

WEED MANAGEMENT STRATEGY

Updated 2012

NORTHERN NATURAL RESOURCE MANAGEMENT REGION
TASMANIA

WEED MANAGEMENT STRATEGY NORTHERN NATURAL RESOURCE MANAGEMENT REGION

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Updated 2012

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(I) FOREWORD

Weeds have an enormous impact on agriculture and the environment of our region. Weeds reduce the quantity and quality of Australia's agricultural, horticultural and forestry products, affecting both industry and consumers. It is estimated that weeds cost Australian farmers around \$1.5 billion a year in weed control activities and a further \$2.5 billion a year in lost agricultural production. The real cost of weeds to the environment is difficult to calculate, however it is expected that the cost would be similar to, if not greater than, that estimated for agricultural industries.

Since European settlement, there has been a slow but gradual increase in the number of weed species in the northern region of Tasmania. Currently, there are approximately 860 exotic plant species naturalised in Tasmania. Eight of Australia's thirty-one Weeds of National Significance are present in the northern region. Of the feral plant species that have 'gone bush', about 65% were introduced to Australia as garden plants.

We have limited resources to tackle the increasing weed threats across our region and we must take action now and collectively.

The development of the Northern Regional Weed Strategy was originally undertaken and financed by a wide range of committed organisations in the Northern Natural Resource Management Region. The development of the current strategy was overseen by NRM North. Best practice weed management requires the sharing of resources between community, Government and industry at all levels.

(II) EXECUTIVE SUMMARY

This Weed Management Strategy for the Northern NRM region is based on the latest information available. The overall goal is to protect the Northern NRM region's economy, environment and community by reducing the adverse impacts of weeds.

The development of this document has utilised past community consultation by the Councils in the region and land management bodies such as the Parks and Wildlife Service, Nature Conservation Branch of DPIPW and other advisory groups. Many of these organisations have produced sub-regional weed management strategies and plans and natural resource management strategies in consultation with the community and some state wide strategies have been produced for weeds that occur in the Northern region.

The objectives that have been recommended in this strategy are summarised in this section as an overall précis of the whole document.

PREVENT THE DEVELOPMENT OF NEW WEED PROBLEMS

There are three recognised methods for preventing the development of new weed problems: prevention; preparedness and a rapid response. This section has four main objectives dealing with new weed issues, as follows:

Minimise the spread of weeds

The development of regional policies and codes of practice to prevent or minimise the spread of weeds associated with human activities is seen as a key strategic action in prevention. The use of hygiene practices such as washing machinery and equipment at washing stations and the safe disposal of weeds and contaminated wastes all are important strategies for reducing weed spread. The dissemination of information on weed management is essential in preventing the introduction and/or spread of weeds.

Support National and State quarantine measures

Quarantine measures taken by the National and State authorities provides protection from the introduction of weeds. The National quarantine measures include terrestrial and aquatic weed inspection and action, the regulation of ballast water which has been recognised as a vector for marine weeds and the assessment of plant species considered 'sleeper weeds'. The appropriate personnel to complete quarantine protection and assessment, coupled with the support of the community is vital in protecting the region from new weed introductions and the spread of existing weeds.

Detect and control new and emerging weeds

One of the first strategic actions in this area is the reporting of new weeds to a central body that the community is aware of, for referral and action at the regional level. The development of a system of immediate response to new weed reports coupled with an action plan outlining the available resources and expertise available will provide an appropriate response to new weed introductions.

Control the trade and sale of weedy species

The National and State quarantine measures in place provide an important first line in the prevention of the introduction of weedy species. At a regional level the promotion of codes of practice and policies to reduce the trade and sale of weedy plants, by industries dealing with plants that may become weeds, provides an important local minimisation method.

REDUCE THE IMPACT OF EXISTING WEEDS

Preventing or minimising economic loss, environmental degradation, and community amenity are important considerations. There are four objectives dealing with reducing the impact of weeds in the region.

Improve mapping of weed distribution and density

Mapping of weed distribution and density allows a coordinated and informed approach to weed control and management and allows a quantitative assessment of the effectiveness of weed management practices in the region. Knowledge of what weeds are in the region and their area of occurrence is a vital first step in managing and reducing the impact of weeds.

Develop and implement multiple on ground support services

The first action is the provision of information on best practice weed management to the community from a central source where the latest and best information on weeds is available. This facilitates informing community with the best weed management advice available at the time. The sharing of resources amongst the community will allow a coordinated approach with the best available equipment and expertise.

Implement weed management legislation

The need for the community and land and water managers to comply with existing weed management legislation is an integral part of long term effective weed control in the region. Weed management plans for priority weed species are developed under State weed legislation and provide a number of actions that can be taken to reduce the impact of weeds on land and in water areas, with the final option of prosecution, if necessary. The provision of an adequate number of Weed Officers in the region to engage the community in weed management is essential. The review of existing legislation and its effectiveness in weed management is necessary for long term reduction of weed impact.

Develop and promote integrated weed management

The investigation of new control methods and technology to reduce the impact of weeds is important for future best management practice. Integrating existing methods of weed control provides the best weed management results, from methods such as bio-control agents to non-chemical control methods such as smothering and grazing regimes. Research and development of ecologically sustainable alternative weed control methods is supported.

PROVIDE THE FRAMEWORK AND CAPACITY FOR ONGOING MANAGEMENT OF WEEDS

Weed management in a regional context requires the cooperation and coordination of weed management efforts from landholders, the general community, industry and government. This section has six objectives dealing with providing the framework and capacity for effective weed management.

Promote and implement best practice weed management

The strategic management of weeds is best achieved by the integration of planning, implementation and monitoring with a system of cooperation between landholders, community, industry and government. Any effective weed management must be a part of overall natural resource management and land management practices and techniques.

Codes of practice and policies from a variety of land and water management activities provide an awareness avenue for the promotion of best practice weed management. The utilisation of bioregional areas provides a natural resource classification process that will enable planning and action to be as effective as possible.

A long term, best practice approach will lead to success in weed management.

Establish a network of gazetted weed officers

The establishment of locally based Weed Officers in the region is important for coordinating weed management activities as a whole and for supporting sub-regional programs.

The network of gazetted Weed Officers in conjunction with organisations involved in weed management will form a regional support network to provide up to date advice and information on best practice weed management.

Prioritise weeds and areas in the region

The prioritisation of weed species assists in the effective allocation of resources for weed management. Given the high number of weed species, a prioritisation for the region based on regional and sub-regional priorities will be necessary to concentrate efforts and resources on the weeds that are most important to the regional community.

The identification of high value areas for protection against weeds and for the management of existing weed infestations will allow community priority areas to be protected.

Develop, implement and support strategic planning for weed management at the local and municipal level

The development and upgrading of municipal weed management strategies taking into consideration regional priorities and resource sharing opportunities will allow sub-regional priority setting. The establishment and support for sub-regional weed management groups will ensure an effective and coordinated approach to sub-regional weed management.

Promote and implement resource sharing

Regional community resources, along with knowledge and expertise, can be combined to realise more effective weed management; cooperative weed management planning and on ground control can lead to better outcomes.

Potential funding sources can be accessed more successfully by joint sub-regional and regional applications, with an underlying Weed Management Strategy providing direction for priority setting. The identification of the weed management resources in the region into a central inventory will enable quick and effective access to weed control infrastructure, expertise and experience when required.

INCREASE PUBLIC AWARENESS AND EDUCATION ON WEED MANAGEMENT

The awareness of a weed problem is a major issue in effective and cooperative weed management. The public need to be aware of which plants are weeds, how important a weed species can be to the community in the social, environmental and economic sense and the individual in terms of productivity loss, aesthetic value depreciation, human health and loss of biodiversity. There are two objectives for increasing public awareness and education of weed management.

Raise awareness

Increasing awareness of the detrimental effects of weeds and the regional and sub-regional priorities for weed management will amalgamate and concentrate efforts across the region. A variety of awareness raising avenues are available and various media can be utilised in awareness campaigns.

Conduct training campaigns

Training and awareness of weed identification, management and prevention is an integral part of weed management. A well trained and aware community will assist in regional weed management success. Specific training on integrated weed management techniques and group-specific training sessions which target specific weed areas (for example, coastal areas) and weed species will result in more effective weed management.

IMPLEMENT THE STRATEGY, MONITOR AND REVIEW PROGRESS IN WEED CONTROL AND PREVENTION

Monitoring and evaluation of the effectiveness of the regional strategy and the objectives and strategic actions outlined to manage weeds will enable an analysis of future needs and past successes and failures. This section has three objectives dealing with the monitoring and evaluation of progress in weed spread, prevention and management in the region.

Implement the strategy

Establish a regional group to facilitate the implementation of the Strategy and Action Plan.

Develop monitoring procedures

Developing criteria to ensure that comprehensive and effective monitoring of weed management activities is carried out at the regional and sub-regional level will ensure the evaluation of the success of the Regional Weed Management Strategy by a rigorous monitoring and evaluation process. Information on monitoring and evaluation combined with trend analysis will be disseminated to the regional community.

Review the strategy and action plan

Review the Weed Management Strategy – Northern NRM Region and the Weed Action Plan – Northern NRM Region to evaluate the effectiveness of their implementation.

(III) INTRODUCTION

The Weed Management Strategy for the Northern Natural Resource Management (NRM) Region brings together existing sub-regional strategies to develop an overall plan for weed management in the region by:

- Identifying the weed problem in the context of assets under threat;
- Improving coordination and management of weeds in the region;
- Providing a framework for securing investment from which efficient and coordinated on- ground action can occur;
- Taking into account the weed risk of plants, the natural assets they threaten and the impact of weed control techniques;
- Providing a link between National, State, local government, community and individual priorities and goals and
- Implementing a Weed Management Strategy that will be an integral part of a regional NRM Strategy and will therefore have wide community, government and industry stakeholder representation, funds for implementation and close linkages with other natural resource management activities and priorities within the region.

The principles of weed management that support this Strategy are as follows:

1. Weed management is an essential and integral part of the sustainable management of natural resources and the environment, and requires an integrated, multidisciplinary approach¹.
2. Successful weed management requires a co-operative approach which involves industry, natural resource managers and the community working in partnership with all levels of Government in establishing appropriate legislative, educational and co-ordination frameworks.
3. The primary responsibility for weed management rests with individual land and water managers, but collective action is necessary where the problem transcends the capacity of the individual manager to address it adequately.
4. Prevention and early intervention are the most cost-effective techniques which can be deployed against weeds.
5. In weed management, both natural and artificial ecosystems are equally important and must be addressed in a consistent manner².
6. A continuous and long term commitment is a necessary approach in successful weed management.
7. Consideration of changing land use practices and climatic conditions is essential for predicting future weed management requirements.

The original Northern Regional Weed Management Strategy (2004) was overseen by the Northern Regional Weed Strategy Steering Group. The 2012 update was coordinated by NRM North and a reference group comprising regional organisations involved with weed management.

1 - Principles 1 to 4 are adapted from the National Weeds Strategy and the first four underlying principles in WeedPlan - Tasmania's Weed Management Strategy.

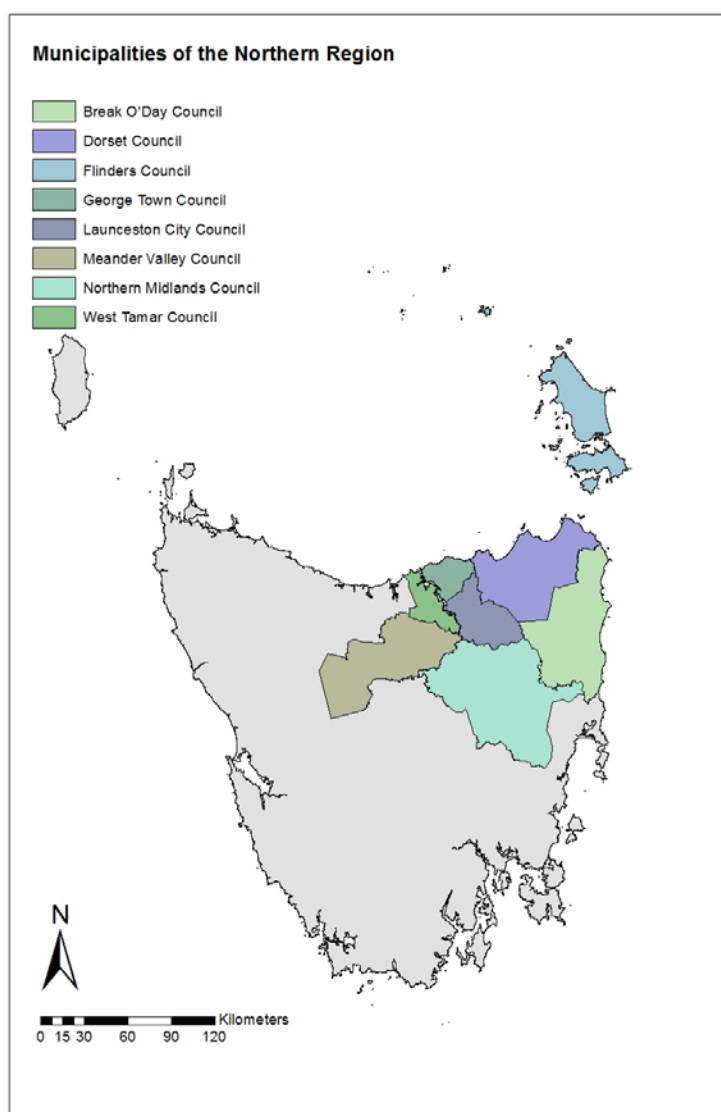
2 - WeedPlan- Tasmania's Weed Management Strategy.

(IV) BACKGROUND

LOCATION AND DESCRIPTION

The Northern Natural Resource Management region is one of three regions that make up the State of Tasmania. The Northern region covers an area of 25,226 square kilometres and is made up of eight municipalities. The marine area which is included as a part of this strategy extends 5.5 kilometres (three nautical miles) from the coast (see Map 1).

The region covers a large variety of land and water habitats and ecosystems ranging from high elevation areas with the highest mountain in Tasmania (Mount Ossa) at 1617 metres to the hinterland areas of lower elevation and high agricultural and biodiversity value to the coastlines and the immediate marine environment.



Map 1: Municipalities of the Northern Region

THE WEED PROBLEM

The National approach to weed management initially focussed on the twenty Weeds of National Significance (WONS). This list was updated in 2012 to include a further twelve weeds (or groups of similar weeds, in total an additional 24 species). Six of the initial WONS are found in the Northern Region, and seven of the updated list. Currently there are 115 Declared Weeds, (under the Weed Management Act 1999) with a total of approximately 860 weed species present in Tasmania.

Most Municipal Councils in the region have either Weed Management Strategies or Natural Resource Management Strategies which include weed management aims, objectives and actions (see Appendix 3). These plans are necessary for effective weed management, providing a strategic direction for all land managers (public and private).

Benefits of a Regional Strategy

This Weed Management Strategy for the Northern NRM Region will facilitate an integrated, coordinated and co-operative approach to weed management within the region.

Linkages

A regional strategy provides a link between National-State priorities and goals and those at a local government, community and individual level. Development and implementation of the Regional Weed Management Strategy will be undertaken through consultation with major stakeholders, including all levels of government, industry and the wider community.

A regional approach will link the current network of municipal and community based strategies within each region and through the Regional NRM Committees, weed management planning will link with other broader NRM planning, addressing a number of natural resource management issues.

Identifying priority weeds and weed management issues

A Regional Strategy provides a foundation for a Regional Weed Action Plan that will identify priorities for weed management within the region, including weed species identified as a priority at a national, state and regional levels (e.g. WONS, and Declared Weeds). Addressing the distribution of priority weeds is important. This will involve coordination between various groups within the region and collation of information such as weed mapping data.

A number of weed management issues need to be addressed at a regional level. For example, weed hygiene and the prevention of spread from existing infestations to new areas. The movement of contaminants with stock, produce and machinery and the spread of weeds along corridors such as roads and railway lines cannot be dealt with effectively at a local government or community level.

Assessing the weed potential of proposed plant imports is currently carried out by Biosecurity Australia (BA) using a system endorsed by the Australian Weeds Committee. Following public consultation BA adopted the Weed Risk Assessment (WRA) system. To facilitate the use of this system, a client questionnaire has been developed which increases the information provided by potential plant importers to BA, as well as raising their awareness to the issue of potential risks of plant importation.

The WRA system is a question-based scoring method. It involves answering up to 49 questions on the new species to be imported. The questions include information about the species climatic preferences, biological attributes, reproductive and dispersal methods. The WRA uses the responses to the questions to generate a numerical score. The score is used to determine an outcome: accept, reject or further evaluate for the species. The WRA also makes a prediction as to whether a species may be a weed of agriculture or the environment. A WRA is also undertaken at State level, triggered by nomination of a plant as a candidate for declaration under the Weed Management Act 1999.

Facilitation of existing programs and development of new ones

Strategies and action programs, such as education and awareness campaigns can be developed and implemented on a regional basis, thus reducing time and costs to Councils and community groups. A number of projects have already been developed at a regional level and this RWMS will build on these projects.

The Weed Alert Network is a state program that has been in place for a number of years to encourage the community to report new weed incursions. A RWMS will facilitate the promotion and implementation of such programs (adapted from Crane et al 2003)

On ground action

A regional approach will develop the necessary framework to coordinate on-ground works within each of the regions. Resources can be shared between councils and community groups to reduce costs and enable the appropriate resources to be utilised for the eradication of new weed incursions, and control or eradication of priority weeds.

SCOPE

The Northern NRM region Weed Management Strategy covers all terrestrial, freshwater and estuarine weeds in the region. All jurisdictions of land use and tenure in the region are included in the Strategy with no emphasis on any particular land use, tenure or social, economic or environmental purpose.

Method

This Weed Management Strategy for the Northern NRM Region was originally compiled under the direction of the Northern Regional Weed Strategy Working Group and has been developed with the following key considerations:

- Incorporates existing policies, plans and legislation relevant to weed management;
- Complies with National and State NRM accreditation criteria;
- Incorporates existing sub-regional plans, strategies and weed species priorities from the eight Councils in the region;
- Utilises research from across Australia to obtain the best available information on weed management;
- Designed to be a part of the Northern Region NRM Strategy;

- Forms a precursor to a Weed Action Plan for weed management in the Northern Region.

The Strategy was updated in 2012 by a small Working Group representing the key stakeholders.

Roles and responsibilities

Roles and responsibilities for weed management have been linked to the responsible stakeholders in Table 1, below.

Table 1: Roles and responsibilities

GROUP	ROLES AND RESPONSIBILITIES ³
INDIVIDUAL LAND AND WATER MANAGERS	<ol style="list-style-type: none"> 1. Manage weeds on their own land in cooperation with other land managers and authorities. 2. Detect and report new weed occurrences. 3. Understand the cause/effect relationships which apply to weed problems. 4. Integrate weed management with other land management activities. 5. Cooperate with neighbours and jointly plan weed management activities where necessary. 6. Support and promote sustainable production practices to minimise the development of weed problems.
COMMUNITIES	<ol style="list-style-type: none"> 1. Coordinate local group development and action on weed problems. 2. Encourage local involvement in the management of public land. 3. Participate in local and regional weed management programs. 4. Raise awareness and improve education on weed management issues.
REGIONAL STAKEHOLDER ORGANISATIONS	<ol style="list-style-type: none"> 1. Represent regional community on weed issues. 2. Provide information on weed management issues and actions. 3. Participate in the development of strategies, codes, policies and programs to reduce the impact of weeds. 4. Coordinate the implementation of the Northern Region Weed Management Strategy.
LOCAL GOVERNMENTS	<ol style="list-style-type: none"> 1. Manage weed problems on their land in cooperation with other land holders. 2. Assist in information exchange on weed management. 3. Assist with the coordination of community weed management programs. 4. Act as a community advocate on weed issues. 5. Develop and implement local weed management strategies. 6. Share resources with others in the region. 7. Exercise statutory responsibilities to encourage responsible weed management.

<p style="text-align: center;">TASMANIAN GOVERNMENT</p>	<ol style="list-style-type: none"> 1. Encourage the development of effective weed management strategies at local, regional, State and national levels. 2. Assist in information exchange on weed management. 3. Assist with the coordination of community weed management programs. 4. Provide leadership, coordination and resources for research, assessment, education and public awareness programs on weeds. 5. Enhance cooperation and coordination with other States and Territories and the Commonwealth government to provide mechanisms and procedures to minimise the risk of introduction of new weeds into Tasmania. 6. Manage weed problems on its own land responsibly in cooperation with other land holders. 7. Exercise statutory responsibilities to encourage responsible weed management. 8. Encourage responsible weed management by the following: <ol style="list-style-type: none"> a. Provide a suitable institutional and legislative framework; b. Developing and implementing effective policies and programs c. Providing positive support through financial incentives, assistance schemes and appropriate standards and regulations
<p style="text-align: center;">AUSTRALIAN GOVERNMENT</p>	<ol style="list-style-type: none"> 1. Manage weed problems on their land in cooperation with other land holders. 2. Provide research funding in partnership with industry and other stakeholders. 3. In cooperation with the State of Tasmania: <ol style="list-style-type: none"> a. Facilitate the development of an economic, social and cultural framework which encourages weed management as an integral part of sustainable land management and b. Provide the appropriate legislative framework necessary to reduce the introduction of new weeds into Australia.

(V) OVERVIEW

The Weed Management Strategy for the Northern NRM Region has a single goal and five objectives.

GOAL

To protect the Northern NRM Region’s economy, environment and community by reducing the adverse impacts of weeds.

OBJECTIVES

1. Prevent the development of new weed problems.

Sub-objectives

- 1.1 Minimise the spread of weeds.
- 1.2 Support National and State quarantine measures.
- 1.3 Detect and control new and emerging weeds
- 1.4 Control the trade and sale of weedy species.

2. Reduce the impact of existing weeds.

Sub-objectives

- 2.1 Improve mapping of weed distribution and density.
- 2.2 Develop and implement multiple on ground support services.
- 2.3 Implement weed management legislation.
- 2.4 Develop and promote integrated weed management.

3. Provide the framework and capacity for the ongoing management of weeds.

Sub-objectives

- 3.1 Promote and implement best practice weed management.
- 3.2 Establish a network of Gazetted Weed Officers.
- 3.3 Prioritise weeds and areas in the region.
- 3.4 Develop, implement and support strategic planning for weed management at the local and municipal level.
- 3.5 Promote and implement resource sharing.

4. Increase public awareness and education on weed management.

Sub-objectives

- 4.1 Raise awareness.
- 4.2 Conduct training campaigns.

5. Implement Monitor and Review progress in weed control and prevention

Sub-objectives

- 5.1 Implement the strategy
- 5.2 Develop monitoring procedures.
- 5.3 Review the strategy and action plan

1. PREVENT THE DEVELOPMENT OF NEW WEED PROBLEMS

Sub objectives

- 1.1 Minimise the spread of weeds.
- 1.2 Support National and State quarantine measures.
- 1.3 Detect and control new and emerging weeds.
- 1.4 Control the trade and sale of weedy species.

"New weeds" includes those new to Tasmania and also those new to the Northern region. There are three recognised methods of dealing with new weeds: prevention; preparedness and a rapid response. The following four sub-objectives deal with those three areas.

1.1 Minimise the spread of weeds

The key strategy in controlling the spread of new weeds is to prevent the accidental spread through transport networks including vehicles, stock animals and stock feed. Machinery and stock feed are major vectors. A good example of machinery spread is the dispersal of Spanish heath (*Erica lusitanica*) along the road sides in the Northern region by roadside slashing.

Weeds spread naturally by wind, water and animals (especially birds) as well as by the actions of humans, for example the dumping of garden and/or aquatic plants and clippings in areas of native forest, non-forest, freshwater and marine environments. Where appropriate an immediate response is required for effective control.

Developing and implementing Codes of Best Practice to prevent or minimise the spread of weeds by human activity is a key strategy in weed spread minimisation. Codes of Best Practice and policies such as the following would be beneficial:

- Roadside management
- Extractive industries-Quarry operations
- Livestock and transport
- Washing stations
- Contractors and machinery
- Waterways and floodplains
- Land management, planning and practices
- Recreation and tourism
- Weed control options
- Weed transport and disposal
- Supplementary feeding of stock
- Nursery and storage of bulk soils and aggregates and
- Farm hygiene policy

STRATEGIC ACTIONS

1. Develop and implement regional policies and Codes of Practice to prevent or minimise the spread of weeds through human activity.
2. Incorporate weed management information in existing Codes of Practice.
3. Install strategically placed washing stations in the region for vehicle washing to prevent weed spread, and maximise the utilisation of existing wash-down stations.
4. Develop and implement disposal procedures for weeds.

1.2 Support National and State quarantine measures

The importation of plants into Australia is controlled by the Commonwealth Government through Biosecurity Australia under various Acts of Parliament. The importation of plants into Tasmania is controlled by the Plant Quarantine Act 1997.

The importation of new plant species for a variety of uses poses the threat of new species which can adapt, spread and become weeds in the environment. The National Weed Management Strategy has provision for a national screening system to prevent new plant species with weed potential from being released into the Australian environment.

STRATEGIC ACTION

1. Encourage and support compliance with National and State legislation and policies to prevent weed spread.

1.3 Detect and control new and emerging weeds

The early detection of weeds is not unlike the early detection of fires; both can lead to extinguishment of the threat with appropriate immediate action. The role of the general public in this weed management action is important and achieved by the education of the public in weed identification and the knowledge of how to report new infestations.

Organisations like the Tasmanian Weed Alert Network and the Tasmanian Weed Society assist in finding newly introduced or recently established pest plant species. Early detection is vital because it reduces the likelihood of small, isolated populations of weeds expanding to degrade Tasmania's precious natural resources.

Supporting these and similar organisations will assist in regional weed management. The raising of awareness of this service could be achieved by local media, particularly on the issue of reporting new weed infestations to allow an immediate response from regional Weed Management Officers, Local Government personnel, State Government organisations, industry and community groups.

Sleeper weeds

Recent work on agricultural weeds has highlighted the fact that many of the exotic weed species already naturalised in Australia could have major impacts in the future if they are not eradicated. A preliminary screening of all known exotic plants in Australia that have become naturalised (around 3000 species) identified nine potential weeds for eradication.

These investigations raised some questions about the ability of existing methods to identify weeds where eradication is the most desirable and feasible management strategy. Among the recommendations were that more potential sleeper weeds be assessed and that criteria for assessing the feasibility of eradication be developed. In January 2003, the Commonwealth Government agency, Department of Agriculture, Fisheries and Forestry commissioned the Bureau of Rural Sciences (BRS) to undertake further work to develop a practical and repeatable methodology for use in the assessment of sleeper weeds that is transparent and scientifically objective without being too costly or complex.

An example of a sleeper weed in Tasmania is Pampas Grass, a sleeper for decades before becoming a weed in the 1970s.

Six classes or situations that may currently limit sleeper weeds have been identified:

1. Restricted by a narrow genetic base poorly adapted to the local environment
2. Restricted by limited suitable habitat
3. Restricted by limited opportunities for recruitment
4. Restricted by a low intrinsic population growth rate
5. Restricted by the absence of a symbiotic host and
6. Species wrongly perceived to be not invasive

This is not a comprehensive list of criteria and opinion is divided on what defines the sleeper weed phenomenon. Regardless of definitional issues, the National Weeds Strategy supports “a need to recognise and eliminate sleepers during their benign phase or at least identify the events that could turn them into major weeds”.

STRATEGIC ACTIONS

1. Raise awareness of the Weed Alert Network, the Tasmanian Weed Society and similar organisations that can assist in the identification and management of sleeper weed species.
2. Develop and maintain a system of referral from the Weed Alert Network for regional action.
3. Maintain a system of immediate response from reports of new weeds in the region.
4. Support assessment of sleeper weeds nationally and identify potential sleeper weeds in the region.
5. Support and encourage the enforcement of the provisions of the State legislation for detection and control of new weeds.

1.4 Control the trade and sale of weedy species

Plants introduced into Australia and Tasmania for human use in agricultural production, erosion control, changing hydrodynamics to benefit human infrastructure and transport⁴, landform stabilisation and manipulation (for example marram grass), air flow manipulation (windbreaks), ornamentals, wood products, wastewater treatment and many other uses can become weeds if they are suited to the climatic conditions in an area and lack the normal predators in the form of animals and diseases that control their spread in their natural environment.

The control in trade and sale of our own native species is also necessary as some native plants can become weeds in areas with different soil and climatic conditions that result in spread. A good local example is *Leptospermum laevigatum* which is native to Tasmania on Bass Strait islands and the north and northeast coast, but can become a nuisance plant in other areas of Tasmania, including other areas within the Northern region.

The interbreeding of introduced plants⁵ (including weeds species) with local native plants can also produce new varieties which can become weeds.

5 - For example, the introduction of Rice grass to direct water flows to main channels to assist in shipping access.

6 - An introduced plant is defined as a species occurring in an area outside its historically known natural range as a result of intentional or accidental dispersal by human activities (including exotic organisms, genetically modified organisms and translocated species).

The crossing of genetically modified plants with native plants or weed species could result in species or variants that are resistant to herbicide and/or grow well in certain conditions. As such these plants may prove to be difficult to control. It is noted however, that these risks are assessed before genetically modified plants are approved for release.

The Australian Quarantine and Inspection Service (AQIS) and Biosecurity Australia (BA) work to identify the potential of introduced plants to become weeds.

Prevention is better than cure and the arrangements under the National Weeds Strategy to assess the weed potential of new plant species is a key strategy in the control of the introduction of a potential weed species.

The Weed Management Act 1999 controls the trade and sale of Declared Weeds. A Weed Management Plan made under the Act includes restrictions on the import, distribution and sale of the species.

The continued enforcement and implementation of provisions in the National and State legislation is vital in controlling the introduction of further weedy species in an international, interstate and intrastate context. AQIS and BA provide the coal face control of plant introductions in Australia.

STRATEGIC ACTIONS

1. Encourage and support awareness of and compliance with National and State legislation to prevent the introduction of weedy species.
2. Support and encourage the enforcement of the provisions of the State legislation for detection and control of new weeds.
3. Promote and encourage a voluntary Code of Practice in the nursery industry.
4. Consult with trade representatives to encourage voluntary actions that limit the sale and trade of weedy species

2. REDUCE THE IMPACT OF EXISTING WEEDS

Sub objectives

- 2.1 Improve mapping of weed distribution and density.
- 2.2 Develop and implement multiple on-ground support services.
- 2.3 Implement weed management legislation.
- 2.4 Develop and implement integrated control methods.

2.1 Improve mapping of weed distribution and density

The capture and use of weeds data has improved considerably in recent years. The Department of Primary Industries, Parks, Water and Environment has implemented a weeds database which incorporates information about weed presence and abundance into the State's Natural Values Atlas. This is a broad, on-line resource that makes a high level of resource information available to a wide audience and has positive role for those planning and reporting on NRM projects. The weeds database contains information from the NRM regional bodies, consultant botanists and other trained persons using national data protocols.

Good mapping of weed distribution and density is essential for coordinated effective weed control and these new developments will improve the mapping system and consequently the effectiveness of weed management in the Northern region. Good mapping data also enables an analysis of weed distribution and density change over time for monitoring the effectiveness of weed management in the region.

STRATEGIC ACTIONS

1. Continue to improve the mapping of weeds in the region by supporting the State weed mapping database including training and community capacity building.
2. Map priority weed species in the region by distribution and density.

2.2 Develop and implement multiple on ground support services

Weed management needs to be a long term activity with a broad view in combination with other land management practices and other land managers and community organisations. The support of landholders and community groups to assist with weed management on their properties and on public land is vital if long term success is to be achieved. Local, State and Federal Governments have a major role in this area and this regional strategy is a step towards an integrated approach to weed management in the Northern region.

The type of support services that can be made available to landholders and land managers are as follows:

Weed Alert Network

The Weed Alert Network provides a reporting system to detect and act upon new weed introductions and spread. The system allows the early detection and control of new weed species and therefore aims to prevent new weed problems on surrounding land areas.

Information on control techniques

- Make freely available, a variety of information sources including the internet, brochures and especially regional Weed Management Action Plans for high priority species, plus control sheets for these species.
- Provide control information on various weed control options including physical, biological or chemical as appropriate.
- The introduction of biological control agents for priority species in priority areas can add another control method to an integrated approach.
- Weed problems are often a symptom of other land management practices and issues. Provide specific information on how to ameliorate the impact of weed species using integrated control measures.

Codes of Practice and Policies for weed management

Information on hygiene and other Best Management Practices to prevent the further spread and introduction of weeds should be made available to land managers in the region. The control of weeds within transport corridors is an example where Codes of Practice and policies can improve management practices and outcomes.

Sharing resources between all organisations

This is one of the main areas where on ground support services for land managers can be coordinated for the benefit of the individual or organisation and the region generally.

Joint funding applications for priority weed management

The submission of funding applications for weed management between individuals,, community organisations and local and State governments provides a better opportunity for securing funds in the region. Where a sub-region or community organisation may not receive funding individually, the combination of a variety of organisations showing shared resources and priorities demonstrates a commitment and common purpose that will make an application more competitive.

Weed identification

The dissemination of information on weed identification assists land managers in identifying weed species in their areas, adds to weed mapping data and provides the basis for informed weed management.

Awareness and training in weed management techniques

Weed management training can assist land managers adopt new techniques and identify new weed species. The availability of resources and incentive schemes operating in the region can be communicated during training.

STRATEGIC ACTION

1. Develop and distribute information on Best Practice weed management for all land managers.

2.3 Implement weed management legislation

The need for the community and land managers to comply with current weed management legislation, designed to prevent the spread or introduction of weeds, is essential for the long term management of weeds in the Northern region.

State legislation

The Weed Management Act 1999 is the principal legislation concerned with the management of Declared Weeds in Tasmania.

The Weed Management Regulations 2000 are the statutory rules for the Act. They detail requirements and measures referred to in the Act. The Act and Regulations facilitate compliance with required weed management prescriptions, with enforcement as the ultimate penalty.

Statutory Weed Management Plans

Once a weed species is Declared the legislation requires that a Statutory Weed Management Plan (SWMP) be prepared for the weed. A SWMP includes the reasons for declaring the weed and restrictions and measures required to control, eradicate or restrict the spread of the weed. Restrictions on import, distribution and sale are also included which again is a key strategy in preventing weed spread. There is a statutory requirement that SWMP's are reviewed at least every five years.

Enforcement of legislation

The enforcement of legislation is important in preventing the spread of existing weeds and the introduction of new weeds. The Act specifies compliance measures and restrictions with regard to each of the declared weeds. The enforcement of legislative requirements can be implemented through the network of weed officers gazetted in accordance with the Weed Management Act 1999.

STRATEGIC ACTIONS

1. Support legislation by expanding the number of Officers available to enforce the provisions of the Acts and Regulations.
2. Contribute to legislative reviews to improve weed management.
3. Contribute to the process of nomination of priority weeds for Declaration under the Weed Management Act 1999.

2.4 Develop and promote integrated weed management

Effective weed control methods can consist of specific control methods or a combination of methods to form an integrated approach to weed management. Effective weed management will only be successful with a long term approach. The viability of seed banks in some species will often determine the duration of follow up required, for example gorse and broom seeds can remain viable for 30-40 years. Although weed management is long term, resources required for follow up in a weed control program will reduce over time.

The control of weeds through properly researched and tested biological control methods provides another tool in weed management; using a suite of control measures supports effective weed management in the long term. The Tasmanian Institute of Agriculture (TIA) delivers the National bio-control program in Tasmania. It has released various biological agents to aid in the control of some widespread weed species such as ragwort, brooms and gorse.

STRATEGIC ACTIONS

1. Implement existing effective control methods for high priority weed species.
2. Promote long term effective weed management programs and practices.
3. Support the research and development of ecologically sustainable alternative weed control methods.

3. PROVIDE THE FRAMEWORK AND CAPACITY FOR THE ONGOING MANAGEMENT OF WEEDS

Sub objectives

- 3.1 Promote and implement best practice weed management.
- 3.2 Establish a network of Gazetted Weed Officers.
- 3.3 Prioritise weeds in the region.
- 3.4 Develop, implement and support strategic planning for weed management at the local and municipal level.
- 3.5 Promote and implement resource sharing.

The management of weeds requires a holistic view of the situation in order to maximise the effective use of resources and the long term effect of control methods. The Northern region has a variety of landforms, soil types, climate and ecosystems which means weed management should be tailored to each unique area.

Weed management in a small area can be achieved by stock grazing techniques, weed buffer zones, competition for weeds by pasture grasses and crops, crop rotation, restricting key “access corridors” to prevent the spread of weeds within and from the area being managed, and shading weeds by growth of native under-storey and over-storey species. The inclusion of long term weed management in Property Management Planning is an example of integration of weed management into land and water management generally. The research and monitoring of methods coupled with continual reassessment of management practices will enable managers to improve their capacity for ongoing management of weed problems.

Weed management from a regional context requires the coordination of cooperative management efforts from landholders, the general community, industry and government organisations. Regional coordination of weed mapping by stakeholders is important. Funding for weed management through the regional NRM framework needs to be regional in outlook and integrated with other natural resource management priorities.

3.1 Promote and implement best practice weed management

The strategic management of weeds necessitates the integration of planning, implementation and monitoring of weed management in the Northern region by a system of cooperation between landholders, the general community, industry and government.

Weed management is a long term strategy and there is no alternative to this except preventing introductions of weeds in the first instance or eradicating sleeper weeds in the early stages. Each of these requires that all stakeholders be supported, informed, and resourced where possible.

Promoting the need for long term weed management can be achieved through awareness and education campaigns.

STRATEGIC ACTIONS

1. Promote integrated weed control methods.
2. Promote weed management as a long term activity.
3. Increase the integration of weed management with overall land management practices.
4. Plan and implement effective weed management practices in the Northern region

5. Promote and implement Codes of Practice and Policies to achieve Best Practice Weed Management.

3.2 Establish a network of Gazetted Weed Officers

The presence of locally based Gazetted Weed Officers is important for coordinating regional weed management. Weed Officers have a role in awareness and training, as well as enforcing legislation to prevent the spread of weeds and new introductions. Having regional officers with local knowledge and local contacts is an advantage in weed management liaison with landholders, industry and community groups.

Gazetted Officers are appointed by the Secretary, DPIPWE and can be employed in State/Local Government or other relevant organisations, such as community weed management groups. Appointments are based on competency, and powers under the Act can be varied in their delegation by the Secretary. Appointed Officers are required to undertake basic training relating to their responsibilities under the Act.

It is proposed that a regional support network of personnel involved in weed management be established to provide a source of support and information to ensure best practice management across the region. This network should be coordinated by the DPIPWE Regional Weed Management Officer.

STRATEGIC ACTIONS

1. Appoint a sufficient number of Gazetted Weed Officers across the Northern region to enable the management of priority weed species and support sub-regional programs in the region.
2. Establish a regional support network to provide advice and information on best practice to gazetted officers and organisations involved in weed management.

3.3 Prioritise weeds and areas in the region

The prioritisation of weed species in a regional context is essential for the effective allocation of resources used in weed management. A variety of analytical systems are being used nationally and locally to prioritise weed species. Any system used for the Northern region needs to take into account issues such as the following:

- Municipal priorities
- National priorities (WONS)
- State priorities (Declared Weeds)
- Risk to critical assets/values
- Regional management feasibility and
- Risk of spread

Municipal priorities

All municipalities have weed species priorities that reflect the local conditions and assets. These local priorities should be a major consideration in regional priority setting and should be reflected in municipal Weed Management Strategies for local weed management. A weed species may be a priority for total eradication in one municipality and a low priority (e.g. for control only) in another. Municipal priorities are important locally and should be maintained and recognised regionally.

National priorities

The National Weed Strategy has developed a list of 31 Weeds (or groups of weeds) Of National Significance (WONS, see Appendix 2). These weeds have been prioritised through a thorough analysis and the list represents an important indicator of the significance of the WONS species that exist in the Northern region.

State priorities

The prioritisation of weeds at the State level is achieved through the Weed Management Act 1999. The highest priority weeds are listed as Declared Weeds under the Act (refer to Appendix 2). The weed prioritisation is achieved using a Weed Risk Assessment (WRA), and information on economic, environmental, and social effects/impacts are considered.

Risk to critical assets and values

An analysis of the critical assets and values in the region by extensive consultation is the first step in this component of priority setting. Once the critical assets and values are determined then the risk to these from the weed species present and those occurring elsewhere in Tasmania and Australia as sleeper weeds will lead to another key category in prioritising weeds in the region.

Regional management feasibility

While eradication may be desirable for many weeds, it is not always feasible. The management feasibility of regional weeds needs to be considered if a practical and achievable weed management priority system is to be established. The method of determining management feasibility is a task of the WRA and there are no published methods of quantifying the relative feasibility of eradication. Thus, the systems to quantify the relative effort required to eradicate a weed are based on limited knowledge of the current distribution and biological attributes. A determination of management feasibility should be made on each priority species in the region based on the best available information and the identification of priority areas.

Implications of Climate Change

The effect of climate change on weed risk is a consideration with the observed changes in the Australian climate showing an increase in temperatures and changes in rainfall. The inclusion of these projections is a vital part of the present and future WRA system.

Weed species on the edge of their thermal range that are presently not considered high priorities due to limited distribution by temperature and rainfall may become a high risk of spread with increased vigour with temperature rise and rainfall change. The integration of CSIRO climate change observations and projections will ensure the region utilises the best available information to prioritise weed species in the region.

Regional Priority Weeds

The prioritisation of weeds in the Northern region through existing weed management plans and the WRA systems discussed previously will enable clear directions for the region. The prioritisation process must be inclusive and consultative and result in a list of species for the region given that some species would not occur in some municipalities. Municipalities may also have different aims in control. For example, municipalities with a species in low numbers with a high impact on critical assets may opt for an eradication policy whereas another municipality with higher numbers and less effect on the critical assets may opt for control only.

The setting of the priority weed species for the region would come from a region-wide analysis of the weed species and their priority under accepted criteria. Priority weed control activities may also be undertaken at a sub-regional or local level as determined by the region.

The list of high priority weeds in the Northern region needs to be regularly reviewed in the light of changing social, economic and environmental circumstances and possible new introductions.

STRATEGIC ACTIONS

1. Develop a system of prioritisation for weeds in the Northern region.
2. Identify priority areas for protection against weeds and for management of existing weed infestations.
3. Develop Weed Management Action Plans for the priority species

3.4 Develop, implement and support strategic planning for weed management at the local and municipal level

A number of the municipalities in the Northern region have Weed Management Strategies or similar documents, but they are not all current. To facilitate efficient planning, weed management strategies need to be current and reflect local priorities.

STRATEGIC ACTIONS

1. Establish and support sub-regional weed management groups.
2. Support strategic planning within all municipalities in the region.
3. Update existing municipal Weed Management Strategies to reflect regional priorities and resource sharing opportunities.
4. Identify potential sources of funding for strategic weed management planning.

3.5 Promote and implement resource sharing

Promote and implement resource sharing between National, State and local Government, industry, land managers and community groups.

The pooling of regional resources is a key part of a regional strategy. The regional community resources can be combined to realise improved weed management and the awareness of the weed problem. Establishing a regional inventory of resources that are available for weed management from government, community groups, individuals and industry would act as a first point of reference for the control of new weed introductions and allow each sub-region to be aware of what is available regionally.

The inventory could include the following:

1. Vehicles and control equipment.
2. Mechanical devices for removal.
3. Expertise in weed identification.
4. Expertise in weed control.
5. Private weed control contractors and their expertise, infrastructure and knowledge base.
6. Community groups and human resources available.
7. The type of support that can be given on a regional basis to implement weed control training and awareness of members of the community.

If rigorous regional and sub-regional priorities are established then the whole community knows the direction of weed management in the region.

Community groups can make applications for funding to control high priority weed species based on priorities from wide community consultation. Community groups can also train their members in Best Practice Weed Management based on the region's priorities.

STRATEGIC ACTIONS

1. Develop cooperative weed management (including planning) with the community in the region.
2. Share resources for weed control within the community.
3. Develop joint funding applications that maximise the utilisation of sub- regional resources.
4. Maintain an inventory of weed control infrastructure held by State and Local Government, industry, private individuals, weed contractors and community groups for use in resource sharing.
5. Maintain an inventory of expertise and experience in weed control.

CASE STUDY

An African boxthorn (*Lycium ferocissimum*) removal program was conducted on some of the off-shore islands in the Furneaux Group in 2002 and 2003. The project was funded by the Natural Heritage Trust under a project developed by the Tasmanian Marine and Coastal Community Network with logistical, technical and infrastructure support from the Furneaux NRM and Weed Strategy Group and local Tourism, Parks, Heritage and the Arts personnel. Two programs were conducted over a two year period with volunteer labour from Flinders Island and mainland Tasmania. This is a good example of weed impact minimisation using cooperative resource sharing between community groups, the community and National, State and Local governments.



Plate 1: African boxthorn control program on the off-shore islands of the Furneaux Group (Chalky Island, 2003)

4. INCREASE PUBLIC AWARENESS AND EDUCATION ON WEED MANAGEMENT

Sub objectives

- 4.1 Raise awareness.
- 4.2 Conduct training campaigns.

4.1 Raise awareness

The overall aim of this sub-objective is to raise the level of community awareness and understanding of weed identification, methods of spread, adverse impacts and control techniques.

Awareness of the weed problem is a major issue in effective and cooperative weed management. The public need to be aware of which plant is a weed, how important a weed species can be to the community in the social, environmental and economic sense and the individual in terms of productivity loss, aesthetic value depreciation, human health and loss of biodiversity. There are already a number of weed awareness programs conducted by the National and State governments, such as Weedbuster Week which continues to raise awareness of the weed issue.

Weed Notes containing up-to-date weed information including biology and control methods are available on the DPIPWE website and should be used as point of reference for the community and land managers.

STRATEGIC ACTIONS

1. Develop an awareness campaign on regional priority weeds and Best Practice Weed Management throughout the community, including schools across the region.
2. Increase public awareness of the detrimental effects of weeds and the strategies developed for the region including priorities for weed management.
3. Incorporate best practice weed management into land management information sources.
4. Provide various sources of weed management information for the community such as the DPIPWE Web site, DPIPWE service sheets and Local Government newsletters and utilise the media to promote current issues.
5. Support a coordinated, best practice approach to weed management activities

4.2 Conduct training campaigns

Conduct training and awareness campaigns on weed identification, methods of spread and integrated weed control techniques.

Training and awareness of weed identification, management and the prevention of introductions is an integral part in weed management. Regional weed management success is reliant on a well trained and aware community. To build on the awareness campaigns and training that has already been carried out regionally and in the State, the widespread awareness of the following weed management topics is essential:

Weed identification, especially high priority weeds

To be able to recognise a weed species is a fundamental step in weed management. Equally important is minimising the mis-identification of native species as weeds, and their subsequent removal.

Brochures to aid identification and management of priority weeds

There are a number of professionally produced brochures already in existence for high priority weeds on a National and State basis. There is a Weeds of National Significance Series which gives a full background, planning for control, monitoring and evaluation and roles and responsibilities for each species. There are also Best Practice Management guides for high priority weeds by the Weeds Cooperative Research Centre and a range of weed management information available from DPIPWE.

Once the priority species for the region are determined then targeting of relevant land managers with information on these species will enable better management across the region.

Weed impact on economic, environmental and social values in the region

The quantification of the overall impact of weeds can serve to reinforce the importance of integrated weed control by land managers. The availability of sufficient resources for weed control is essential on a region wide basis; the awareness across the region of the detrimental effects of weeds can only serve to increase participation in integrated weed control.

STRATEGIC ACTIONS

1. Conduct regional campaigns through Council and community newsletters and other media on regional and sub-regional priorities for weed management.
2. Conduct regular training sessions across the region.
3. Conduct group-specific training on weed control for community groups involved in environmental management.
4. Investigate other land and water management courses and training bodies and incorporate Best Practice Weed Management in their course structure.
5. Support dissemination of contemporary weed information.

5 IMPLEMENT, MONITOR AND REVIEW PROGRESS IN WEED CONTROL AND PREVENTION

Sub objectives

- 5.1 Implement the strategy
- 5.2 Develop monitoring procedures.
- 5.3 Review the strategy and action plan in five years time.

5.1 Implement the strategy

STRATEGIC ACTION

- 1. Establish a regional group to facilitate the implementation of this Strategy and Action Plan.

5.2 Develop monitoring procedures

Develop criteria to ensure that comprehensive and effective monitoring of weed management activities is carried out at the regional and sub-regional level.

Monitoring components should include:

- 1. The development and recording of sound baseline data for all initiatives;
- 2. Arrangements for the collection of point-in-time and trend data required to assess progress on Strategy initiatives;
- 3. Auditing the quality of the data collected.

Evaluation components should include:

- 1. Evidence-based reviews of the effectiveness of the Regional Weed Management Strategy.
- 2. A schedule of evaluations determined by the community and regional committees.
- 3. Evaluation findings should be fed back into management systems in order to support continuous improvement.

STRATEGIC ACTIONS

- 1. Evaluate the success of the Regional Weed Management Strategy by a rigorous monitoring and evaluation process.
- 2. Seek feedback from and disseminate information to the regional community, on progress in weed management.

5.3 Review the strategy and action plan

Review the Weed Management Strategy – Northern NRM Region and the Weed Action Plan – Northern NRM Region to evaluate the effectiveness of their implementation.

STRATEGIC ACTIONS

1. Monitor the resources that are being directed to weed management and evaluate their effectiveness.
2. Re- allocate resources where necessary for better weed management outcomes.
3. Review the regional Weed Management Strategy concurrently with the regional NRM strategy.
4. Link this strategy to WeedPlan and the regional NRM strategy.
5. Convene a strategy review reference group with relevant expertise and representation.

FURTHER READING

Agriculture and Resource Management Council of Australia and New Zealand. 1999 (revised edition). *The National Weeds Strategy-a strategic approach to weed problems of national significance*. Australia and New Zealand Environment and Conservation Council and Forestry Ministers.

Bishop, A. 2000. *Community Weed Management in Tasmania-A guide to developing and implementing a community weed management strategy*. Tasmanian Weed Management Committee.

Crane, A., Goninon, C., Cooper, J. 2003. *NRM Briefing Paper-Northern Region Weeds*.

DPIWE. 2005 m. *WeedPlan-Tasmania's Weed Management Strategy*.

Tasmanian Natural values Atlas, <https://www.naturalvaluesatlas.tas.gov.au>

Thorp, John R. 1999. *Guidelines for Developing Weed Strategies*. National Weeds Strategy-Executive Committee Weeds of National Significance. www.weeds.org.au

Weed Management Act 1999. <http://www.thelaw.tas.gov.au/>

Weed Management Regulations 2000. <http://www.thelaw.tas.gov.au/>

GLOSSARY OF TERMS

Best Practice	Includes having due regard to: <ul style="list-style-type: none"> (a) strategic planning by the person carrying out or proposing to carry out the activity; (b) administration systems implemented by the person including staff training; (c) public consultation carried out by the person, product and process design and (d) waste prevention, treatment and disposal.
Best practice environmental management	The management of the activity to achieve an ongoing minimisation of the activity’s environmental harm through cost-effective measures assessed against the current international and national standards applicable to the activity.
Biodiversity	The variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity.
Catchment	The land area which drains into a particular watercourse (river, stream or creek) and is a natural topographic division of the landscape. Underlying geological formations may alter the perceived catchment suggested solely by topography (limestone caves are an example of this).
Critical Assets	Assets that are identified as a priority based upon social, economic and environmental considerations. Example: Threatened species such as the Giant Freshwater Crayfish, <i>Astacopsis gouldi</i> .
Environmental Harm	Any adverse effect on the environment (of whatever degree or duration) and includes an environmental nuisance.
Environmental weeds	Non-local plants that invade and change our natural areas and threaten the survival of native plants and animals.
Genetically modified organisms	Organisms whose genetic make-up has been altered by the insertion or deletion of small fragments of DNA in order to create or enhance desirable characteristics from the same or another species.
Geomorphology	The study of the shape and dynamics of the earth’s surface.
Integrated weed management	Using a range of techniques to control weeds.
Introduced species	A species occurring in an area outside its historically known natural range as a result of intentional or accidental dispersal by human activities (including exotic organisms, genetically modified organisms and translocated species).

Native vegetation	Any local indigenous plant community containing throughout its growth the complement of native species and habitats normally associated with that vegetation type or having the potential to develop these characteristics. It includes vegetation with these characteristics that has been regenerated with human assistance following disturbance. It excludes plantations and vegetation that has been established for commercial purposes.
Propagules	A plant structure used to disperse, such as a seed or rhizome fragment.
Riparian vegetation	Vegetation (trees, shrubs, ground covers and grasses) which grows on the banks and floodplains of rivers.
Sleeper weeds	Invasive plants that have naturalised in a region but not yet increased their population size exponentially.
Species	A group of organisms capable of interbreeding freely with each other but not with members of other species.
Threatened species	A species or community that is vulnerable, endangered or presumed extinct. Codes applied to threatened species are as follows:
Endangered	Species in danger of extinction because long-term survival is unlikely while the factors causing the species to be endangered continue operating OR Species presumed extinct on the grounds that no occurrence of the taxon in the wild can be confirmed during the past 50 years.
Vulnerable	Species that are likely to become endangered while the factors causing it to be vulnerable continue operating.
Rare	Species with small populations in Tasmania that is not endangered or vulnerable but is at risk
Vector	A carrier or transporter of propagules.
Weed	A plant that has, or has the potential to have, a detrimental effect on economic, social or conservation values.

ACRONYMS

AFFA	Department of Agriculture, Fisheries and Forestry
AQIS	Australian Quarantine and Inspection Service
BA	Biosecurity Australia
BOM	Bureau of Meteorology
DPIPWE	Department of Primary Industries, Parks, Water and Environment
EPBC	Environmental Protection and Biodiversity Conservation
IBRA	Interim Biogeographic Regionalisation of Australia
NHT	Natural Heritage Trust
NRM	Natural Resource Management
WONS	Weeds of National Significance

APPENDIX 1- Declared weeds under the Tasmanian Weed Management Act 1999 (as at May 2012)

COMMON NAME	SCIENTIFIC NAME
African Boxthorn	<i>Lycium ferocissimum</i>
African Feathergrass	<i>Pennisetum macrourum</i>
African Lovegrass	<i>Eragrostis curvula</i>
African Thistle	<i>Berkheya rigida</i>
Alligator Weed	<i>Alternanthera philoxeroides</i>
Amsinckia species	<i>Amsinckia</i> species
Apple-of-Sodom	<i>Solanum sodomaeum</i>
Arrowhead	<i>Sagittaria montevidensis</i>
Artichoke Thistle	<i>Cynara cardunculus</i>
Asparagus Fern, Climbing Asparagus	<i>Asparagus scandens</i>
Athel Pine	<i>Tamarix aphylla</i>
Bear-skin Fescue	<i>Festuca gautieri</i>
Bifora	<i>Bifora testiculata</i>
Blackberry	<i>Rubus fruticosus</i> aggregate
Boneseed, Bitou Bush	<i>Chrysanthemoides monilifera</i> (including subspecies)
Bridal Creeper	<i>Asparagus asparagoides</i> (= <i>Myrsiphyllum</i>)
Broomrape	<i>Orobanche</i> species (except <i>O. minor</i> and <i>O. cernua</i> varieties)
Burrs	<i>Xanthium</i> species
Cabomba	<i>Cabomba caroliniana</i>
California Thistle	<i>Cirsium arvense</i>
Caltrop	<i>Tribulus terrestris</i>
Canadian Pondweed, Elodea	<i>Elodea canadensis</i>
Cape Tulips	<i>Moraea</i> species
Chilean Needle Grass	<i>Nassella neesiana</i>
Common Crupina, Bearded Creeper	<i>Crupina vulgaris</i>
Common Heliotrope	<i>Heliotropium europaeum</i>
Cotton Thistle	<i>Onopordum</i> species
Creeping Knapweed, Hardheads	<i>Acroptilon repens</i>
Creeping Yellowcress	<i>Rorippa sylvestris</i>
Crow Garlic	<i>Allium vineale</i>
Cut-leaf Nightshade	<i>Solanum triflorum</i>
Darwin's Barberry, Berberis	<i>Berberis darwinii</i>
Datura	<i>Datura</i> species
Dodder	<i>Cuscuta</i> species (excluding <i>Cuscuta tasmanica</i>)
Egeria, Dense Water Weed	<i>Egeria densa</i> (= <i>Elodea densa</i>)
Elisha's Tears, Himalayan Honeysuckle	<i>Leycesteria formosa</i>
English Broom	<i>Cytisus scoparius</i>
Espartillo	<i>Amelichloa caudata</i> (= <i>Achnatherum caudatum</i>)
False Cleavers	<i>Galium spurium</i>
False Yellow Head	<i>Dittrichia viscosa</i>
Feathertop	<i>Pennisetum villosum</i>
Fennel	<i>Foeniculum vulgare</i>
Floating Water Chestnut, Water Caltrop	<i>Trapa</i> species
Giant Hogweed	<i>Heracleum antegazzianum</i>

Gorse	<i>Ulex europaeus</i>
Hawkweed, Orange Hawkweed, Mouse Ear Hawkweed	<i>Hieracium</i> species
Heather	<i>Calluna vulgaris</i>
Holly-leaved Senecio	<i>Senecio glastofolius</i>
Horehound	<i>Marrubium vulgare</i>
Hornwort	<i>Ceratophyllum demersum</i>
Horsetail	<i>Equisetum</i> species
Hydrilla	<i>Hydrilla verticillata</i>
Hymenachne	<i>Hymenachne amplexicaulis</i>
Innocent weed	<i>Cenchrus longispinus</i>
Japanese knotweed	<i>Fallopia japonica</i>
Karamu	<i>Coprosma robusta</i>
Kochia	<i>Bassia scoparia</i> (= <i>Kochia scoparia</i>)
Lagarosiphon, Oxygen weed	<i>Lagarosiphon major</i>
Lantana	<i>Lantana camara</i>
Mallee Cockspur	<i>Centaurea eriophora</i>
Meadow Parsley	<i>Oenanthe pimpinelloides</i>
Mediterranean Daisy	<i>Urospermum dalechampii</i>
Mesquite	<i>Prosopis</i> species
Miconia	<i>Miconia</i> species
Montpellier Broom, Canary Broom	<i>Genista monspessulana</i>
New Zealand Sedges	<i>Carex albula</i> , <i>C. buchananii</i> , <i>C. flagellifera</i> , <i>C. testacea</i>
Nodding Thistle	<i>Carduus nutans</i>
Onion Weed	<i>Asphodelus fistulosus</i>
Pampas Grasses	<i>Cortaderia</i> species
Pampas Lily-of-the-Valley	<i>Salpichroa organifolia</i>
Parkinsonia	<i>Parkinsonia aculeata</i>
Parodi Spike Rush	<i>Eleocharis parodii</i>
Parrot's Feather	<i>Myriophyllum aquaticum</i>
Parthenium Weed	<i>Parthenium hysterophorus</i>
Paterson's Curse	<i>Echium plantagineum</i>
Pond Apple	<i>Annona glabra</i>
Prickly Acacia	<i>Acacia nilotica</i> ssp. <i>indica</i>
Purple Nut Grass	<i>Cyperus rotundus</i>
Ragwort	<i>Senecio jacobaea</i>
Rubber Vine	<i>Cryptostegia grandiflora</i>
Saffron Thistle	<i>Carthamus lanatus</i>
Sagittaria	<i>Sagittaria platyphylla</i>
Salvinia	<i>Salvinia molesta</i>
Senegal Tea Plant, Temple Plant	<i>Gymnocoronis spilanthoides</i>
Serrated Tussock	<i>Nassella trichotoma</i>
Silver-leaf Nightshade	<i>Solanum elaeagnifolium</i>
Skeleton Weed	<i>Chondrilla juncea</i>
Slender Thistle	<i>Carduus pycnocephalus</i> , <i>Carduus tenuiflorus</i>
Spanish Heath	<i>Erica lusitanica</i>
Spiny Burrgrass	<i>Cenchrus incertus</i> (= <i>Cenchrus pauciflorus</i>)
Spiny Emex	<i>Emex australis</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
St John's Wort	<i>Hypericum perforatum</i>
Star Thistle, Purple Star Thistle	<i>Centaurea calcitrapa</i>
Stemless Thistle	<i>Onopordum acaulon</i>

Stinking Mayweed	<i>Anthemis cotula</i>
Three-horned Bedstraw	<i>Galium tricornutum</i>
Tumble Weed	<i>Amaranthus albus</i>
Viper's Bugloss	<i>Echium vulgare</i>
Water Hyacinth	<i>Eichhornia crassipes</i>
White Weed (Hoary Cress)	<i>Lepidium draba</i>
White Spanish Broom	<i>Cytisus multiflorus</i>
White-edged Nightshade	<i>Solanum marginatum</i>
Wild Rice	<i>Zizania</i> species
Willows	<i>Salix</i> species excluding <i>S. babylonica</i> , <i>S. x calodendron</i> and <i>S. x reichardtii</i>
Witchweed	<i>Striga</i> species (all non-indigenous species)
Yellow Nut Grass/Yellow Nut Sedge	<i>Cyperus esculentus</i>

NOTE: For each of the 'Declared Weed' species, there is a Statutory Weed Management Plan available on the DPIPW website.

APPENDIX 2 - Weeds of National Significance (WONS, as at May 2012)

WEED	SCIENTIFIC NAME	PRESENT IN NORTHERN NRM REGION
African boxthorn	<i>Lycium ferocissimum</i>	YES
Alligator weed	<i>Alternanthera philoxeroides</i>	NO
Asparagus weeds (Asparagus fern and Bridal creeper)	<i>Asparagus scandens</i> <i>Asparagus asparagoides</i>	YES YES
Athel pine	<i>Tamarix aphylla</i>	NO
Bellyache bush	<i>Jatropha gossypifolia</i>	NO
Blackberry	<i>Rubus fruticosus aggregate</i>	YES
Boneseed/ Bitou bush	<i>Chrysanthemoides monilifera</i> (including subspecies)	YES
Brooms (Montpellier / Canary broom and English/ Scotch broom)	<i>Genista monspessulana</i> <i>Cytisus scoparius</i>	YES YES
Cabomba	<i>Cabomba caroliniana</i>	NO
Cats claw creeper	<i>Mactadyena unguis-cati</i>	NO
Chilean needle grass	<i>Nassella neesiana</i>	NO
Fireweed	<i>Senecio madagas-cariensis</i>	NO
Gamba grass	<i>Andropogon gayunus</i>	NO
Gorse	<i>Ulex europaeus</i>	YES
Hymenachne	<i>Hymenachne amplexicaulis</i>	NO
Lantana	<i>Lantana camara</i>	NO
Madeira vine	<i>Andredera cordifolia</i>	NO
Mesquite	<i>Prosopis spp.</i>	NO
Mimosa	<i>Mimosa pigra</i>	NO
Opuntoid cacti	<i>Opuntia spp.</i> (excludes <i>O.ficus-indica</i>)	NO
Parkinsonia	<i>Parkinsonia aculeate</i>	NO
Parthenium	<i>Parthenium hysterophorus</i>	NO
Pond apple	<i>Annona glabra</i>	NO
Prickly acacia	<i>Acacia nilotica spp.indica</i>	NO
Rubber vine	<i>Cryptostegia grandiflora</i>	NO
Salvinia	<i>Salvinia molesta</i>	NO
Sagittaria	<i>Sagittaria graminea, Saggittaria montevidensis</i>	NO
Serrated tussock	<i>Nassella trichotoma</i>	YES
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	NO
Water hyacinth	<i>Eichhornia crassipes</i>	NO
Willow	<i>Salix species except S. babylonica, S. X calodendron and S. X reichardtii</i>	YES

NOTE: Weeds listed in bold are known to be present in the Northern NRM region.

APPENDIX 3 – Other weed management documents relevant to the Northern NRM region

MUNICIPALITY OR REGION	DOCUMENT
State / Northern Region	WeedPlan Tasmania's Weed Management Strategy Second Edition 2005
Break O'Day Municipality	East Coast Regional Weed Strategy 2002
Dorset Municipality	Dorset NRM Strategy, 2002 Rice Grass Area- Based Management Plan-Bridport Region
Flinders Municipality	Furneaux Regional Weed Strategy 2002
George Town Municipality	Tamar Valley Weed Management Strategy
Launceston Municipality	Tamar Valley Weed Management Strategy
Meander Valley Municipality	Meander Valley, NRM Strategy (3rd Ed.) 2010 Draft Meander Valley Council Weed Management Plan 2010-2012
Northern Midlands municipality	Northern Midlands Municipal Weed Action Plan – May 2009
Parks and Wildlife Service	North East District Weed Management Plan 2000-2003
DPIWE-Nature Conservation Branch.	Tasmanian Beach Weed Strategy for marram grass, sea spurge, sea wheatgrass, pyp grass and beach daisy.
Rice Grass Advisory Group	Strategy for the Management of Rice Grass (<i>Spartina anglica</i>) in Tasmania, Australia.

APPENDIX 4 - State and National legislation

State legislation

The *Weed Management Act 1999* is the principal legislation concerned with the management of declared weeds in Tasmania. Under the Act, the State Government may:

1. Prohibit the introduction of declared weeds into Tasmania.
2. Undertake the eradication of declared weed species.
3. Take action aimed at preventing the spread of declared weeds within Tasmania.
4. Require that action be taken against declared weed species where this is necessary to alleviate or prevent a particular problem.

The Act is a key component in the delivery of WeedPlan - Tasmania's Weed Management Strategy. Recommendations are made under the Act for weed management legislation that underpins community weed management efforts.

Objectives of the Weed Management Act 1999

The objectives of the Act further the objectives of the resource management and planning system (RMPS) of Tasmania and, in particular, provides for the control and eradication of weeds having regard to the need to:

- (a) minimise the deleterious effects of weeds on the sustainability of Tasmania's productive capacity and natural ecosystems; and
- (b) promote a strategic and sustainable approach to weed management; and
- (c) encourage community involvement in weed management; and
- (d) promote the sharing of responsibility for weed management between the different spheres of government, natural resource managers, the community and industry in Tasmania.

(wording from DPIPWE website June 2012)

Main Components of the Weed Management Act 1999

Declaration of Weeds

A core component of the legislation is the legal process of declaring a weed species under the Act. Once declared appropriate legal actions can then be taken against the plant species.

Statutory Weed Management Plans (SWMP)

Once a weed species is declared the legislation requires that a SWMP be prepared for the weed. A SWMP includes the reasons for declaring the weed and restrictions and measures required to control, eradicate or restrict the spread of the weed. Restrictions on import, distribution and sale are also included which again is a key strategy in preventing weed spread. The following legal obligations relate to all declared weeds:

- (a) A person must not import, or allow to be imported, into the State any declared weed except with the written approval of the Secretary.
- (b) The tolerance level for declared weed seed in imported grain will be 0 seeds per kilogram.

- (c) Landowners and managers must take all reasonable measures to control the impact and spread of a declared weed.
- (d) A person must not propagate, trade or otherwise distribute declared weeds or anything carrying declared weeds except -
 - I. transport for purposes of disposal and
 - II. sale or transport for purposes other than disposal where authorised by the Secretary.
- (e) A declared weed must be disposed of in a manner which will not result in further infestation.
- (f) A declared weed must be eradicated from areas of the State where this is considered feasible.

Appointment of Inspectors

The Act allows for the appointment of inspectors within State and local governments and makes provision to appoint within other approved organisations.

Compliance

The Act specifies compliance measures and restrictions with regard to each of the Declared Weeds.

National legislation

Laws and regulations relating to weed control exist at the Australian government level. Although it is the responsibility of each jurisdiction (Australian Government, state and territory governments) to administer their respective legislation, it is the responsibility of every land manager or individual to be aware of legislation that may impact upon them, and to act in accordance with this legislation.

Australian Government

The Australian Government has responsibility for quarantine. The Australian Quarantine and Inspection Service (AQIS) is the Commonwealth agency implementing the government's quarantine policy with respect to plants. The Quarantine Act 1908 enables AQIS to physically prevent the introduction of weeds through the inspection of incoming luggage, cargo, mail, animals and plants and their products.

The Australian Government is responsible for approving the introduction into Australia of new plants and animals, including biological control agents.