



WeedPlan



Co-operation



Dedication



Results

TASMANIA'S WEED MANAGEMENT STRATEGY

Second Edition



Contents

CONTENTS	i
FOREWORD	ii
EXECUTIVE SUMMARY	1
INTRODUCTION	3
WHAT IS A WEED?	3
WEEDS IN TASMANIA	3
IMPACT OF WEEDS	3
MANAGING THE WEED THREAT	4
VISION, AIM, SCOPE AND TIMEFRAME	6
VISION	6
AIM	6
SCOPE AND TIMEFRAME	6
PRINCIPLES	6
WEEDPLAN POLICY AND LEGISLATION FRAMEWORK	7
ROLES AND RESPONSIBILITIES	8
COMPONENTS OF WEEDPLAN	10
IMPLEMENTATION	10
COMPONENT 1: RESOURCES	11
COMPONENT 2: EDUCATION, TRAINING AND AWARENESS	14
COMPONENT 3: RESEARCH AND DEVELOPMENT	16
COMPONENT 4: COORDINATION AND COOPERATION	18
COMPONENT 5: PRIORITISATION AND INTEGRATION	20
COMPONENT 6: BIOSECURITY	22
COMPONENT 7: POLICY SUPPORT AND REGULATION	26
COMPONENT 8: MONITORING AND EVALUATION	28
REFERENCES	29
ABBREVIATIONS	29
PUBLICATION DETAILS	30
ACKNOWLEDGEMENTS	30

Foreword

Weeds are amongst the most significant and difficult challenges facing Tasmania. In the relatively short time since European settlement, at least 765 exotic plant species have established and now form approximately one-third of the State's naturalised flora. Amongst these are many significant weeds that make large contributions to the degradation of Tasmania's agricultural lands and natural environments. There is no doubt that the range and seriousness of weed problems are cause for concern. Clearly, without a continued, carefully planned effort, weed impacts on the economy, environment and community of Tasmania will continue to be substantial.

In 1996 the State Government published WeedPlan, an innovative and comprehensive blueprint for strategic weed management in Tasmania. WeedPlan established a bold framework "to address existing and potential weed problems of major significance to primary industry, trade, human welfare, amenity and biodiversity". Many important achievements were made under WeedPlan. Highlights include the establishment of the Tasmanian Weed Management Committee (TWMC), the development and implementation of new weed legislation and the appointment of three State Government Regional Weed Management Officers.

To ensure its relevance over time, WeedPlan included a strategic action for its own review. Accordingly, the TWMC initiated a WeedPlan review five years after publication. The review indicated a clear need for revision. This second edition of WeedPlan has been prepared under the guidance and with the assistance of a special TWMC sub-committee. I commend the TWMC, and its WeedPlan sub-committee in particular, for the commitment, innovation and cooperation they have brought to the development of this document.

The second edition builds on the successes and philosophy of the original WeedPlan as well as tackling areas identified specifically for improvement by the review. It addresses the full range of key issues and processes that impact on weed management in the State and clarifies the roles and responsibilities of stakeholders.

WeedPlan is an overarching strategic framework for action in which it is not possible to provide full details of all current, planned and recommended activities. A State Weed Action Plan detailing specific operations and activities will be developed to underpin WeedPlan and assist in its implementation.

Cooperative action and commitment by government, industry and the community is critical to effective, efficient progress against the State's most serious existing and emerging weed problems. The TWMC looks forward to working with the entire Tasmanian community to implement the strategic actions outlined in this latest edition of WeedPlan.

Greg Pinkard
CHAIRMAN
TASMANIAN WEED MANAGEMENT COMMITTEE
March 2005

Executive Summary

The first edition of Tasmania's Weed Management Strategy, WeedPlan (1996), offered an innovative blueprint for improving weed management in Tasmania. Its implementation gave rise to significant progress in a variety of areas. However, changing contexts and opportunities mean periodic revision of the strategy is an ongoing requirement.

Accordingly, and taking into account the recommendations of the 2002 review, this second edition of WeedPlan is presented to the Tasmanian community by the Tasmanian Weed Management Committee (TWMC). The TWMC is the State's peak weed stakeholder body and includes many major weed managers. State Government agencies, rail authorities, utilities, the Aboriginal community, conservation and industry representative bodies, Local Government, and community and education interests are all represented in the TWMC.

The aim of WeedPlan is "to achieve coordinated, collaborative and effective weed management throughout Tasmania" in order to attain and maintain "healthy and resilient Tasmanian landscapes where weed impacts on environmental values and primary production are minimised". WeedPlan establishes a framework of eight components of weed management. It adopts the principles of the National Weeds Strategy and provides a clear delineation of roles and responsibilities. The TWMC remains the key coordinating body for implementation.

The eight components of WeedPlan are:

- Resources
- Education, training and awareness
- Research and development
- Coordination and cooperation
- Prioritisation and integration
- Biosecurity
- Policy support and regulation
- Monitoring and evaluation.

Strategic actions have been carefully devised for each component. Implementation roles and

responsibilities have been assigned to lead and partner organisations listed against each action.

The rationale and scope of each of the eight components is as follows.

Resources

Adequate resources are an obvious and necessary component of successful weed management. These resources may include people, equipment, information and money.

Given the resource-limited context in which much weed management takes place, the importance of accurately identifying, sharing and efficiently allocating resources cannot be overstated.

Strategic actions in this plan that relate to resources cover identifying and sharing community resources, encouraging stakeholder involvement with government support, providing information, and finding and promoting funding for weed management.

Education, training and awareness

Education and training of current and future generations of stakeholders is an essential investment in long-term, sustainable weed management. It needs to be incorporated into education curricula and programs at all levels.

In addition, raising awareness in the broader community is necessary to highlight both the nature of weed problems and the diverse roles people can play in finding solutions. In particular, proper acknowledgment of and rewards for best-practice weed management are a proven method for encouraging greater community involvement and awareness.

Development of new weed training initiatives where gaps exist and the incorporation of weeds into existing curricula are essential strategic actions. Maintenance and expansion of public awareness programs and the networking of weed managers are also important.

Research and development

Research and development are keys to the improvement of weed management techniques and procedures. Many organisations in the private and public sectors are involved in weed research and development in Tasmania.

WeedPlan identifies areas requiring improvement such as improving collaboration amongst weed researchers, promoting current weed research activities and setting priorities for new research securing funding.

Coordination and cooperation

Weeds do not observe land tenure or administrative boundaries and will spread between properties, regardless of private, corporate or public ownership. For this reason weed management must be coordinated, planned and implemented in a highly cooperative manner.

The strategic actions for this component cover continuation of the development of weed management plans and strategies at all levels, review of the Tasmanian Weed Management Committee's operations, linking organisations involved with weed management and facilitating knowledge sharing.

Prioritisation and integration

Resource constraints mean that weed management activities must be prioritised effectively. Weed management also needs to be integrated with other land and water management programs, strategies and activities. For example, there are many tangible benefits to be gained from participation in the Weeds of National Significance program and close alignment with the Tasmania Together initiative and the Regional Natural Resource Management Framework.

Strategic actions include establishing processes for priority setting and developing ways to integrate weeds into other resource-based management plans.

Biosecurity

Biosecurity addresses issues of weed introduction and spread. Prevention of weed introduction is a highly cost-effective method of weed management.

Best efforts at the import barriers notwithstanding, weeds continue to enter the State through either deliberate or accidental human actions or by natural means. For this reason, biosecurity efforts cannot end at the barrier. Measures to ensure prompt action to prevent establishment and spread are vital.

Preventing the spread of existing weeds within the State is also important.

Strategic actions for biosecurity cover preventing weed introduction through better strategies at the barrier, educating importers about weed risks, developing protocols to rapidly eliminate new weeds, and developing and implementing measures to minimise spread within the State.

Policy support and regulation

Appropriate policy and regulatory frameworks are essential to effective weed management. The Weed Management Act 1999 has an important role in this regard. The list of weeds declared under this legislation needs constant review and revision to reflect the changing status of many of Tasmania's weed threats.

The Act also needs to align with other legislation and policy that relate to weeds. This will minimise conflict between different frameworks for action and enhance the chances of successful implementation.

The management of declared weeds, in particular a review of the list, further work on statutory management plans and an enforcement program are vital. In addition, development of policies that relate to weed management, and relating current weed management back to policy also require attention.

Monitoring and evaluation

As weed problems and the contexts in which they occur are dynamic, weeds and the strategies to manage them need to be constantly monitored and evaluated. Under this component, actions are presented to formally monitor, evaluate and report on WeedPlan and, indeed, the status of weeds in Tasmania.

Introduction

What is a weed?

In a broad sense, a weed is a plant growing where it is not wanted. This judgement may not be based on objective criteria and can vary with the situation and individuals involved. The National Weeds Strategy definition is adopted in this document:

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

Weeds in Tasmania

Approximately one-third (765 species) of Tasmania's naturalised flora is exotic. While many of these species arrived as contaminants or hitchhikers, or by other accidental means, a sizeable proportion have been introduced deliberately since European settlement for agricultural, ornamental, horticultural, silvicultural, commercial and cultural reasons. Interestingly, recent studies indicate that more than one-third of species that have naturalised over the last 35 years are linked with the garden plant trade.

Not all naturalised species are equally "weedy". Some completely change the systems they invade while others have very limited impact. For example, boneseed commonly dominates coastal communities while pimpernel is poorly competitive and confined typically to disturbed ground.

There is 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) and other factors could allow some currently benign plants to become weeds in the future. These species are considered to be "sleeper" weeds.

Increased disturbance of native vegetation as well as increased movement of Australian natives throughout Australia has resulted in some Australian natives also becoming weeds. For example, Cootamundra wattle, a native of NSW, is considered a weed in Tasmania.

Impact of weeds

Tasmania's rich land and water resources are the basis for a variety of primary industries including agriculture, fisheries, forestry and mining. Tasmania also possesses internationally significant wilderness areas, unique plants and animals, an extraordinary coastline and beautiful rural scenery, which, as well as having intrinsic value, are also the foundation of an increasingly important tourism industry.

Weeds threaten Tasmania's natural environment, the industries that rely upon it and therefore the welfare of society as a whole.

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.

In agriculture, horticultural operations and forestry, weeds reduce product quality and quantity, the cost of which affects both producers and consumers. Conservatively, weeds cost Tasmania more than \$33 million per annum for control activities and lost primary production.

Weeds also 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.

Certain weeds have valuable positive attributes. Some provide significant nectar forage for Tasmania's honey industry, and others have beneficial phytotherapeutic properties. Some weeds provide wildlife habitat in areas where native plants are absent, or bind soil on eroded sites.

One of the great challenges of weed management is to assess and weigh the balance of impacts – positive and negative – of each weed in each context before determining best approaches to management.

Managing the Weed Threat

The current situation

In order to increase the effectiveness of weed management, the State Government published WeedPlan in 1996. It established a framework for the management of weeds in Tasmania and was Australia's first state-level weed strategy.

That first edition of WeedPlan led to improved coordination and integration of weed management efforts at State, regional and local levels.

Outcomes and achievements that resulted from WeedPlan include:

- Modern weed management legislation in the form of the Weed Management Act 1999
- Three Regional Weed Management Officers
- An operational Tasmanian Weed Management Committee (TWMC)
- A successful WeedPlan education project
- A published Guide to Developing and Implementing a Community Weed Management Strategy
- Increased numbers of community weed management groups and strategies
- Weed management incorporated into natural resource management education at TAFE
- Professional development modules in weed management available at the University of Tasmania
- The Tasmanian Weed Alert Network
- Participation in the Weeds of National Significance program
- A range of hygiene policies and measures to prevent weed spread
- Weed mapping guidelines
- A State weed mapping database.

More recently, three regions have been identified in Tasmania for the purposes of addressing natural resource management and sustainable agriculture priorities, including weeds. Each of these regions has an organisational body to undertake the important job of protecting the region's natural resources. Currently, the regions are developing comprehensive weed strategies to coordinate weed management at the regional level. These regional strategies will act as a vehicle to implement many of the WeedPlan actions at the regional and local level.

Where to from here

Even with the enormous progress made since the first edition of WeedPlan there are still many challenges to effective weed management in Tasmania.

There is a need for:

- Increased awareness of resource managers and the general public about the true impact of weeds
- Improved coordination of weed control activities of land and water managers, users, community groups and individuals
- Further integration of weed management into other natural resource management programs
- Increased use of long-term weed control solutions
- Education of land managers about systematic approaches to weed management
- Risk management for new weeds being introduced with more trade and travel activity
- Improved control of the importation of plants with weed potential from interstate or overseas
- Better management of weeds on public land, given limited resources
- Better long-term support for community weed management programs

- Improved mechanisms for monitoring and evaluating the success of weed management programs
- Consistent prioritising and planning mechanisms for weed programs
- Lack of active and long-term hygiene programs
- Prioritised research and development activities for weed management.

However, many encouraging trends and opportunities have led to a highly constructive outlook for future weed management in the State.

These include:

- Increasingly wide ownership of weed problems
- Increasing recognition of the importance of weeds by government and industry groups
- The proven effectiveness of community empowerment for natural resource management, as demonstrated by the Natural Heritage Trust, Landcare and similar programs
- Increasing acceptance of the role of Local Government and community groups for the coordination of on-ground land and water management activities
- Demonstrated feasibility of the establishment and implementation of community-based weed control programs in Tasmania
- The generally low-level of weed problems in the State compared with mainland states and other similar areas such as New Zealand
- The opportunity to increase Tasmania's clean, green image by adopting more sustainable weed management measures
- Increasing emphasis on Government- and industry-funded research into long-term, sustainable weed management measures

- Implementation of the National Weeds Strategy initiatives for weed issues of national significance
- New frameworks for the management of natural resource issues on a regional basis
- Opportunities for education and training in weed management through increased interest in effective natural resource management by land and water managers and users, governments at all levels and the broader community
- Increased community interest in taking action against weeds in bushland and similar non-agricultural situations.

WeedPlan offers Tasmanians a bold, comprehensive and clear vision for strategic weed management in these early years of the 21st century. It provides a concise, straightforward framework for positive action that identifies specific needs and opportunities for improving the efficiency and sustainability of weed management in Tasmania.

The fate of WeedPlan is not in the hands of any single weed manager. Responsibility for the success of this strategy lies with every weed stakeholder in the State. It is to all these individuals, groups and organisations that the TWMC issues a loud call for commitment and cooperative action.

Vision, Aim, Scope and Timeframe

Vision

The vision for WeedPlan is:

Healthy and resilient Tasmanian landscapes where weed impacts on environmental values, primary production and the community are minimised.

Aim

The aim of WeedPlan is:

To achieve coordinated, collaborative and effective weed management throughout Tasmania.

WeedPlan provides a framework that encourages Tasmanians to work together to achieve more effective management of existing weeds and to limit the introduction and establishment of new weeds.

This framework specifies guiding principles for effective weed management, clear roles and responsibilities for different stakeholders, specific outcomes and strategic actions.

Scope and timeframe

WeedPlan addresses all terrestrial and freshwater weed species. Marine weeds are excluded from WeedPlan because they fall in the domain of a separate group of stakeholders, including shipping and fisheries sectors.

WeedPlan has currency for five years from the time of publication, from 2005 to 2010, when it will be reviewed again.

Principles

WeedPlan is based on principles adopted from the National Weeds Strategy and formulated from the wide experience of weed managers around Australia. The principles 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 land-holders/land managers, but collective action is necessary where the problem transcends the capacity of the individual land-holder/land manager to address it adequately.

The adoption of these principles is essential to the effective and sustainable management of weeds in Tasmania.

WeedPlan Policy and Legislation Framework

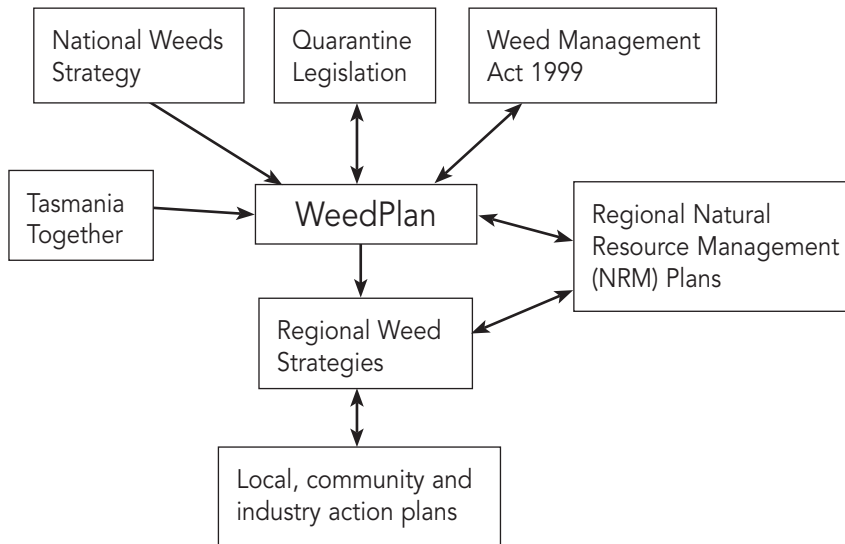


Figure 1: WeedPlan policy and legislation framework

WeedPlan integrates with many other relevant legislation, plans and strategies. The arrows in Figure 1 indicate the principal direction of contribution between the various elements. This is not intended to be an exhaustive representation of links.

Key policy and legislation elements:

Tasmania Together, Tasmania's long-term social, economic and environmental plan, has two goals with relevance to **WeedPlan**:

Goal 20: Promote our island advantage including our clean, green image, natural resources, location and people.

Goal 24: Ensure our natural resources are managed in a sustainable way now and for future generations.

In terms of managing and protecting our natural resources these goals, particularly Goal 24, benchmark 24.9.1, focus on the need to reduce the adverse impact of existing weeds and to prevent the introduction and establishment of new weeds.

The **National Weeds Strategy** is the peak document for weed management in Australia. The principles on which this strategy is based

and role and responsibility prescriptions have been adopted for **WeedPlan**.

The **Weed Management Act 1999** directly underpins a strategic approach to integrated and coordinated weed management in Tasmania. This Act lists declared weeds and provides a statutory requirement to produce a management plan that specifies restrictions and measures required for each declared weed.

The **Tasmanian Natural Resource Management Framework** identifies the management of weeds, pests and diseases as a priority.

Many regional, local and community weed plans and strategies have been developed since **WeedPlan** was first published. **WeedPlan** provides high-level direction useful to the ongoing review and further development of these strategies and plans.

WeedPlan will provide a strategic framework for regional weed strategies. Regional weed strategies will give more detailed operational direction to implementing **WeedPlan** strategic actions, as well as providing direction and guidance to local, community and industry action plans.

Roles and Responsibilities

Perhaps the most important aspect of weed management is the need for stakeholders to take on appropriate roles and responsibilities. These must be shared according to the context and problem.

Principles three and four recognise that effective weed control needs to be implemented by individuals closest to the problem, typically landowners. However, there are many situations in which dealing with the problem is beyond the capacity of individual landowners. When this is the case Government, industry and community groups have important supportive roles to play. This is often necessary if:

- the problem is large or complex
- prompt action is needed to prevent the problem becoming too big
- cooperative action will benefit the individuals closest to the problem and a range of others.

The role and responsibility prescriptions given here, apart from those listed for the Tasmanian Weed Management Committee and regional weed management organisations, are adapted from those developed as part of Australia's Decade of Landcare plan. They provide a guide not only for the implementation of the strategic actions in WeedPlan but also for weed management in general.

The roles and responsibilities listed for the regional weed management organisations are based on a review of the regional weed management strategies for each of the three NRM regions. They should not be read as a definitive statement on the future roles and responsibilities of these groups. The TWMC recognises that the structure of these groups differs from region to region and accordingly so may the roles and responsibilities. The TWMC supports the establishment of regional weed management bodies and will, where appropriate, work with these groups to assist with the delivery of weed management outcomes at the regional and local level.

Individual landowner and land user roles and responsibilities:

- Improve weed knowledge and skills and apply 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.
- Manage weed problems on the land they own or manage.
- Plan and cooperate with neighbours to manage weeds.
- Support and promote sustainable production practices to minimise the development of weed problems.

Community roles and responsibilities:

- 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 organisation roles and responsibilities:

- 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 Government roles and responsibilities:

- 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.

State Government roles and responsibilities:

- 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.

The Australian Government roles and responsibilities:

- 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 educational 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.

Tasmanian Weed Management Committee roles and responsibilities:

- 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.
- Oversee the implementation of WeedPlan and undertake relevant actions.
- Inform member organisations about developments and issues concerning weed management.
- Provide advice and support to regional weed management organisations.
- Provide advice and reports to Tasmania Together progress board, DPIWE Biosecurity Committee and Australian Weeds Committee where appropriate.

Regional weed management organisation roles and responsibilities:

- Promote regional weed management coordination with stakeholders.
- Advise the Tasmanian Weed Management Committee 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.
- Oversee implementation and maintain a regional weed management strategy, including monitoring, evaluating and reporting on the status of weeds in the region.
- Develop and implement action plans for weeds of major regional significance.
- Support the development of local community weed management groups.

Components of WeedPlan

WeedPlan has eight components, each of which is fundamental to strategic weed management. Each component and the desired outcome that defines it are listed below.

Resources

Objective and equitable allocation, and efficient use of all government, industry and community resources.

Education, training and awareness

Increased knowledge and skills in weed management for land and water managers, industry, government and the whole community.

Research and development

Improved knowledge, technology, skills, capacity and ability to solve weed management problems.

Coordination and cooperation

Coordinated and cooperative action by weed managers.

Prioritisation and integration

Objective processes for setting priorities for weed management programs and effective integration with other relevant plans, strategies and legislation.

Biosecurity

Minimised risk of introduction and spread of weeds in Tasmania.

Policy support and regulation

An appropriate legal and policy framework to support local, regional and State-wide management of weeds.

Monitoring and evaluation

Mechanisms to monitor and evaluate the success of WeedPlan and the status of weeds.

Implementation

The TWMC will oversee the implementation of WeedPlan. Strategic actions have been devised for each component of WeedPlan and responsibility for implementing each one has been assigned to one or more lead stakeholder organisations. Partner organisations also have roles to play under the guidance of the lead organisation.

The eight components, desired outcomes and strategic actions form the operational core of WeedPlan. They are presented in the following section. Components are not addressed in priority order because at this planning level no single component is more or less important than any other. Similarly, strategic actions are numbered for easy reference only. Numbering does not reflect priorities for funding or implementation.

Operational plans will be developed under WeedPlan detailing the steps necessary to put the strategic actions into practice. The operational plans will include, for example, weed strategies developed for the NRM regions in Tasmania. Other examples may include those for major state-wide stakeholders in weed management such as TWMC and DPIWE.

In essence, WeedPlan will provide a strong and comprehensive guiding framework for operational plans, which will in turn cascade down through other planning and scheduling processes, leading to positive and strategic weed management activities.

Component 1: Resources

Successful implementation of WeedPlan will require commitment of resources and efficient use and allocation by all stakeholders. Resources may include people, equipment, information, information management tools and funding.

Coordination of resource use

Many stakeholders already allocate significant resources for weed management. These need to be identified, shared and allocated to improve efficiency and effectiveness of use. This will also help to identify resource deficiencies and provide a basis for the targeted allocation of additional resources.

People

Committed people are the most valuable weed management resource in Tasmania. The vast skills, experience and knowledge of many weed managers must be identified and recognised. Accessing existing expertise for design and delivery of targeted training is also important.

People need effective support from relevant government authorities. This includes administrative support and coordination, training (or assistance with meeting training costs) and technical advice. The DPIWE Regional Weed Management Officers are important in this regard and provide direction, coordination and leadership.

Equipment

The equipment required for weed management varies widely from situation to situation. It may consist of a pair of gloves, a hoe or mattock, a flock of sheep, a boom spray or a helicopter.

Equipment technology for weed management is developing rapidly. It can include chemical handling and delivery systems, computer hardware and software, and research facilities.

Sharing equipment on a commercial or other basis is essential for efficient implementation of many weed control programs in the State. Weed managers need to be aware of the existence, location, usefulness and availability of equipment appropriate to their needs.

Information and information management tools

An adequate understanding of the nature and extent of a weed problem is the first step in strategic weed management. This includes information about distribution, legal status, impacts, potential risks and control recommendations. Also important is information on site history, current and potential land use, weed biology, control costs and management feasibility. The demand for this type of information is increasing amongst land managers and other stakeholders.

Some data will have to be generated afresh but significant information resources already exist. Free, ready access to relevant information or standardised methods and tools to generate and manage it are important resource issues. Box 1 (page 13) details one example of how this is being handled at present.

Funding

Sufficient financial support is required from governments, landowners and managers and industry if effective weed management is to be sustained.

It is important that all sources of funding are identified and promoted adequately to those who might benefit most from them.

Funds that are allocated to any weed management program need to reflect the relative importance of the problem. Costs should be borne by both contributors to the problem and by beneficiaries of any effective management. WeedPlan and other regional and local strategies provide a framework for equitable and effective allocation.

Apart from supporting strategic management actions, funding is also required to coordinate weed programs at all levels, including the implementation of WeedPlan.

Box 2 (page 13) details some aspects of funding as it applies to the management of gorse at Zeehan. This study also highlights the importance of a coordinated approach to weed management.

Strategic actions that address Tasmania's weed management resource issues are listed over.

Resources: Desired outcome

Objective and equitable allocation and efficient use of all government, industry and community resources.

Strategic actions

Coordination of resource use

No.	Action	Lead organisations	Partner organisations
1.1	Encourage resource sharing and cooperation between all stakeholders in weed management.	TWMC	DPIWE, Local Government, community organisations, regional NRM organisations, rwmo, industry organisations
1.2	Identify and promote government, industry and community resources and skills available for weed management.	DPIWE	Local Government, community groups, industry organisations, community organisations, regional NRM organisations, rwmo

People

1.3	Encourage involvement of the community and all other stakeholders in weed management.	TWMC, rwmo	Community groups, Local Government, community organisations, regional NRM organisations
1.4	Ensure relevant administration, coordination support, training and technical advice for community groups and individuals.	DPIWE, Local Government, rwmo	Community groups, community organisations, regional NRM organisations, industry organisations

Equipment

1.5	Identify and promote currently available equipment for on-ground weed control.	DPIWE, rwmo, TWMC	
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Information and information management tools

1.6	Maintain, promote and support accessible databases and mapping systems for weeds.	DPIWE, rwmo	TWMC
1.7	Provide State-wide, up-to-date information on weed management.	DPIWE	TWMC

Funding

1.8	Actively seek funds for the implementation of WeedPlan and ongoing weed management programs.	TWMC	All stakeholders
1.9	Identify and promote sources of funding for the coordinated management of weeds.	TWMC, rwmo	DPIWE, regional NRM organisations
1.10	Seek resources for projects of community benefit that integrate weed management into a long-term, sustainable, natural resource management approach.	Regional NRM organisations	Local Government, State Government agencies, community organisations

Box 1. Weed database under development

DPIWE is currently developing a centralised State weed database. The database will have two objectives:

1. To provide a central information repository for community and government use.
2. To provide a mechanism by which DPIWE can provide information to the public.

The database will provide information about the biology, ecology, control and impact of important weeds in Tasmania. This information will be linked online to relevant weed strategies and statutory management plans.

There are several benefits from having such a database available for public access. It will:

- provide broader control information about weeds in the State
- improve dissemination of information to the public
- help develop and encourage adoption of a more integrated approach to managing weeds
- provide a central storage system for recording on-ground efforts in weed management
- provide information for the monitoring and evaluation of progress towards community goals, for example Tasmania Together.

Box 2. Case Study: Control of gorse by the Zeehan Landcare Group

Gorse has long been a major problem on the West Coast of Tasmania, posing a fire hazard and threatening the local button grass moorland ecology. Various stakeholders have become involved in an attempt to tackle this problem. The Zeehan Landcare Group, formed in November 2002, decided to take on the gorse challenge and was one of the first Tasmanian groups to receive a WONS grant from the Federal Government.

Besides the WONS funding, the efforts of Zeehan Landcare have been resourced by a number of other key stakeholders and local businesses. These include Forestry Tasmania, the Department of Infrastructure, Energy and Resources (DIER), the Parks and Wildlife Service, the West Coast Council, Renison Bell Ltd and DPIWE.

President of Zeehan Landcare, David Lane, said that the gorse problem in the Zeehan area was so extensive that "there's no way we could have been effective had we just stood there applying herbicides ... gorse is extensive throughout Zeehan and some of the gorse stands were about six metres high so we had to make inroads into the problem." As a result, a mulching machine was brought to the West Coast and used to pulverise large areas of gorse.

Mr Lane also stressed the importance of follow-up control of gorse and the long-term commitment of resources to its eradication, "In the past there would be a gorse removal program but no follow-up, and the gorse just regrew." Zeehan Landcare has this time adopted a long-term strategic approach, which they have called "GROG" (Get Rid of Gorse), and which includes follow-up work on the mulched sites funded by the WONS grant. The group is also developing a land management plan that will include weed management and rehabilitation for Zeehan and its surrounding areas.

Besides its help to Zeehan Landcare, the Australian Government has provided funding to further gorse eradication throughout the West Coast, which has been matched by the agencies involved.

The Zeehan Landcare initiative is a fine example of cooperative, strategic weed management in action.



Cooperative action has led to the removal of gorse at Zeehan.

Component 2: Education, Training and Awareness

It is critical that all weed managers have access to a high standard of education and training.

In addition, many other stakeholders may be unaware of the roles they can potentially play in managing weeds. For this reason, improved awareness of weed issues for industry and the broader community is also essential.

Education and training

Weed management knowledge and technologies are constantly changing. Training providers and stakeholders need to keep up with these changes to ensure that the weed management practices they teach and use are effective and sustainable.

Key training areas include weed identification, hygiene and integrated weed management. Program development and delivery should be tailored to the needs of particular groups. Weed management training opportunities at all levels should be reviewed.

Educating the next generation of land and water managers is also fundamental. Weed education needs to be incorporated into the curricula of primary and secondary schools and into vocational and tertiary training programs.

Awareness

A large part of the solution to managing weeds lies in raising public awareness about the issues and appropriate responses. Often people are not aware of the impact that weeds have on the natural environment and primary production, or that they may be contributing to the problem. For example, people who dump garden refuse in bushland may not recognise this as a potential, serious contribution to future weed infestations in the area.

Awareness programs need to be developed, implemented and maintained. These programs should, where possible, link to existing initiatives such as the National Weedbuster Program and integrate with other events such as field days and garden shows.

As a catalyst for awareness, greater communication and liaison needs to be encouraged between weed managers on weed-related issues.

People demonstrating best-practice weed management should be supported and rewarded. Recognition provides valuable encouragement as well as inspiring greater participation throughout the community.

Strategic actions for improving weed education, training and awareness are listed opposite.

Education, training and awareness: Desired outcome

Increased knowledge and skills in weed management for land and water managers, industry, governments and the whole community.

Strategic actions

Education and training

No.	Action	Lead organisations	Partner organisations
2.1	Promote training in weed identification, weed hygiene and integrated weed management and develop new training opportunities where gaps exist.	DPIWE, Local Government, TWMC, rwmo	Department of Education, private training providers, TAFE, University of Tasmania, regional NRM organisations, community organisations, industry organisations, Tasmanian Herbarium
2.2	Incorporate weed management into educational institution curricula and/or programs.	Department of Education, TAFE, University of Tasmania	Private training providers, DPIWE, schools, Local Government, TWMC, community organisations, rwmo

Awareness

2.3	Maintain public awareness programs for the community and link with existing programs such as the National Weebuster Program.	DPIWE, Local Government, regional NRM organisations, community organisations, rwmo	TWMC, Tasmanian Weed Society, industry organisations
2.4	Seek suitable weed awareness opportunities such as field days and garden shows.	Local Government, regional NRM organisations, community organisations	Nursery and garden industry, TWMC, Tasmanian Weed Society, DPIWE, industry organisations
2.5	Encourage greater communication and liaison between weed managers.	TWMC, DPIWE, rwmo	Community groups, regional NRM organisations, Local Government, community organisations, industry organisations
2.6	Support, reward and promote weed managers demonstrating best-practice.	TWMC, DPIWE, Tasmanian Weed Society, community organisations, rwmo	Local Government, regional NRM organisations, industry organisations

Component 3: Research and Development

Research and development of new and/or improved weed management techniques and procedures are important to the efficiency, effectiveness and sustainability of weed management.

Organisations currently involved in weed management research in Tasmania include the State Government, the Tasmanian Institute of Agricultural Research (TIAR), the University of Tasmania, private research organisations and industry. The research conducted by these organisations addresses various aspects of weed management, including weed biology, weed distribution, impacts on primary production, weed control, biological control, plant taxonomy and herbicide development. An example of a successful research project is described in Box 3 (page 17).

There are opportunities for organisations to collaborate further with other national and international programs. It is also important that these organisations promote their research activities, where appropriate, to increase collaborative opportunities and inform potential research beneficiaries of progress.

In general, private companies conduct research into marketable weed control products or technologies of direct relevance to a particular industry. Industry has input into priority setting and resource allocation for weed research through various agricultural research advisory committees (ARACs) with an emphasis on

agriculture. It is important that this research and development continue and that stakeholders are aware of the results.

Government and universities usually undertake other types of weed research, mostly in areas likely to require public funding because of a limited commercial benefit. Priority setting and resource allocation for other weed research issues need to be addressed in Tasmania.

Some of the key research issues with a largely non-commercial focus include:

- Weed control in bushland and conservation areas
- Assessment of potential or current weed impacts
- Integration of weed control into land management strategies
- Reduction of herbicide use
- Taxonomic review of weed species
- Monitoring the development of herbicide resistance
- Assessment of the environmental effects of weed control technologies
- Long-term, medium to high-risk research. For example, research into biological control of weeds
- Weed mapping and monitoring of weed infestations.



In-crop herbicide trials are conducted by many agricultural organisations. For instance, this trial by Bejo Australia is testing new products for weed control in red beet.

Specific actions for improving Tasmania’s weed research and development capacity and outputs are listed below.

Research and development: Desired outcome

Improve knowledge, technology, skills, capacity and ability to solve weed management problems.

Strategic actions

No.	Action	Lead organisations	Partner organisations
3.1	Facilitate collaboration and communication between weed researchers at State, national and international levels.	TIAR, University of Tasmania, private researchers	DPIWE, TWMC
3.2	Identify, document and promote current research activities conducted by State and national agencies and groups.	DPIWE, TIAR	CRC for Australian Weed Management, TWMC
3.3	Develop a priority list and allocate resources for weed research issues not dealt with by industry ARACs.	TWMC	DPIWE, TIAR, University of Tasmania, rwmo
3.4	Identify funding sources and opportunities for weed research.	TIAR, private researchers	CRC for Australian Weed Management, TWMC, rwmo

Box 3. Case Study: Biological control of ragwort – a Tasmanian success story

Ragwort is one of the most widespread and serious weeds of pastures in high rainfall areas of Tasmania. A 1987 survey showed that ragwort was limiting production on 16,000 hectares of pasture and that a further 270,000 hectares were vulnerable to ragwort infestations. Annual losses to the Tasmanian dairy industry from ragwort through losses in pasture production and stock poisoning have been estimated at over \$1 million in some years. In addition, ragwort is a significant weed on roadsides and in forestry and bushland areas. Control by conventional means is expensive and particularly difficult in steep country and bushland.

The ragwort flea beetle was released in Tasmania in 1979 after extensive testing which showed that it would only feed on ragwort. As the beetle passes through only one generation each year, populations were initially slow to increase. However, eight years after release populations had increased to very high levels, reducing ragwort populations by up to 95% at some sites. The spread of the beetle was accelerated with the help of individual land-holders and Landcare groups. Nearly two million beetles were transferred to new sites between 1993 and 1999. Most of these transfers resulted in successful establishment and the beetle now occurs throughout the State in all of the major ragwort infestations.

Three other biological control agents; the ragwort stem and crown boring moth and the ragwort plume moth have now been successfully established in Tasmania. Their effects are expected to complement those of the ragwort flea beetle, resulting in more widespread control because they are better adapted to surviving in areas considered unfavourable to the beetle.

During the next few years, work will continue on the establishment and spread of these new agents, and on a research program to investigate their efficacy and the impact of herbicides and grazing animals on their populations. The results will be used to design a new integrated management strategy for ragwort incorporating all three agents.

Component 4: Coordination and Cooperation

Weed problems are not limited by administrative or land tenure boundaries. Accordingly, weed management activities need to be highly coordinated at property, local, regional or State levels, as appropriate. The aim of shared responsibility is to ensure that management activities are complementary rather than overlapping or duplicated. A lack of coordination or poor coordination can lead at best to sub-optimal results. At worst it can result in total failure of a program.

There are many examples of effective coordination at all levels.

The TWMC coordinates weed management at the State level by overseeing the implementation of WeedPlan. In order to effectively implement and coordinate WeedPlan, the TWMC requires appropriate representation and commitment from all key stakeholders in weed management in Tasmania and it needs to operate effectively to accomplish TWMC business.

At regional and local levels there has been a high level of activity in the last few years in the form of weed strategy projects. Funded by the Natural Heritage Trust, State and Local Government and other sponsors and stakeholders, the strategies provide useful frameworks for weed management at these levels. A map showing the impressive extent of the development of regional weed management planning in Tasmania over the past eight years is provided as Map 1 (page 19).

Local and regional strategies, while receiving enthusiastic support from the community, nonetheless require ongoing proficient coordination. DPIWE's Regional Weed Management Officers can assist to some extent, but dedicated local and regional coordinators are a proven, effective means of motivating and mobilising communities against weed problems in their areas. Securing and resourcing weed strategy coordinators is vital to the success of management strategies at these levels. Box 4 (below) describes an example of a successful community weed management strategy.

State Government agencies that manage weeds also need to coordinate their activities better by program integration. This will ensure efficient use of State Government resources for weed management.

Weed management programs in Tasmania will further benefit from linkage with programs in other states and territories, and with national and international initiatives. Sharing information will improve the effectiveness of weed management in Tasmania as well as contributing to national and international programs

Specific actions for improving weed management coordination and cooperation in Tasmania are listed opposite.

Box 4. Case Study: A successful community weed management strategy

In 1997 a Landcare and Waterwatch facilitator began work in the Break O'Day Municipality. One of the projects was to form a Weed Strategy Group to provide a forum on weed management, because the increasing spread of invasive weeds was concerning the community.

During late 1997 contact was made with organisations, community groups and individuals interested in joining the group. As the municipal boundary differed from other organisational boundaries and adjacent weed management groups needed to work together, it was decided to include representation from outside the Break O'Day Municipality.

The first regular meeting of the Weed Strategy Group was held in January 1998, with subsequent meetings conducted approximately every six weeks. At the second meeting it was decided that the working area of the group would include all the catchments beside the Tasman Sea, between and including the towns of Ansons Bay in the North and Orford in the South.

Funding was sought from the Australian Government's Natural Heritage Trust in 2000 for a full-time coordinator. The application was successful and the coordinator was employed full-time from February 2001. This coordinator gave the time necessary to drive the volunteer group and was instrumental in its success.

One of the major achievements of the group has been the production of a booklet that details the weeds causing an impact on Tasmania's East Coast. The booklet contains information on general weed management and includes photographs and descriptions of 46 weed species. Other major achievements include the on-ground weed management of a number of weeds including broom, Spanish heath, gorse and boneseed.

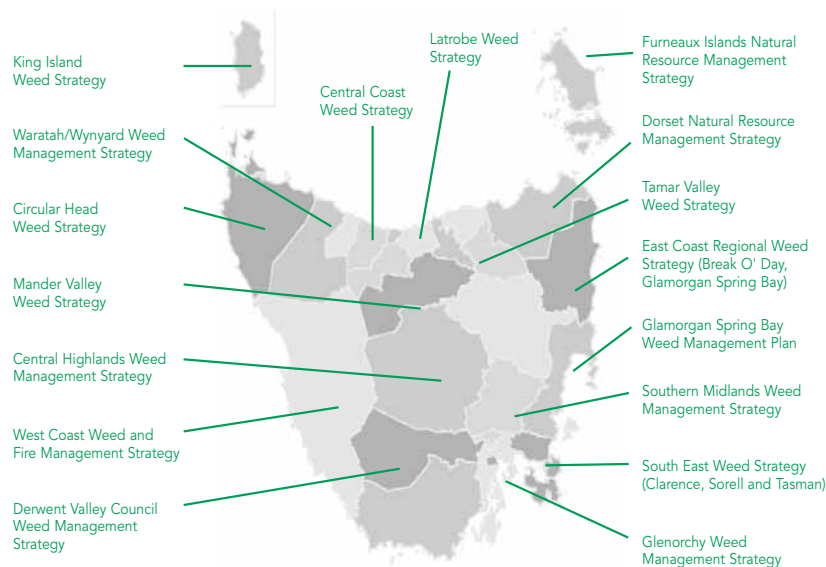
Coordination and cooperation: Desired outcome

Coordinated and cooperative action by weed managers.

Strategic actions

No.	Action	Lead organisations	Partner organisations
4.1	Continue the development and implementation of weed management strategies and programs at State, regional, local and property levels.	Regional NRM organisations, DPIWE, Local Government	Property owners, community organisations, industry organisations
4.2	Review the membership, terms of reference and operations of the TWMC to place it in a strong position to implement WeedPlan.	TWMC	DPIWE
4.3	Provide support for community weed management programs.	DPIWE, Local Government, rwmo	Regional NRM organisations, community organisations
4.4	Pursue improved program integration between land managers, especially State Government and managers of potential corridors of weed spread.	TWMC	DTPHA, DIER, DPIWE, Local Government, Tasrail, land managers, rwmo, industry organisations
4.5	Link weed management programs in Tasmania with those in other states and territories, and with national and international programs.	DPIWE	Regional NRM organisations, TWMC, community organisations
4.6	Facilitate knowledge sharing between organisations that produce weed management information both within and outside Tasmania.	DPIWE, TWMC	DPIWE, University of Tasmania, Tasmanian Herbarium, TWMC, community organisations, rwmo, Tasmanian Weed Society

Map 1: Municipal weed strategies in place as of November 2004



Component 5: Prioritisation and Integration

Two essential elements of weed management are prioritisation and integration. Prioritisation is important because it is rarely possible for weed managers to undertake simultaneous programs for all infestations of all weeds in their jurisdictions. Furthermore, integration of weed management with other plans is necessary to reduce conflicts of approach and interest.

Prioritisation

Prioritisation is often a difficult part of planning and requires sound conceptual frameworks, accurate data and a clear understanding of the impacts of weeds upon the objectives of the group or organisation concerned.

A robust weed prioritisation process helps to determine the relative risk posed by particular weeds in a variety of contexts. The process needs to be adaptable for use at all weed management levels and should be applicable to both existing and potential weeds. It will need to integrate well with international and national methods of weed risk and weed management feasibility assessment.

In some cases, weed priorities have already been established. The Weeds of National Significance program and Tasmania's declared weeds list are examples.

A national standard for weed prioritisation is being developed with Tasmanian input. This promises to be an extremely useful tool and model for setting State weed priorities.

Integration

Weed management programs benefit greatly from integration with other relevant land and water management plans, strategies, programs and processes.

All regional and local weed strategies need to be revised regularly to maintain consistency and alignment with National and State policies and strategies. Of particular importance for integration of weed management issues are the emerging regional frameworks for natural resource management. It is also important that weed management planning is integrated with land management plans undertaken by Local Government.

Integration also relates to the development and implementation of operational plans for weed management. This includes the development of operational plans for the implementation of WeedPlan itself. These will unpack the strategic actions and break down the tasks to a level that is suitable for work plans of teams or individuals.

Specific actions to improve Tasmania's capacity for weed management prioritisation and integration are listed opposite.

Prioritisation and integration: Desired outcome

Objective processes for setting priorities for weed management programs and effective integration with other relevant plans, strategies and legislation.

Strategic actions

Prioritisation

No.	Action	Lead organisations	Partner organisations
5.1	Establish a priority-setting process suitable for use at all levels of weed management planning.	DPIWE	Regional NRM organisations, TWMC, rwm0
5.2	Ensure that nationally significant weeds and declared weeds are given priority at all planning levels.	DPIWE	All stakeholders

Integration

5.3	Ensure consistency of weed management plans at all levels.	DPIWE, regional NRM organisations	All stakeholders
5.4	Encourage the inclusion of weed management planning in all land management plans.	DPIWE	Regional NRM organisations, Local Government, State Government organisations and business enterprises
5.5	Integrate weed issues into the development and implementation of State and regional NRM plans.	DPIWE, regional NRM organisations	TWMC
5.6	Develop an operational plan for WeedPlan.	TWMC	DPIWE, rwm0

Component 6: Biosecurity

Biosecurity encompasses a range of existing and emerging approaches to preventing the introduction and spread of pest organisms.

The purpose of a biosecurity component in WeedPlan is to establish and highlight the fundamental value and necessity of preventative weed management.

Preventing weed introduction

Tasmania's island status gives it a unique advantage over Australian mainland states and territories. Many weeds common to the mainland and with potential to establish in Tasmania have yet to breach the barrier of Bass Strait. However, the natural barrier is not impenetrable and increased trade and travel mean there are many opportunities for repeated introductions of plants that may become serious weeds in this State.

Plant species that may become weeds in Tasmania may be imported deliberately or accidentally. Exotic plants and plant products are imported for human and animal food and as commercial species for primary industries. Weed propagules may also enter the State as contaminants of agricultural products, attached to animals or contained in soil or trash on machinery and vehicles. Some of these plants may become weeds.

Tasmania has strict quarantine laws designed to limit accidental or deliberate importation of serious weeds. The Plant Quarantine Act 1997, administered by Quarantine Tasmania, is the principal legal instrument under which weed entry is regulated. Quarantine Tasmania also maintains The Plant Quarantine Manual. This provides clear direction to all travellers and traders about statutory conditions and requirements that apply to plants and plant products entering the State.

In addition, quarantine officers perform targeted inspection and surveillance at ports, airports and mail centres. Heavy fines are issued for breaches of quarantine laws and are an effective deterrent to deliberate or careless weed importation.

However, Tasmanian quarantine laws are based on a prohibited list approach rather than a permitted list approach. This means the laws apply only to species that have been officially listed as prohibited under the Act. Compared with the number of weeds that could potentially enter and establish, the prohibited list is relatively small. Consequently, many other plants with potential to become weeds in Tasmania may enter the State lawfully. This situation provides an enormous challenge to preventative weed management.

Legislative review, a well-resourced system for assessing the weed risks of all imported plant material, and concerted awareness initiatives for groups and industries who import unregulated plants with weed potential may all provide valuable contributions to better weed biosecurity. Any such initiatives would also need to consider potential benefits from introduction of plant species in Tasmania.

Rapid response

New weeds will continue to enter and become established in Tasmania despite best preventative efforts at State borders. Accordingly, commitment to well-planned, fully resourced, prompt action is required. A comprehensive rapid response capacity incorporates field and desktop surveillance and intelligence gathering; efficient information management; strategic and operational planning; and the negotiation of resources, roles and responsibilities well before the detection of a new or significant weed incursion. Attaining a high level of preparedness is critical to mounting a timely and effective response.

Many elements of a sound rapid response system were developed under the first WeedPlan. The Weed Alert Network, comprising people who engage in post-border weed surveillance, and the Weed Incursion Response Group convened under the TWMC are examples.

Box 5 (page 25) describes a successful rapid response to a potentially costly and serious weed threat.

"New" weed species may also arise from plant populations already established in Tasmania.

In particular, so-called “sleeper weeds”, apparently benign species that have yet to exert negative impacts, are of concern. While a helpful conceptual framework for understanding sleeper weeds is emerging, little is actually known about the mechanisms that limit or encourage their potentially weedy behaviour. Consequently, a careful watching brief is required.

Similarly the possibility of herbicide-resistant or genetically modified plants expressing weediness also requires systematic monitoring.

Weed spread within Tasmania

Weed spread within Tasmania presents an additional, significant biosecurity challenge. Many of the approaches that apply to weed prevention at the border are also relevant to limiting post-border weed problems. In particular, incorporation of strict hygiene protocols into all activities potentially giving rise to weed spread is critical. This applies especially to management of roadsides, rail verges, waterways and other corridors along which weeds are spread.

Weed hygiene is also highly relevant to quarry and earthmoving operators, agricultural contractors and those responsible for vegetation management around linear assets, such as

powerlines. Other nodes from which weeds may spread include grain storage and distribution facilities, and stockyards. A number of initiatives addressing weed spread in Tasmania have emerged over recent years. These include quality assurance programs, voluntary codes of practice and better wash-down procedures and technology.

As well as good hygiene, controls that are strategic and prioritised greatly assist in inhibiting the spread of established weeds. This can include focussing efforts on outlying populations, property boundary control and assessing the feasibility of eradicating weeds with limited distribution. For example, DPIWE undertakes regular monitoring and status reporting for a range of serious weeds for which eradication or a high level of containment appears possible.



Hygiene measures, such as this serrated tussock wash-down station, are necessary to prevent the spread of weeds within Tasmania.

Strategic actions for increasing Tasmania's biosecurity capacity are listed below.

Biosecurity: Desired outcome

Minimised risk of introduction and spread of weeds in Tasmania.

Strategic actions

Preventing weed introduction

No.	Action	Lead organisations	Partner organisations
6.1	Develop and implement strategies to minimise the introduction of new weeds to Tasmania.	AQIS, DPIWE	Industry organisations, TWMC
6.2	Investigate the feasibility of a weed risk-assessment process for all plant material imported to Tasmania.	DPIWE	TWMC, industry organisations
6.3	Compile and publicise a list of plant species and genotypes with known or potential significance as weeds to discourage their use by nurseries, landscape gardeners, and land and water rehabilitators.	DPIWE	Nursery and garden industry, TWMC, Tasmanian Herbarium.

Rapid response

6.4	Develop and implement contingency plans for the rapid eradication of new weed species.	DPIWE	Regional NRM organisations
6.5	Develop and implement strategies to minimise the establishment of new weeds in Tasmania such as supporting the Weed Alert Network.	DPIWE	TWMC, rwmo

Weed spread within Tasmania

6.6	Develop and implement measures to prevent the spread of weeds within the State.	DPIWE, rwmo	TWMC, industry organisations
6.7	Include weed-spread prevention measures in weed action plans.	Local Government, rwmo.	All Stakeholders.
6.8	Implement good neighbour programs to minimise weed invasion between public and private land.	State Government, Local Government	TWMC, private land owners and users, rwmo, industry organisations

Box 5. Case Study: Eradication of mouse-ear hawkweed on the Heritage, Midlands Highway

Mouse-ear hawkweed (*Hieracium pilosella* L. subsp. *nigrescens*) is grown for its herbal and ornamental properties, and has been sold in the past by nurseries in Australia. Native to England, it has become a widespread weed in Canada, New Zealand and the United States. It is now prohibited entry into Australia and is subject to a national weed alert issued by the Australian Quarantine Inspection Service (AQIS). The threat of this weed in Tasmania has been compared with its invasion in New Zealand, where it degrades unimproved tussock grasslands. Similar grasslands in Tasmania are considered a high conservation priority as well as being important for livestock grazing. Any invasion of this weed threatens the biodiversity of these significant areas as well as the grazing industry.

Mouse-ear hawkweed was found on the Midlands or Heritage Highway near St Peters Pass in Southern Tasmania in January 2001, during a routine botanical survey for proposed road works. It was the first record of this weed in Tasmania. The infestation was small, located along a roadside fence and in the adjacent paddock. It covered an area of approximately 50 square metres in three patches of very high density (about 40% to 80% cover). Upon confirmation of the weed's identity by the Tasmanian Herbarium, the Tasmanian Weed Incursion Response Plan was triggered.

An eradication program was negotiated with DIER and approved by DPIWE. The operation was easily incorporated at little extra cost into the road-widening works by scalping the soil of the infested area and deep-burying it on-site beneath the road. Machinery involved in the eradication process was washed down in a dedicated on-site hygiene area. No plants were detected in follow-up monitoring in 2002.

In order to locate further occurrences of this weed, educational material was forwarded to the Weed Alert Network, and Landcare and farmer organisations. The involvement of Landcare and farmer organisations encourages input from private landowners as well as those working on public land, and it allows for a coordinated approach between relevant parties should another infestation be located.

Component 7: Policy Support and Regulation

An appropriate policy and legal framework is essential to successful weed management. Specific Tasmanian legislation supports the management of many serious weeds. This, combined with existing and emerging policy, forms a potentially strong regulatory framework.

Weed legislation

The Tasmanian Weed Management Act 1999 provides for the prevention, control and eradication of declared weeds and promotes a strategic and sustainable approach to weed management. Declared weeds include plants that have had or may have an adverse impact on the State's natural resources (including agricultural resources) and conservation values. DPIWE administers this Act.

The Act requires a statutory weed management plan to be devised for each declared weed. These plans interpret the Act for each weed and prescribe actions that landowners and others are legally obliged to undertake. The plans are developed by DPIWE in consultation with both the wider community and TWMC. This ensures that the legal prescriptions are achievable, support existing strategic weed management initiatives and are therefore likely to be useful to and accepted by most weed managers.

The statutory plans give clear guidance on fair and reasonable expectations for declared weed management. The Act supports the plans by providing an enforcement capacity. Authorised Weed Inspectors are trained to use their legal powers strategically, discriminately and consistently, and only after options to negotiate a suitable outcome have been exhausted. The Act is a valuable tool for forcing cooperative action from landowners and others who are unwilling to support strategic weed management.

The Weed Management Act 1999, the statutory plans and the list of declared weeds will each require periodic review to maintain relevance and effect.

Other legislation

Several other pieces of national legislation also influence weed regulation in Tasmania, mostly in specific contexts of crop and nature protection.

The other legislation that is most relevant to Tasmanian weed management concerns State quarantine. The Tasmanian Plant Quarantine Act 1997 has strong and useful provisions for preventing the entry of weeds. DPIWE's policy is to maintain and enforce the same list of target plants under both the Plant Quarantine Act 1997 and the Weed Management Act 1999. This is one example of how congruence between various laws may be achieved, but there are many other instances in which clear policy remains to be developed.

Policy

All key weed managers need to examine their policy portfolios and appraise them in terms of capacity to contribute to WeedPlan outcomes and strategic actions. For example, DPIWE has identified a number of policy gaps that it must fill if it is to administer the Weed Management Act 1999 successfully.

Constructive weed policy is not the exclusive realm of State and Local Government or big business. The Agricultural Contractors of Tasmania Incorporated has a relatively small membership and limited funding base. Yet it has recently developed a comprehensive code of practice for weed hygiene. This initiative is described in Box 6 (page 27).

Strategic actions for improving Tasmania’s weed legislation and policy framework are listed below.

Policy support and regulation: Desired outcome

An appropriate legal and policy framework to support local, regional and State-wide management of weeds.

Strategic actions

No.	Action	Lead organisations	Partner organisations
7.1	Review and revise Tasmania’s declared weed list.	DPIWE	TWMC
7.2	Develop, review and implement statutory management plans for declared weeds.	DPIWE	TWMC
7.3	Promote effective enforcement programs for declared weeds.	DPIWE	Local Government, rwmo
7.4	Encourage the linkage of weed management initiatives with State and national legislation, policies and programs.	DPIWE	TWMC
7.5	Promote sound weed management through appropriate policies.	DPIWE	TWMC, rwmo, Local Government

Box 6. Case Study: Agricultural contractors bail up weeds

Agricultural Contractors of Tasmania Incorporated (ACTI) has developed an accreditation system for weed hygiene. This system will greatly assist efforts to reduce the inadvertent distribution of weeds around the State and could well serve as a model for other sectors seeking to minimise the risk of weed spread associated with other activities. There are two components to the proposed weed hygiene accreditation system: a code of practice and compliance assessment.

The code of practice provides straightforward guidance to contractors about improving their weed hygiene practices. The code has three parts. The first relates to weed identification skills and weed management knowledge. The second part addresses selection and preparation of appropriate clean wash-down sites, while the third specifies clean-down procedures for various types of vehicles, implements and equipment.

DPIWE has lent its support to this initiative by offering to complete compliance assessment for the code of practice. An external auditor is vital to maintaining transparency and objectivity in the way the system works. The audit begins with an application for accreditation by the contractor. DPIWE then undertakes an audit in which the auditor checks that the contractor satisfies each part of the code of practice. To do this, the contractor will have attended a weed workshop and obtained an appropriate weed identification resource for use in the field. He or she should also be able to demonstrate an understanding of why and how weed hygiene should be maintained. The contractor should show that he or she completes a weed hygiene job-sheet for each job undertaken. The results and recommendations of the audit will be provided to both ACTI and the contractor. ACTI will then either accept or reject the application for accreditation. Thereafter, annual audits will occur.

The ACTI initiative for weed hygiene is a great example of a grassroots organisation taking its own weed management policy issues in hand.

Component 8: Monitoring and Evaluation

The success or otherwise of WeedPlan can only be gauged through a rigorous program of monitoring and evaluation.

Such a program needs first to establish criteria against which progress in each strategic action can be validly measured or appraised. The program should also prescribe a review timetable that incorporates both short-term and mid-term evaluation activities.

Previous experience suggests that a five-year review period is adequate for WeedPlan and that formal yearly reviews of strategic actions would be a valuable improvement. Annual reporting on strategic action criteria would facilitate more timely responses to unforeseen issues, obstacles or problems, and also provide a trigger for modifying strategic action, where necessary. In addition, demonstration of good progress through formal evaluation is an important tool for maintaining interest, confidence and morale.

The principal responsibility for monitoring and evaluating WeedPlan's progress lies with the TWMC. However, it cannot accomplish this large and complex task without assistance and input from key weed managers.

It is also important that the status of weeds in Tasmania is accurately monitored and assessed. While this is a normal part of strategic weed management, it receives special emphasis here because the results also help indicate whether the aim of WeedPlan is being achieved. DPIWE already undertakes a number of priority weed-reporting activities, including incursion reports for new weeds and WONS status reports.

Strategic actions for improving weed monitoring and evaluation efforts are listed below.

Monitoring and evaluation: Desired outcomes

Mechanisms to monitor and evaluate the success of WeedPlan and the status of weeds.

Strategic actions

No.	Action	Lead organisations	Partner organisations
8.1	Establish criteria to evaluate the implementation and effectiveness of all actions under WeedPlan.	TWMC	DPIWE
8.2	Monitor, evaluate and report on the performance of WeedPlan strategic actions annually.	TWMC	DPIWE
8.3	Review WeedPlan in 2009/10.	TWMC	DPIWE
8.4	Monitor, evaluate and report on the status of weeds in Tasmania.	TWMC, DPIWE, rwm	All stakeholders

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Abbreviations

ACTI	Agricultural Contractors of Tasmania Incorporated
AQIS	Australian Quarantine Inspection Service
ARAC	Agricultural Research Advisory Committee
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DIER	Department of Infrastructure, Energy and Resources
DPIWE	Department of Primary Industries, Water and Environment
NRM	Natural Resource Management
rwmo	regional weed management organisation
TAFE	Technical and Further Education
TAPG	Tasmanian Agricultural Productivity Group
TFGA	Tasmanian Farmers and Graziers Association
TIAR	Tasmanian Institute of Agricultural Research
TWMC	Tasmanian Weed Management Committee
WONS	Weeds of National Significance

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Tasmania

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