GLENELG HOPKINS

REGIONAL WEED PLAN

2007 - 2012

Glenelg Hopkins

CMA

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EXECUTIVE SUMMARY

Effective weed management is a key element in improving the economic, social and environmental wellbeing of the Glenelg Hopkins community. The Glenelg Hopkins Regional Weed Plan takes a multi-layered approach to ensuring minimal impacts of weeds on identified priority assets in the region.

Prevention, early intervention and eradication, reduction and containment are the key strategies for weed management that are outlined in the plan and reflected in the development of regional goals. The plan also highlights the need for integration of weed management with sustainable agriculture and other natural resource management activities, and the importance of partnerships, co-investment and community capacity building in order to achieve these goals.

The key strategies involve a combination of species-led and site-led management approaches which aim to protect assets from both potential or emerging weed threats and existing weed infestations. A biosecurity framework for preparedness, surveillance, risk assessment and response takes into account potential invasiveness and pathways to weed establishment, and will equip the region to deal with any emerging weed issues.

The Glenelg Hopkins Regional Weed Plan details the roles and responsibilities of a range of stakeholders and the general community in tackling weed management, and outlines the investment principles which will guide resource allocation and determine the costs and benefits in implementing the various strategies. It complements various other natural resource management strategies, and is aligned to the Regional Catchment Strategy so that key sustainability goals can be met. It has incorporated extensive stakeholder and community consultation for a variety of land tenures.

Finally, a monitoring and evaluation program forms an integral part of the plan and will help determine the effectiveness of its implementation and future opportunities for improvement in weed management in the region.

1. INTRODUCTION

The Glenelg Hopkins Regional Weed Plan is a five year plan that is delivered within the region as a sub-strategy to the Regional Catchment Strategy (RCS). Figure 1 identifies the position of the Regional Weed Plan among the various state and regional plans and strategies.

The purpose of the Glenelg Hopkins Regional Weed Plan is to provide an overarching strategic plan, supported by the community, for the management of weeds for all land tenures. The plan provides sufficient information and strategic direction to guide investment decisions. It does not provide guidance on specific works to be undertaken but does include information relating to the:

- identification of responsibilities for weed management across land tenures
- setting of clear goals and processes for weed management on a regional scale
- description of priority environmental, economic and social assets in the Glenelg Hopkins region
- consistency with federal and state policies and strategies
- provision of a framework for investment in weed management to guide federal and state government, government agencies and the community
- provision of principles for resource allocation and a description of regional priorities for action across all land tenures
- evidence-based strategy approach and community consultation
- provision of an adaptive management system to allow updates of weed lists and other data
- establishment of monitoring, evaluation and reporting processes for weed management programs
- identification of the beneficiaries and community benefit of weed management in the Glenelg Hopkins region.

Prior to producing guidelines for the development of the new plan, a statewide review of past weed plans was undertaken and, where possible, the findings have been incorporated into the current draft document to ensure continued progress towards achieving weed management objectives. Some of the key issues from the review were the inclusion of environmental weeds, increased focus of available resources on prevention and early intervention of new and emerging species, rather than widespread and established weed problems, and an increased level of coordinated community action to tackle weed problems in local areas.

2. FUTURE DIRECTIONS FOR WEED MANAGEMENT

2.1 VISION FOR WEED MANAGEMENT

For the purpose of the new Regional Weed Plan, a weed is defined as

> *a plant that has, or has the potential to have, a detrimental effect on economic, social or environmental assets.*

This definition enabled the development of the vision, which is

> *ongoing protection of social, environmental and economic assets in the Glenelg Hopkins region, with no further increase in weed numbers or distribution.*

To achieve this vision the plan has been developed using a biosecurity framework based on prevention, preparedness, surveillance, risk assessment and response. This framework has been applied to asset-led and species-led approaches to protect identified catchment assets from the impact of weeds. The use of both approaches combines an emphasis on the eradication of new and emerging weeds with the protection of assets that are under threat from established weeds.

3. MANAGEMENT OBJECTIVES AND GOALS

The overarching objectives of this weed plan are aligned with those of the Victorian Pest Management Framework (VPMF) and reflect the need for prevention, early intervention and eradication of new and emerging terrestrial and aquatic weed species. Reduction and containment of species threatening assets is also highlighted. This combines the species and asset-based approach to protect high value assets in the Glenelg Hopkins region regardless of land tenure.

Goals were identified through numerous structured workshops with the State Pest Plant Working Group and an independent statewide evaluation of the current weed plans.

Specific goals for weed management in the Glenelg Hopkins region are listed below with goals 1-4 in preferential order of management.

Goal 1: Prevent the introduction of new weeds into the region

Goal 2: Eradicate infestations of State and Regionally Prohibited Weeds and other new and emerging weeds within the region

Goal 3: Reduce the impact of establishing weeds on regional assets with support from the community-led effort in reducing these weeds within the region

Goal 4: Contain established weeds to protect regional assets with support fromthe community-led effort in containing these species within the region

Goal 5: Integrate weed management with sustainable agriculture and other natural resource management activities

Goal 6: Promote and improve partnerships for coordination of weed management in the region across all land tenures

Goal 7: Increase community capacity for effective long-term control of weeds

Goal 8: Establish effective monitoring, evaluation and reporting of weed management in the Glenelg Hopkins Catchment Management Authority (CMA) area

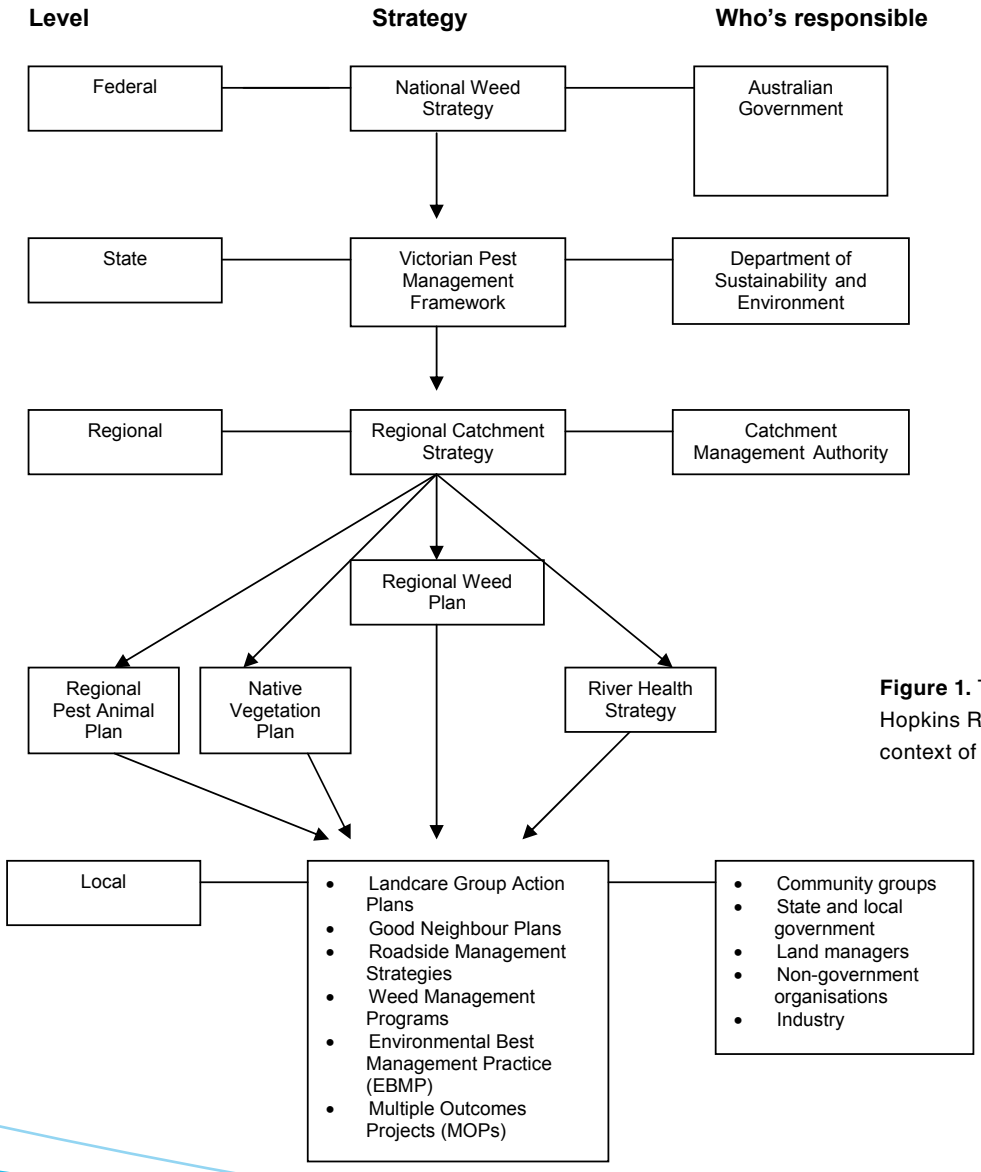


Figure 1. The relevance of the Glenelg Hopkins Regional Weed Plan in the context of existing weed strategies

4. STRATEGIES FOR WEED MANAGEMENT

During their establishment, all weeds follow the invasion curve as shown in Figure 2. The curve emphasises the need for two approaches for effective weed management; a species-led approach and an asset-led approach.

4.1 THE SPECIES-LED APPROACH TO WEED MANAGEMENT

This approach is used in stages 1-3 of the curve in Figure 2 and is also used to achieve goals 1 and 2. However it may be applicable to goal 3 if the weed species in question is in the early stages of establishment. It involves focusing on a particular species regardless of where it occurs due to its ability to have severe future impacts through its potential to spread and reduce the value of social, environmental or economic assets in the region. Activities carried out to achieve these goals will be aimed at the complete eradication of the species, not its containment.

Implementing the species-led approach

Prevention (Stage 1, Goal 1)
This applies to declared and non-declared high-risk weeds that are not currently either in the state or in the region. This includes a priority group of 410 species from within the candidate list known as Victorian Alert Weeds.

Actions involve:

- identification of weed introduction pathways and spread mechanisms
- prevention of the introduction of new weeds
- reporting on potential new weed introductions
- maintaining clean pathways.

To be effective, prevention of new weeds establishing in the region will involve a concerted government-led effort with support from the community.

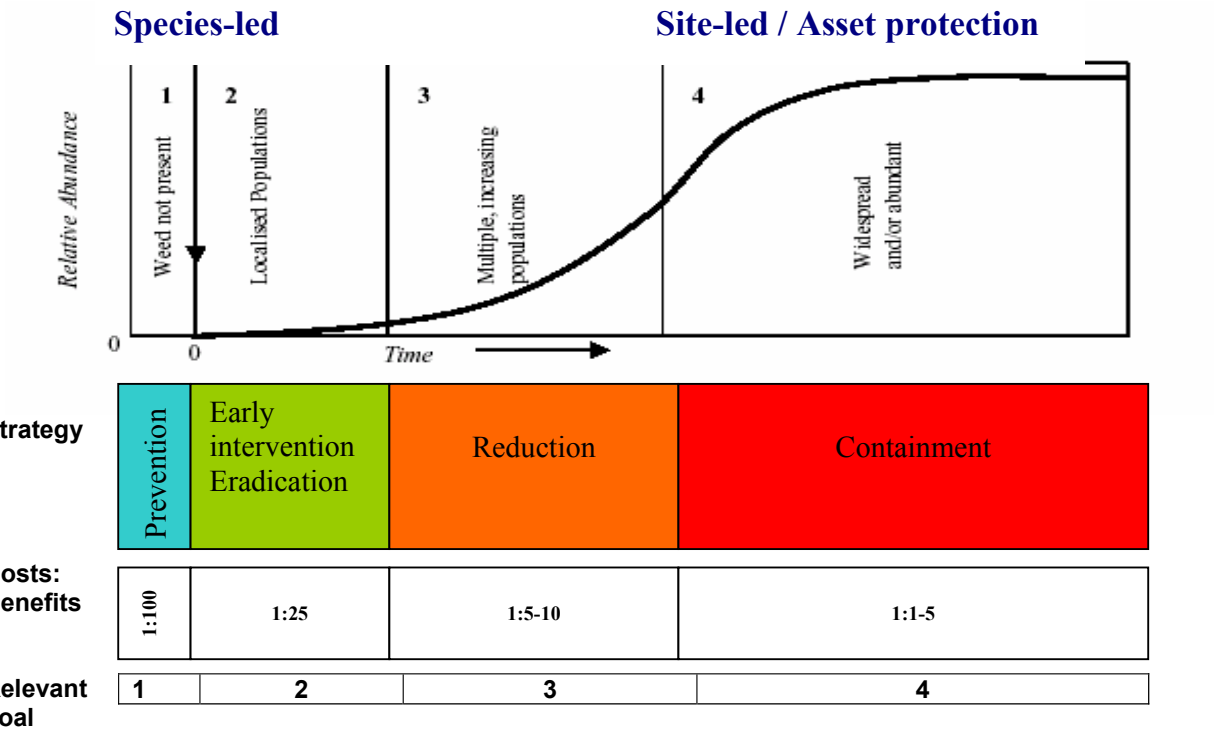


Figure 2: Invasion curve indicating stages of expansion of a new species into a habitat (graph modified from Weiss and Ioconis, 2002, appropriate management strategy, potential costs:benefits of intervention at various stages of invasion of a weed species (Weiss, pers. comm.) and the relevant goal.

Early intervention and eradication (Stage 2, Goal 2)
All high-risk new and emerging weeds can be eradicated before they become established, as infestations are small. This includes some sleeper weeds that occur in small, isolated populations, which have a low-risk where they currently occur but have the potential to become high-risk weeds if in a more conducive environment.

This type of management applies regardless of where the weed occurs in the Glenelg Hopkins region. Management of pathways of spread is critical to achieving the eradication of these weeds.

In the early stages of expansion into a new area, eradication of a weed may be feasible if:

- infestations are <100 ha
- there are <3 infestation sites
- sites are easily accessible
- the species is easily recognisable
- restrictions on trade are made, if it is a plant that is currently traded.

Priority species for early intervention and eradication are State Prohibited Weeds and Regionally Prohibited Weeds. Some Victorian Alert Weeds and other high-risk weeds will also be identified as high priorities after undergoing Weed Risk Assessments (WRAs) and therefore may have resources allocated to their eradication.

Responsibility for control of State Prohibited Weeds falls with the Victorian Government while responsibility for control of Regionally Prohibited Weeds falls with the land manager. Where a weed alert species or other high-risk species is found to be a high priority through a WRA score and is eradicable from the state then resources may be allocated by government to achieve this goal, together with declaring the species as a State Prohibited Weed. Where a weed is determined to be of lower priority through a WRA and is eradicable from the state, this may be achieved through a voluntary removal program.

Schedules 2a, 2b and 2c provide examples of species that will be priorities for early intervention and eradication.

Reduction (Stage 3, Goal 3)
The decision to use reduction as a species-led management tool is appropriate when a weed species is becoming established in the region and its distribution is minimal. This minimal distribution therefore allows a management approach to focus on the species as a whole, in particular their pathways of spread to achieve a long-term goal of eradication.

Community and national-led efforts are supported in reduction actions, particularly those relating to declared weeds and some Weeds of National Significance (WONS) that have community-based management groups. WONS are those weeds which have been identified as already causing significant environmental and economic damage Australia-wide.

Activities to increase community awareness and willingness to participate in and develop programs to reduce and prevent the spread of these weeds is encouraged and promoted.

Schedules 3a and 3b provide examples of species that will be priorities for species-led reduction.

4.2 THE ASSET-LED APPROACH TO WEED MANAGEMENT

This approach is used in stages 3-4 of the curve in Figure 2 and is also used to achieve goals 3 and 4. It also supports goal 5 by taking a blind tenure approach to weed management in the Glenelg Hopkins region.

An asset is identified as a physical feature in the landscape that has environmental, social or economical values that can be compromised by weed impacts. The aim of the asset-led approach is to protect assets from established weeds that have potential or existing impacts.

Managing the containment of a weed, at either the asset site or nearby, is applicable when a weed is widespread and beyond eradication. A decision as to whether or not to treat weeds is based on the value of the asset under threat from the weed and the risk that the weed poses to the asset. The support of active community groups such as the various task forces and working groups can greatly enhance the value of this approach, and needs to be taken into account when prioritising where established weed management programs will be funded.

When using the asset-led approach to pest management, a weed management program will be supported that addresses all weed species that threaten assets. This is regardless of legal status under the Catchment and Land Protection Act 1994 (CaLP Act) and whether the species is declared, as often in the case of public land assets the weed threats are non-declared high-risk environmental weeds.

Implementing the asset-led approach

Reduction (Stage 3, Goal 3)
The decision to use reduction as an asset-led management tool is appropriate if the weed species is becoming established in the region and its distribution only allows a management approach that addresses the threat it poses to assets either directly or indirectly. The aim is to reduce the size of the infestation to minimise the impacts on high priority assets, particularly through a focus on their pathways of spread.

Community and national-led efforts are supported, particularly for those declared weeds and some of National Significance that have community-based management groups. Activities to increase community awareness and willingness to participate in and develop programs to reduce and prevent the spread of these weeds will be encouraged and promoted.

Schedule 3c provides examples of species that will be priorities for asset-led reduction.

Containment (Stage 4, Goal 4)
Containment prevents the further spread of weeds that are well established and are impacting upon assets. In the past these weeds have received attention regardless of where they occur which has had a limited effect on their long-term control and management. The actions within this plan that are related to containment will only occur where the weed threatens high value assets or there is strong community commitment to managing the weed.

Figure 4 contains a map of areas within the region that contain priority assets which have been clustered to provide multiple benefits from weed management. Projects developed to address the protection of the identified assets will involve additional analyses to establish potential and present weed threats and their pathways of movement. This will determine the species that are to be managed and the type of management required. There is not a schedule outlining specific species requiring a containment management strategy due to this being variable on a site-by-site basis.

Community-led efforts contributing to the containment of weeds will be supported, as some declared weeds and those of National Significance have existing community-based management groups. Each community group is expected to have developed a strategy that defines their approach to reducing the impact of a particular weed at the regional/state level.

TREATMENT OF THE NEW AND EMERGING, HIGH-RISK WEEDS BEFORE UNDERTAKING MANAGEMENT OF ESTABLISHED WEEDS GENERALLY PROVIDES A GREATER RETURN ON EXPENDITURE.

5. MINIMISING THE IMPACT OF WEEDS ON ASSETS

Protection of important assets from the threat of declared weeds first requires knowledge of:

- the assets requiring management to reduce weed threats. Appendices 4 and 5 detail assets in the Glenelg Hopkins region that are a priority for government investment, however private investment is not limited to these areas.
- the appropriate management for weed species (see Figure 3 and Appendix 3: Table 1) based upon status and consequently, the amount of resources required. Targeting all incidences of weed invasion is not necessary or feasible. A cost-benefit assessment may reveal that attempting to deal with all weeds in all situations may not be cost-effective. Therefore the logical approach is to target weed invasions where they have the greatest impact or pose the greatest threat to an asset. It also needs to be determined if the weed is having any impact, either directly or indirectly. This decision-making process is relevant to all works across the region regardless of the source of investment.
- the relationships between the assets and the degree of threat posed by the particular weed species. As shown in Appendix 3 there are several relationships that include:
    - present and potential spread into the asset area (refer to Appendix 1 for further information)
    - pathways of spread (refer to Appendix 1 for further information)
    - immediacy of the weed threat to the integrity of the asset to be protected
    - the level of community and/or partnership support and commitment to the action
    - the availability of funding and cost-sharing agreements
    - use of best practice management techniques and confidence that the actions will be successful
    - opportunities for integrated catchment management and multiple outcomes.

Only projects that reduce threats to high value assets, and provide the greatest return on investment, should be considered priority projects for government investment in the Glenelg Hopkins region. Appendices 4 and 5 identify the assets for government investment; however, private investment is not limited to these areas. During a funding process it will be necessary to prioritise resources for use at and between these asset sites. To facilitate this process, a method has been developed (Appendix 3), based on the Kepner – Tregoe approach to site-based decision-making and rules used for scoring achievability of RCS actions in the Port Phillip CMA Regional Catchment Strategy 2004-09.

Applying these approaches at the asset site level
At the asset site level management decisions are to be based upon the varying stages of weed invasion. Figure 3 below corresponds with Figure 2 and shows that management begins with prevention and progresses to containment depending on the invasion stage of the weed/s. However the main consideration is suppression of all weed threats to the asset as it is highly likely that weeds of all stages of invasion are present at an asset (Figure 2). This demonstrates that the invasion curve is a cyclical tool that is used in either asset or species-led management.

A decision as to whether or not to treat weeds is based on the value of the asset under threat from the weed and the risk that the weed poses to the asset. Government investment will focus upon high value asset protection before lower value assets will receive investment.

The various stages of management are:

Prevention (Stage 1, applies after containment has occurred)
This involves a risk assessment of pathways of spread and potential and present distribution of all weeds. Where pathways are known all efforts should include monitoring for eradication of these weeds.

Early intervention and eradication (Stage 2, applies after prevention has occurred)
This management approach applies to any weed that has the potential to reduce the value of the asset identified. As with prevention, management of pathways of spread is critical to achieving the eradication of these weeds.

Reduction (Stage 3, applies after eradication is not likely)
These weeds are not eradicable in the short-term but can be reduced in area to minimise the potential for impacts upon assets.

Containment (Stage 3, Goal 3)
Containment of a weed is dependent upon its current or potential impact upon the identified asset.

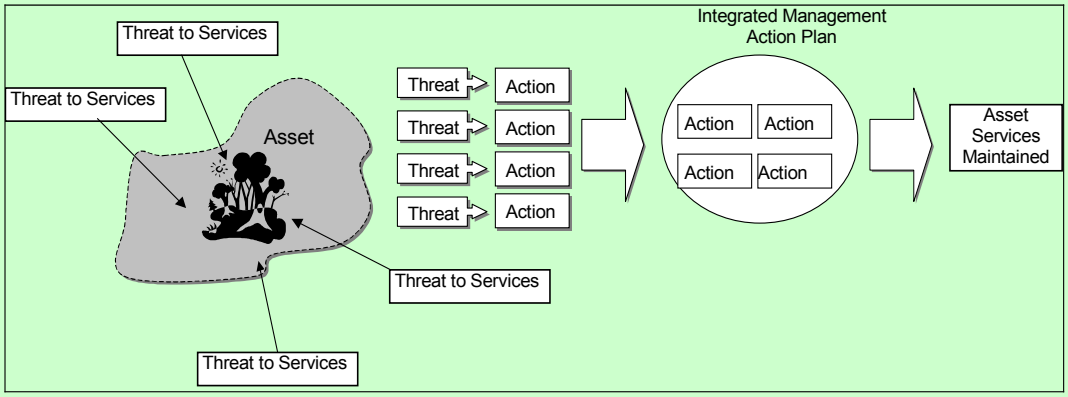


Figure 3: Asset-Based Approach and Multiple Threats (Adamson 2006)

6. WEED RISK ASSESSMENT

In order to make informed decisions when prioritising weeds, this plan has incorporated the results of Weed Risk Assessments (WRA) conducted on all declared weeds and 130 Victorian Alert Weeds. Developed in Victoria, the WRA takes into account three major components in predicting weed status:

- assessing the plant's invasiveness;
- its current and potential distribution; and
- impacts of the plant on land use and ecosystems i.e. social, environmental and agricultural values.

The first two points are detailed in Appendix 1 and the overall process and species identified through the WRA are detailed in Appendix 2.

7. IDENTIFYING REGIONAL ASSETS

Assets in the Glenelg Hopkins region are physical features that provide social, environmental and economic services to the community. These physical features have been grouped into three asset categories: water, land and biodiversity. These categories are further sub-divided into:

- water – waterways, wetlands (including lakes) and estuaries;
- land – agriculture and horticulture; and
- biodiversity – vegetation quality, areas of environmental or vegetation significance, Flora and Fauna Guarantee Act listed species.

All assets identified within the three categories are considered to be of high-value because of the economic, social or environmental services they provide.

The management of these assets in isolation limits multiple outcomes, therefore the assets identified within this plan have been clustered (Figure 4). The clusters include not only the assets but also the multiple services that they provide, this ensures that weed management has multiple benefits. The cluster areas shown in figure 4 are those that will attract government investment regarding the protection of assets.

All asset layers and the methodology for asset cluster development are provided in Appendices 4 and 5. For detailed information regarding each asset and its management refer to plans and strategies developed by Catchment Management Authority (CMA), local government, Department of Sustainability and Environment (DSE) and Department of Primary Industries (DPI).

7.1 WATER ASSETS

Waterways, wetlands and estuaries have been grouped together to form the high value water assets in the region.

Waterways

The River Health Strategy (RHS) identifies five river reaches that are of high value, and at high threat from exotic flora. It also lists additional river reaches in the region identified as having high environmental, social or economic values, or a combination of these.

Wetlands

The Glenelg Hopkins Wetlands Status Report states that the region has 44% of Victoria's wetlands. This includes one internationally significant, Ramsar-listed wetland and 15 nationally significant wetlands that are included in the identified assets. Other wetlands that are identified are those that have the most severe infestations of weeds (>1000 ha) within 200 m of a wetland.

Estuaries

There are eight estuaries along the southern coastline of the Glenelg Hopkins region. The largest of the estuaries are those of the Glenelg and Hopkins Rivers. The Glenelg River Estuary is listed as a Heritage River under the Heritage Rivers Act 1992.

At the present time, the Glenelg Hopkins region estuaries are not considered to be under major threat from weed infestation. However, there are emerging Spartina species in the Barwon estuary. One species, *Spartina townsendii* is sterile, reproducing through rhizome expansion. *Spartina anglica* produces fertile seed, which can be transported through currents, wading birds and human activities.

Both of these species threaten native vegetation in estuarine wetlands through the trapping of sediments and subsequent alteration of habitat structure and characteristics. This in turn affects native fauna, especially waterbirds, aquatic invertebrates and fish. It also has the potential to colonise seagrass flats, which in turn could impact on a variety of fauna species, including juvenile Black Bream and juvenile Estuary Perch.

Another threatening weed is the Divided Sedge (Carex divisa), which has been found in wetlands adjacent to the Surrey estuary and will require management to control impact (K. Bishop pers. comm.).

7.2 BIODIVERSITY ASSETS

Native vegetation

Native vegetation condition and extent has been modelled based upon habitat hectare assessments across the region. Vegetation of medium to high value has been used to inform the data analysis. This has been enhanced by the use of planning overlays within Local Government Planning Schemes that use Environmental Significance Overlays and Vegetation Protection Overlays. These overlays include the core high value areas of Crown land, conservation areas, regional parks and state forests.

Threatened flora and fauna

Threatened fauna and flora species that are included within this plan have the following criteria:

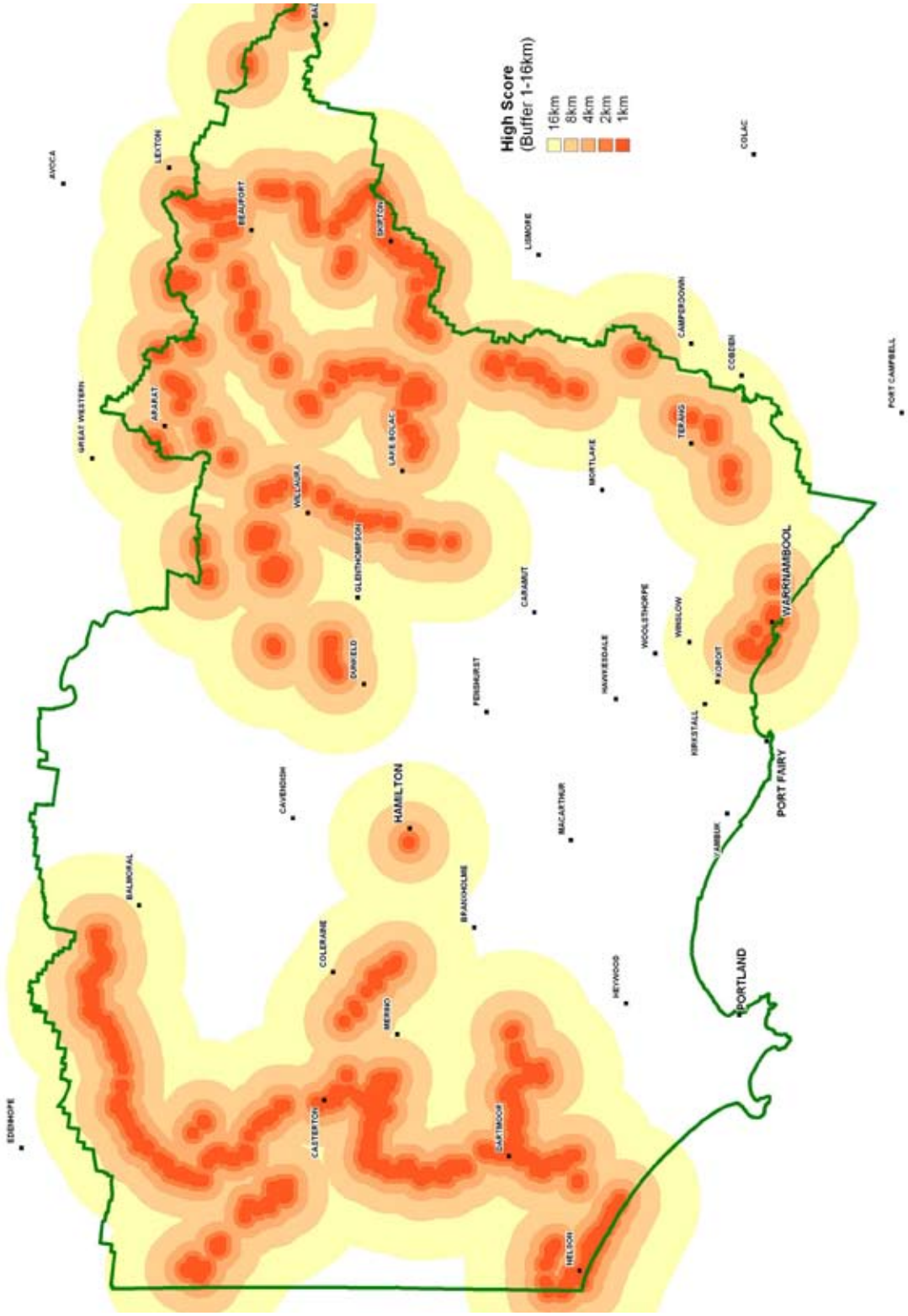
- they occur within the region;
- they are listed in the Flora and Fauna Guarantee Act (FFG) and are included in the Actions for Biodiversity Conservation database;
- they are not deep sea species; and
- they are included in the DSE threatened fauna and flora GIS overlays.

7.3 LAND ASSETS

Land assets are considered to be those that create economic value from an agricultural or horticultural enterprise.
This includes:

- grazing of modified pastures; ect
- cropping
- perennial horticulture
- seasonal horticulture
- irrigated plantation forestry
- irrigated modified pastures
- irrigated perennial horticulture
- irrigated seasonal horticulture
- intensive horticulture; and
- intensive animal production.

FIGURE 4.
HIGH PRIORITY ASSET AREAS WITH MULTIPLE HIGH VALUE ASSET TYPES



8. ROLES AND RESPONSIBILITIES

The Catchment and Land Protection Act 1994 provides a legislative framework for the management of land including the control of declared noxious weeds. This Act sets out the responsibilities of private and public land managers for weed management. Legislative responsibilities aside, all stakeholders have a role in weed management, because effective weed management relies on a collaborative partnership approach across all levels of government, with industry and the community.

Below is an outline of key stakeholder roles and responsibilities.

Private land managers and other community members:

- eradicate Regionally Prohibited Weeds on all land for which they are responsible;
- manage all other proclaimed noxious weeds on all land for which they are responsible
- prevent the spread of weeds from all land for which they are responsible
- practice weed hygiene in all activities
- prevent and report the spread of new plant (or potential weed) species
- protect their own economic, social or environmental assets from the threat of weeds
- work with other land managers in a coordinated approach to weed management; and
- incorporate economic and environmental values into weed management practices.

Community groups:

- coordinate local group development and action
- encourage local involvement in the management of public land
- participate in local and regional weed management programs
- raise awareness and improve education on weed issues; and
- practice weed hygiene in all activities.

Industry:

- address activities that provide a vector for weed transportation. Depending on the weed in question, this may be a legal obligation, not just a moral one.
- manage weed impacts on their land responsibly in cooperation with other land owners
- detect and report new weed occurrences
- understand the cause/effect relationships that apply to weed impacts
- not knowingly spread weeds or weed seed
- operate under guidelines to minimise potential weed spread; and
- practice weed hygiene in all activities.

Local government:

- manage proclaimed noxious weeds on all land for which they are responsible;
- practice weed hygiene in all activities
- report the spread of new plant (or potential weed) species
- work with other land managers in a coordinated approach to weed management
- show leadership in weed management
- use the local planning scheme and local by-laws to encourage responsible weed management
- act as community advocate on weed issues
- develop and apply local weed management strategies; and
- assist in the coordination of community-led weed management programs.

Regional government:

(includes agencies such as Parks Victoria, VicRoads, Water Authorities, VicTrack etc.)

- manage proclaimed noxious weeds on all land for which they are responsible;
- practice weed hygiene in all activities
- report the spread of new plant (or potential weed) species
- work with other land managers in a coordinated approach to weed management
- show leadership in weed management; and
- develop and apply local weed management strategies.

Victorian Government (DSE and DPI):

- manage proclaimed noxious weeds on all land for which they are responsible
- work with other land managers in a coordinated approach to weed management
- practice weed hygiene in all activities
- provision of an appropriate legislative and policy framework
- provision of leadership, coordination and resources for research, assessment, education and public awareness programs
- encourage the development of effective weed management strategies at a local, regional, state and national level.

Catchment Management Authority:

- oversee the monitoring, evaluation and reporting for the Regional Weed Plan
- practice weed hygiene in all activities
- report the spread of new plant (or potential weed) species
- work with other land managers in a coordinated approach to weed management
- show leadership in weed management; and
- develop and apply local weed management strategies.

9. INVESTMENT PRINCIPLES

Unlike the previous Weed Action Plan, this plan is intended to guide resource allocation for public and private land managers through alignment of work undertaken by these stakeholders within the priorities and asset clusters identified in this plan.

The information below is current at the time of printing of this plan however there is currently a draft discussion paper; 'Roles of Government Investment in Pest Management' that will supersede the information below.

Figure 2 illustrates the potential cost:benefit returns for intervention of weed management at each stage, and the greater return on investment by preventing and eradicating weeds at their early stages of invasion. Consequently, preventing the establishment of new and emerging weeds has a higher priority for resource allocation than containing established weeds.

Investment decisions for management of weeds are based on public/private benefit, and the beneficiary of management. If a land manager derives a direct benefit from the management of weeds on their property, then the land manager is responsible for investing in that management. If weeds have potential or are impacting off-site, then the land manager from the site of origin has an obligation (legal for declared species) to manage those weeds.

Government investment largely relies on the beneficiary pays principle and contributes on behalf of the public or community benefit. Industry and individuals are expected to contribute where there is a benefit to them proportional to the cost. Where there is high community benefit through the prevention of new weed problems or by managing the impacts of an existing weed on a high value asset, government may invest through intervention, education, research or incentive programs.

Where there are no high value public assets at risk and the government is not investing resources, weed management remains the responsibility of everyone. All people, whether public or private land managers, industry or just a visitor to the region, have a role in weed management. The decision to undertake weed removal involves a cost to producers, consumers or taxpayers. There isn't a definitive answer to how this cost is shared.

As part of other existing management systems (i.e. agriculture), weed control is the responsibility of the land manager. All people, through better awareness of impacts, can assist in region-wide weed management irrespective of whether there are assets at risk or government contributions available.

9.1 DUTY OF CARE

All public and private landholders have a duty of care to ensure they do not damage the natural resource base. The 'polluter pays' principle advises that the landholder be financially responsible for rectifying any damage incurred as a result of their actions.

9.2 BENEFICIARY PAYS

The element of public/private benefit is a key factor. When it is not possible to identify causes of damage, the primary beneficiary should pay. Contributions from secondary (or indirect) beneficiaries will be negotiated where required. For example, where weeds occur on private land, the land manager is the beneficiary of control measures, as they would gain productive land as a result. Incentives may be available to assist if it is a declared weed and resources are available. In most circumstances, the land manager gaining from the weed control should pay. The same applies for public land managers if they are the beneficiaries of weed control.

9.3 GOVERNMENT CONTRIBUTION FOR PUBLIC BENEFIT

Government contributes primarily for activities that produce public benefits, which may be defined as

> *the long-term protection, securing or enhancement of natural resources (water, land, biodiversity), and/or the support of an industry or market that may otherwise fail without government support.*

Market failure may be experienced when weeds impact on the ability of a service provider to produce a product.

Before government will contribute to a management activity, it must be technically sound and the economic, environmental and social benefits must justify the costs. However, existing and future users are expected to pay for activities that provide private benefit.

Government will meet the cost of statewide planning, resource monitoring, assessment, research and investigation where they are crucial to sustainable resource management.

9.4 GOVERNMENT INVESTMENT

Resources will be allocated according to the priorities set in this plan, and within the limitations of the finance allocated by the state and federal governments and other funding sources. Investment will be in order of Early Intervention, Reduction and then Containment. This places a larger focus on prevention and new and emerging weeds, including pathway management, than has been present in past or current weed programs.

The identified assets (i.e. asset clusters) will be protected through reduction and containment management responses. Works in other areas will be undertaken depending on the level of program funding obtained.

9.5 OTHER INVESTMENT

Resources will be allocated depending on the source and purpose of the funding. Fund sources may require differing outputs to be achieved, and may vary from on-ground protection of biodiversity assets to increased community awareness of the importance of weed management.

10. RECOMMENDED ACTIONS

The information below relates to the goals for the plan and the associated objectives; the targets for these are found in the section detailing monitoring and evaluation. The tables detail specific roles and responsibilities for government, land managers and stakeholders in weed management.

'Government' refers to state government agencies, including policy and research departments, which do not have land management functions. This includes catchment management authorities, Department of Primary Industries (DPI) and the Department of Sustainability and Environment (DSE).

'Land manager' refers to local, regional or state government agencies and community members who own and/or manage land. This includes Parks Victoria (PV), VicRoads (VR), Water Authorities, Vic Track (VT), Local Government (LG), Department of Sustainability and Environment (regional services, forests and coasts) (DSE regional services), private land managers (eg. individual landholders, industry such as mining companies and timber companies) (PLMs) and community groups or individuals who manage public land.

'Other stakeholders' are those community members who are involved with the sale, trade or movement of goods that may contain weed propagules. This includes industry, plant nurseries, agricultural and horticultural contractors.

10.1 PREVENTING THE INTRODUCTION OF NEW WEEDS INTO THE GLENELG HOPKINS REGION

Goal 1: Prevent the introduction of new weeds into the region

Objectives

- To prevent State Prohibited Weeds and other high-risk weeds from entering the region

The responsibility of protecting assets by preventing the introduction of new weed species is a key role for government investment as this provides the greatest level of community benefit.

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning and research	Undertake Weed Risk Assessments (DSE) Identifying pathways for weed spread (DPI CAS)		Participate in partnerships with government to facilitate the prevention of new weeds	Number of WRAs conducted for Victorian Alert Weeds Number of Victorian Alert Weeds identified for eradication
On-ground works		Ensure that pathways they are responsible for are weed free (VR) Practice good hygiene in all business operations (PV, VR, all)	Ensure that pathways they are responsible for are weed free Practice good hygiene in all business operations	Area of Victorian Alert Weeds treated Number of known pathways monitored Number of priority Victorian Alert Weeds detected
Targeted extension and education	Develop regional and interstate partnerships to increase awareness of new potential weeds Deliver surveillance and weed prevention training to land managers and stakeholders e.g. Weed Spotters Development and maintenance of programs focusing upon surveillance and prevention of weed spread such as the current Statewide Weed Spotter program. Developing partnerships with industry bodies Provide feedback to CMA regarding new information supporting the delivery of this plan	Develop regional and interstate partnerships to increase awareness of new potential weeds Participate in surveillance and weed prevention activities e.g. Weed Spotters (PV)		
Enforcement	Develop policy and programs to deliver effective enforcement programs when required (DPI CAS, DSE LMU) Deliver enforcement programs which prevent the introduction of new weeds (DPI CAS)			
Monitoring	Maintain databases on known weed pathways (DPI CAS)	Monitor and report new incursions found within the pathways of spread	Participate as Weed Spotters to monitor and report new incursions found within the pathways of spread	

10.2 ERADICATION OF NEW WEED SPECIES IN THE GLENELG HOPKINS REGION

Goal 2: Eradicate infestations of State and Regionally Prohibited Weeds and other new and emerging weeds within the region

Objectives

- To eradicate State and Regionally Prohibited Weeds
- To eradicate emerging Victorian Alert Weeds identified as high priorities through WRAs and regional surveillance
- To eradicate high-risk new and emerging weeds

New and emerging weeds are not always declared and may be eradicated before a weed assessment is undertaken. The whole community, with government support, has a role in eradicating these weeds. Refer to Schedule 2a, 2b, and 2c.

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning and research	Continue investigations for biological control of high-risk weeds (DPI PirVic) Develop and implement eradication plans for State Prohibited Weeds (DPI CAS) Development and maintenance of programs focusing upon surveillance and prevention of weed spread Undertake Weed Risk Assessment of Victorian Alert Week	Develop and apply local weed management strategies (VR) Develop and implement eradication plans for Regionally Prohibited Weeds (VR) Adopt programs to minimise the risk of weeds being spread within the region (VR)	Develop and apply local weed management strategies Adopt programs to minimise the risk of weeds being spread within the region	
On-ground works	Implement eradication plans for State Prohibited Weeds	Eradicate State and Regionally Prohibited Weeds, and Victorian Alert Weeds where present (PV, VR) Eradicate small, localised infestations of new and emerging weeds within their area of management (PV, VR) Practice good hygiene in all business operations (PV, VR) Work with other land managers in a coordinated approach to weed management (VR) Actively participate in local and regional weed management programs (VR)	Eradicate Regionally Prohibited Weeds, and Victorian Alert Weeds where present Eradicate small, localised infestations of new and emerging weeds within the area of management Practice good hygiene in all business operations Work with other land managers in a coordinated approach to weed management Engage in business operations that support local and regional weed management programs	All known populations of Regionally Prohibited Weeds treated annually and 75% of current infestations recorded and eradicated within 5 years All known populations of State Prohibited Weeds treated annually and 90-100% of current infestations recorded eradicated within 5 years Number of new and emerging weeds species detected Number of new and emerging weeds infestations eradicated Number of known pathways of introduction monitored Number of priority Victorian Alert Weeds treated for eradication

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Targeted extension and education	Development and maintenance of programs focusing upon surveillance and prevention of weed spread Promote the availability of funding incentives for cross-tenure weed management Where high-risk plants are used for industry development, promote the use of alternative plant species Engage regional organisations and industry in implementation of strategies Encourage cross-tenure land management Coordinate local group development action Raise awareness and improve education on weed issues	Participate in programs focusing upon surveillance and prevention of weed spread (PV) Weed surveillance training provided to land managers and stakeholders Be aware of, and promote, the issue of new and emerging weeds and the use of alternative plant species Encourage cross-tenure land management Coordinate local group development action Raise awareness and improve education on weed issues	Participate in programs focusing upon surveillance and prevention of weed spread Be aware of, and promote, the issue of new and emerging weeds and the use of alternative plant species e.g through Sustainable Gardening Association	
Enforcement	Compliance programs focusing on Regionally Prohibited Weeds to prevent sale and trade			
Monitoring	Maintain and update the Integrated Pest Management System (IPMS) database	Survey and report State Prohibited Weeds (SPW), Regionally Prohibited Weeds (RPW) and Victorian Alert Weeds to DPI CAS (PV) Report the spread of new or potential weed species (PV) Report infestations of State and Regionally Prohibited Weeds to DPI CAS for inclusion into IPMS (PV, VR)	Report infestations of State and Regionally Prohibited Weeds to DPI CAS for inclusion into IPMS Undertake surveillance and reporting activities for State Prohibited Weeds (SPW), Regionally Prohibited Weeds (RPW) and Victorian Alert Weeds Report the spread of new or potential weed species	

10.3 REDUCING ESTABLISHING WEEDS IN THE GLENELG HOPKINS REGION

Goal 3: Reduce the impact of establishing weeds on regional assets with support from the community-led effort in reducing these weeds within the region

Objectives

- To reduce the current and potential impacts of establishing weeds upon assets within the region through a combination of species-led and asset-led management approaches
- To promote and support community-led management of establishing weeds
- To reduce other high-risk non-declared weeds

This management approach is used for species that are expanding within their range and are not considered to be eradicable in the Glenelg Hopkins region. The whole community, with government support, has a role in reducing these weeds. Refer to schedule 3a, 3b, 3c.

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning and research	Identify weed priorities based on an assessment of distribution and risk Identify the pathways of spread of weeds within the region Assist with the development and application of local weed management strategies	Develop weed management programs based on distribution and risk with relation to community support		
On-ground works	Practice good weed hygiene in all business operations Support community driven weed programs Assist with the coordination of local group development and action Work with other land managers in a coordinated approach to weed management	Practice good weed hygiene in all business operations (PV,VR) Support community driven weed programs (VR) Implement weed management programs to achieve objectives (PV) Coordinate, and participate in, local group development and action (VR)	Practice good weed hygiene in all business operations (PV) Support community driven weed programs Implement weed management programs to achieve objectives (PV) Participate in local group development and action	Number and type of established weeds limited to known distribution resulting in no new infestations Reduction of percentage cover within areas targeted Area treated for reduction of weed impact
Targeted extension and education	Develop and provide information material for environmentally friendly and cost-effective control measures Raise awareness and improve education on weed issues	Provision of information material for environmentally friendly and cost-effective control measures Raise awareness and improve education on weed issues (VR)		
Enforcement	Compliance programs targeting priority weeds in areas with active community support			95% voluntary compliance in target areas Increased number of land managers voluntarily complying Percentage of land managers visited by DPI for voluntary and/or enforced compliance
Monitoring	Maintain the IPMS database	Monitor and report the spread of weed species (VR, PV) Monitor activities and report into the CMA on an annual basis (VR, PV) Survey and report State Prohibited Weeds (SPW), Regionally Prohibited Weeds (RPW) and Victorian Alert Weeds	Monitor and report the spread of weed species (PV) Monitor activities and report into the CMA on an annual basis	

10.4 CONTAINMENT USING AN ASSET-BASED DECISION PROCESS

Goal 4: Contain established weeds to protect regional assets with support from the community-led effort in containing these species within the region

Objectives

- To protect priority assets from the threat of established weeds
- To encourage community participation in asset protection

Well established Regionally Controlled Weeds and non-declared emerging weeds that pose a threat to high value assets in the Glenelg Hopkins region are often beyond eradication. Therefore containment is the most appropriate management option. The whole community, including government and agencies, has a role in containing these weeds.

Underlying these actions is the need to improve the asset resilience to weed invasion, thereby focusing on the cause rather than the symptom.

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning and research	Support the decisions that have been outlined in this regional weed plans Undertake risk analysis of weed threat to assets identified within this plan Determine weeds impacting upon high value assets Develop cross-tenure programs to protect assets	Use this weed plan to prioritise weed management programs in the region using the decision making framework in Appendix 3 (VR) Assist with risk analysis of weed threat to assets identified within this plan (PV) Develop weed management programs that reduce the impact of weeds on high value assets		
On-ground works	Support community-led actions to contain weeds, including being responsible for protecting private assets from weed threats	Implement weed management programs to reduce impact on assets (PV, VR) Support community-led actions to contain weeds, including being responsible for protecting private assets from weed threats (VR, PV) Improve the condition of assets to increase their resilience to weed invasion	Implement weed management programs to reduce impact on assets Support, where appropriate, community driven weed programs	Area of asset treated for weed threats Quantity and types of assets treated Number of participating community members, groups and land managers. Assessment against the AAA continuum as used in the Tackling Weeds on Private Land program.

Targeted extension and education	Develop community awareness material Increase and support community involvement in growing and release of biological control agents (DPI CAS, PIR Vic) Provision of information for environmentally friendly and cost-effective control measures	Develop and distribute community awareness material Support community involvement in growing and release of biological control agents (VR)		
Enforcement	Implement compliance programs			
Monitoring	Maintain the IPMS database Monitor activities and report into the CMA on an annual basis	Monitor and report the spread of weed species Monitor activities and report into the CMA on an annual basis	Monitor activities and report into the CMA on an annual basis	

10.5 INTEGRATION OF WEED MANAGEMENT

Goal 5: Integrate weed management with sustainable agriculture and other natural resource management activities.

Objectives

- To integrate weed management in natural resource management programs on public and private land
- To integrate weed management with sustainable farming practices
- Ensure that all providers of on-ground works have concise information regarding integration of weed management activities with their activities

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning and research	Develop management plans to incorporate weed management into agricultural and environmental works Determine cross-tenure weed issues that require collaboration of stakeholders	Develop management plans to incorporate weed management into agricultural and environmental works (VR)	Develop business management plans that reduce the negative impact of business activities on weed management e.g practice good hygiene	
On-ground works	Ensure that incentives for weed control are part of integrated natural resource management (NRM) programs.	Take part in weed control activities that require collaboration of multi-stakeholders (VR)	Practice good weed hygiene in all business activities	Percentage of projects that have weed management as a precursor achieving multiple outcomes
Targeted extension and education	Increase promotion of integrated weed management information and practice Ensure training is accessible via a range of avenues (field days, courses, etc.) Promote existing incentive schemes to aid in the adoption of integrated weed management			Number of landholders implementing weed management through property management plans, environmental management systems, Whole Farm Planning courses, Environmental Best Management Practice programs, or production systems

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
	Encourage weed control as an essential 1st step in internal and external funding programs Show initiative in integrated weed management information and practice			
Enforcement				
Research				
Monitoring	Maintain the IPMS database	Indentify where cross tenure weed management has been successful Monitor activities and report into the CMA on an annual basis		

10.6 PARTNERSHIPS AND COORDINATION ACROSS LAND TENURES

Goal 6: Promote and improve partnerships for coordination of weed management in the region across all land tenures

Objectives

- To establish improved partnerships for long-term ongoing weed management programs
- To increase stakeholder understanding of roles and responsibilities for weed management
- Encourage collaborative planning and action to minimise the threat of weeds in the Glenelg Hopkins region
- To increase efficiency through cost-sharing arrangements between stakeholders
- Greater ease and integration of weed management across land tenures

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning	Determine cross-tenure weed issues that require collaboration of stakeholders	Determine cross-tenure weed issues that require collaboration of stakeholders		
On-ground works	Support and implement Good Neighbour program with the community	Participate in Good Neighbour program and other cross tenure weed management programs	Participate in Good Neighbour program and other cross tenure weed management programs	
Targeted extension and education	Promotion of the importance of cross-tenure weed management, particularly in the prevention of spread of weeds (PV, DSE, LG)	Promotion of the importance of cross-tenure weed management, particularly in the prevention of spread of weeds (PV, DSE, LG)		Number of projects that are cross-tenure in weed management
Enforcement				
Research	.			

10.7 COMMUNITY INVOLVEMENT

Goal 7: Increase community capacity for effective long-term control of weeds

Objectives

- To inform the community of the impact weeds have on the environmental, economic and social assets of the region
- To increase the community's ability to take action to reduce weed impact

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning and research	Explore the use of market-based mechanisms to increase community participation (DPI CAS, CMA) Determine cross-tenure weed issues that require collaboration of stakeholders (All)			
On-ground works	Provision of incentives to build community capacity Support community weed groups which have integrated weed projects (Gorse Task Force, Serrated Tussock Working Party, Victorian Blackberry Task Force)	Support community weed groups which have integrated weed projects (Gorse Task Force, Serrated Tussock Working Party, South West Ragwort Working Group, Victorian Blackberry Task Force) (VR) Support activities that protect private land from weed invasion Support activities that reduce the impact of weeds on public assets Utilise Good Neighbour program funding to reduce weed incursions from public land Improve the condition of assets to increase their resilience to weed invasion (PV)		Decreased weed impacts as result of community action
Targeted extension and education	Establish community education programs (with a focus on prevention and early intervention) Promote educational material on effective prevention and early intervention weed management Targeted education programs for schools, industry, lifestyle farmers and new land managers Provide learning opportunities across the NRM field in relation to weed management Further develop communication networks within and between groups/areas Promote community success in weed management (PV, LG, Landcare, DSE, CMA)	Provide learning opportunities across the NRM field in relation to weed management Further develop communication networks within and between groups/areas Take part in communication networks within and between groups/areas	Take part in communication networks within and between groups/areas	
Enforcement				
Research				
Monitoring	Collect data related to community capacity performance indicators	Collect data related to community capacity performance indicators		

10.8 MONITORING AND EVALUATION

Goal 8: Establish effective monitoring, evaluation and reporting of weed management in the Glenelg Hopkins CMA area.

Objectives

- To determine if weed management, as described in goals 1-7 of the plan, has been effective in the Glenelg Hopkins region
- To evaluate where there are opportunities for future improvement in effectiveness of weed management in the Glenelg Hopkins region

Monitoring and evaluation is to determine the achievements towards the performance indicators within this plan, and the targets within the Glenelg Hopkins Regional Catchment Strategy as listed in Appendix 6.

Management components	Roles and responsibilities of government	Roles and responsibilities of land managers	Roles and responsibilities of other stakeholders	Performance indicators
Strategic planning	Develop a funding outline for implementation, monitoring and evaluation to identify gaps that may need resources from other initiatives (DSE, CMA) Develop an implementation/ evaluation schedule, and annual monitoring procedures at local, catchment and regional levels (CMA) CMA to collate data from all stakeholders on an annual basis CMA to report annually on progress towards goals and performance indicators			
On-ground works				
Targeted extension and education				
Enforcement				
Monitoring	Monitor, evaluate and report each year on progress against goals 1-7 and associated performance indicators and report to Glenelg Hopkins CMA on all weed activities undertaken over a 12 month period (All) Annual monitoring, evaluation and reporting undertaken to assess the effectiveness of this plan	Reporting to Glenelg Hopkins CMA on all weed activities undertaken over a 12 month period Annual monitoring, evaluation and reporting undertaken to assess the effectiveness of this plan Monitor, evaluate and report each year on progress against goals 1-7 and associated performance indicators (All)		

APPENDIX 1

Management considerations - pathways of spread, present and potential distribution

Invasiveness can be defined as a plant's ability to establish, reproduce and disperse within an ecosystem, including the characteristics that have enabled it to become so successful that it has become a weed. There is no single suite of characteristics that make a plant invasive, rather there are several factors that act either alone or together to increase the chance of a plant becoming invasive.

Important measures (indicators) by which to assess weed invasiveness include:

- ability to establish in an ecosystem
- dispersal ability
- reproductive ability
- growth/competitive ability.

Declared weed species have undergone this assessment for their potential invasiveness. This has also been mapped to illustrate present vs. potential distribution, which is discussed further in following sections.

Weeds are unlikely to establish in locations where other plants have the opportunity to outcompete them, and will establish in areas where competition has been removed or reduced to a level that the weed has a growth advantage. There are exceptions where some species, particularly in forest situations, do not require disturbance to invade. An example of this is Sweet Pittosporum.

Pathways

Weed invasion pathways are the vehicles for weeds to potentially move to a site where they have an opportunity to establish. There are several types of known invasion pathways and activities that assist weeds in establishing at new locations. These pathways may be natural or assisted by humans either deliberately or inadvertently. The most common pathways for weeds to be introduced into Victoria and subsequently the region are as follows;

Natural incursions

All plants have mechanisms for reproduction and seed dispersal. Some of these mechanisms take advantage of natural movement patterns such as water, wind or uncontrolled animal movement (movement of animals other than stock i.e. birds, native animals, foxes etc) to maximise the chance of the seed spreading and establishing in new locations. For example, seeds may have hooks or barbs to attach to animal coats or be contained inside a fleshy fruit and be eaten before seeds are passed from the animal sometime later. These spread pathways are usually more significant once a weed has become established. Strategies to control these spread pathways are limited and more difficult to apply but may include things such as tree plantations to reduce wind speed.

Human assisted

Human movement and activities provide several pathways for weed spread including:

- deliberate introduction of plants/seeds/plant parts for business purposes. Examples include garden and aquarium plant sales, cut flowers, research for improved industry species such as land rehabilitation, pastures, crops or turf, establishment of grass, shrub or tree crops for industry;
- deliberate introduction by community members. While mostly inadvertent, weed species may be introduced or spread from home gardens through garden clubs, swapping cuttings, or seeds and plants by mail or internet;
- inadvertent introduction by humans. For example seeds carried on clothing, boots or personal equipment during business operations or recreation such as when camping;
- transport of livestock with external (on wool or coats) or internal (eating contaminated feed) contamination with weed seeds;
- inappropriate disposal techniques for plants or plant parts including mulches at tips, garden waste - "over the back fence", and dumping of garden waste in reserves;
- use of contaminated goods or produce or products containing weeds such as fodder, grains, straw, potting mix, mulch, soil, gravel, landscape & construction materials;
- contaminated vehicles used for business or recreation (excludes equipment/machinery); and
- contaminated plant and equipment (including aquatic equipment) used for business operations such as slashing, grading, harvesters, earth moving, farm machinery, boats, jet skis and defence forces.

About 70% of species introduced into Victoria originate from the first two dot points; however weeds are known to have spread along all these pathways. For species not currently known to exist in Victoria, consideration of potential 'introduction pathways' assists in the development of targeted programs to minimise the risk of introduction. Pathways involving deliberate introduction are generally considered a higher risk for 'introduction' because of the effort applied to ensuring plants survive and become established.

A range of control strategies are available to minimise the risk of spread for most of these pathways, for example, quality assurance programs for goods and produce.

Present and potential distribution of weeds

Potential distribution
Climate, soils, pathways of spread, land use and biology determine potential distribution of a plant. Knowledge of current and potential distribution is necessary for devising management programs. Land managers need to be made aware of management procedures, to prevent the introduction of weed propagules into new areas. To ensure the most cost-effective use of weed management resources, high-risk species with the smallest current distribution and the greatest potential distribution range should be targeted as a priority. Whereas, low priority can be given to areas where the weed might fail to persist or be of little economic, environmental or social importance.

Present distribution
An important outcome of comparing the present to potential distribution of a weed is the ability to target early intervention actions against weed invasion more effectively. This relies heavily on addressing threats via potential pathways. As shown in Figure 2, early intervention not only achieves better results from government and land manager investment, but also reduces costs of control and impacts upon social, environmental and economic values.

Weeds currently occupying a small area of their potential range become a management priority. This can include sleeper weeds that are species which occur in small, isolated populations, and have done for a long period. These weeds may spread very slowly in their current range which can be due to the environmental conditions in which they persist. This can change with the onset of a change of these conditions such as a flood that can widely distribute a weed to areas where it has the potential to become established.

Potential weed distribution maps are estimates and are only as reliable as the data they are based on. As more records are collected about where plants occur, the predictions will become more accurate. It is therefore expected that available distribution maps do not fully represent existing or potential distribution. A limitation of mapping potential distribution is the scale of the image produced, which may not show the presence of a weed. Weeds along small rivers, streams and watercourses and along roadsides are not represented, as these areas are too small to be detected at a 1:250,000 scale.

APPENDIX 2

Determining priority weeds for management in the Glenelg Hopkins region

One of the key aims of this weed plan is to use a scientific, transparent and robust method to prioritise weed management in the region. This appendix gives examples of how different weed species are categorised in Glenelg Hopkins region, and the required actions for these species.

It is estimated that over 1200 weed species are naturalised in Victoria but less than 10% of these will have a serious detrimental effect on the state's economic, environmental or social values (Weiss and Iaconis 2002). Therefore it is unrealistic to expect that all weed species present in Victoria, or the region, will or can be controlled.

The Weed Risk Assessment (WRA) system, developed in Victoria, is a risk assessment process that allows for the prioritisation of weeds based on their:

- invasiveness;
- present and potential distribution; and
- impacts on the environmental, economic and social values of Victoria.

More information about the WRA process can be obtained by visiting www.dpi.vic.gov.au/dpi/vro and clicking on 'pest plants' in the 'highlights' menu.

The different goals described in this plan relate to weed species that are considered to have a high impact on the values of the Glenelg Hopkins region but have reached differing levels in their current distribution in the region. Weed distribution scores vary from:

1.00 - Presumed to not be present in the region
0.85 - Can still be eradicated from the region
0.71 - Cannot be eradicated but is in very low numbers and is not yet causing a threat to assets
0.57 - Is confined to small areas of its expected distribution in the region and its further spread can be contained
0.42 - Is more widely spread in the region but not nearly fully established. Exclusion from high value assets areas is all that can be expected in the management of these species. Only very high risk species with this level of distribution would be considered for management programs.

Initial information about weed species impact can be drawn from expert rapid weed assessment data but in many cases their current distribution is not known. Hence a full assessment of the ability to control or even eradicate some weeds in the region may not be known.

Other species are widely spread in the region, but the weed risk assessment data indicated that they pose a serious threat to regional assets and, at the least must be excluded from certain areas to minimise harm to regional values.

The weed schedules listed here give an explanation of why certain species may fall under certain goals in this plan and a list of examples of some of these species.

Schedule 1 (Goal 1)
Aim – preventing new high-risk weeds from entering the region.
Examples – all State Prohibited Weeds not known to be in Glenelg Hopkins region

Common Name	Species
Alligator weed	Alternanthera philoxeroides
Black knapweed	Centaurea nigra
Branched broomrape	Orobanche ramosa
Camel thorn	Alhagi maurorum
Giraffe thorn	Acacia erioloba
Ivy leafed sida	Malvella leprosa
Karoo thorn	Acacia karoo
Knot weed species	Fallopia species

Common Name	Species
Lagarosiphon	Lagarosiphon major
Lobed needle grass	Nassella charuana
Mesquite	Prosopis spp,
Mexican feather grass	Nassella tenuissima
Parthenium weed	Parthenium hysterophorus
Perennial ragweed	Ambrosia psilostachya
Poverty weed	Iva axillaris
Tangled hypericum	Hypericum triquettrifolium

Schedule 2 (Goal 2)
Aim - Eradication
OR - Finding out if a species is a high-risk weed and can be eradicated. If so, eradication then becomes the objective of any management plan. Alternatively, the species may fall under another goal or not be managed at all.

Includes
2(a) State Prohibited Weeds (SRW) and Regionally Prohibited Weeds (RPW)
- Have been assessed by the Weed Risk Assessment process and
- Ranked as 'most serious species' or 'moderately serious species'
- Have a low distribution measure in the Glenelg Hopkins region (0.85 in Weiss model).

Action = Eradication

Common Name	Species	Declaration status
Hawkweed	Hyeracium spp.	SPW
Horsetails	Equisetum spp.	SPW
Nodding thistle	Carduus nutans	SPW
Salvinia	Salvinia molesta	SPW
Water hyacinth	Eichhornia crassipes	SPW
Amsinkia	Amsinkia spp.	RPW
Caltrop	Tribulis terrestris	RPW
Golden thistle	Scolymus hispanicus	RPW
Russian knapweed	Acroptilon repens	RPW
Silver-leaved nightshade	Solanum elaeagnifolium	RPW

2(b) Victorian Alert Weeds (VAW) and others

- Have been assessed by the Weed Risk Assessment process and Ranked as 'most serious species' or 'moderately serious species'
- Have a low distribution measure in the Glenelg Hopkins catchment (0.85 in Weiss model)
- Are not declared noxious under the Catchment and Land Protection Act.

Action = Collect baseline data about distribution and abundance of the species in the Glenelg Hopkins region and use this to determine whether it should be declared SPW or RPW. Declare if appropriate.

Common Name	Species
Leaf cactus	Pereskia aculeata
Moon cactus	Harrisia martinii
Chinese silvergrass	Miscanthus sinensis
Honey locust	Gleditsia triacanthos
Spotted knapweed	Centaurea maculosa
Apple cactus	Cereus peruvianus
Giant bugloss	Echium pininana
Pride of madeira	Echium candicans
Brazilian pepper tree	Schinus terebinthifolius

Common Name	Species
Butterfly bush	Buddleja madagascariensis
Gum rockrose	Cistus ladanifer
Mistflower	Ageratina riparia
Fireweed	Senecio madagascariensis
African olive	Olea europaea ssp. africana
Toe toe	Cortaderia richardii
White weeping broom	Retama raetam, Retama raetam ssp. raetam
Leafy spurge	Euphorbia esula

2(c) Other weeds planned to be assessed at a statewide level

Currently this includes the remaining 250 VAWs.

Action = Weed risk assessment during the next three years. Other species may be added as they are discovered in the state. Collect baseline data about distribution and abundance of the species in the Glenelg Hopkins region and use this to determine whether it should be declared SPW or RPW. Declare if appropriate.

Common Name	Species
Blue canary grass	Phalaris coerulescens
Cobbler's pegs	Bidens pilosa
Lantana montevidense	Creeping lantana
Orange tritonia	Tritonia crocata
Sweet prickly pear	Opuntia ficus-indica
White ash	Fraxinus americana

Common Name	Species
Buddleja	Buddleja dysophylla
Creeping willow herb	Epilobium nummularifolium
Mother of millions	Bryophyllum delagoense
Portuguese broom	Cytisus striatus
Tropical woodsorrel	Oxalis hirta

2(d) Other weeds to be assessed at regional level
Other weeds that require assessment are new and emerging weeds, other than Victorian Alert Weeds, in the Glenelg Hopkins region that may or may not be established in other parts of the state.

Action: Weed risk assessment to determine if further action required at state or regional level. If further action is required, collect baseline data about distribution and abundance of the species in the Glenelg Hopkins region and use this to determine whether it should be declared SPW or RPW. Declare if appropriate.

Common Name	Species	Distribution score	Status
Madeira vine	Anredera cordifolia	0.85	High-risk weed of natural ecosystems, not declared, WRA done
Acacia	Acacia cyclops		High-risk weed of natural ecosystems, not declared or WRA
Desert ash	Fraxinus		High-risk weed of natural ecosystems, not declared or WRA
South African orchid	Disa bracteata		High-risk weed of natural ecosystems, not declared or WRA

Schedule 3 (Goal 3)
Weeds in this schedule are established in the region and continue to spread into their full ecological range. They are not considered eradicable but worthy of control to halt their spread to the rest of the region.

3(a) Established high-risk weeds with exceptionally low distribution and high potential to spread and threaten regional assets Some of these species have scored 0.71 in the WRA which indicates these species have a very limited distribution, i.e. they appear at the bottom of the upward slope on the weed expansion curve (Figure 2). Containment and reduction by a species-targeted approach to management is possible.

Actions – Raise awareness of the potential of these species to become a problem if not treated immediately.
Facilitate and support community action.

Species	Common Name	Status
Salix cinerea	Willow species	Declared weeds
Salix purpurea		Weed risk assessed
Salix rubens		
Salix nigra		
Salix vimialia		
Sagittaria montevidensis,	Arrowleaf species	Not declared
Sagittaria platyphylla		Weed risk assessed

3(b) Established high-risk weeds in the Glenelg Hopkins region
These weeds are well established in the Glenelg Hopkins region. However, with strong community support they are still excludable from certain parts of the region which they have not yet reached, but probably cannot be reduced in area.

The WRA distribution ranking in the Glenelg Hopkins region is 0.57 which categorises these species as either 'most serious species' or 'moderately serious' species in the WRA process.

Action – Develop and support strong community-led containment programs targeted at preventing invasion into new areas. Control of outlying infestations, reduction of infestation within main infestations.

Species	Common Name	Status
Ulex europaeus	Furze/Gorse	Declared weed, WRA

Other weeds that cold be considered by the community that fall into this criteria are Chilean needle grass and some willow species (Salix fragilis and S. alba)

3(c) Widely established high-risk weeds in the Glenelg Hopkins region
These weeds have a broader distribution in the Glenelg Hopkins region than 3(b) weeds, with a WRA ranking of 0.42. Projects focus on exclusion of these species from clean areas of the region and protection of high value assets.

Action - Support existing, strong community-led containment programs targeting the prevention of these weed species. Prevention is focused on weeds invading new areas that provide public benefit. Target the control of outlying infestations, and reduction of infestation within main infestations.

Species	Common Name	Status
Blackberry	Rubus aggregate species	Declared weed, WRA
Western Australian bluebell	Solya heterophylla	High-risk weed of natural ecosystems, not declared or WRA
Polygala	Polygala myrtifolia var myrtifolia	High-risk weed of natural ecosystems, not declared or WRA

Schedule 4 - Asset Protection
Weeds that are very widely established will not be targeted for any species-led management at the regional level. Projects that support the suppression or exclusion of an identified group of weeds threatening an identified high value asset will be considered for action. The decision-making process for prioritising projects in the Glenelg Hopkins region as illustrated in Appendix 3 will help inform this decision.

APPENDIX 3

Decision-making framework for prioritisation of projects

Only projects that reduce threats to high value assets should be considered priority projects in the Glenelg Hopkins region. Once it is decided which assets or asset cluster requires weed mangement, it will be necessary to prioritise resources for use at and between these sites. To facilitate this process, the following method has been developed, based on the Kepner – Tregoe approach to site-based decision-making and rules used for scoring achievability of RCS actions in the Port Phillip CMA Regional Catchment Strategy 2004-09.

The priority of a weed management project should be determined by scoring it against six weighted criteria.

The criteria used, in order of weighting, are:
1. urgency – how immediate is the weed threat to the integrity of the asset to be protected;
2. confidence that the actions will be successful;
3. support - the level of community and/or partnership support and commitment to the action;
4. availability of funding and cost-sharing agreements;
5. use of best practice management techniques; and
6. opportunities for integrated catchment management and multiple outcomes.

Each criterion is scored according to descriptions in Table 1 and a weighted score is determined, as shown in the example, Figure 4. Weighted project scores can be compared to indicate priority of projects to each other. Higher scoring projects or activities will be considered higher priority to lower scoring projects.

Table 1. Scoring system for weighted project selection criteria

Selection criteria		Very Low (Score = 0 for A or1 for all others)	Low (Score =2)	Medium (Score = 3)	High (Score = 4)	Very High (Score = 5)
A.	**Urgency**	Action is desirable but not implementing it will pose little risk to catchment assets and programs.	Action will be needed at some stage, not necessarily within the next 5 years, to protect this asset.	Action is desirable but not implementing it in the near future will pose little risk to catchment assets and programs.	Action is needed in the next 2-3 years to prevent loss of a valuable asset and/or to take advantage of multiple outcomes.	Action is urgently needed to prevent almost certain loss of valuable assets and/or to take advantage of immediate opportunities for multiple outcomes.
B.	**Confidence that actions will be successful**	There is a very high risk that the project will not meet any of its important objectives.	Failure to meet some major objectives is a strong possibility due to a lack of information, expertise, resources, support or interest.	The project is likely to produce mixed results. The less challenging objectives can probably be met; the success of the others is difficult to predict.	Although there are threats to attaining complete success in the project, it is expected to be largely successful and worthwhile.	There is almost no risk that the action will fail to meet its agreed objectives.
C.	**Level of community and partner support and commitment to the action**	The project could conflict with other stakeholder interests and/or attract opposition from the local or regional community.	There is little or no community interest shown in this project. The community might think its implementation to be a waste of resources.	There is documented or measurable support for the action among informed and/or affected individuals and groups.	Community support and commitment to help implement this project can be readily identified in the local media and among local regional interest groups and agencies.	Community demand for this project has been strident and persistent. Not implementing this is likely to undermine the reputation of the CMA and its partners.
D.	**Likely availability of funding and ability to negotiate cost-sharing**	The project is expected to be extremely difficult to fund and negotiations for cost-sharing are not likely to be fruitful.	Available funding may not be sufficient to fully realise the potential of the project. Long-term cost-sharing is likely to be difficult to secure.	Funding the project may give it the momentum it needs and cost-sharing for longer term action may be possible to negotiate.	At least one investor will adequately fund the establishment in initial implementation of the project and there is confidence that others will join in the medium or long term.	The project is expected to be relatively easy to fund and all parties have indicated their willingness to cost-share in the future.
E.	**Best practice management is being applied**	The proposed project is not appropriate for the species' being targeted.	Some of the proposed project is appropriate for the species' being targeted. The project owner has, in the past, shown little interest in adopting best practice management techniques.	Some of the proposed project is appropriate for the species' being targeted. There is no knowledge of the project owner's willingness to change management practices.	Most of the proposed project is appropriate for the species' being targeted and the project owner is open to adopting more applicable management practices.	The proposed project is appropriate for the species' being targeted.
F	**Opportunities for integrated catchment management and multiple outcomes**	The project is very likely to remain isolated and find little connection with other activities or programs.	The project has the potential to be linked to other projects to deliver multiple outcomes for the asset's protection, but some factors will make this difficult to achieve at the moment.	The project has potential to support other programs and produce multiple outcomes but more work will be needed to test this with existing project managers and stakeholders.	The project is identified among existing project managers and stakeholders as one with potential to improve the success, quality and/or scope of their work.	Demand for this project has been growing for some time among existing project managers and stakeholders who agree that it will significantly improve the success, quality and/or scope or their work.

Table 2. Example of determining the weighted score of a weed management project, demonstrating that project B is a highwe priority project than project A.

		Project A			Project B		
Selection criteria	**Weight (a)**	**Facts**	**Score (b)**	**Weighted score (a x b)**	**Facts**	**Score (b)**	**Weighted score (a x b)**
A. Urgency	10	Action is needed in the next 2-3 years to prevent loss of a valuable asset and/or to take advantage of multiple outcomes.	4	40	Action is needed in the next 2-3 years to prevent loss of a valuable asset and/or to take advantage of multiple outcomes.	4	40
B. Confidence that actions will be successful	9	The project is likely to produce mixed results. The less challenging objectives can probably be met; the success of the others is difficult to predict.	3	27	The project is likely to produce mixed results. The less challenging objectives can probably be met; the success of the others is difficult to predict	3	27
C. Level of community and partner support and commitment to the action	8	There is little or no community interest shown in this project. The community might think its implementation to be a waste of resources.	2	16	Community demand for this project has been strident and persistent. Not implementing this is likely to undermine the reputation of the CMA and its partners.	5	40
D. Likely availability of funding and ability to negotiate cost-sharing	7	The project is expected to be relatively easy to fund and all parties have indicated their willingness to cost-share in the future.	5	35	At least one investor will adequately fund the establishment in initial implementation of the project and there is confidence that others will join in the medium or long term.	4	28
E. Best practice management is being applied	6	Most of the proposed project is appropriate for the species' being targeted and the project owner is open to adopting more applicable management practices.	4	24	Some of the proposed project is appropriate for the species' being targeted. There is no knowledge of the project owner's willingness to change management practices.	3	18
F. Opportunities for integrated catchment management and multiple outcomes	5	The project has the potential to be linked to other projects to deliver multiple outcomes for the asset's protection, but some factors will make this difficult to achieve at the moment.	2	10	The project has potential to support other programs and produce multiple outcomes but more work will be needed to test this with existing project managers and stakeholders.	3	15
Total Weighted scores				152			168

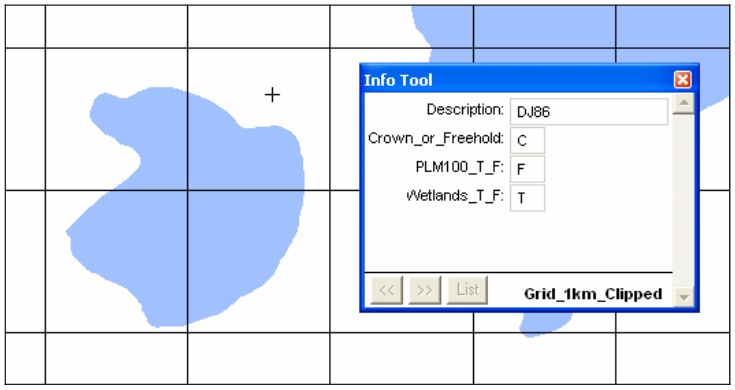
APPENDIX 4

Methodology for asset identification using GIS analysis

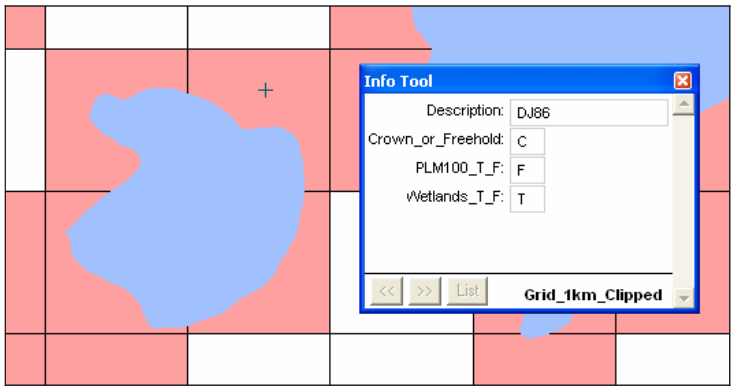
Overview

For the initial setup phase a grid layer (1km) will be used as a baseline dataset. This grid layer will have several columns linked to accept values representing the various theme layers we are analysing.

For example, overlaying Wetlands over the 1km grid a column named 'Wetland_T_F' is created and a value of "T" or True is populated on cells intersecting a wetland polygon.



This then allows us to perform thematic shading analysis (refer below) where colours are applied to values on particular data columns. The example below colours cells with a Wetland value of "T" red.



Once several data columns are created representing the different layers or parameters, cluster analysis can be performed grouping cells with like attributes e.g. all cells with wetlands, within a prescribed water supply catchment and on Crown land can be selected out and displayed as a new layer.

Clustered areas are scored depending on how many of the assets intersect the grid, these scores have been colour coded. Additionally, the layers have had distance buffers placed around them. The distances in the buffer zones do not have any scientific logic but rather have been assigned for visual ease. Therefore these buffers are highly variable based upon their purpose.

Map Image setup

[Save window as] settings:

- jpg
- 200 dpi
- [Adv]: All options ticked
- [Save as] in Jasc Paint shop pro using compression of 25

LAYER THEMES

Asset category	Asset	Relevance	Reference document	Reference GIS overlay
Water - waterways	• Steep Rivulet • Koonong Wootong Creek • Grange Burn Creek • Fiery Creek • Wattle Hill Creek	River reaches that are of high value, and at high threat from exotic flora	River Health Strategy Biodiversity Asset Mapping	Waterways Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay
Water - waterways	• Glenelg River • Moleside Creek • Crawford/Smoky River • Stokes River • Wannon River • Moyne River • Hopkins River • Mount Emu Creek • Merri River • Koonong Wootong Creek • Grange Burn Creek • Fiery Creek • Wattle Hill Creek	River reaches in the region identified as having high environmental, social or economic values, or a combination of these	River Health Strategy	Waterways Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay
Water - wetlands	• Lake Bookar	Internationally significant (Ramsar)	Glenelg Hopkins Regional Wetland Status Report	Ramsar Wetlands
	• Nerrin Nerrin wetlands • Lake Linlithgow wetlands • Lake Muirhead • Mount William Swamp • Long Swamp • Glenelg Estuary • Yambuk Wetlands • Tower Hill • Lower Merri Wetlands • Lake Buninjon • Woorndoo-Hopkins Wetlands • Dergholm Wetlands • Boiler Swamp System • Glenelg River • Lake Condah	Nationally significant	Glenelg Hopkins Regional Wetland Status Report Biodiversity Asset Mapping	Wetlands (1994) Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay

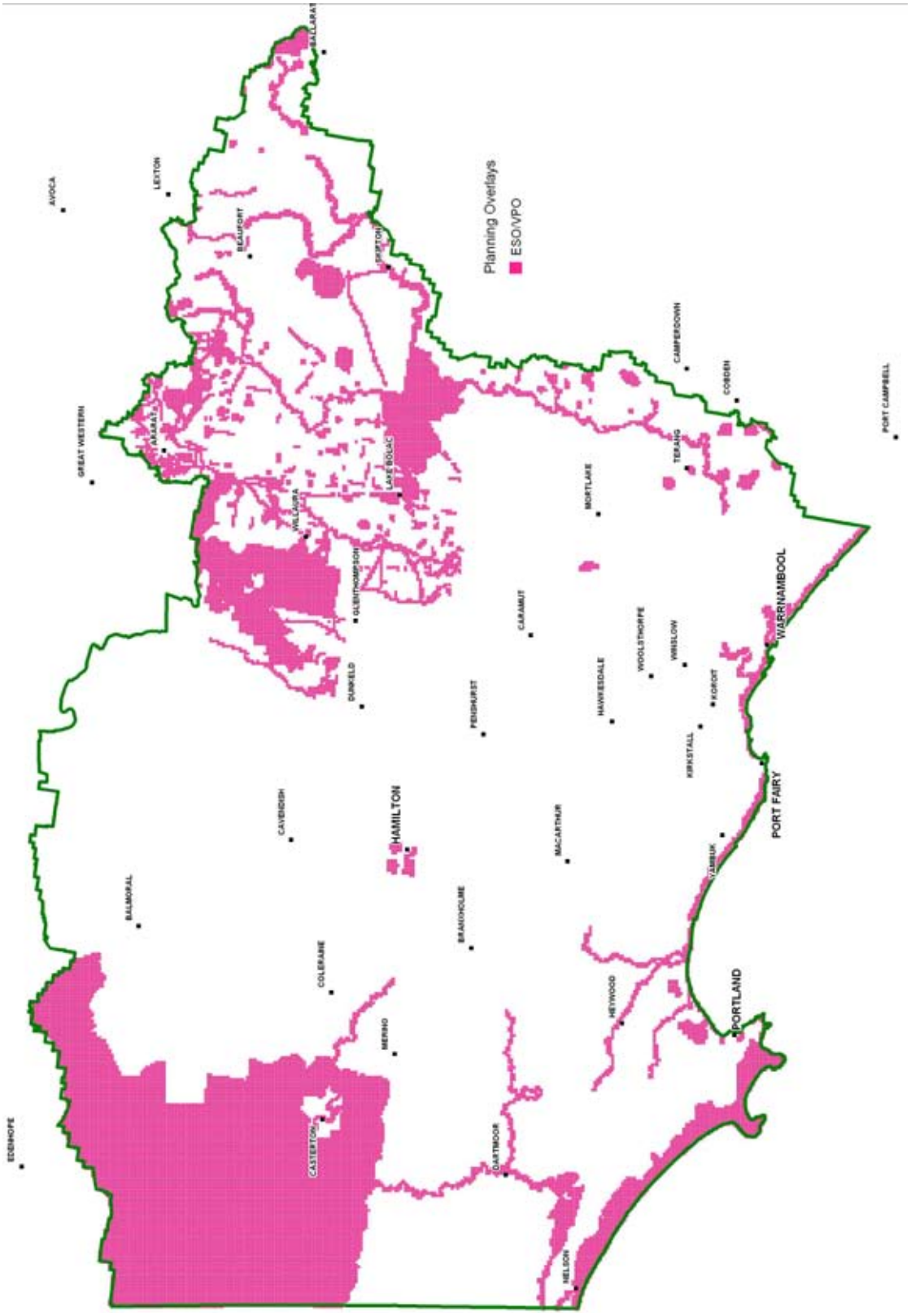
Water - wetlands	• Glenelg Estuary • Lower Glenelg River • Eumeralla River • Mid Glenelg River • Darlot Creek • Moyne River	The most severe infestations of weeds (>1000 ha) within 200 m of a wetland	Glenelg Hopkins Regional Wetland Status Report Biodiversity Asset Mapping	Wetlands (1994) Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay
Water estuaries	Glenelg Estuary Hopkins River and Estuary		Biodiversity Asset Mapping	Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay
Biodiversity – threatened flora and fauna	Threatened flora and fauna that occurs within the region and are: • are listed in the *Flora and Fauna Guarantee Act (FFG)* • included in the Actions for Biodiversity Conservation database • not deep sea species • are included in the DSE threatened fauna and flora GIS overlays	These species may be at risk of competition and subsequent displacement.	Flora and Fauna Guarantee Act Actions for Biodiversity Conservation Database Biodiversity Asset Mapping	Thfau100spp Thflo100spp Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay
Biodiversity – Vegetation	All areas within the region that have medium - high value vegetation as determined from ARI Vegetation Quality Modelling data All areas of environmental significance or vegetation requiring protection across the region. This includes all Local Government areas	These areas of vegetation are of medium – high value These areas are intended to be included within all Local Government Planning Schemes across the region	Vegetation Condition and Extent Modelling (Arthur Rylah Institute) Biodiversity Asset Mapping (DSE and GHCMA) Local Government Planning Schemes	Vegetation Condition and Extent Modelling Thflo100spp Environmental Significance Overlay Vegetation Protection Overlay Aquatic Protection Overlay Habitat Protection Overlay

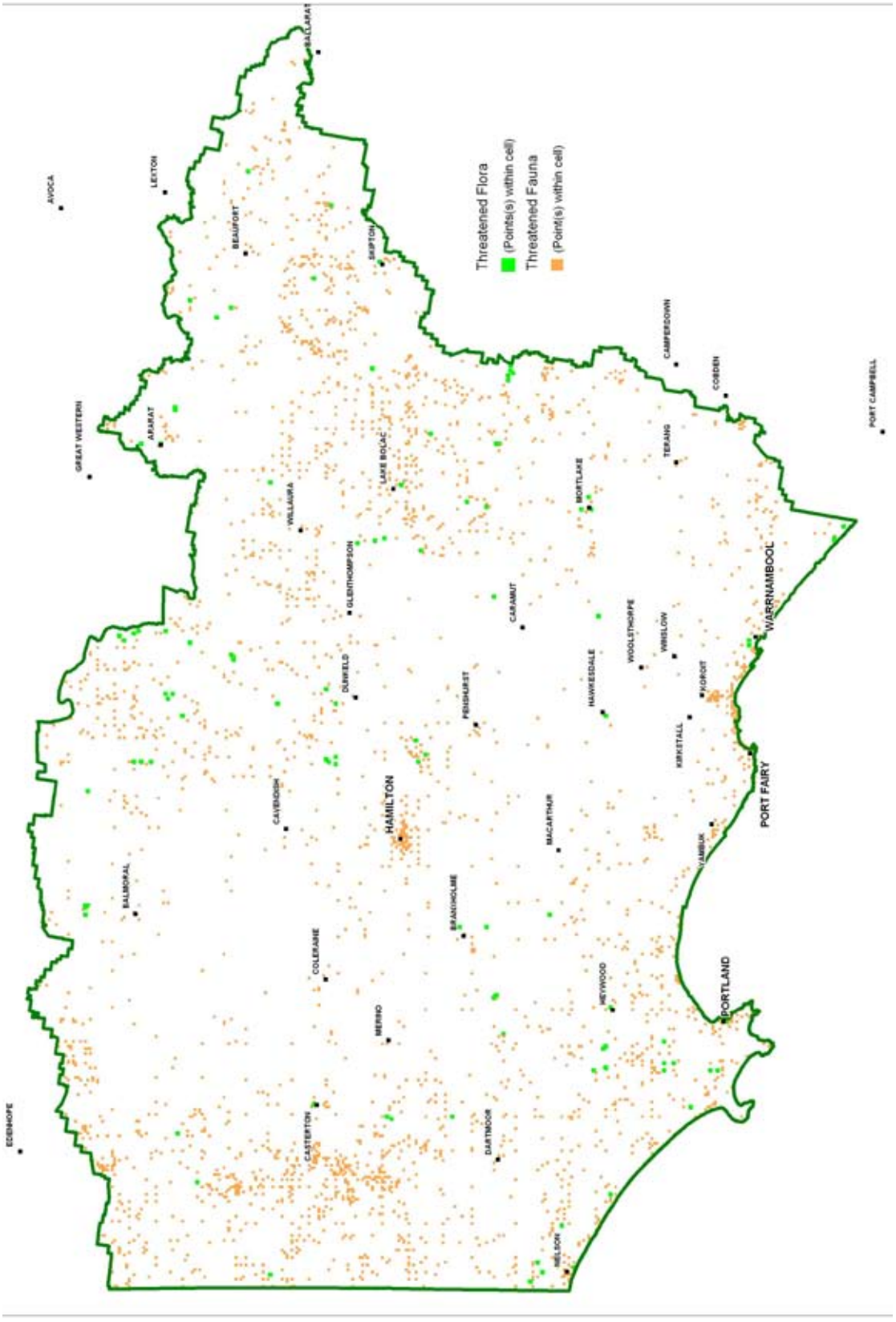
Land – agriculture and horticulture	**Grazing modified pastures** Native/exotic pasture mosaic Woody fodder plants Pasture legumes Pasture legume/grass mixture Sown grasses **Cropping** Cereals Hay and silage Oil seeds Legumes **Perennial horticulture** Tree fruits Oleaginous fruits Tree nuts Vine fruits Shrub nuts, fruits and berries Flowers and bulbs Vegetables and herbs **Seasonal horticulture** Fruits Nuts Flowers and bulbs Vegetables and herbs **Irrigated plantation forestry** Irrigated hardwood production Irrigated softwood production Irrigated other forest production Irrigated environmental **Irrigated perennial horticulture** Irrigated tree fruits Irrigated oleaginous fruits Irrigated tree nuts Irrigated vine fruits Irrigated shrub nuts, fruits and berries Irrigated flowers and bulbs Irrigated vegetables and herbs **Irrigated seasonal horticulture** Irrigated fruits Irrigated nuts	These agricultural areas have economic value with the potential to be impacted upon by weeds.		LUSE250

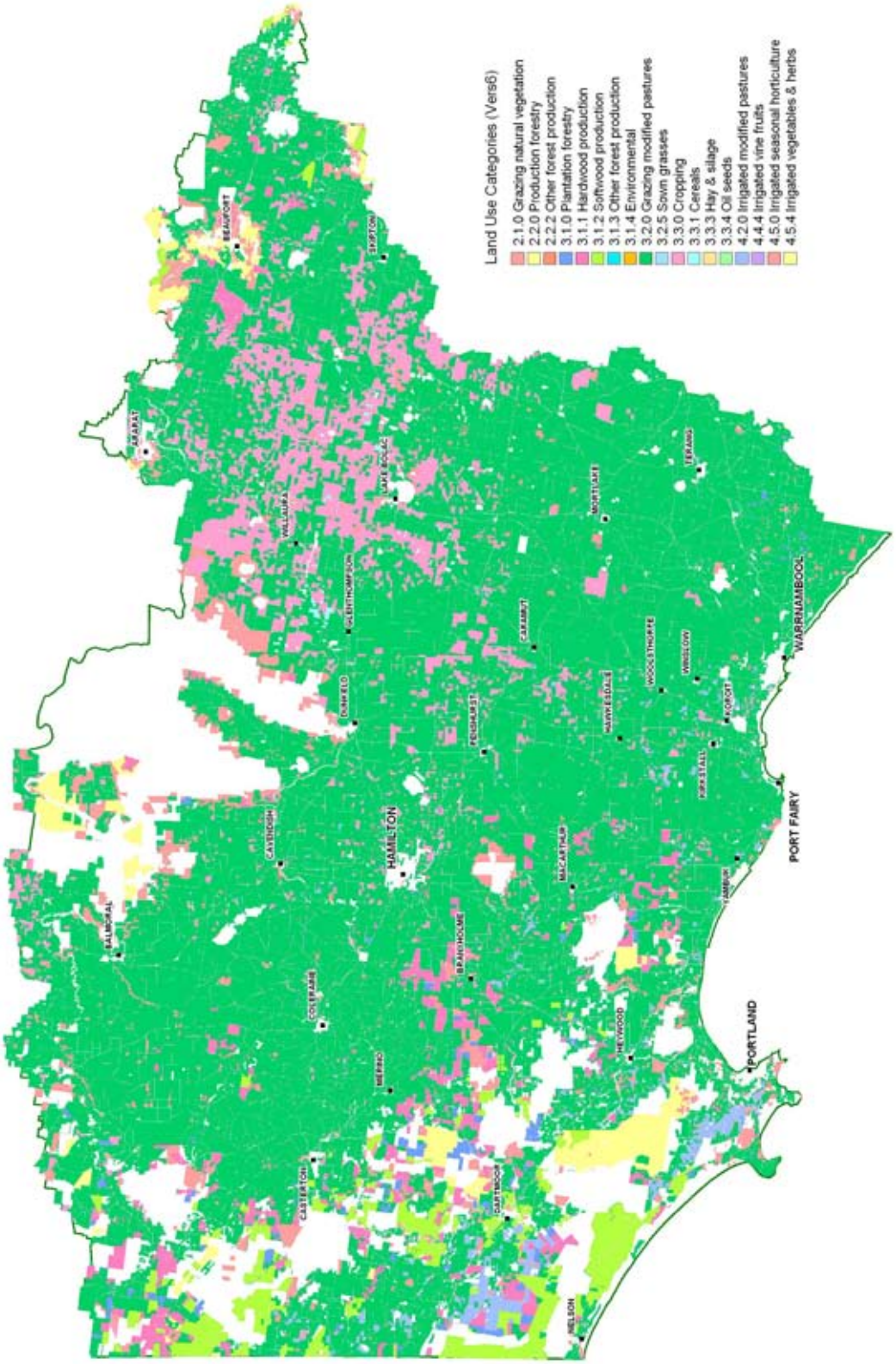
	Irrigated flowers and bulbs Irrigated vegetables and herbs **Intensive animal production** Dairy Cattle Sheep Poultry Pigs Aquaculture			

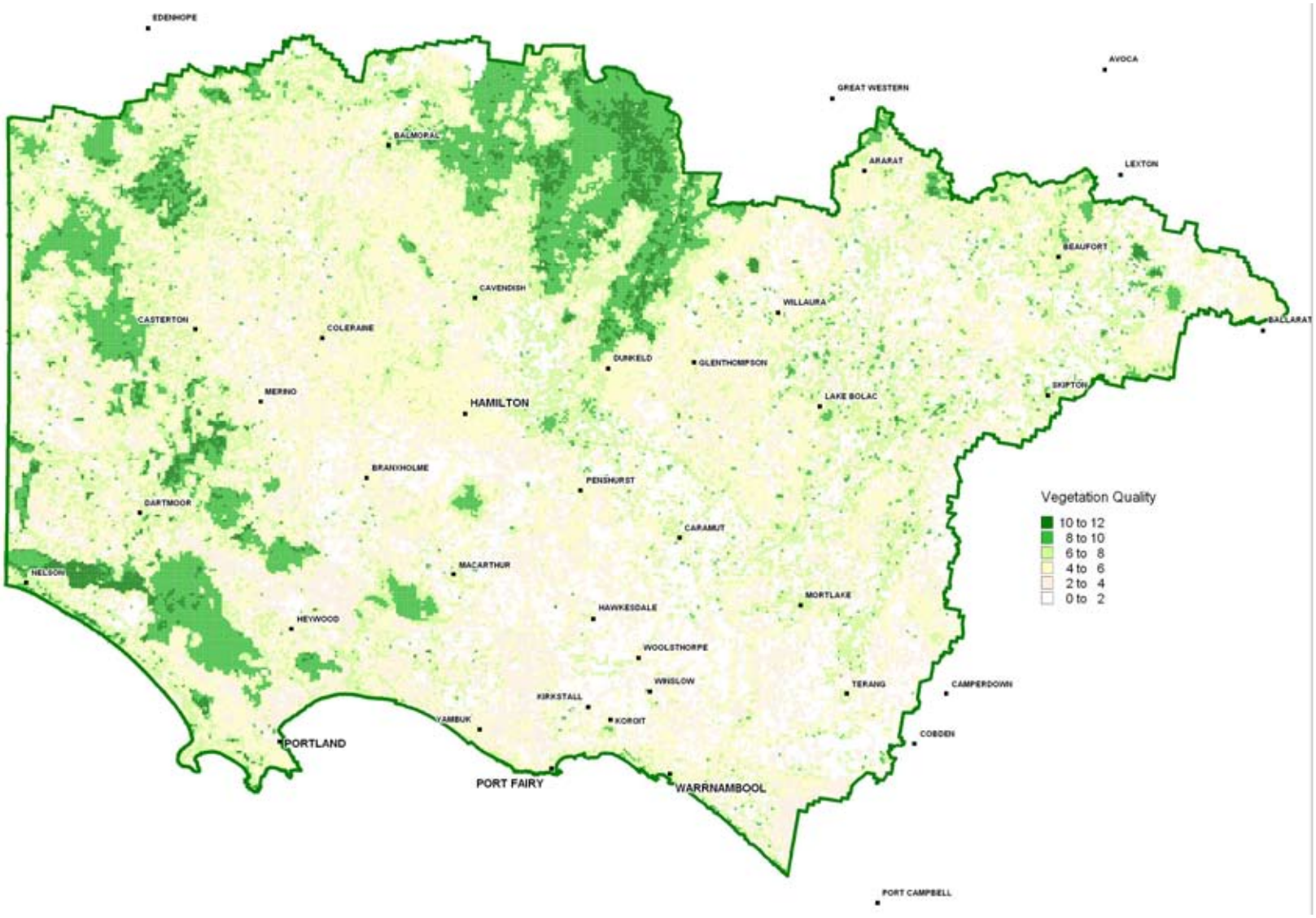
APPENDIX 5

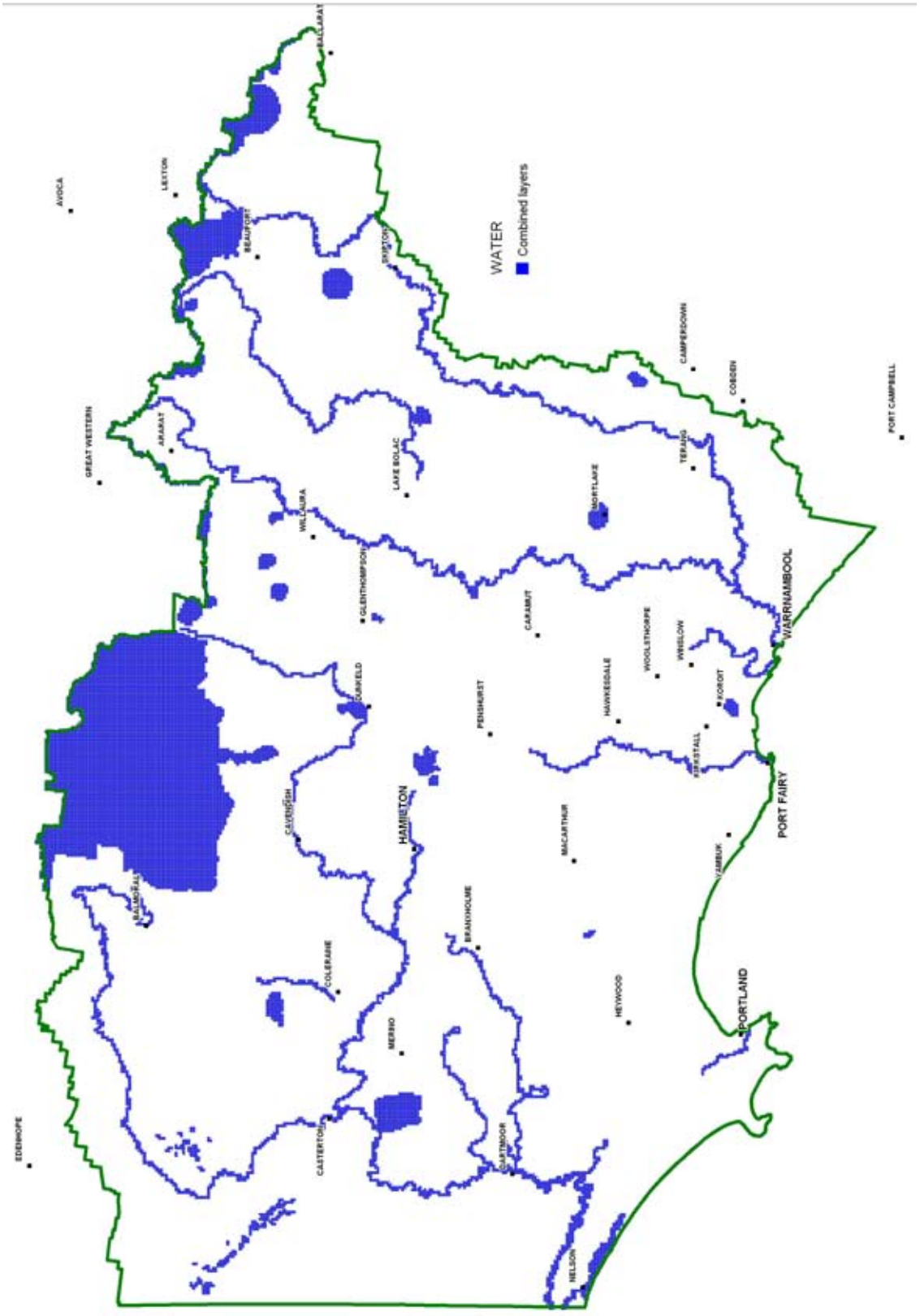
Asset layers




Threatened Flora
(Points(s) within cell)
Threatened Fauna
(Point(s) within cell)
AVOCA
LEXTON
BEAUFORT
SKIPTON
BALLARAT
GREAT WESTERN
ARARAT
LAKE BOLAC
WILLAURA
GLENTHOMPSON
DUNKELD
CAVERSHAM
HAMILTON
BALMORAL
COLERAINE
MERINO
BRANXHOLME
CASTERTON
DARTMOOR
EDENHOPE
PENSHURST
CARAMUT
MACARTHUR
HEYWOOD
PORTLAND
NELSON
HAWKESDALE
MORTLAKE
CAMPERDOWN
COBDEN
TERANG
WOOLSTHORPE
WINSLOW
KIRKSTALL
PORT FAIRY
WARRNAMBOOL
PORT CAMPBELL


Land Use Categories (Vers6)
2.1.0 Grazing natural vegetation
2.2.0 Production forestry
2.2.2 Other forest production
3.1.0 Plantation forestry
3.1.1 Hardwood production
3.1.2 Softwood production
3.1.3 Other forest production
3.1.4 Environmental
3.2.0 Grazing modified pastures
3.2.5 Sown grasses
3.3.0 Cropping
3.3.1 Cereals
3.3.3 Hay & silage
3.3.4 Oil seeds
4.2.0 Irrigated modified pastures
4.4.4 Irrigated vine fruits
4.5.0 Irrigated seasonal horticulture
4.5.4 Irrigated vegetables & herbs
BEAUFORT
ARARAT
WILLAURA
LAKE BOLAC
STRATHDOWIE
DUNKELD
CAVENDISH
HAMILTON
BRAMBUK
COLERAINE
MERINO
CASTERTON
DARTMOOR
NELSON
PORTLAND
HEYWOOD
PENSHURST
MACARTHUR
PORT FAIRY
KOROIT
HAWKESDALE
WOOLSTHORPE
WINSLOW
CAMPERDOWN
MORTLAKE
CARAMUT
WARRNAMBOOL


EDENHOPE
AVOCA
GREAT WESTERN
BALMORAL
ARARAT
LEXTON
BEAUFORT
CAVENDISH
WILLAURA
CASTERTON
COLERAINE
BALLARAT
DUNKELD
GLENTHOMPSON
MERINO
HAMILTON
LAKE BOLAC
SKIPTON
BRANXHOLME
PENSHURST
DARTMOOR
CARAMUT
MACARTHUR
NELSON
MORTLAKE
HAWKESDALE
HEYWOOD
WOOLSTHORPE
WINSLOW
TERANG
CAMPERDOWN
KIRKSTALL
KOROIT
YAMBUK
COBDEN
PORTLAND
PORT FAIRY
WARRNAMBOOL
PORT CAMPBELL
Vegetation Quality
10 to 12
8 to 10
6 to 8
4 to 6
2 to 4
0 to 2


WATER
Combined layers
BALLARAT
AVOCA
LEXTON
BEAUFORT
BURTON
CAMPERDOWN
COBDEN
PORT CAMPBELL
GREAT WESTERN
ARARAT
LAKE BOLAC
TERANG
WILLAURA
GLENTHOMPSON
CARAMUT
WOOLSTHORPE
KIRKSTALL
WARRNAMBOOL
DURIVELD
PENSHURST
HAWKESDALE
KORORT
CAVENDISH
HAMILTON
MACARTHUR
PORT FAIRY
BRANDHOLME
COLERAINE
HEYWOOD
PORTLAND
MERINO
CASTERTON
EDENHOPE
NELSON

APPENDIX 6

Targets within the Glenelg Hopkins Regional Catchment Strategy

Aspirational target

The aspirational target identified in the Glenelg Hopkins Regional Catchment Strategy (RCS) 2003-2007 regarding pest management is; *by 2050 there will be a net decline in impacts of pest plant (and animal) infestations on public and private land and in aquatic systems.*

Regional Management Action Targets

RMAT 66 - Meet aspirational targets for pest plants (and animals) through facilitating regional implementation of the CaLP Act.

RMAT 67 - Build community capacity through increasing community awareness of the need to treat causes rather than symptoms of pest plant infestations

RMAT 68 - Meet aspirational targets for pest plants (and animals) through facilitating regional implementation of Commonwealth and State pest management programs.

RMAT 69 - Meet aspirational targets for pest plants through facilitating implementation of key actions from the Glenelg Hopkins Weed Action Plan.

RMAT 70 - Build community capacity through supporting community-based weed management activities.

RMAT 71 - Support stock feed industry quality assurance programs.

RMAT 73 - Meet aspirational targets for pest plants through facilitating development of a regional Aquatic Pest Plant Strategy.

RMAT 77 - Investigate gaps in pest plant (and animal) management strategic planning.

RMAT 78 - Meet aspirational targets for pest plants (and animals) through reviewing and updating existing pest plant (and animal) strategies.

RMAT 79 - Work closely with and support research providers to develop new control measures.

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The Place To Be