sections:

1. Broad issues concerning hygiene
2. Specific issues for weeds present in the Derwent Valley; for example, issues relating to white weed (*Cardaria draba*), a weed that propagates by seed and root fragments and is invisible for at least half of each year
3. Technical issues concerning the cleaning of vehicles and equipment.

Participants worked through a hypothetical case study during the day, using a system adapted from the Victorian Government Weed Section. This allowed them to practice their skills and reinforce what they had learnt.

This is a good example of training being tailored to meet a specific need of on-ground practitioners, delivered in a timely manner. This group will follow up on the training as the need arises. Other councils and land managers – such as rural fire brigades – intend to undertake the training.

Box 4. Case study: Training tailored to meet a specific need.

Photo above: Holly (*Ilex aquifolium*) is a garden plant that spreads easily into natural areas with the help of birds. Garden owners need to be made aware of the risk this plant poses.

Strategic Actions

Desired Outcome: A well-informed and actively committed wide network of people incorporating effective weed management into all land and water management activities in the region.

Effective weed management requires planners, land managers and other participants to be well informed of weed management issues and best practice.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Education, training and awareness support	Provide ongoing support to: ETA1 Develop, promote and deliver educational, training and awareness material for planners and managers at a regional and subregional level. ETA2 Update education, training and awareness packages every five years or as new issues arise.	STWS Coordinator; DPIWE; local government	NRM South; NRM facilitators; training providers; industry and community organisations
	ETA3 Establish and maintain a library of available support material for trainers and educators.	STWS Coordinator	NRM South; NRM facilitators
	ETA4 Develop and deliver educational packages for schools and community groups. To include: <ul style="list-style-type: none"> - identification of important weeds in subregions - impact of those weeds - basic weed management techniques. Distribute to schools and appropriate community groups.	STWS Coordinator; community organisations	NRM South; local government; training providers; DPIWE

Effective weed management requires appropriately trained weed managers.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Training requirements	<p>ETA5 Conduct training needs analysis with local weed management groups, and within larger organisations in the Southern NRM Region.</p> <p>ETA6 Create new training opportunities where gaps exist.</p> <p>ETA7 Train weed managers in standardised data collection and mapping and distribute weed mapping guidelines.</p>	STWS Coordinator; DPIWE; training providers	All levels of government; industry; community groups
	<p>ETA8 Staff and contractors of industry and government organisations managing land and water assets to have relevant weed management training for their positions.</p>		

An aware community is better able to become involved in and implement effective weed management.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Awareness support package	<p>ETA9 Develop an awareness package for the community. To include:</p> <ul style="list-style-type: none"> - impact of weeds - identification - hygiene <p>Distribution to include: community groups and organisations; libraries; information centres; nursery industry; appropriate organisations.</p> <p>ETA10 Develop an awareness program for managers of key stakeholder organisations that highlights the benefits of best practice weed management.</p>	STWS Coordinator; Community organisations	NRM South; NRM facilitators; local government; DPIWE

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Public awareness opportunities	<p>ETA11 Conduct Weedbuster Program activities, especially during Weedbuster Week.</p> <p>ETA12 The Weedbuster Program to be effectively promoted, including through radio, television, newspapers, newsletters and magazines.</p>	STWS Coordinator; DPIWE; local government; Parks and Wildlife Service	All levels of government; community organisations and groups; relevant industry
	<p>ETA13 Increase the number of public awareness activities.</p> <p>ETA14 Include weed awareness in gardening and home improvement television, radio and popular magazine media articles, as well as <i>The NRM Networker</i>, highlighting the weed impact of popular garden plants. Coordinate with other regions in the state and nationwide.</p> <p>ETA15 Ensure weed awareness is included as a component of awareness activities for other NRM, including nature conservation and agriculture.</p>	STWS Coordinator; NRM South; NRM Facilitators	All levels of government; community organisations and groups; media
	<p>ETA16 Set up weed awareness displays at field days, garden and country shows that highlight the impact of garden plants, and the impact of weeds on primary production.</p>	STWS Coordinator; community organisations and groups	All levels of government
Support best practice weed management	<p>ETA17 Encourage nomination of weed managers in the Southern NRM Region for state and national environmental and weed management awards.</p> <p>ETA18 Encourage local government to support landowners to undertake best practice weed management.</p>	STWS Coordinator; STWS Committee; local government	All levels of government; NRM South; NRM Facilitators



Component 6: Policy support and regulation

The *Weed Management Act 1999* is the principal legislation overseeing weed management in Tasmania. Stakeholders need to understand their obligations under the Act and develop appropriate weed plans/policy and codes of practice to help them meet these obligations.

All organisations with a legal responsibility under the Act should recognise weed management as an important part of their business and develop weed plans, policy and codes of practice for staff and contractors to ensure compliance. Organisations need to ensure they have sufficient resources and capacity to implement their policies.

The Southern NRM Region needs to be involved in the development of an enforcement program to ensure it is regionally relevant. A broader network of gazetted weed inspectors is envisaged and those inspectors need to have access to sufficient resources and support to enable them to carry out regulatory action as needed.

Case Study: Aurora's environmental management system for weeds

After the release of *WeedPlan* in 1996, and the *Weed Management Act 1999*, Aurora completed an impact assessment to highlight the organisation's exposure to compliance risks. The result of the assessment led to the development of mitigation measures as required by Aurora's environmental management system (EMS) and legislation. Aurora has an obligation to manage weeds that affect its large electricity distribution network and to work with landowners and local councils to control or eradicate weed infestations.

The EMS not only covers Aurora's weed control activities but also details a hygiene system to prevent maintenance and installation crews or meter readers from spreading weeds. Field staff also identify weed problems and raise their concerns with land owners or users.

The EMS directly supports compliance with the *Weed Management Act 1999* and other state, regional and other lower-level strategies and plans, which includes the *Southern Tasmanian Weed Strategy*.

The EMS is backed up by a comprehensive educational system developed by Aurora in conjunction with DPIWE. The weed management course has several objectives but the main ones are to make staff aware of Aurora's policy and EMS for declared weeds, explain the operation of the *Weed Management Act 1999*, and assist identification of weeds and management of weed spread.

This is a fine example of strategic-level weed planning directly affecting the policies of a major stakeholder in weed management, which in turn leads to positive weed management on the ground.

Box 5. Case study: Aurora Energy's weed management policy.

Photo above: Cape Wattle (*Paraserianthes lophantha*) is a native of Western Australia, is readily available for purchase and is a serious weed of roadsides and natural areas in Southern Tasmania. It is important that the risk it poses is recognised and reflected in weed management policy.

Strategic Actions

Desired Outcome: Compliance with the *Weed Management Act 1999* and all government, community and industry bodies supporting the Act with adequate weed management procedures and actions.

The effective management of weeds and the prevention of new weed incursions requires consistent application of legislation supported by sound policies and local regulation.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Policy support and regulations	<p>PSR1 Develop and implement an awareness program to inform all stakeholders of their rights and responsibilities under the <i>Weed Management Act 1999</i> and related policies.</p> <p>PSR2 Ensure internal weed policy and codes of practice are consistent with national and State weed legislation and policy.</p>	DPIWE; local government	STWS Coordinator; relevant organisations
Guidelines and codes of practice	<p>PSR3 Organisations with weed management responsibilities to regulate and ensure all applicable codes of practice are followed.</p>	All relevant organisations	STWS Committee
Enforcement	<p>PSR4 Develop and implement a regionally relevant enforcement program in coordination with other regions.</p> <p>PSR5 Develop a network of gazetted weed officers that can enforce the <i>Weed Management Act 1999</i>.</p>	DPIWE; local government	STWS Committee



Component 7: Research and development

Weed management issues are always changing. Research and development enables our weed control methods to keep up with the weeds present in the Southern NRM Region.

Research is often a national or state-wide issue. However Southern Tasmania has made significant contributions to national and international research, especially in the area of biological control of weeds. The Southern NRM Region needs to ensure it continues to be involved in national and state-wide research and development initiatives and instigates research into regional priorities.

Case Study: Tasmanian Herbarium provides a vital research link

The Tasmanian Herbarium provides an invaluable research service for weeds in Tasmania. Its job is to keep a record of all native and introduced species of plant in the state, and to identify new or existing plants.

With five full-time and many other part-time and project staff, the Herbarium is well equipped with expertise to complete its task. Its collection of pressed plant samples includes all known species in Tasmania, and a number acquired from other temperate parts of the world through an exchange program.

When a new weed is found - for example, an unidentified daisy north of Oatlands during a routine botanical survey for proposed road works in 2001 - the research capabilities of the herbarium spring into action. Since most weed species are introduced from other continents such as Europe, Asia, the Americas and Africa, there is usually published information that needs to be assessed. This is generally in the form of identification keys, of which the herbarium has a comprehensive library.

After researching a number of possibilities by using the identification keys, confirmation is usually via comparison with a pressed sample. In the case of the daisy north of Oatlands, the herbarium had a sample collected from New Zealand. Using the sample, the daisy was positively identified as mouse ear hawkweed (*Hieracium pilosella* L. ssp. *nigrescens*). This weed is known to degrade unimproved tussock grasslands in New Zealand and as such, could threaten similar grasslands in Tasmania.

Identification of the weed allowed the Tasmanian Weed IncurSION Response Plan to be implemented, resulting in eradication from the Oatlands site. The expertise and resources of the Tasmanian Herbarium provided the vital research link in this process, and therefore helped to protect the valuable grazing lands of the Midlands.

Box 6. Case study: How research helps to rapidly identify weeds.

Photo above: Blackberry (*Rubus fruticosus*) is a serious weed of production and natural areas. Blackberry is the subject of much research into management options throughout Australia.

Strategic Actions

Desired Outcome: A region involved in and encouraging excellence in weed management knowledge, technology, skills, capacity and ability.

Efficient weed management requires an improved understanding of the impacts of weed invasion, the threat of new invasions and the best ways of dealing with these challenges.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Research support	Provide ongoing support to: RD1 Coordinate identification of regional research priorities. RD2 Identify and promote available funding for research. RD3 Promote research being conducted in the Southern NRM Region and distribute the findings from research conducted throughout the state, Australia and internationally. RD4 Facilitate communication between researchers, regions, states and countries.	STWS Committee; DPIWE; research institutions	NRM South
	RD5 Regularly update an inventory of research undertaken in Southern NRM Region.	STWS Coordinator	NRM South; NRM Facilitators; research institutions
Cost and benefit analysis	RD6 Support research into the costs of weeds in the Southern NRM Region.	NRM South	STWS Committee; all land and water managers

Effective management requires knowledge of appropriate and efficient means to prevent the spread of weeds and to manage weed infestations.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Control and prevention methods	<p>RD7 Support biological control methods, including:</p> <ul style="list-style-type: none"> - Research into new biological control agents. - The rearing, release and establishment of biological control agents. <p>RD8 Promote research into:</p> <ul style="list-style-type: none"> - Effective control methods for weeds, including methods safe to use in drinking water catchments or parks and reserves. - Integrated weed management methods, including integrated use of biocontrol agents. - Integrating weed management with other nature conservation or asset protection methods to maximise efficiency. - Effective weed spread prevention methods, including most effective and economically viable washdown equipment and techniques. 	TIAR; research institutions; NRM South; STWS Committee	All natural resource managers; DPIWE
Cooperative research	<p>RD9 Organisations involved in weed research to conduct collaborative research projects where appropriate at local, regional, state, national and international levels.</p> <p>RD10 Stakeholders that would benefit from research and development to be encouraged to participate in collaborative research.</p>		Research institutions; weed managers



Component 8: Monitoring and evaluation

Monitoring and evaluating the success of weed management activities is essential to ensure efficiency and to justify the allocation of resources.

In order to be effective, all on-ground weed management needs to include monitoring and evaluation of activities to determine their success, and follow-up work if needed. This is essential to ensure that the resources and other inputs into weed management are not wasted.

The *Southern Tasmanian Weed Strategy* needs to be reviewed every five years to monitor the implementation of the Strategy to ensure that it remains relevant and can be updated as weed management techniques, knowledge and ability advance in the region.

Case study: A community group monitoring control of gorse

The Huon Road and Ridgeway Bushcare groups have been undertaking weed control in native bushland in Ridgeway Park Reserve since 2002 with money received through the Australian Government's Natural Heritage Trust. The reserve has a diverse range of plant communities, including one of the few areas of shrubby wet forest remaining close to Hobart, where thirty m-high eucalypts towering over a dense, shrubby understorey utilised by grey goshawks and wedge-tailed eagles.

Weeds are spreading through the reserve and a major component of the project is the removal of invasive species such as Spanish heath, gorse, broom and sweet pittosporum.

Monitoring and evaluation of the weed control works and their cost is considered to be very important to the group, both as a way to learn and receive feedback and encouragement and as a tool to determine the most efficient management techniques.

In 2005 the group decided to evaluate the cost of removing gorse. The gorse to be removed formed a patch of old plants up to 3m high following a watercourse surrounded by white peppermint bush in excellent condition. As there were a number of native species growing amongst the gorse plants the group chose to use the 'cut and paste' method.

The site was mapped using a GPS so that the area covered and the cost could be monitored. Upon evaluating the data gathered it was determined that the area covered was 1,121m², and it cost \$9,000 to clear in only primary work, with no follow up control. This gave the group a cost of \$80,285 per hectare to control gorse using the 'cut and paste' method.

As a result the group has determined that it can make better financial decisions about the methods they use. For example, in the future they may choose to only use the 'cut and paste' method where there are special plants that are difficult to rehabilitate. In other areas they may use a cheaper slash and spray method and be prepared to lose some native species that are naturally more abundant.

Box 7. Case study: Monitoring conducted by a community group.

Photo above: Cotoneaster (*Cotoneaster* species) is a garden plant that spreads prolifically into native vegetation and is a problem weed for many community groups rehabilitating bushland.

Strategic Actions

Desired Outcome: A region that monitors and fully understands the extent and scope of its weed problem and has a Strategy that is regularly reviewed, and therefore relevant and achievable.

Regular and effective monitoring, evaluation and follow-up of weed management activities, including strategic planning, is essential to ensure that weed management is effective and that resources are not wasted.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
On-ground monitoring	<p>ME1 Establish a monitoring program addressing Resource Condition Targets to map, monitor and report on high priority weeds to State and Australian Government Standards.</p> <p>ME2 Ensure adequate resources for data collection, monitoring and evaluation of weed management actions.</p> <p>ME3 Evaluate the status of weeds in the region</p>	STWS Coordinator; NRM South; DPIWE	All weed managers

To ensure that the *Southern Tasmanian Weed Strategy* remains relevant it is essential that it is regularly reviewed and updated.

Matter for consideration	Strategic Actions	Lead Responsibility	Partner Responsibility
Strategy review	ME4 Review of Strategy every five years by the Southern Tasmanian Weed Strategy Committee.	NRM South	

Conclusion

Weed invasion is a frightening and growing threat to the condition of our natural resources in Southern Tasmania. This threat can often appear to be overwhelming and even a 'lost cause'. However, since the first edition of *WeedPlan* in 1996 weed management has moved forward.

The change to regional management of natural resources allows the Southern NRM Region to develop a strategic and integrated framework for weed management in coordination with the other regions and in line with the actions described in *WeedPlan* (2005).

The *Southern Tasmanian Weed Strategy* provides a framework that encourages proactive weed management, with the region's community working together it can move forward to become:

A well-resourced and actively committed region protected from the impacts of weeds through strategic and integrated management, involving members of the community, all levels of Government and industry.

Further Reading

Publications

Tasmanian Weed Management Committee, 2005, *WeedPlan: The Tasmanian Weed Management Strategy (Revised Edition)*, TWMC, Hobart

NRM South, 2004, *Natural Resource Management Strategy for Southern Tasmania*, NRM South, Hobart

Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment and Conservation Council and Forestry Ministers, 1999, *The National Weeds Strategy: A Strategic Approach to Weed Problems of National Significance*, revised edition, Commonwealth of Australia, Canberra

Community Leaders Group (Tas.), 2001, *Tasmania Together*, Tasmania Together, Hobart

French, D., Rudman, T., and Tucker, D., 2004, *Tasmanian Washdown Guidelines for Weed and Disease Control* (Edition 1), DPIWE, Forestry Tasmania, Agricultural Contractors Association of Tasmania, Hobart

Martin, P., 2004, *Killing us softly – Australia's green stalkers. A 2020 Vision Statement*, CRC for Australian Weed Management, Adelaide

Sinden, J., Jones, R., Hester, S., Odom, D., Kalisch, C., James, R. & Cacho, O., 2003, *The economic impact of weeds in Australia*, Technical Series No. 8, CRC for Australian Weed Management

Websites

- NRM South: www.nrmtas.com.au (click on Southern Region)
- Department of Primary Industries, Water and Environment: www.dpiwe.tas.gov.au
- Cooperative Research Centre (CRC) for Australian Weed Management: www.weeds.crc.org.au (has an extensive range of weed management guides)
- Weeds Australia: www.weeds.org.au

Appendices

Appendix 1: Strategies relevant to weed management as at January 2005

National

- *National Objectives and Targets for Biodiversity Conservation 2001-2005.* Commonwealth of Australia - Environment Australia, 2001
- *National Weeds Strategy: A strategic approach to weed problems of national significance 1999.* Commonwealth of Australia
- Weeds of National Significance Strategic Plans
- Weeds of National Significance Weed Management Guides

State

- *Draft WeedPlan: Tasmania's weed management Strategy (Revised Edition)* TWMC
- *Tasmania's Nature Conservation Strategy.* DPIWE – Nature Conservation Branch (2002)
- *Threatened Species Strategy.* DPIWE – Nature Conservation Branch, 2000
- *Tasmanian Beach Weed Strategy for marram grass, sea spurge, sea wheatgrass, pyp grass and beach daisy.* DPIWE – Nature Conservation Branch, 2003

Guidelines

- *Washdown Guidelines for Weed and Disease Control.* DPIWE, Forestry Tasmania and Agricultural Contractors of Tasmania
- *Community Weed Management in Tasmania: A guide to developing and implementing a community weed management strategy.*
- *Weeding Roadsides: A guide to effective weed management on roadsides.*

Reserved Land

- *Tasmanian Wilderness World Heritage Area Weed Management Plan, 2000-2003.*
- *Tasmanian Reserve Management Code of Practice.*
- *Introduced Plants Policy.* DELM – Parks and Wildlife Service, 1997

Private organisation

- Aurora Energy: Environmental Awareness Course
- Aurora Energy: Environmental Management System: Work Instruction – Weed Management

Inter-regional

- *Draft Weed Management Strategy – Northern NRM Region.*
- *Draft Cradle Coast Regional Weed Strategy.*

Southern NRM Region

- *NRM Strategy for Southern Tasmania NRM South.*
- *Coastal Weeds in the South Eastern Region of Tasmania 2002.*

Catchment Plans

- *Mountain River Catchment Rivercare Action Plan: A report on the future management needs of Mountain River, Crabtree Rivulet and Bakers Creek.*
Mountain River Catchment Landcare Group
- *North West Bay River Catchment Management Plan.* North West Bay Catchment Care Committee
- *Little Swanport Catchment Management Plan.* Little Swanport Catchment Committee
- *Derwent Catchment Natural Resource Management Plan.* Derwent Catchment NRM Steering Committee

Reserved Land

- *Parks and Wildlife Service Southern District Weed Management Plan (WHA excluded) 2003 - 2006.* DPIWE – Nature Conservation Branch
- *Parks and Wildlife Service South East District Weed Management Plan 2000 - 2003.* DPIWE – Nature Conservation Branch
- *Derwent District Weed Management Strategy.* Forestry Tasmania

Municipal

- *Derwent Valley Council Weed Management Strategy 2004 – 2009.* Derwent Valley Council. Adopted by Council 15th July 2004
- *South East Weed Strategy 2001.* Clarence City Council, Sorell Council and Tasman Council
- *Southern Midlands Weed Management Strategy.* Southern Midlands Council
- *Glamorgan Spring Bay Weed Management Plan 2000.* Glamorgan Spring Bay Council
- *Central Highlands Weed Management Strategy 2003.* Central Highlands Council
- *Glenorchy City Council Weed Action Plan.*

Community

- *Snug Creek-Oyster Cove-Lower Snug-Nichols Rivulet Road Weed Management Strategy.* Friends of Coningham, Oyster Cove and Lower Snug (FOCOCLS)
- *Meehan Range Weed Management Strategy.* Flagstaff Gully Landcare Group
- North, A. (2001) *Kocklofty Reserve Vegetation Management Plan (2001)*
Unpublished report for the Friends of Knocklofty Bushcare Group and Hobart City Council
- Sinclair Knight Merz (2000) *Upper Hobart Rivulet Natural Area Action Plan*
Unpublished report for the Cascades Landcare Group and Hobart City Council

Appendix 2: Weed Lists

Appendix 2a: Species declared under the Weed Management Act 1999 (by municipality)

Botanical name	Common name	Brighton	Central Highlands	Clarence	Derwent Valley	Glamorgan Spring Bay	Glenorchy	Hobart	Huon Valley	Kingborough	Sorell	Southern Midlands	Tasman	Weeds listed as a Weed of National Significance (WONS)			
														N = none known	W = widespread infestations	L = localised infestations	I = isolated occurrences
<i>Achnatherum caudatum</i>	espartillo	I/E	N	N	N	N	N	N	N	N	N	N	N				
<i>Alternanthera philoxeroides</i>	alligator weed	N	N	N	N	N	N	P	N	N	N	N	N				
<i>Allium vineale</i>	crow garlic	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Anthemis cotula</i>	stinking mayweed	N	N	N	N	N	N	P	N	N	N	N	N				
<i>Asparagus asparagoides</i>	bridal creeper	N	N	I	I	I	I	I	N	N	I	N	N				
<i>Asphodelus fistulosus</i>	onion weed	I	N	I	I	N	N	N	N	N	N	N	N				
<i>Bassia scoparia</i>	kochia	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Berkheya rigida</i>	African thistle	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Bifora testiculata</i>	bifora	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Cabomba caroliniana</i>	cabomba	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Cardaria draba</i>	white weed	L	L	L	L	L	W	L	I	L	W	L	I				
<i>Carduus nutans</i>	nodding thistle	N	I	N	N	N	N	N	N	I	I	I	N				
<i>Carduus pycnocephalus</i>	slender thistle	W	W	W	W	W	W	W	W	W	W	W	W				
<i>Cardus tenuiflorus</i>	slender thistle	W	W	W	W	W	W	W	W	W	W	W	W				
<i>Carex buchananii</i>	leather leaf sedge	N	N	N	N	N	N	P	N	N	N	N	N				
<i>Carex comans</i>	New Zealand sedge	N	N	N	N	N	N	P	N	N	N	N	N				
<i>Carex flagellifera</i>	New Zealand sedge	N	N	N	N	N	N	L	N	N	N	N	N				
<i>Carex testaceae</i>	New Zealand sedge	N	N	N	N	N	N	P	N	N	N	N	N				
<i>Carthamus lanatus</i>	saffron thistle	I	L	I	L	I	N	N	N	N	I	L	N				
<i>Cenchrus incertus</i>	spiny burr-grass	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Cenchrus longispinus</i>	spiny burr-grass	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Ceratophyllum demersum</i>	hornwort	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Chondrilla juncea</i>	skeleton weed	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Chrysanthemoides monilifera</i>	boneseed	I	N	W	L	W	W	W	L	W	W	I	L				
<i>Cortaderia</i> spp.	pampas grasses	I	I	L	L	I	L	L	I	L	I	I	L				
<i>Cuscuta</i> spp.	dodder	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Cynara cardunculus</i>	artichoke thistle	I	N	N	N	N	N	I	N	N	N	N	N				
<i>Cytisus scoparius</i>	English broom	L	W	L	L	L	L	L	L	L	L	L	L				
<i>Datura</i> spp.	daturas	N	I	N	I	N	I	I	N	I	I	I	I				
<i>Echium plantagineum</i>	Paterson's curse	L	L	L	I	I	L	I	I	L	L	L	L				
<i>Echium vulgare</i>	viper's bugloss	N	N	L	N	N	N	N	N	N	N	N	N				
<i>Egeria densa</i>	Egeria	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Eichhornia crassipes</i>	water hyacinth	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Elodea canadensis</i>	Canadian pond weed	L	W	L	W	L	N	N	N	N	N	W	N				
<i>Emex australis</i>	spiny emex	N	N	P	N	N	N	N	N	N	N	N	N				
<i>Equisetum</i> spp.	horsetails	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Eragrostis curvula</i>	African lovegrass	N	N	N	N	N	N	N	N	N	N	N	N				
<i>Erica lusitanica</i>	Spanish heath	I	W	W	W	L	L	W	W	W	W	L	L				

Botanical name	Common name	Brighton	Central Highlands	Clarence	Derwent Valley	Glamorgan Spring Bay	Glenorchy	Hobart	Huon Valley	Kingborough	Sorell	Southern Midlands	Tasman
<i>Foeniculum vulgare</i>	fennel	L	L	L	L	L	L	L	L	L	L	L	I
<i>Galium spurium</i>	false cleavers	N	N	N	N	N	N	N	N	N	N	N	N
<i>Galium tricornutum</i>	three-horn bedstraw	N	N	N	N	N	N	N	N	N	N	N	N
<i>Genista monspessulana</i>	Montpellier broom	L	L	W	W	W	W	W	W	W	W	W	L
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	N	N	N	N	N	N	N	N	N	N	N	N
<i>Heliotropium europaeum</i>	common heliotrope	N	N	N	N	N	N	N	N	N	N	N	N
<i>Hieracium spp.</i>	hawkweeds	N	I	N	N	N	N	L	N	I	N	P	N
<i>Homeria spp.</i>	Cape tulips	N	N	N	N	N	N	N	N	N	N	N	N
<i>Hydrilla verticillata</i>	hydrilla	N	N	N	N	N	N	N	N	N	N	N	N
<i>Hypericum perforatum</i>	St John's wort	I	I	I	I	I	L	I	I	I	I	I	N
<i>Lagarosiphon major</i>	lagarosiphon	N	N	N	N	N	N	N	N	N	N	N	N
<i>Lantana camara</i>	lantana	N	N	N	N	N	N	N	N	N	N	N	N
<i>Lycium ferocissimum</i>	African boxthorn	L	L	L	L	L	W	L	L	L	W	W	L
<i>Marrubium vulgare</i>	horehound	L	L	L	L	L	L	L	L	L	L	L	L
<i>Myriophyllum aquaticum</i>	parrot's feather	I	N	N	N	N	N	I	N	N	N	N	N
<i>Nassella neesiana</i>	Chilean needle grass	N	N	N	N	N	N	P	N	N	N	N	N
<i>Nassella trichotoma</i>	seriated tussock	N	N	W	N	I	N	I	N	N	L	N	L
<i>Onopordum spp.</i>	onopordum thistles	I	I	I	N	I	N	N	N	N	N	I	N
<i>Orobanchae spp.</i>	broomrape	N	N	N	N	N	N	N	N	N	N	N	N
<i>Pennisetum macrourum</i>	African feathergrass	N	N	N	L	N	N	N	I	N	N	N	N
<i>Pennisetum villosum</i>	feathergrass	N	N	N	N	N	N	N	N	N	I/E	N	N
<i>Rorippa sylvestris</i>	creeping yellow cress	N	N	N	I	N	N	N	I	I	N	N	N
<i>Rubus fruticosus</i> agg.	blackberry	W	W	W	W	W	W	W	W	W	W	W	W
<i>Sagittaria graminea</i>	sagittaria	N	N	N	N	N	N	N	N	N	N	N	N
<i>Sagittaria montevidensis</i>	arrowhead	N	N	N	N	N	N	N	N	N	N	N	N
<i>Salix</i> spp. (except <i>S. reichardtii</i> , <i>S. babylonica</i> & <i>S. calodendron</i>)	willows	W	W	W	W	W	W	W	W	W	W	W	L
<i>Salpichroa organifolia</i>	pampas-lily-of-the-valley	N	N	N	N	N	N	N	N	N	N	N	N
<i>Salvinia molesta</i>	salvinia	N	N	N	N	N	N	N	N	N	N	N	N
<i>Senecio jacobaea</i>	ragwort	I	L	I	L	I	I	I	L	L	L	I	L
<i>Solanum elaeagnifolium</i>	silverleaf nightshade	N	N	N	N	N	N	N	N	N	N	N	N
<i>Solanum marginatum</i>	white-edged nightshade	I	N	N	N	I	N	I	N	N	N	N	N
<i>Solanum sodomaeum</i>	apple-of-Sodom	N	N	I	N	N	N	N	N	N	I	N	N
<i>Striga</i> spp. (all non-indigenous species)	witchweed	N	N	N	N	N	N	N	N	N	N	N	N
<i>Tamarix aphylla</i>	athel pine	N	N	N	N	N	N	N	N	N	N	N	N
<i>Trapa</i> spp.	water caltrop	N	N	N	N	N	N	N	N	N	N	N	N
<i>Tribulus terrestris</i>	caltrop	N	N	N	N	N	N	N	N	N	N	N	N
<i>Ulex europaeus</i>	gorse	L	W	W	L	L	L	L	L	L	L	W	I
<i>Xanthium</i> spp.	burrs	N	N	N	N	N	N	N	N	N	I	N	N

Information contained in this table has been obtained from a variety of sources, including the Tasmanian Herbarium and the Department of Primary Industries, Water and Environment.

Appendix 2b: Tasmania *Together* listed weeds

Benchmark 24.9.1

Original form in Tasmania *Together* document:

Standard: To reduce the adverse impacts of pests, weeds and pathogens.

Indicator: Number of naturalised organisms

Recommendation:

Because of the potential complexity of this benchmark, the Reference Group was challenged to balance scientific detail and validity with public comprehensibility. The Reference Group recommends, based on the considerable overlap with this benchmark and the most appropriate location within Tasmania *Together*, that the current Indicator for 23.4.2 be relocated as a component of the new 24.9.1.

The Reference Group further recommends the deletion of the current benchmarks 23.4.2 (*number of new pests established*), 24.9.2 (*Area adversely impacted by *Phytophthora cinnamoni**) and 24.9.3 (*Areas adversely affected by other selected naturalised species*), because they are duplicated in the proposed content of 24.9.1

Standard: To reduce the adverse impacts of pests.*

Indicator: (a) Number of new pests established
 (b) The eradication of the following pests:
 [see Attachment 1]
 (c) The control of established pests using the following examples:
 [see Attachment 2]

Baseline: (a) Weeds (774), Invertebrate pests (approx 451), Plant pathogens (approx 1000) (2001)
 (b) see Attachment 1
 (c) see Attachment 2

Source: DPIWE

Targets:	(a) 2005	0
	2010	0
	2015	0
	2020	0
	(b) 2005	see Attachment 1
	2010	“
	2015	“
	2020	“
	(c) 2005	see Attachment 2
	2010	“
	2015	“
	2020	“

* “Pests” as defined in the glossary of the original Tasmania *Together* document includes the sub-categories of “weeds” and “pathogens”, so they do not need to be added to the wording of the Standard.

ATTACHMENT 1

Pest Species to be Eradicated from Tasmania

Weeds:

By 2015:

Nassella neesiana - Chilean needle grass
Berkheya rigida - African thistle
Hieracium pilosella - Mouse ear hawkweed
Kochia scoparia - Kochia
Alternanthera philoxeroides - Alligator weed
Rorippa sylvestris - Creeping yellowcress
Onopordum acaulon - Stemless thistle
Equisetum spp - Horsetail
Cynara cardunculus – Artichoke thistle

By 2020:

Achnatherum caudata - Espartillo
Myriophyllum aquaticum - Parrots feather
Asparagus asparagoides - Bridal creeper
Fallopia japonica - Japanese knotweed
Cyperus rotundus – Nut grass
Amaranthus albus - Tumbleweed

ATTACHMENT 2

Control of Pest Species in Tasmania

Weeds:

Nassella trichotoma - Serrated tussock
Ulex europaeus - Gorse
Chrysanthemoides monilifera - Boneseed
Ammophila arenaria - Marram grass
Salix spp - Willows

By 2015

Eliminate from priority sites identified in the relevant Tasmanian Weed Management Strategies

By 2020

Eliminate from all sites within the relevant Weed Management Plan Zone A municipalities

Note: elimination refers to removal of plants only, seed banks may persist.

Marine Pests:

Spartina anglica – (Rice Grass)

1) Remove rice grass from priority sites.

Priority sites identified in the Strategy for the Management of Rice Grass (*Spartina anglica*) in Tasmania, 2002 are:

Derwent River (by 2010); [also listed in the *NRM Strategy for Southern Tasmania* (MAT WPD6)]

Management targets were identified in Rice Grass Area Based Management Plans for 2003 – 2006.

Appendix 2c: Non-declared weeds identified in Municipal Strategies

Municipal Strategy	Weeds
Derwent Valley Council Weed Management Strategy 2004-2009	Cape ivy (<i>Delairea odorata</i>) Elisha's tears (<i>Leycesteria Formosa</i>)
Glamorgan Spring Bay Weed Management Plan	Elisha's tears (<i>Leycesteria Formosa</i>)
Central Highlands Weed Management Strategy	Capeweed (<i>Arctotheca calendula</i>) Elisha's tears (<i>Leycesteria Formosa</i>) Hawthorn (<i>Cratagegus monogyna</i>) Holly (<i>Ilex aquifolium</i>) Sweet Briar (<i>Rosa rubiginosa</i>)
Glenorchy City Weed Management Plan	Sweet Briar (<i>Rosa rubiginosa</i>) Capeweed (<i>Arctotheca calendula</i>) Mallow Clover Dock

Appendix 2d: Weed Alert List

These weeds have not been picked up in relevant weed lists or strategies, but are proving to be highly invasive in many situations throughout the Southern NRM Region.

Australian natives

Sweet pittosporum (*Pittosporum undulatum*)
Cape wattle (*Paraserianthes lophantha*)
Cootamundra wattle (*Acacia baileyana*)

Exotics

Trees and shrubs

Cotoneaster (*Cotoneaster* species)
Mirror bush (*Coprosma repens*)
Canary broom (*Genista monspessulana*)
Milkwort (*Polygala myrtifolia*)
Fuchsia (*Fuchsia magellanica*)
Tree Lupin (*Lupinus arboreus*)
Blue butterfly bush (*Psoralea pinnata*)

Vines and lilies

English Ivy (*Hedera helix*)
Banana passionfruit (*Passiflora mollissima*)
Bluebell creeper (*Sollya heterophylla*)
Blue periwinkle (*Vinca major*)
Watsonia (*Watsonia meriana*)
Arum lily (*Zantedeschia aethiopica*)

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