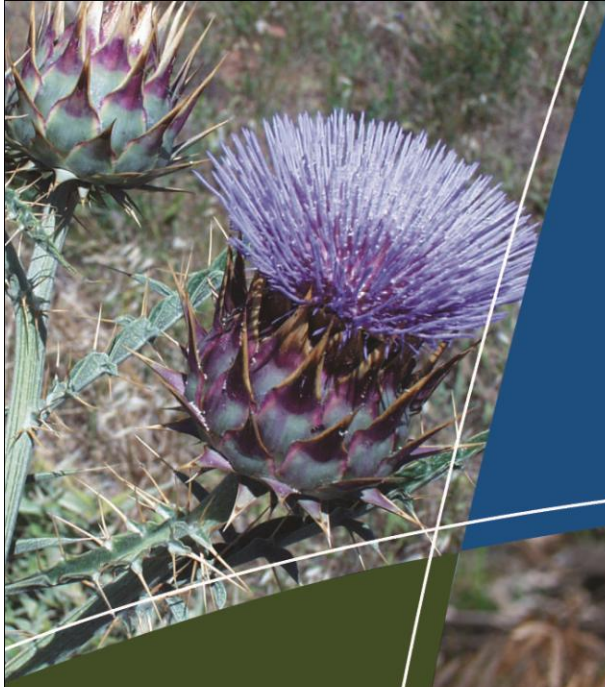

Goulburn Broken Invasive Plants and Animals Strategy

2010- 2015

GOULBURN BROKEN
CATCHMENT MANAGEMENT AUTHORITY

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FOREWORD

Management of invasive plants and animals within the Goulburn Broken catchment is an important component of implementing our Regional Catchment Strategy.

Preparation of this Goulburn Broken Invasive Plants and Animals Strategy (GB IPAS) was identified in the Goulburn Broken Catchment Management Authority's (CMA) 2009-10 Corporate Plan as a priority.

New guidelines, and the adoption by State and Federal governments of biosecurity approaches for invasive plants and animals management, have provided an additional incentive to review and develop updated approaches within the catchment.

This GB IPAS sets the strategic direction for pest management in the Goulburn Broken catchment. It is not an action plan for specific invasive plants and animals, but rather is intended to be used for investment prioritisation by the various organisations providing funding for pest management.

Its implementation will contribute to the protection of the Goulburn Broken catchment's environmental, social and economic assets from the impact of invasive plants and animals.

I commend the Working Group, representing a range of our key stakeholders, which oversaw the preparation of the GB IPAS.

Peter F. Ryan

Chair

Goulburn Broken Catchment Management Authority.

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GLOSSARY

ARIER	Arthur Rylah Institute for Environmental Research
BAP	Biodiversity Action Plan
CaLP	Catchment and Land Protection Act 1994
CFoC	Caring for our Country
CMA	Catchment Management Authority
DPI	Department of Primary Industries
DPI-BRD	Department of Primary Industries, Biosciences Research Division
DPI-BV	Department of Primary Industries, Biosecurity Victoria
DPI-FSV	Department of Primary Industries, Catchment and Agricultural Services
DSE	Department of Sustainability and Environment
FFGA	Flora and Fauna Guarantee Act
GB CMA	Goulburn Broken Catchment Management Authority
GB IPAS	Goulburn Broken Invasive Plants and animals Strategy (GB IPAS/IPAS)
GNP	Good Neighbour Program
IC	Implementation Committee
IPA	Invasive Plants and Animals
NP	National Park
NRM	Natural Resource Management
MER	Monitoring, evaluation and reporting
PV	Parks Victoria
RCS	Regional Catchment Strategy
RPP	Regional Pest Plan
RPW	Regionally Prohibited Weed
RWG	Regional Working Group
RWP	Regional Weed Plan
SPW	State Prohibited Weed
VCMC	Victorian Catchment Management Council
VFF	Victorian Farmers Federation
VIF	Victorian Investment Framework
VNPA	Victorian National Parks Association
VPMF	Victorian Pest Management Framework
VWRA	Victorian Weed Risk Assessment
WONS	Weeds of National Significance

EXECUTIVE SUMMARY

Introduction

The Goulburn Broken Invasive Plants and Animals Strategy (GB IPAS) sets the direction for invasive plants and animals investment and management in the Goulburn Broken catchment.

The Biosecurity Strategy for Victoria (Government of Victoria 2009) and the Invasive Plants and Animals Policy Framework (DPI 2010) provide the approach and policy behind invasive plants and animals management in Victoria, whilst the *Catchment and Land Protection Act 1994* (CaLP Act 1994) provides a legislative framework and defines general duties of landholders and management of noxious weeds and pest animals.

The scope of the Goulburn Broken Invasive Plants and Animals Strategy (GB IPAS) is invasive plants and invasive animals which can be any organisms that are, or can be, declared under the CaLP Act 1994 (that is, both declared and non declared invasive plants and animals species). This excludes fish, invertebrates and micro-organisms. Also excluded by this definition are plants or animals that are listed under section 10(1) of the *Flora and Fauna Guarantee Act 1988* or declared to be threatened wildlife or notable wildlife under the *Wildlife Act 1975*. These cannot be declared under the CaLP Act 1994. However, the approaches set out in the GB IPAS can be applied to a range of pest species.

The GB IPAS is a high level document, guiding general direction for investment and effort. It is not an operational plan guiding day to day activities. It provides objectives and description of how to achieve objectives over a long term (five plus years).

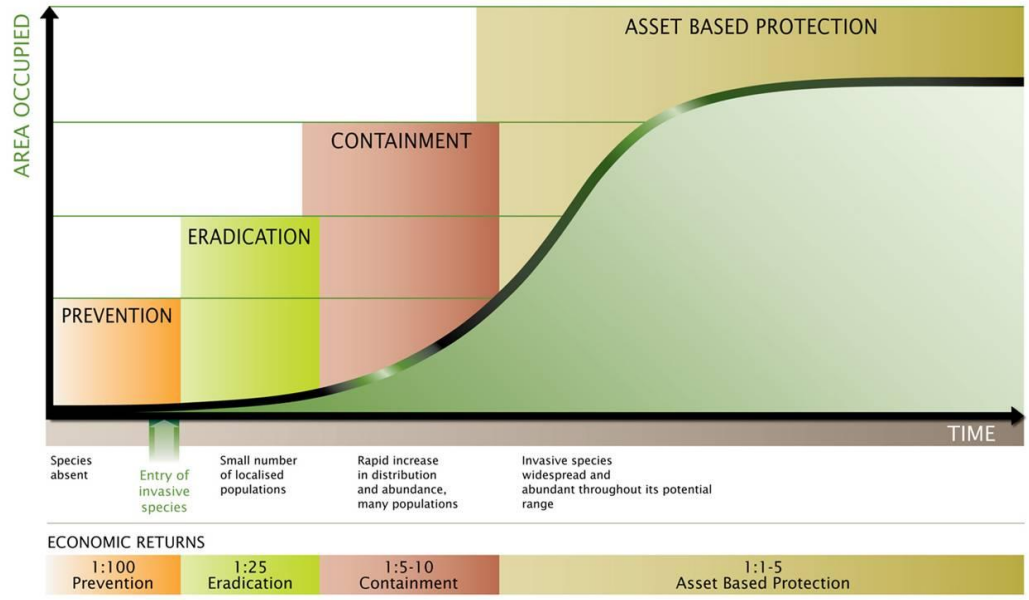
Development of the GB IPAS was overseen by a Working Group, comprising representatives of key stakeholders, which first met in September 2009.

The Strategy

The GB IPAS is underpinned by the “biosecurity approach”. Informed by the invasive plants and animals invasion curve (Figure S1), the biosecurity approach adopts a risk-based strategy to intervention featuring four key responses: prevention, eradication, containment and asset protection.

Generally, priority will be given to programs that prevent introduction or eradicate newly establishing species, over containment and programs to reduce the impact of established species on priority assets. This approach provides the greatest public benefit for government investment.

FIGURE S1 INVASION CURVE (DPI 2010)



Program Goals

The Vision for the GB IPAS is "Environmental, social and economic assets in the Goulburn Broken catchment will be protected from the impact of invasive plants and animals".

The Vision will be achieved by working towards seven key goals:

Goal 1 – Preparedness and prevention **-** *Prevent new high risk invasive plants and animals from establishing in the catchment and ultimately, Victoria.*

Prevention and eradication programs form the basis of the 'species-led' approach to invasive plants and animals management, prioritising one species above another on the basis of the risk it poses to Victoria's economic, environmental and social values. The control of State Prohibited Weeds falls within this management approach.

Prevention involves minimising the movement of new invasive plants and animals into the state and catchment by understanding and managing all pathways of entry and spread.

Goal 2 – Eradication **-** *Eradicate high risk invasive plants and animals in the early stage of establishment.*

In the early stages of range expansion, eradication of an invasive plant or animal may be feasible. There are a number of conditions to be met in determining whether eradication is feasible.

State government programs for invasive plants and animals prevention and eradication are largely delivered at a statewide level.

Goal 3 – Containment – *Contain high risk established invasive plants and animals.*

Once established in the state beyond the possibility of eradication, an invasive plant or animal species may still be localised in small areas of one or more catchments. Containment approaches to limit the species further spread may then be appropriate to deliver the best return on public investment. From a statewide program perspective, the control of Regionally Prohibited Weeds falls within this management approach.

Goal 4 – Protecting assets and their values – *Protect key biodiversity and other natural resource assets and their values from the impact of invasive plants and animals.*

Once an invasive plant or animal becomes so widespread that containment or eradication is not possible, the focus of management effort should change to protecting the catchment's priority assets (often described as an "asset-based approach").

Asset-based protection programs focus upon reducing the impact of all threats, including invasive plants and animals, on high value assets in the state or catchment. Assets may provide a range of environmental, social and/or economic services. The control of widespread invasive animals, such as foxes preying upon rare and threatened species, falls into this 'asset-based' management approach.

Focusing on the protection and restoration of priority assets, rather than the invasive plants and animals per se, provides a clear focus for the land manager when dealing with established invasive plants and animals and enhances the likelihood of success.

Existing invasive plants and animals programs focus on support of community action to manage widely established species. Future programs will focus on protecting high value assets.

Goal 5 – Integration – *Integrate invasive plants and animals management with sustainable agriculture and other natural resource management activities.*

Invasive plants and animals can impact on the effectiveness of many land management programs such as soil stabilisation, revegetation programs and the protection and rehabilitation of rare and endangered fauna. Integrating effective invasive plants and animals control into such projects will significantly improve their outcomes over time.

Goal 6 – Coordination – *Coordinate and integrate invasive plants and animals management across, and within, land tenures.*

Effective invasive plants and animals management depends on the development and implementation of working partnerships between government, industry and the community. Roles and responsibilities of various stakeholder are comprehensively addressed in Module 1 of the Invasive Plants and Animals Policy Framework (DPI 2010).

Onground invasive plants and animals management is primarily the responsibility of the land manager. The Goulburn Broken CMA will take a role in supporting coordination activities by convening and organising the Goulburn Broken Invasive Plants and Animals Forum with stakeholders from within the catchment and relevant neighbouring areas.

Goal 7 – Continuous improvement - *Continuously improve invasive plants and animals management.*

Regular reviews of the GB IPAS are scheduled so that it can be improved. The Goulburn Broken Invasive Plants and Animals Forum will support the Goulburn Broken CMA in this monitoring, reporting and improvement role.

Prioritisation

Because of the high number of potential species involved when managing invasive plants and animals in Victoria, government must prioritise its investment, targeting only the invasive plants and animals posing the greatest threat to the state's economic, environmental and social values. This prioritisation process involves risk assessment, knowledge of threats and potential impacts on assets and their associated values.

Threats

A large number of invasive plants and animals are found in the catchment. The GB IPAS applies to all invasive plants and animals that are, or can be, declared under the provisions of the CaLP Act 1994.

Assets and values

Asset-based protection programs focus on reducing the impact of all threats, including invasive plants and animals, on high value assets and associated values in the state or catchment. Assets may provide a range of environmental, social and/or economic services.

As part of the process for identifying assets in the catchment, the Working Group recognised two major types of assets:

- Biodiversity – based on biodiversity action planning undertaken in the catchment
- Agricultural land including large water storages, such as Lake Eildon and Goulburn Weir, and associated infrastructure that supports irrigation in the Goulburn Broken and downstream catchments.

Some assets can be readily mapped e.g. Barmah Forest or the Goulburn River while other assets are dispersed and difficult to explicitly map (e.g. agriculture land) as they occur over most of the catchment.

Implementation

The Goulburn Broken Invasive Plants and Animals Forum will provide oversight of GB IPAS implementation and will regularly overview progress towards achieving goals.

The Goulburn Broken Invasive Plants and Animals Strategy comprises three parts:

Part A: Context

Part B: The Strategy

Part C: Appendices with more detailed information about relevant sections.

PART A: CONTEXT

1. INTRODUCTION

The Goulburn Broken Catchment Management Authority's (CMA) Board identified development of an invasive plants and animals strategy as a priority in the 2009-10 Corporate Plan. Such a strategy is required to set the direction for invasive plants and animals management in the Goulburn Broken catchment.

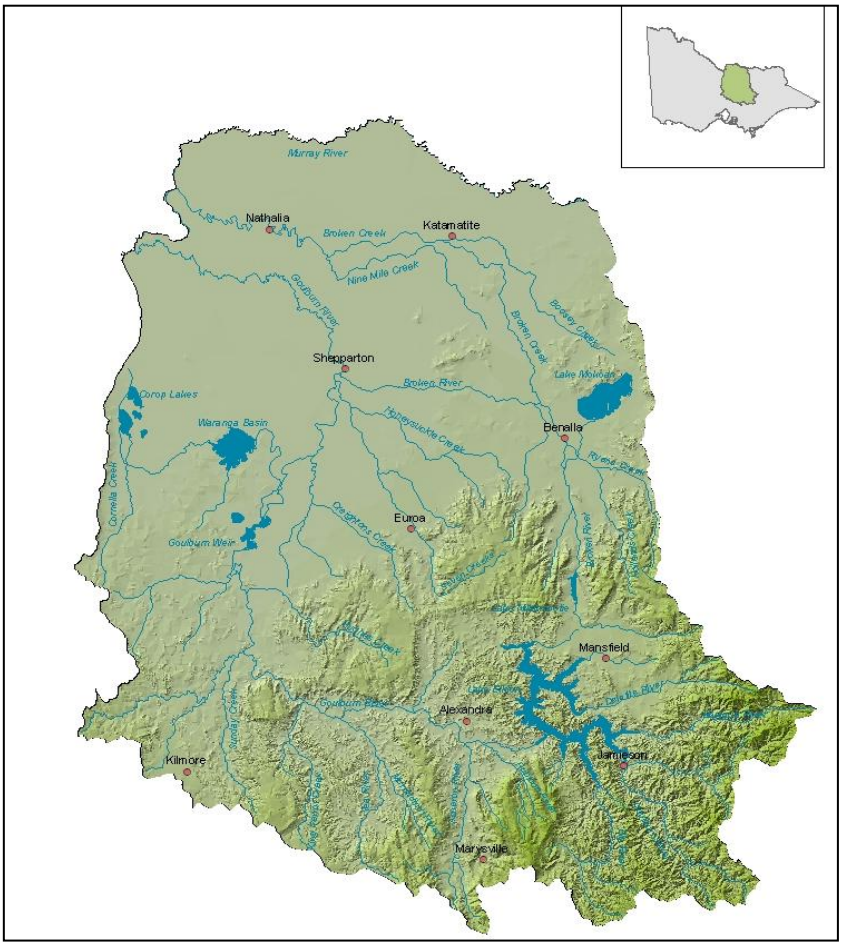
2. THE GOULBURN BROKEN CATCHMENT IN BRIEF

The Goulburn Broken Catchment (Figure 1) covers 2.4 million hectares (or about 11% of Victoria), has a population of over 200,000 people and supports major agricultural, food processing, forestry and tourism industries. Production from the irrigation region supports a significant food processing industry that contributes 25% of Victoria's export earnings. The dryland area covers about 2 million hectares. Economic output from the catchment is estimated to be $9.5 billion each year of which the Shepparton Irrigation Region contributes over $5 billion (2005 figures).(Goulburn Broken CMA 2009)

The catchment covers 2% of the Murray Darling Basin but generates 11% of the basin's water resources. It also contains Victoria's largest and most important water supply catchment – Lake Eildon. The Goulburn Broken catchment generates 18 % of Victoria's water which is used within the catchment as well as Victoria, South Australia and New South Wales. Significant wetlands include the Ramsar-listed wetland (DSE 2003), Barmah Forest, Winton Wetlands and the Corop Wetlands, all in the north of the catchment.

Extensive land clearing and irrigation over the past 100 years has resulted in significant degradation of the catchment's land and water resources and biodiversity, as well as causing salinity and water quality problems (Goulburn Broken CMA 2009).

FIGURE 1 - LOCATION OF THE GOULBURN BROKEN CATCHMENT.



3. INTRODUCING THE STRATEGY

State Guidelines (DSE 2009) have been prepared for development of pest strategies and plans and these have guided development of this Goulburn Broken Invasive Plants and Animals Strategy (GB IPAS).

The Biosecurity Strategy for Victoria (Government of Victoria 2009) and the Invasive Plants and Animals Policy Framework (DPI 2010) provide the approach and policy behind invasive plants and animals management in Victoria, whilst the *Catchment and Land Protection Act 1994* (CaLP Act 1994) provides a legislative framework and defines general duties of landholders and management of noxious weeds and pest animals (see Appendix 2).

3.1. SCOPE

The scope of the Goulburn Broken Invasive Plants and Animals Strategy (GB IPAS) is invasive plants and invasive animals which can be any organisms that are, or can be, declared under the CaLP Act 1994 (that is, both declared and non-declared invasive plants and animals species). The Strategy does not cover invasive invertebrates and micro-organisms. Also excluded by this definition are plants or animals that are listed under section 10(1) of the *Flora and Fauna Guarantee Act 1988* or

declared to be threatened wildlife or notable wildlife under the *Wildlife Act 1975*. Such species cannot be declared under the CaLP Act 1994. However, the approaches set out in the GB IPAS can be applied to a range of pest species.

The strategy takes a whole of catchment approach, focusing on those invasive plants and animals management issues where high value assets are threatened and government investment maximises community benefit. Hence, the strategy does not consider invasive plants and animals managed solely for private benefit.

The GB IPAS is intended to guide investment decisions in invasive plants and animal management. Funding for invasive plants and animals work in the region is rapidly and continually evolving.

The GB IPAS is not an operational plan that guides day to day activities. It is a high level document, guiding general direction for investment and effort. It provides objectives and a description of how to achieve objectives over a long term (five plus years).

3.2. KEY PRINCIPLES UNDERLYING STRATEGY DEVELOPMENT AND IMPLEMENTATION

The State Guidelines for preparing regional pest plans set out key principles to be reflected in invasive plants and animals strategies. The principles are reproduced in full in Appendix 5. In summary:

Alignment – Catchment based invasive plants and animals plans will align with Regional Catchment Strategies (RCS) and the Victorian Invasive Plants and Animals (IPA) Policy Framework and should seek to align with other relevant policies, strategies and plans.

Biosecurity approaches – underpin the GB IPAS and include:

- *prevention* - the highest priority for invasive plants and animals management is the prevention of, and early intervention in, the establishment of new and emerging invasive plants and animals species.
- *asset protection* - an asset-based approach will normally be adopted for widespread invasive plants and animals, focussing on the protection of high value environmental, social and economic assets in the Goulburn Broken catchment.

Risk assessment and management - transparent, scientific, evidence-based decision-making tools or criteria for setting priorities, including risk management, must be employed.

Across tenure approaches - *e*nsuring coordinated action across land tenures.

Address causes not symptoms – addressing the cause of invasive plants and animals invasion, not just the symptoms.

Integration - invasive plants and animals management programs integrated with the broader management of land and water resources.

Monitoring, evaluation and reporting – an outcomes based approach adopted using monitoring, reporting and evaluation to inform continuous improvement.

Management responses – guided by consideration of the role of government, industry and community.

Roles and responsibilities – clearly identified.

Coordination and engagement - activities for improving catchment coordination and the engagement of all stakeholders in the ownership of invasive plants and animals management and partnership opportunities described.

Maintaining gains - gains already made in managing invasive plants and animals threats to assets are supported and reinforced.

A set of investment principles (Appendix 6) have been adopted to help guide government investment in invasive plants and animals management.

3.3. Links to Goulburn Broken Regional Catchment Strategy and other strategies

The 2003 Regional Catchment Strategy (GB CMA 2003) identified a strategic direction aligned with the Goulburn Broken CMA's vision for the Goulburn Broken region:

Healthy, resilient and increasingly productive landscapes supporting vibrant communities.

The Goulburn Broken Regional Catchment Strategy (GB CMA 2003) clearly identified invasive plants and animals as threats to the catchment's assets and included a Pest Plant and Animal Sub-Strategy. Figure 2 and Figure 3 provide an overview of linkages between federal, state, regional and local strategies, plans and actions.

A number of other relevant invasive plants and animals strategies and plans are described in Appendix 12.

3.4. Working Group

Development of the GB IPAS was overseen by a Working Group which first met in September 2009. Membership of the Working Group is shown in Appendix 1.

3.5. Strategy timeframe

The GB IPAS has a life of five years, and has been developed around a 20 year planning horizon with regular reviews aligned with Regional Catchment Strategy (RCS) reviews (undertaken every five to seven years).

FIGURE 2 - STRATEGY LINKAGES – FEDERAL TO LOCAL

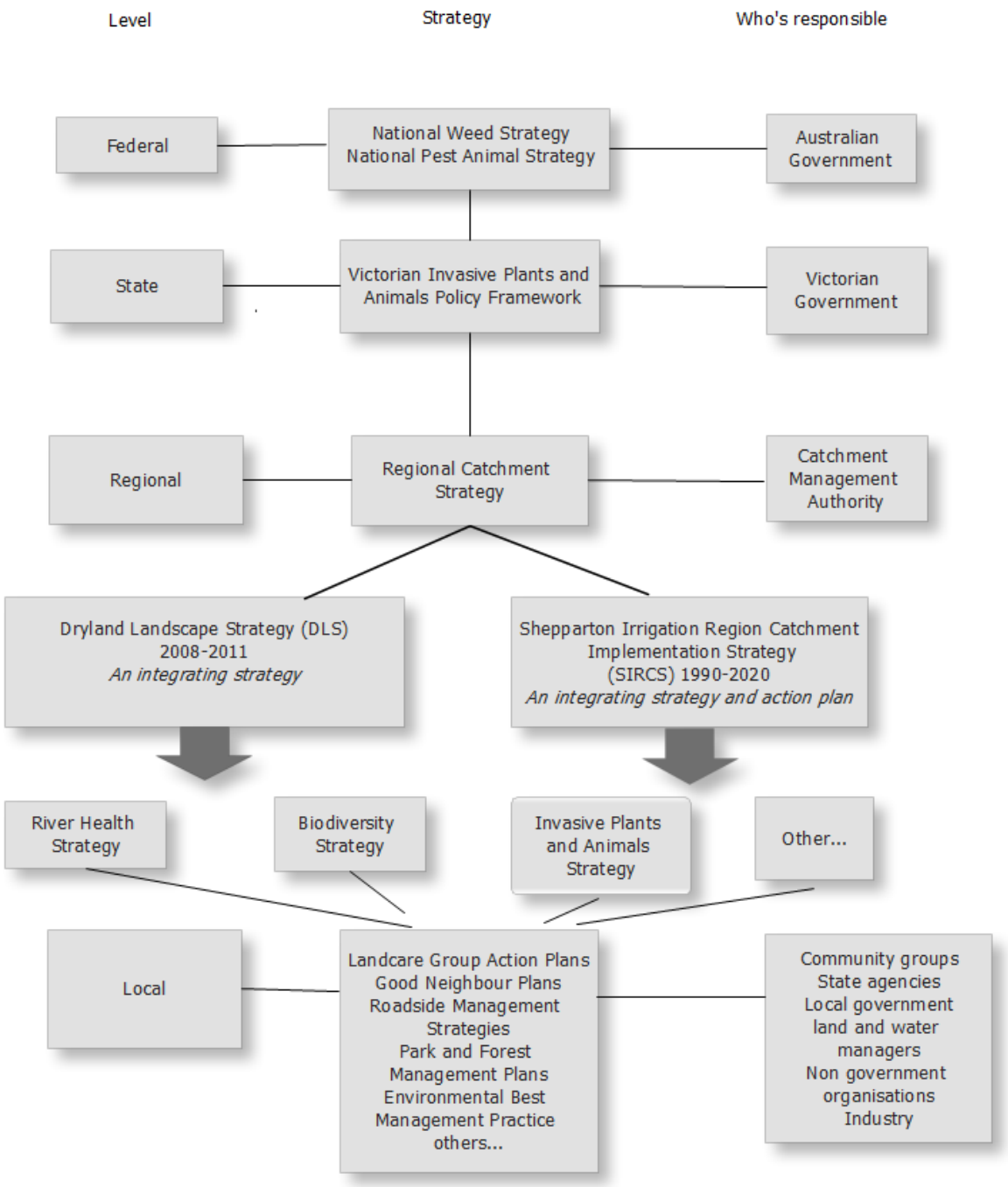
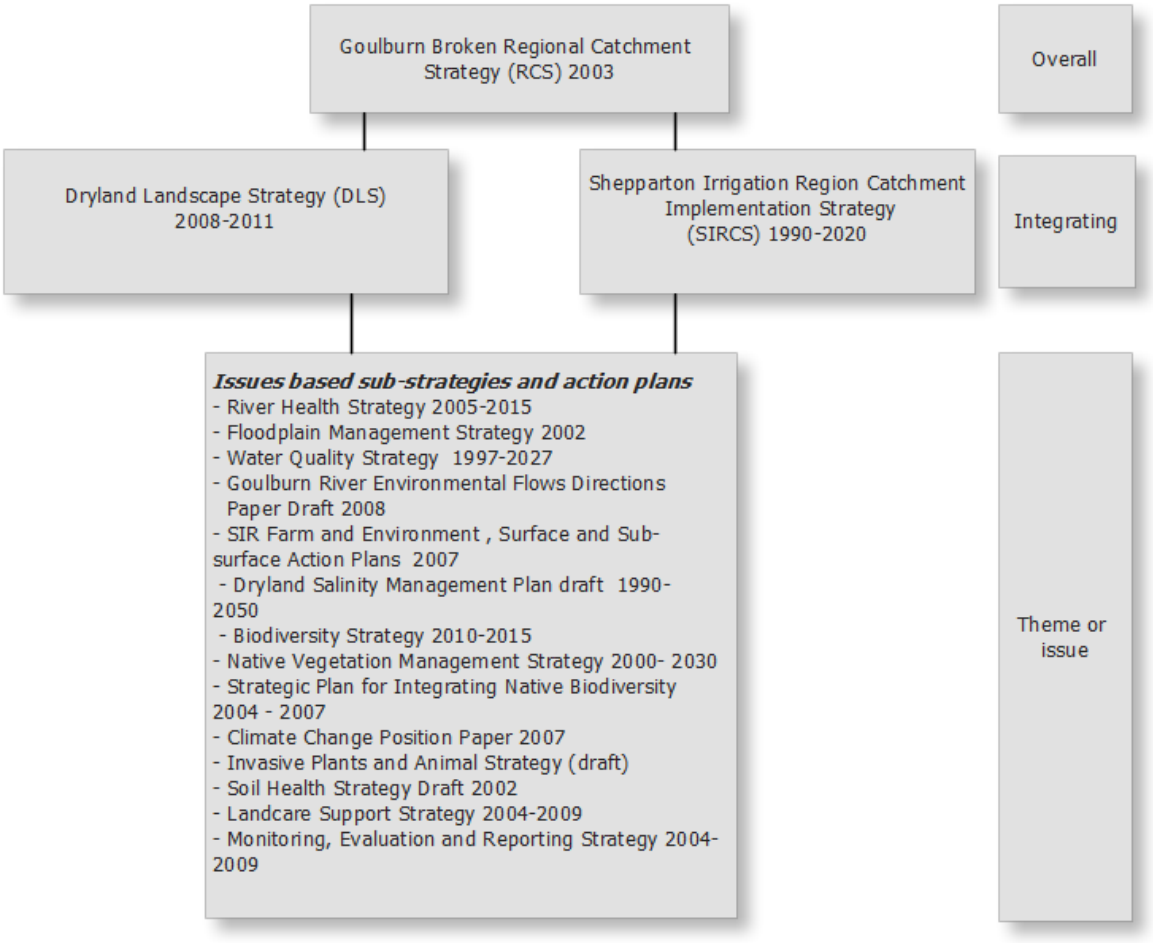


FIGURE 3 - GOULBURN BROKEN REGIONAL CATCHMENT STRATEGY AND SUB-STRATEGIES STRUCTURE



3.6. DRIVERS FOR CHANGE

Over time, the GB IPAS will need to consider change in the occurrence and distribution of invasive plants and animals species and community action to manage invasive plants and animals species. In the Goulburn Broken catchment, drivers for these changes include:

- land use changes
- demographic changes
- economic changes
- fire and other natural disasters
- climate change.

Scheduled reviews of the GB IPAS will identify and consider the affects of change drivers.

3.7. GB IPAS APPROVAL PROCESS

The State Guidelines for preparing regional pest plans note that invasive plants and animals strategies are to be endorsed by CMA Boards.

3.8. PUBLIC COMMENT

The draft GB IPAS was made available for public comment through a mail out to a large number of key stakeholders. The draft was available for download from the GB CMA's web site.

Nineteen responses were received with 109 individual comments. All comments were considered in the preparation of the final GB IPAS. Organisations that commented on the draft are listed in Appendix 14.

4. ROLES AND RESPONSIBILITIES

Roles and responsibilities of various stakeholder are comprehensively addressed in Module 1 of the invasive plants and animals policy framework (DPI 2010). These are shown in Appendix 11.

5. CURRENT (2010) INVASIVE PLANTS AND ANIMALS ACTIVITIES IN THE CATCHMENT

Current (2010) invasive plants and animals activities in the catchment are briefly described in Table 1. DPI programs have been based on threat (e.g. Gorse, Blackberry, Rabbits) but future programs developed in line with the GB IPAS will be based on protection of assets.

TABLE 1 CURRENT (2010) INVASIVE PLANTS AND ANIMALS ACTIVITIES IN THE GOULBURN BROKEN CATCHMENT

Pest	**Current activity**
State Prohibited Weeds (SPW)	Prevention, surveillance, planning, treatment of known infestations of SPWs for eradication e.g. Weed Alert Program.
Regionally Prohibited Weeds (RPW)	DPI identifies all infestations of RPWs and ensures they are treated for eradication (Serrated Tussock, Artichoke Thistle, Cape Tulip, Wild Garlic).
Regionally Controlled Weeds	Land managers (public and private) – 80%+ of invasive plants work in the catchment is done by land managers that focus on invasive plants of significance to them.
Priority Regionally Controlled Weeds Program	Focus for Landcare Groups under Second Generation Landcare grants. Good Neighbour Program - Focus on public/private land interface; works on public land.
WONS	Willows, Cabomba, Blackberry and others that could impact on the ecological character of, for example, Barmah Ramsar site.
Environmental Weeds	E.g. Willow removal and Cabomba eradication trials as part of GB CMA River Health projects. Sagittaria management; Egeria management trials – G-MW.
High risk invasive animals	DPI/DSE activities – prevention, surveillance, planning and treatment for eradication.
Declared established Pest Animals: • Foxes • Goats • Hares • Pigs • Rabbits • Wild Dogs	Via Landcare Groups and Conservation Management Networks. Coordinated poisoning programs. Land manager (public and private) activities. Land manager (public and private) activities. Land manager (public and private) activities. Second Generation Landcare – via Landcare Groups (works on ground). Activities in line with Wild Dog Action Plans. DPI funded
Horses, Cats	Land manager (public and private) activities.

PART B: THE STRATEGY

This Part outlines the underlying biosecurity approach, describes the program logic, including goals and sets out strategic actions to be delivered as part of strategy implementation. It also describes assets and values, implementation and implementation case studies.

BIOSECURITY APPROACH

Recently, the Victorian and Australian Governments have adopted a biosecurity approach to the management of invasive plants and animals. This approach underpins the GB IPAS.

Informed by the invasion curve (Figure 4), the biosecurity approach adopts a risk-based strategy to intervention featuring four key responses: prevention, eradication, containment and asset protection.

A key objective of this approach is to ensure early detection of and rapid action against new invasive plants and animals problems. Preventing serious new introductions is significantly more cost effective and less time-consuming than waiting until a species spreads to a larger area. The approach also considers the level of economic, environmental and social impact of a particular species.

The Invasive Plants and Animals Policy Framework (DPI 2010) follows a biosecurity approach, focussing on prioritising statewide invasive plants and animals management programs to produce the best return for government investment and therefore optimise public benefit. Generally, priority will be given to programs that prevent introduction or eradicate newly establishing species, over containment and programs to reduce the impact of established species on priority assets, as this approach provides the greatest public benefit for government investment.

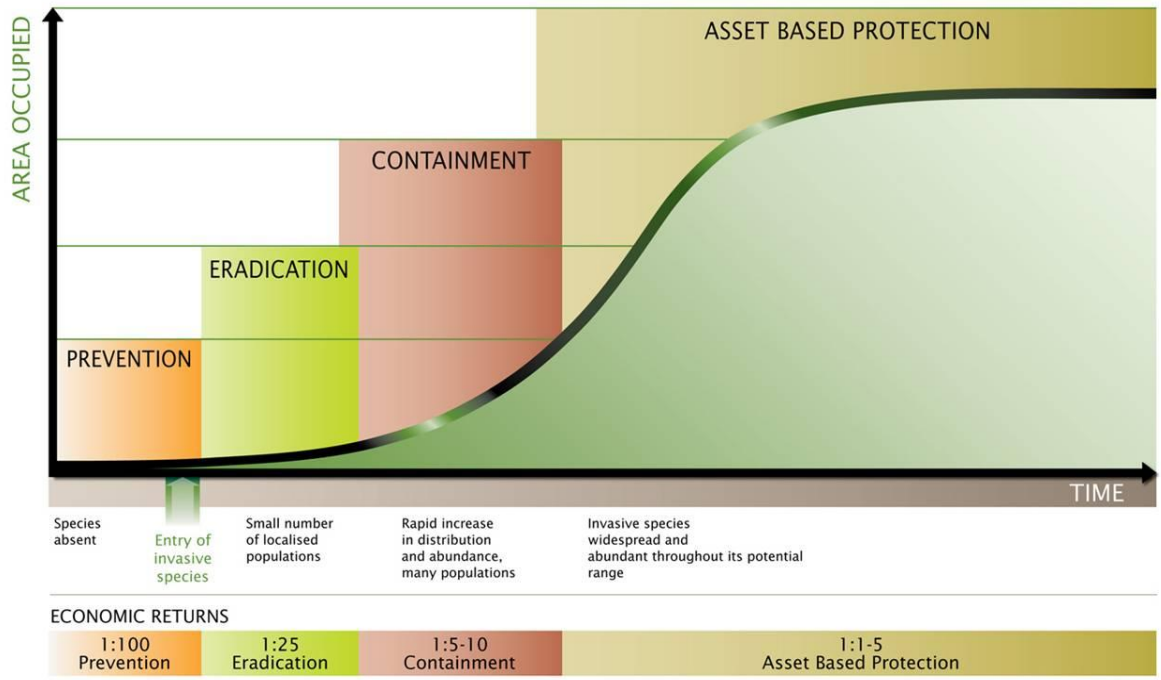
Although there is a greater focus on new and emerging invasive plants, widespread weeds such as Blackberry, Gorse and Serrated Tussock rank highly for management based on their social, environmental and economic impacts (for example, see (DPI 2008)).

PROGRAM LOGIC

The program logic of the GB IPAS is summarised in Table 3. The *program logic* captures the rationale behind the strategy and outlines the anticipated cause-and-effect relationships between strategic actions or outputs, strategies, goals and longer-term desired outcomes. Further details and actions to achieve goals are set out in later sections.

Definitions of the elements of the project logic table are shown in Appendix 13.

FIGURE 4 INVASION CURVE (DPI 2010)



TARGETS

Three levels of targets have been developed for the GB IPAS:

TABLE 2 TARGET TYPES

Target type	**Description**
Aspirational	What are we hoping to achieve. This is the vision and desired outcomes in Table 3. It will take many years to achieve, and progress towards achieving this type of target can often only be measured in periods of five to ten years.
Strategic Outcomes	More specific medium term impacts (e.g. trend data, targets or milestones) below the level of planned outcomes or aspirations. A combination of several strategic outcomes can at times be considered as a proxy for determining the achievement of outcomes or progress towards outcomes. These are shown in Table 3.
Outputs	Activities undertaken to achieve outcomes and intermediate outcomes. These are the strategic actions listed in Table 3.

TABLE 3 GB IPAS PROGRAM LOGIC – THIS FORMS THE BASIS OF OUR STRATEGY

Vision for GB IPAS	*Environmental, social and economic assets in the Goulburn Broken catchment will be protected from the impact of invasive plants and animals*						
Desired Outcomes for the Goulburn Broken catchment:	• Healthy and productive land and water systems • Flourishing biodiversity in healthy ecosystems • Community engaged in invasive plants and animals management.						
Strategy Intent	Guide invasive plants and animals investment in the Goulburn Broken catchment.						
GOALS **(GB IPAS outcomes; based on state goals in Guidelines).** ***In the Goulburn Broken catchment we want to…***	*Preparedness and prevention* Prevent new high risk invasive plants and animals from establishing in the catchment and ultimately, Victoria.	*Eradication* Eradicate high risk invasive plants and animals in the early stage of establishment.	*Containment* Contain high risk established invasive plants and animals.	*Asset and value protection* Protect key biodiversity and other natural resource assets and their values from the impact of invasive plants and animals.	*Integration* Integrate invasive plants and animals management with sustainable agriculture and other natural resource management activities.	*Coordination* Coordinate and integrate invasive plants and animals management across, and within, land tenures.	*Continuous improvement* Continuously improve invasive plants and animals management.
Strategic approach	Species or Threat based			Asset (value) and Threat based	Underpinning approaches		
Assumptions (these drive the program logic)	The introduction and spread of State Prohibited Weeds and other new high risk invasive plants and animals will be prevented by	Statewide Prohibited Weed infestations and high risk invasive animals will be eradicated by supporting national	High risk established invasive plants and animals will be contained by eradicating all populations of Regionally	Assets will be protected from impacts of key invasive plants and animals by assessing threats, appropriate	Integrated management of IPAs will be achieved by an informed and aware community and consideration	Coordination of invasive plants and animals management will be achieved by: • increased community	Continuous improvement of GB IPAS will be achieved by implementing effective monitoring,

	supporting national and statewide programs.	and statewide programs.	Prohibited Weeds and preventing other identified high risk established invasive plants and animals from spreading outside core infestation boundaries.	management and support of informed community effort.	of invasive plants and animals in all other management strategies.	capacity and effective partnerships • coordinated stakeholder action across public and private land and water managers • concurrent management of invasive plants and animals.	evaluation, reporting and improvement programs.
STRATEGIC OUTCOMES	• Introduction and spread of State Prohibited Weeds and other new high risk invasive plants and animals prevented.	• All known infestations of State Prohibited weeds and high risk invasive animals treated for eradication.	• All known infestations of RPWs treated for eradication.	• Invasive species in high value asset areas treated to protect assets.	• Invasive plants and animals activities are integrated in all other management strategies.	• GB IPAS coordination, community education and engagement activities are implemented.	• GB IPAS continuous improvement activities are implemented.
STRATEGIES **(GB IPAS Objectives based on State objectives in Guidelines).** ***We will achieve outcomes, goals and general directions by...***	• Supporting national and statewide programs aimed at preventing the introduction and establishment of State Prohibited Weeds and other new high risk invasive plants and animals.	• Supporting national and statewide programs aimed at eradicating State Prohibited Weed infestations and other high risk invasive plants and animals.	• Eradicating all populations of Regionally Prohibited Weeds in the catchment. • Preventing identified high risk established invasive plants and animals from spreading outside core infestation boundaries.	• Assessing the threat of invasive plants and animals on identified priority assets and their values. • Determining the feasibility of managing impacts of invasive plants and animals on the priority assets and their values.	• Supporting an informed and aware community in invasive plants and animals management. • Ensuring all land and water management programs include invasive plants and animals management.	• Increasing community capacity and effective partnerships between public and private land and water managers in invasive plants and animals management. • Ensuring management of invasive plants and animals	• Effective monitoring, evaluation, reporting and improvement.

				• Supporting informed community effort in invasive plants and animals management.		occurs concurrently.	
STRATEGIC ACTIONS	• Support delivery by DPI of Regional Weed Alert program • Support delivery of Regional Pest Alert program • Identify high risk IPAs • Distribute IPA lists • Convene IPA Forum • Understand introduction and spread pathways.	• Support delivery by DPI of Regional Weed Alert program • Support delivery of Regional Pest Alert program • Support on ground works • Identify high risk IPAs and spread pathways • Distribute IPA lists • Convene IPA Forum • Understand introduction and spread pathways.	• Identify species for containment • Support DPI compliance program to ensure all Regionally Prohibited Weed infestations are treated • Support land managers to ensure all RPW infestations are treated • Coordinate (seek, source) funding targeted to Regionally Prohibited species • Understand introduction and spread pathways.	• Assets identified and regularly reviewed • Threats assessed and regularly reviewed • Coordinated invasive plants and animals management funding targeted to high value assets • Develop actions for specific assets on case by case basis. • Understand introduction and spread pathways.	• Ensure GB CMA and agency programs include best practice invasive plants and animals management • Support land manager (public and private) programs and activities • Integrate IPA into other programs • Encourage land management practices that integrate management of IPAs • Support integrated asset protection plans.	• Regional Invasive Plants and Animals Forum meetings • Support and coordinate community action to treat invasive plants and animals species at the public/private land interface • Ensure funds are allocated for invasive plants and animals management • Develop investment standards • Communication, education and engagement activities • support coordinated community effort on private land • Support review	• Implement a MER program • Review Strategy (5 years) • Support State MER • Address information gaps • Undertake systematic monitoring • Review priorities • Convene IPA Forum.

						of roles and responsibilities • surveillance.	
INPUTS (processes, $)	• DPI informs partners of relevant activities • Regional Invasive Plants and Animals Forum meetings.	• DPI informs partners of relevant activities • Regional Invasive Plants and Animals Forum meetings.	• DPI provides $ • $ from various sources • Works on public land and roadsides • GB CMA provides some coordination.	• Knowledge about assets and threats • $ from various sources • GB CMA provides some coordination • DPI inputs - $ and people • Land manager $ and people • Action plans.	• Land manager $ and people • Invasive plants and animals management in strategies.	• DPI Compliance Program • Local community engagement and planning forums • Community education • Regional Invasive Plants and Animals Forum meetings • Partnership meetings.	• Outputs of statewide MER • Evaluation of data collected. • Regional Invasive Plants and Animals Forum meetings.

GOALS

The GB IPAS has seven goals which are described below, along with the strategic actions to be implemented to achieve the Goals.

GOAL 1 – PREPAREDNESS AND PREVENTION

Goal 1 – Prevent new high risk invasive plants and animals from establishing in the catchment and ultimately, Victoria.

Prevention and eradication programs form the basis of the 'species-led' approach to invasive plants and animals management, prioritising one species above another on the basis of the risk it poses to Victoria's economic, environmental and social values. The control of State Prohibited Weeds falls within this management approach.

Prevention involves minimising the movement of new invasive plants and animals into the state and catchment by understanding and managing all pathways of entry and spread (see Appendix 10). New invasive plants and animals problems emerge from a range of sources including commercial trade (e.g. nurseries, pet shops and aquaria) and changing environmental conditions (e.g. fire, drought, flood and climate change). Invasive plants and animals introductions to a catchment can occur through a variety of pathways including natural migration, hitchhiking in cargo, contaminants in fodder or spread by vehicles, stock or people.

Strategic actions:

- *support delivery by DPI of Regional Weed Alert program*
- *support delivery by DPI of High Risk Invasive Animal Program*
- *participate in processes that will identify any potential high risk IPAs and their pathways of spread into, and within, the catchment*
- *ensure lists of high risk species (both declared and others) are widely communicated to support surveillance and reporting activities*
- *convene and organize the Goulburn Broken Invasive Plants and Animals Forum with stakeholders from within the catchment and relevant neighbouring areas to assist with communication and coordination of IPA work*
- *identify and understand pathways of introduction and spread.*

GOAL 2 – ERADICATION

Goal 2 – Eradicate high risk invasive plants and animals in the early stage of establishment.

In the early stages of range expansion, eradication of an invasive plant or animal may be feasible. There are a number of conditions to be met in determining whether eradication is feasible. The principles around the management of invasive plants and animals are similar.

As a general rule, when dealing with weeds, conditions for eradication include (DSE 2009):

- infestations are less than 100ha in area
- there are less than three infestations of the species
- sites are easily accessible
- the species is easily recognisable
- restricting trade may assist eradication, if it is a plant that is currently traded.

State Government programs for invasive plants and animals prevention and eradication are largely delivered at a statewide level.

Local knowledge will provide essential information about small populations of plants that are growing in the absence of cultivation. These plants can be assessed and monitored to determine whether eradication action should be taken before they become a significant weed problem for the future. Early intervention measures will need to include management of spread pathways to prevent the further spread of known infestations.

Generally, invasive animal infestations considered preventable or eradicable are managed on a statewide basis by DPI. Currently catchment involvement is limited to reporting infestations (by all community members), and some local regulatory activity when required.

Strategic actions:

- *support delivery by DPI of Regional Weed Alert program*
- *support delivery of DPI High Risk Invasive Animal prevention and eradication program*
- *support onground work on infestations of species targeted for eradication.*
- *participate in processes that will identify high risk IPAs in the catchment and their pathways of spread into, and within, the catchment*
- *ensure lists of high risk species (both declared and others) are widely communicated to support surveillance and reporting activities.*
- *convene and organize the Goulburn Broken Invasive Plants and Animals Forum with stakeholders from within the catchment and relevant neighbouring areas to assist with communication and coordination of IPA work.*
- *identify and understand pathways of introduction and spread.*

GOAL 3 – CONTAINMENT

Goal 3 – Contain high risk established invasive plants and animals.

Once established in the state beyond the possibility of eradication, an invasive plant or animal species may still be localised in small areas of one or more catchments. Containment approaches to limit the species further spread may then be appropriate to deliver the best return on public investment. From a statewide program perspective, the control of Regionally Prohibited Weeds falls within this management approach.

The principal aim of a containment program is to prevent the spread of the invasive plant or animal beyond the defined boundary of the current infestation area. This may involve reduction of the species' abundance and extent within the containment area where this will help prevent spread and the eradication of satellite infestations. Effective containment programs are likely to be expensive and indefinitely ongoing, and will be rarely justifiable except in the case of very high impact invasive plants and animals.

Containment and reduction programs focus on:

- defining the boundary or limit of the infestation
- targeting spread pathways (see Appendix 10), thereby minimising movement beyond current infested areas
- prioritising the eradication of small satellite infestations over the larger core infestation (including eradication of Regionally Prohibited Weeds from a catchment)
- reducing the abundance and density of the core infestation where this helps to prevent spread.

High risk invasive plants and animals are listed in Table 4.

Currently there are no management programs operating at the statewide level in Victoria that focus on the containment of declared invasive animal species.

Strategic actions:

- *participate in state level assessments of species that could be targeted for containment*
- *develop and conduct a catchment assessment process to identify other high risk species for containment in the catchment*
- *support onground work on core and satellite infestations of species targeted for containment:*
    - *support DPI compliance program to ensure all Regionally Prohibited Weed infestations are treated.*
    - *support land managers to ensure all Regionally Prohibited Weed infestations are treated*
- *coordinate (seek, source) funding targeted to Regionally Prohibited species*
- *identify and understand pathways of introduction and spread.*

GOAL 4 – PROTECTING ASSETS AND THEIR VALUES

Goal 4 – Protect key biodiversity and other natural resource assets and their values from the impact of invasive plants and animals.

Once an invasive plant or animal becomes so widespread that containment or eradication is not possible, the focus of management effort should change to protecting the catchment's priority assets (often described as an "asset-based approach").

Asset-based protection programs focus upon reducing the impact of all threats, including invasive plants and animals, on high value assets in the state or catchment. Assets may provide a range of environmental, social and/or economic services. The control of widespread and well established invasive plants (such as blackberry) and animals (such as rabbits and foxes), to minimise their impacts on high value catchment assets, falls into this "assets based" management approach.

Assets considered important in the Goulburn Broken catchment are described in later in the Strategy.

Focusing on the protection and restoration of priority assets, rather than the invasive plants and animals per se, provides a clear focus for the land manager when dealing with established invasive plants and animals and enhances the likelihood of success.

Existing IPA programs focus on support of community action to manage widely established species. Future programs will focus on protecting high value assets.

Threats posed by individual invasive species require regular review and assessment. Threat assessment must consider current threats (from invasive species already present) as well as future threats (from invasive species with high potential to invade).

Treating causes also involves understanding the pathways of introduction and spread especially of weeds (e.g. vehicle movement, garden escapes, altered hydrological regimes, poor land management practice such as overgrazing) and taking action to address these (Environmental Weeds Working Group, 2006).

An ongoing need identified during preparation of GB IPAS has been asset identification. While the assets identified in this version of the GB IPAS are fit for purpose (i.e. a strategic level view) further details and better precision in understanding asset values and location is warranted, along with better explicit understanding of the impact of invasive plants and animals on these assets and values.

Strategic actions:

- *identify and regularly review assets and their values. Re-assess these assets to determine their overall priority for immediate action as part of on-going review of GB IPAS*
- *regularly review and assess threats*
- *coordinate invasive plants and animals management funding targeted to high value assets and their values*
- *support IPA management action to protect high value assets, and their values, as part of overall asset protection work*
- *develop specific actions for dispersed assets on a case by case basis depending on the values of these dispersed assets. An asset-based approach used in conjunction with a risk management framework will be used when making these decisions*
- *underpin threat assessment and asset protection with identification and understanding of pathways of introduction and spread.*

GOAL 5 – INTEGRATION

Goal 5 – Integrate invasive plants and animals management with sustainable agriculture and other natural resource management activities.

Invasive plants and animals management requires a multi faceted approach, from sustainable land management, to direct treatment of the symptom to long term biocontrol programs.

Weed problems are often the symptom of a resource that is degraded as a result of practices such as overgrazing and disturbance of natural vegetation. In many cases, treatment of the symptom (e.g. direct weed control) will provide short-term success but requires repeated application in such circumstances. Treatment of the cause, in conjunction with rehabilitation of the resource through activities such as reducing grazing pressure, change of land use, building land management skills and capacity, re-sowing pastures and regenerating vegetation, will achieve long-term success. Assets can also be protected by enhancing their resilience, making them more resistant to invasive plants and animals.

There are opportunities to link GB IPAS activities with other relevant strategies and activities including the Biodiversity Strategy for the Goulburn Broken catchment, the Goulburn Broken Regional River Health Strategy, the Native Vegetation Framework and management of invasive organisms not declared under the CaLP Act 1994.

Invasive plants and animals can impact on the effectiveness of many land management programs such as soil stabilisation, revegetation programs and the protection and rehabilitation of rare and endangered fauna. Integrating effective invasive plant and animal control into such projects will significantly improve their outcomes over time.

Droughts and changes to landuse and stock management systems have led to increased movement of grains, hay, and livestock both intrastate and interstate. There is some anecdotal evidence that this accelerated during the 1982/83 drought and has continued over time, causing substantial spread of pest plants within the region, to other regions and states causing either new pest plants to establish or re-infest.

Strategic actions:

- *ensure Goulburn Broken CMA and agency programs include invasive plants and animals management*
- *support land manager (public and private) programs and activities*
- *ensure integration of invasive plants and animals management programs with other programs or actions that aim to protect and enhance catchment assets; ensure these programs consider introduction and spread pathways*
- *encourage the employment of land management practices that prevent the establishment or spread of invasive plants and animals (e.g. Whole Farm Planning, Environmental Management Systems (EMS) and industry directed programs)*
- *Support development of integrated asset protection plans that focus on managing IPA threats to an asset as part of an overall asset protection process.*

GOAL 6 – COORDINATION

Goal 6 – Coordinate and integrate invasive plants and animals management across, and within, land tenures.

Effective invasive plants and animals management depends on the development and implementation of working partnerships between government, industry and the community. Roles and responsibilities are outlined in Appendix 11.

Onground invasive plants and animals management is primarily the responsibility of the land manager. However, it is also appropriate for government to intervene in situations where that action results in a public or community benefit or to correct market failure. In situations where strong community-led management of a widespread high risk invasive plant or animal is succeeding at a local scale, government may provide limited support to allow the community partnership to work towards full control (e.g. enforcement activities in local community weed programs). It may be appropriate for cost sharing between government and the beneficiary group e.g. industry where there is public and private benefit. Appendix 6 discusses investment principles that can be developed to guide cost sharing.

The Goulburn Broken CMA will take a role in supporting coordination activities by convening and organising the Goulburn Broken Invasive Plants and Animals Forum with stakeholders from within the catchment and relevant neighbouring areas. The Forum may also provide the opportunity to canvass broader issues of biosecurity management and preparedness, rapid response planning for invasive species and input to investment decisions.

Coordinated surveillance programs will monitor presence or absence of invasive species and severity of infestations. Surveillance protocols are required.

Strategic actions:

- *establish and support the Goulburn Broken Invasive Plants and Animals Forum as a means of engaging stakeholders from across the catchment*
- *support and coordinate community action to treat invasive plants and animals species at the public/private land interface*
- *ensure funds allocated for invasive plants and animals management support coordinated community effort on private land*
- *apply a set of investment standards (Appendix 6) as the minimum requirements for investment under this strategy*
- *develop and implement a communications plan for the GB IPAS (this action contributes to all Goals)*
- *actively engage the Goulburn Broken community wherever possible in both shaping and implementing IPA management across the catchment*
- *ensure information resources on IPA management are maintained and widely available*
- *support local communities that are actively managing IPAs in their area*
- *support reviews of roles and responsibilities to reduce complexity and inefficiencies*

- *ensure invasive plants and animals surveillance is undertaken.*

GOAL 7 – CONTINUOUS IMPROVEMENT

Goal 7 - Continuously improve invasive plants and animals management.

The GB IPAS will be improved over time. Monitoring and evaluation is best thought of as part of a continuous improvement cycle of review, setting objectives, implementation underpinned by monitoring and evaluation which enable reviews and improvements to be considered (Figure 5).

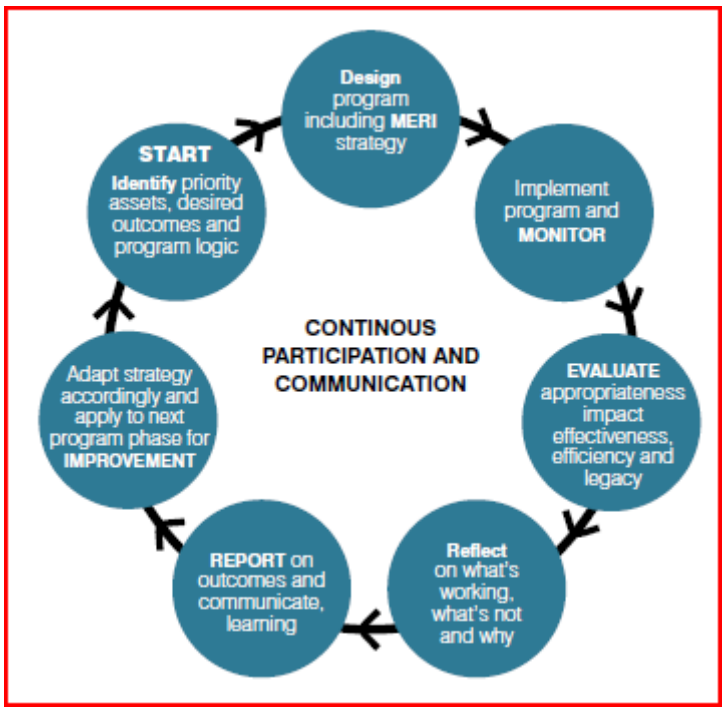
This can be simplified to a cycle of:

- plan
- do
- review.

The continuous improvement framework is underpinned by consideration of:

- evaluation questions
- outputs - generally works and measures undertaken to manage invasive plants and animals. DPI's invasive plants and animals monitoring, evaluation and reporting (MER) framework will provide much of the information required to report outputs
- outcomes - The Goulburn Broken CMA's RCS, which is reviewed every five or six years, should provide the basis for condition assessment (outcome assessment)
- reporting - The Goulburn Broken CMA's Annual Report provides one means of reporting outputs to stakeholders
- review - It is expected that the IPAS will be reviewed every five years or in line with RCS reviews.

FIGURE 5 CONTINUOUS IMPROVEMENT (ADAPTIVE MANAGEMENT) CYCLE (AUSTRALIAN GOVERNMENT 2009)



Monitoring and evaluation programs aim to measure whether or not the desired outcomes and goals are being achieved in order to provide some accountability of the program's effectiveness. The Goulburn Broken CMA will monitor and report on the progress of implementation against priorities as set out in the GB IPAS based on specific monitoring, evaluation and reporting (MER) information provided by service providers in the catchment. In this way the Goulburn Broken CMA can provide advice to government and the community on the effectiveness of invasive plants and animals investment in the catchment.

Much of the monitoring information required in the catchment will be available via implementation of the state Invasive Plants and Animals Monitoring and Reporting Framework. This information will inform GB IPAS review and improvement.

A MER schedule (Appendix 7) has been developed, and includes:

- annual review of strategy implementation and performance (provides a useful guide for annual works programs)
- mid-term review (year two or three) of the GB IPAS
- year five of the GB IPAS, incorporating recommendations for updating the strategy.

Key evaluation questions include:

- to what extent is the program contributing to preventing introduction of new high risk plants and animals in the catchment?

- to what extent is the program contributing to regional eradication of high risk invasive plants and animals?
- to what extent has the program contributed to regional containment of high risk invasive plants and animals of limited distribution?
- to what extent has the program contributed to the protection of key biodiversity and other natural resource assets by reduction in threat and/or impact of invasive plants and animals?
- to what extent has the strategy met stakeholder expectations?

Assessment of achievement of environmental objectives cannot be done annually. It will probably take five to ten years to be able to assess whether or not objectives are being achieved.

Processes to establish the classification of individual invasive species are expected to be implemented every two years.

The Goulburn Broken Invasive Plants and Animals Forum will support the Goulburn Broken CMA in this monitoring and reporting role. The Forum will consider who will be responsible or accountable for reporting and how reports and reviews will be communicated to key stakeholders.

Strategic actions:

- *implement an MER strategy, including regular reporting*
- *review GB IPAS (five years)*
- *support State MER framework implementation*
- *support and participate in work to address information gaps*
- *support systematic monitoring so that any changes in conditions (e.g. threat or asset value changes) are detected quickly. When priorities for action are periodically reviewed these assets need to be included in this re-assessment*
- *establish and implement a process for reviewing the priorities for asset protection. This process should consider nominations of new assets, changes in knowledge about threats to assets, knowledge about land managers around assets and introduction and spread pathways. Investment decisions will be guided by the information generated by this process*
- *utilise the GB IPAS Forum to support the Goulburn Broken CMA in its monitoring, reporting, evaluation and improvement role.*

ASSETS AND VALUES

The State Guidelines (Principle 3, Appendix 5) suggest an asset-based approach for widespread invasive plants and animals. Asset-based protection programs focus upon reducing the impact of all threats, including invasive plants and animals, on high value assets and associated values in the state or catchment. Assets may provide a range of environmental, social and/or economic services.

More importantly, we need to focus on the values associated with the assets. For example, the asset identified as Barmah Forest has values associated with biodiversity, wetlands, culture and water management, amongst others.

An asset-based approach to management (GB IPAS) requires identification of the catchment assets most in need of protection from all threats, including invasive plants and animals, and ensuring management programs include appropriate invasive plant and animal management components.

DSE prepared a background paper on an asset-based approach to pest management (DSE 2006). This paper suggests in pest management, the asset-based approach involves:

- preventing introduction of new pests to protect all assets
- early detection and rapid response to new pests to protect all assets, and
- reduction and containment of established pests to protect highest priority assets.

It is intended that this approach identifies biophysical assets in a catchment; identifies and values the services the assets provide; and identifies and assesses the risk of threats to the value of the asset's services. A high value asset with high threat will be a high priority for action, while a high value asset with little or no threat will be a much lower priority for action.

This information can then be fed into the project development process to prioritise projects that protect assets of high value or that are subject to high-risk threats.

The objective of identifying assets is to help determine where invasive plants and animals investment should be targeted to achieve optimal public benefit. Investment decisions will be guided by the Investment Principles set out in Appendix 6.

As part of the process for identifying assets in the catchment, the Working Group recognised there are a wide range of assets present in the catchment. However two major types of assets were selected:

- Biodiversity
- Agricultural land.

Some assets can be readily mapped e.g. Barmah Forest or the Goulburn River while other assets are dispersed and difficult to explicitly map (e.g. agriculture land) as they occur over most of the catchment.

PRIORITY LANDSCAPES AND BIODIVERSITY ASSETS

The process of identifying, and in particular, valuing biodiversity assets is an adaptive and continuing process that aims to incorporate new information, modelling approaches and methodologies as they

become available. For example, DSE has prepared a GIS layer that models a 'Biodiversity Assets Surface' into nine classes based on the combined value of the level of habitat depletion, patch size, landscape connectivity, vegetation condition, conservation status of remnant vegetation, and presence of threatened species. This is a preliminary model and is being further refined to assist with development of a statewide picture of the relative value and distribution of assets known as 'Nature Print', as forecast in the Land & Biodiversity White Paper (DSE 2009). This layer (assets surface) has been used as part of the supporting information base for the development of the Goulburn Broken CMA's Biodiversity Strategy (GB CMA 2010), which in turn, provides the assets framework for this Strategy. It is anticipated that as more refined information and understanding becomes available it will be incorporated into the catchment approach.

The Aquatic Value Identification and Risk Assessment (AVIRA) decision-support tool for identifying aquatic asset values and threats is currently being developed by DSE in consultation with the CMA Waterway Managers. This tool will inform the development of the next round of regional River Health Strategies (to be called regional Waterway Health Strategies). AVIRA will consider both the current and future threat of aquatic invasive species.

The Goulburn Broken CMA has invested substantially in a process known as Biodiversity Action Planning (BAP) (Platt and Lowe 2002), which seeks to document and map sites of significance for biodiversity conservation, management and restoration across the catchment. The catchment has been divided into 21 different landscape zones for this analysis. Sites are ranked into four classes from 'low' to 'very high' according to a range of factors (size, context, condition, conservation status, threatened taxa etc) using both modelled and field-collected data (i.e., similar to that used for the Biodiversity Assets Surface).

Background work for the development of the Goulburn Broken Biodiversity Strategy (GB CMA 2010) included a weighted multi-criteria analysis of the contribution of 14 sub-catchment areas (management zones) to elicit the biodiversity attributes of each zone, and their respective capacity to contribute to a range of desired outcomes, via;

- Protected and secure habitat
- Landscape and habitat connectivity
- Improved ecological processes, including gene and energy flows
- Improved habitat quality
- Increased viability of threatened ecological vegetation classes

The 14 landscape zones have been ranked according to the results of the above analysis. Profiles of the 14 zones have been drafted (Miles and Stothers 2009) to identify key characteristics such as the proportion of native vegetation, ratio of public to private land, and assets, threats and opportunities. A summary of the zones is shown in Table 4. A more detailed description on the zones and associated IPA threats in shown in Appendix 3.2. These zones have been ranked, based on their existing biodiversity attributes into three major landscape types, or asset classes (Icon, Key & Dispersed), and shown geographically in Figure 6.

TABLE 4 BIODIVERSITY ZONE CHARACTERISTICS - RANKED

Asset Class	Zone (and functional landscape type)
Icon	South eastern Highlands
	Goldfields
	Murray Corridor
	Lower Goulburn and Broken Rivers
Key	Broken Boosey Nine Mile Creek System
	Strathbogie Tablelands
	Warby Ranges and Foothills
Dispersed	Longwood and Violet Town Plains
	Corop
	Upper Goulburn River
	Yarck/Mansfield
	Piper
	Dookie
	Northern Relictual Landscapes

Within these asset classes, the Very High priority BAP sites have been mapped. Further information on each of these sites is available from the relevant BAP reports (http://www.gbcma.vic.gov.au/default.asp?ID=bap).

Icon Landscapes in the Goulburn Broken catchment include the South Eastern Highlands, Goldfields, Lower Goulburn River and Broken River floodplains, and the Murray Corridor. These zones represent areas within the catchment with the highest concentration of natural values and make a substantial contribution to the delivery of environmental services within the catchment. Priority BAP sites within these zones are the highest priority assets for protection across the catchment. Examples include Barmah National Park, Lower Goulburn National Park, Mt Samaria National Park, Lake Eildon National Park, Lake Mountain / Mt Bullfight / Mt Buller (Alpine National Park, and the Heathcote – Graytown National Park.

Key Landscapes are represented in the Strathbogie Ranges, Warby Ranges, and the Broken / Boosey / Nine Mile Creek system. These zones contain moderate to large areas of natural vegetation, interspersed with moderate levels of agriculture and 'life-style' land-use. Connectivity is moderate, but represents high potential for restoration. Very High priority BAP sites include the Broken Boosey State Park (e.g. Kinnairds Wetlands, Wunghnu Bushland Reserve, Naringaningalook Grassland Reserve, Moody's Swamp); Warby Ranges State Park, Mt Meg Flora Reserve, Winton Wetlands, and Devenish Hills in the Warby Ranges zone; and Mt Teneriffe, Mt Strathbogie, Mt Wombat and the Warrenbayne Hills in the Strathbogie zone.

Dispersed Landscapes cover the more cleared parts of the catchment where agriculture (in many forms) is the predominant land-use. Biodiversity assets within these landscapes tend to represent

the most threatened flora, fauna, and ecological communities, now existing in many instances in small and isolated remnants but of very high significance for conservation. Notable Very High value BAP assets include the Corop Wetlands, Dookie Bushland Reserve, Reef Hills State Park, numerous woodland and wetland remnants on the Longwood Plains (e.g. Balmattum Reserve) and the Mt Piper Conservation Reserve.

Although classified as a dispersed landscape, it is notable that the Longwood Plains has a high concentration of sites of biodiversity significance, but relatively poor levels of site security. The Longwood Plains, along with the Mt Piper and Goulburn & Broken Rivers zones are the Catchment's highest priority for ecological restoration.

AGRICULTURAL LAND ASSETS/VALUES

The GB IPAS Working Group agreed that agricultural assets are widely spread across the private land of the catchment and that it is extremely difficult to prioritise these assets. Government investment in IPA activities on agricultural assets will have to satisfy public benefit tests.

The Shepparton Irrigation Region is described as "Victoria's Foodbowl" and is currently being upgraded by the $2 billion Northern Victorian Irrigation Renewal Project (NVIRP).

The agricultural assets also include large water storages, such as Lake Eildon and Goulburn Weir, and associated infrastructure that supports irrigation in the Goulburn Broken and downstream catchments.

Figure 7 shows the extent of land with agricultural assets and values in the region. This asset has been differentiated into irrigation (Shepparton Irrigation Region (SIR)) and Dryland. These correspond to the areas covered by Goulburn Broken CMA's two Implementation Committees.

FIGURE 6 PRIORITY BIODIVERSITY ASSETS – GOULBURN BROKEN CATCHMENT

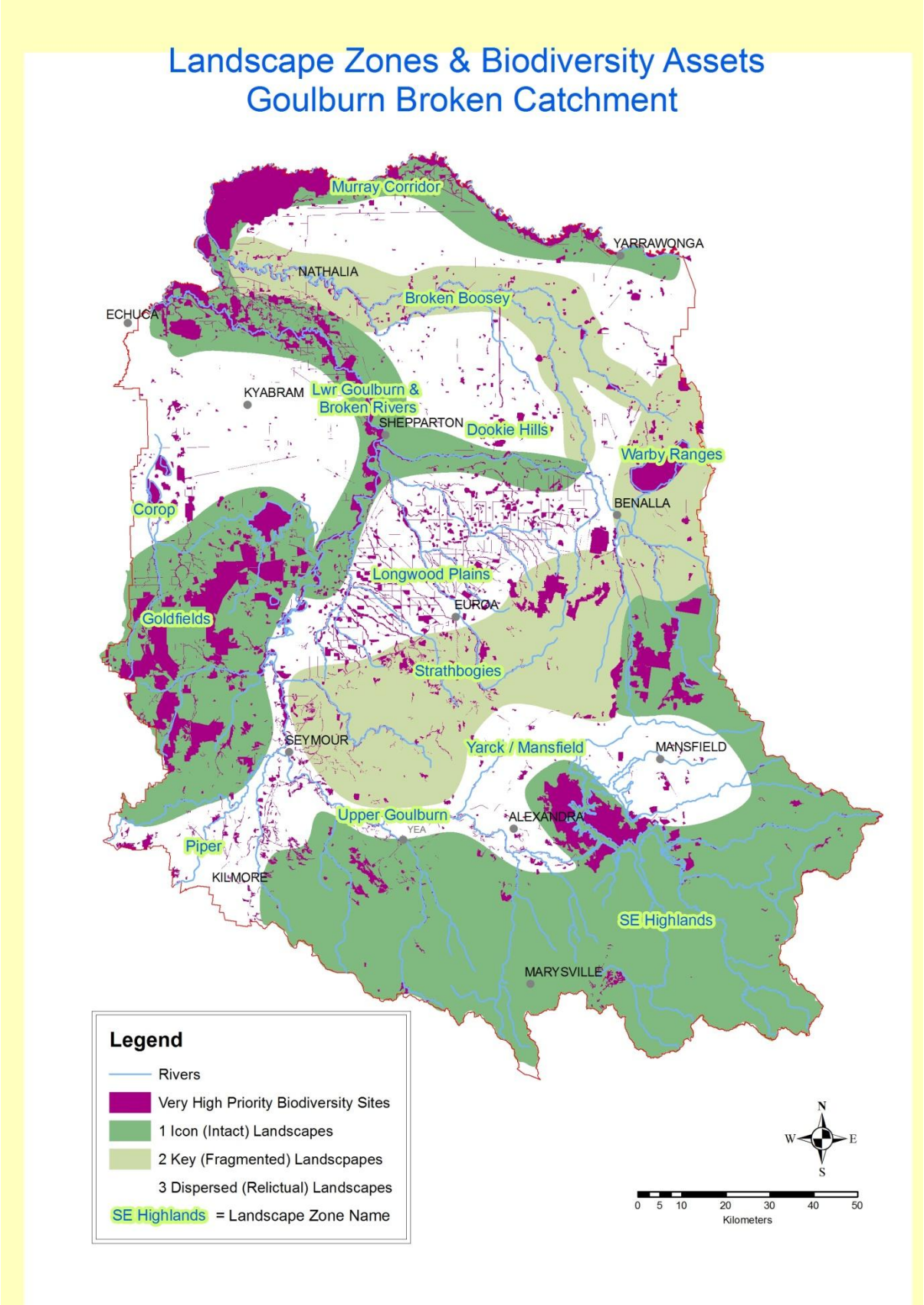
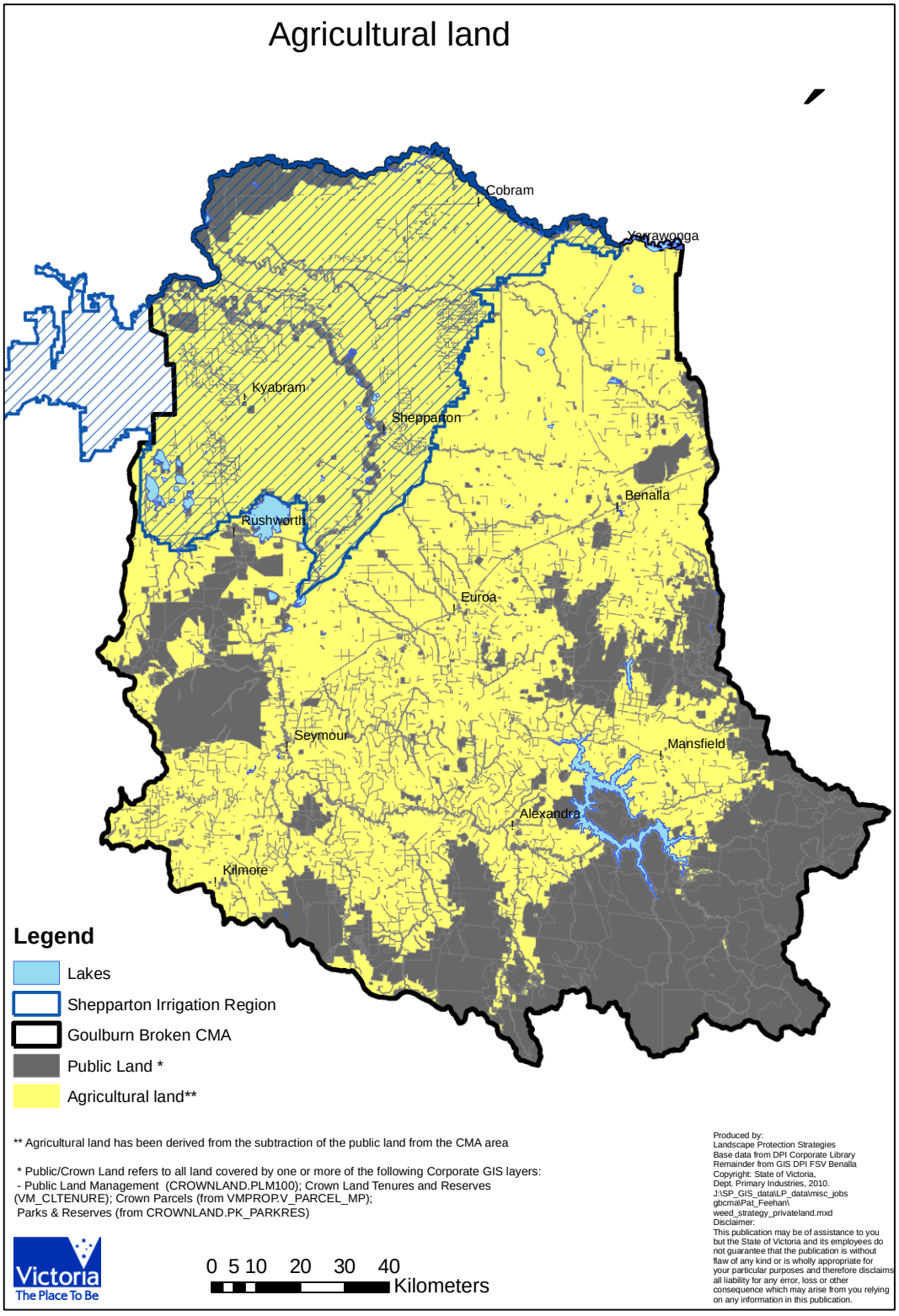


FIGURE 7 AGRICULTURAL LAND ASSETS



IMPLEMENTATION

As noted earlier, the GB IPAS sets the direction for invasive plants and animals management in the Goulburn Broken catchment. The Strategy takes a whole of catchment approach, targeting those invasive plants and animals management issues where government investment maximises community benefit by focussing on high value assets.

The GB IPAS is intended to guide invasive plants and animals investment decisions by others. It is not an operational plan that guides day to day activities. It is a high level document, providing general direction, objectives and description of how to achieve objectives over the next five or more years.

The Goulburn Broken Invasive Plants and Animals Forum will provide oversight of GB IPAS implementation, regularly overview progress towards achieving goals, provide input to investment decisions and provide an opportunity to canvass broader issues of biosecurity management and rapid response planning for invasive species.

IMPLEMENTATION CASE STUDIES

These case studies are intended to provide examples of how the GB IPAS will be used to guide investment priorities in the catchment.

SERRATED TUSSOCK – AN EXAMPLE OF GOAL 3 - CONTAINMENT

Serrated Tussock is a Weed of National Significance (WONS) and is one of Victoria's most invasive pest plants. In the Goulburn Broken catchment, it is listed as a Regionally Prohibited Weed under the CaLP Act 1994.

It can be one of the most costly and difficult invasive plants to control and is a weed of both agricultural and environmental importance.

Research has indicated that Serrated Tussock has the potential to spread across large areas of the Goulburn Broken catchment. If this was to occur, annual treatment costs would be in the millions of dollars, not to mention the significant impact on environmental values.

Currently, Serrated Tussock is only present in the southern part of the Goulburn Broken region, with the majority of infestations occurring in the Kilmore area. In recent years though, satellite infestations have been located along major highways and freeways as far north as Benalla, and it has become evident that linear reserves are a major pathway of spread for this species.

The priority for control is to ensure that all known infestations are treated annually and that surveillance protocols are in place to locate any new infestations before they become established. The Goulburn Broken community is critical to the success of Serrated Tussock management, with the majority of new infestations located and reported by vigilant community members.

The Goulburn Broken Serrated Tussock program is an example of the containment approach to weed management, with the Goulburn Broken / Port Phillip regional boundary considered to be the containment line.

CABOMBA – AN EXAMPLE OF GOAL 4 - PROTECTING ASSETS

Cabomba is a Weed of National Significance (WONS). It is a fully submerged aquatic weed naturalised in some east-coast waterways. Infestations are currently isolated and confined to relatively few water bodies but potentially, it could impact on waterways from Cape York to Hobart and from Sydney to Perth. Infestations occur in the Goulburn Broken catchment in Lake Benalla on the Broken River and downstream along the Broken River.

The large biomass produced by the fast growing infestations of Cabomba impact on the capacity of water storages, reduce the water quality and increase the maintenance costs of water delivery systems. Infestations develop as monocultures, reducing the abundance and species richness of aquatic plants and indirectly impacting on associated aquatic fauna. Fishing, swimming and boating are all impeded by the dense biomass.

Cabomba has the capacity to threaten values associated with the Broken River, Broken Creek, possibly Barmah Forest and lower Goulburn River (high priority in the Goulburn Broken River Health Strategy and a broad biodiversity asset in the Goulburn Broken Biodiversity Strategy). Because no suitable control option currently exists it is proposed that Cabomba will be classified as a Restricted Weed with management to focus on asset protection.

The Benalla Rural City, in partnership with the Goulburn Broken CMA is trialling Cabomba control options in Lake Benalla. This project is being undertaken with support from Goulburn-Murray Water and Department of Primary Industries.

SEVENS CREEK RABBIT PROJECT – AN EXAMPLE OF GOALS 4 AND 5 – PROTECTING ASSETS AND INTEGRATION

Rabbits are an established pest animal in Victoria with the potential to impact heavily on agricultural and environmental values. Rabbits invade riparian zones and properties adjoining waterways and their heavy grazing can result in erosion, reduced vegetation quality and increased runoff, reducing water quality through siltation, increased turbidity and nutrient input.

In the Goulburn Broken catchment, rabbit management programs are generally coordinated by community groups in partnership with the Goulburn Broken CMA and relevant government agencies. Priority areas for rabbit management in the catchment are areas where rabbits pose a threat to high value regional assets. This approach aligns with the asset protection section of the invasion curve, as identified in Figure 4.

The Sevens Creek is an “icon” stream in the Goulburn Broken catchment as it is one of the last remaining strongholds in Victoria for the endangered Trout cod. It is considered by the Goulburn Broken CMA (GB CMA 2005) to be a high value regional asset. Rabbit numbers in some areas along the creek are high enough to negatively impact on water quality in the creek (and hence affect Trout

cod) and consequently, a coordinated control project has been established along a designated stretch of the creek in the Strathbogie area.

The project involves 65 properties, as well as all public land in the project area. All landowners have been requested to undertake appropriate control works on their properties to destroy all warrens and reduce available harbour. It is envisaged that incentive funding will be available through the Goulburn Broken CMA to assist landowners with the costs of on ground works.

Rabbit management is a critical pre-cursor to many land management activities and once a satisfactory level of rabbit control is achieved along this section of the Sevens Creek, follow up programs involving revegetation or remnant vegetation can commence. (An example of integration).

In the longer term, the aim of the Sevens Creek project is to maintain or improve ecological values in the creek to ensure that populations of threatened species such as the Trout cod not only survive in the system, but continue to recover.

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PART C APPENDICES

APPENDIX 1 - WORKING GROUP MEMBERSHIP

Development of the GB IPAS was overseen by a Working Group. Membership is shown in Table 5.

TABLE 5 GB IPAS WORKING GROUP MEMBERSHIP

Name	Position	Organisation
Chris Norman/Bill O'Kane	CEO (Chair)	Goulburn Broken CMA
Sharon Lewis (Until October 2009)	IC Coordinator (dryland)	Goulburn Broken CMA
Tony Kubeil	Regional Landcare Coordinator	Goulburn Broken CMA
Margaret Hatton	Dryland IC representative (BG IC)	Goulburn Broken CMA
Stephen Farrell	Irrigation IC representative (SIR IC)	Goulburn Broken CMA
Greg Wood	Goulburn Broken PPA Coordinator	DPI
Grace Grech	Invasive Plants and Animals Project Officer	DPI
Andrew Hodges	Investment Manager, Invasive Plants and Animals Branch	DPI
Stefan Kaiser	Acting Manager Statewide Pests & Weeds	DSE
Hamish MacLennan	Chief Ranger Murray Region	Parks Victoria
Mark Finlay	Manager Aquatic Plant Services	G-MW
Carl Walters	Executive Officer SIR IC	Goulburn Broken CMA
Megan McFarlane	Business Development Manager	Goulburn Broken CMA
Casey Damen	Project Manager/ Business Development Coordinator	Goulburn Broken CMA
Pat Feehan	Consultant	Feehan Consulting
Wayne Tennant	River Health Manager	Goulburn Broken CMA
Carla Miles	Biodiversity Manager	Goulburn Broken CMA
Rod McLennan	MER Coordinator (as required)	Goulburn Broken CMA

APPENDIX 2 - LEGISLATIVE BACKGROUND

A2.1 *CATCHMENT AND LAND PROTECTION ACT 1994*

The *Catchment and Land Protection Act 1994* provides a legislative framework land management including general duties of landholders and management of noxious weeds and pest animals. Parts 8 and 9 are relevant:

TABLE 6 RELEVANT SECTIONS OF *CATCHMENT AND LAND PROTECTION ACT 1994*

Part or Section	**Relevance**
Section 20	***General duties of land owners*** (1) In relation to his or her land a land owner must take all reasonable steps to— (a) avoid causing or contributing to land degradation which causes or may cause damage to land of another land owner; and (b) conserve soil; and (c) protect water resources; and (d) eradicate regionally prohibited weeds; and (e) prevent the growth and spread of regionally controlled weeds; and (f) prevent the spread of, and as far as possible eradicate, established pest animals. (2) A land owner must take all reasonable steps to prevent the spread of regionally controlled weeds and established pest animals on a roadside that adjoins the land owner's land. (3) Subsection (2) does not apply to a roadside which is— (a) a freeway or an arterial road within the meaning of the *Road Management Act 2004*; or (b) Crown land held under a lease or licence by a person other than the land owner; or (c) land exempted from that subsection by a special area plan; or (d) Crown land in a national park or park within the meaning of the *National Parks Act 1975* or in a protected forest within the meaning of the *Forests Act 1958*; or (e) Crown land managed by a public authority other than the Secretary, or a Minister other than the Minister; or (f) Crown land reserved under the *Crown Land (Reserves) Act 1978* for a purpose other than a road.
Section 21	(1) The Secretary must take all reasonable steps to eradicate State

	prohibited weeds from all land in the State. (2) In relation to roadsides on Crown land the Secretary must take all reasonable steps to eradicate regionally prohibited weeds.
Part 8	Deals with noxious weeds and pest animals
Division 1 sections 58 - 69	Classification of pests – establishes a plant to be a state prohibited weed, regionally prohibited weed, regionally controlled weed or restricted weed; or an animal to be a prohibited pest animal, controlled pest animal, regulated pest animal or an established pest animal
Division 2— sections 70 - 74	Responsibilities for general control of noxious weeds and pest animals
Division 3— sections 75 - 78	Importing, keeping, trading in and releasing of pest animals
Part 9	Enforcement

A2.2 Duty of Care

The Section 20 and 21 requirements can be interpreted as a duty of care requirement.

Duty of care can be defined in many ways. For example:

*"an individual must be owed a **duty of care** by another, to ensure that they do not suffer any unreasonable harm or loss'.*

So, Sections 20 and 21 require landowners to perform a duty of care to prevent pests (on/from) their property to cause damage to their neighbours.

Their duty of care can be discharged by undertaking all reasonable steps to eradicate and prevent spread of pests.

Reasonable steps could be defined as:

"adherence to, or implementation of, codes of practice and current recommended practices".

APPENDIX 3 - PRIORITISATION

Because of the high number of potential species involved when managing invasive plants and animals in Victoria, government must prioritise its investment, targeting only the invasive plants and animals posing the greatest threat to the state's economic, environmental and social values. This prioritisation process involves risk assessment, knowledge of threats and potential impacts on assets and their associated values.

A3.1 RISK ASSESSMENT APPROACH

Risk assessment involves understanding threats and their impacts on regional assets and their values.

At its simplest, determining IPAS priorities involves assessing the risks invasive species present to the catchment's assets and their values. Risk management activities can then be targeted at the highest risks.

In the context of the GB IPAS threats are invasive plants and animals, while impacts can include, for example, loss of biodiversity values or reduction in food and fibre production.

Threat analysis has been undertaken by DPI via the Noxious Weed Review (and subsequent weed categorisation) and the Risk Assessment Prioritisation Tool for invasive animals. Threat assessment must consider both current and potential future invasive species.

Regional assets and associated values are described in Part B.

Ideally, a risk assessment would be undertaken for each invasive species against the threat it poses for each identified catchment value. This would be a very large task and has not been attempted for the GB IPAS.

A3.2 BIODIVERSITY ZONES CHARACTERISTICS AND THREATS

The tables in this section list landscape zone characteristics and potential threats to the biodiversity values of zones. The risk presented by the threat to the values of the zone must be assessed before action to protect values is considered. The species listed in the IPA threats column are either present or have the potential to establish in the zone (refer to DSE Regional Environmental Weeds Advisory Lists (www.dse.vic.gov.au) for more complete weed lists and further detail on taxonomy and level of threat). Introduced fish species are included for completeness.

TABLE 7 ICON LANDSCAPES - CHARACTERISTICS AND THREATS

Zone (and functional landscape type)	General characteristics	IPA Threats
South eastern Highlands	• Large proportion of native vegetation, significant contribution to ecosystem services • Land tenure security • Alps bioregion and vegetation, threatened species habitat • Nationally significant wetlands	• Red Fox, Rabbit, Wild dog, Feral Cat, Hare, Sambar Deer, Pig, Indian Mynah, Starling, Blackbird, European Sparrow • Rubus spp, English Ivy, Bridal Creeper, Salix spp, Box-elder, Sycamore Maple, Maple, English Holly, Montbretia, Periwinkle, Himalayan Honey-suckle, Japanese Honey-suckle, Wandering Jew, Sycamore Maple, Desert Ash, Radiata Pine, Sweet Pittosporum, Boneseed, Montpellier Broom, Spanish Broom, English Broom, Gorse, Cotoneaster spp, Desert Ash, Spanish Heath, Glyceria spp, Alstroemeria spp, Robinia spp, Fallopia spp,, Orange Hawkweed, Soft Rush, • Introduced fish species – Trout, Gambusia, Redfin, Carp
Goldfields	• Large core areas of native vegetation • Land tenure security • Threatened species	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Blackbird, European Sparrow, • Cape Broom, Paterson's Curse, , Nassella spp, Gazania spp, Phalaris spp, Pennisetum spp, Galenia spp, Olive, Radiata Pine, Rubus spp, Salix spp, English Broom, Montpellier Broom, Cotoneaster spp, Hawthorn, Boxthorn, Sweet Pittosporum, Privet, Box Maple, Japanese Honeysuckle, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, Gorse, Spiny Rush, Wheel cactus, Briar Rose, Tall Wheat-grass, Boneseed, Karoo Thorn • Introduced fish species – Oriental weatherloach, carp redfin
Murray Corridor	• Land tenure security, improved protection of River Red Gum Forests following VEAC investigation • Nationally significant wetlands, Barmah	• Red Fox, Feral Cat, Rabbit, Hare, Feral horse, Feral Pig, Indian Mynah, Starling, Mallard • Alligator weed, Salvinia, Water Hyacinth , Cabomba, Arrowhead, Egeria, Elodea, Parrot's Feather, Lippia, Bull-rush, Salix spp, Nassella spp, Achnatherum spp, Periwinkle, Japanese Honeysuckle, Wandering Jew, Phalaris spp, Galenia spp, Gazania

Zone (and functional landscape type)	General characteristics	IPA Threats
	Wetland (Ramsar listed) • Large-scale connectivity (along waterways) • Concentration of cultural sites • Modified flooding regimes	spp, Ragweed, Flax-leaf Broom, Cotoneaster spp, Olive, Radiata Pine, Peppercorn, Boxthorn, Hawthorn, Briar Rose, Noogoora Burr, Pampas Grass, Tall Wheat-grass, Blackberry, Horehound, Paterson's curse, , • Introduced fish species – Oriental weatherloach, carp redfin, Mosquito fish
Lower Goulburn and Broken Rivers	• Large Goulburn River floodplain • High regeneration potential • Moderate to high vegetation condition • Native pastures • Concentration of cultural sites • Nationally significant wetlands • Modified flooding regimes	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Blackbird • African Boxthorn, Karoo Thorn, Achnatherum spp, Blackberry, Horehound, Paterson's curse, Salix spp, Arrowhead , Cabomba, , Lippia, Egeria, Elodea, Parrot's feather, Bull-rush, , Nassella spp, Periwinkle, Japanese Honeysuckle, Wandering Jew, Phalaris spp, Galenia spp, Gazania spp, Rubus spp, Nassella spp, Ragweed, Flax-leaf Broom, Cotoneaster spp, Olive, Radiata Pine, Peppercorn, Boxthorn, Hawthorn, Noogoora Burr, Pampas Grass, Alligator weed, Salvinia, Water hyacinth, • Introduced fish species – Oriental weatherloach, carp redfin, Mosquito fish

TABLE 8 KEY LANDSCAPES - CHARACTERISTICS AND THREATS

Zone (a*nd functional landsc*ape type)	**G*eneral characteris*tics**	**IPA Threats**
Broken Boosey Nine Mile Creek System	• Creek systems provide good connectivity • Mix of land tenures • Nationally significant wetlands • Concentration of cultural sites • Unique vegetation associations • Modified flooding regimes	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Mallard • African lovegrass, Horehound, Paterson's curse, Prairie Ground-cherry, Salix spp, Arrowhead Cabomba, Egeria, Elodea spp, Bull-rush, , Nassella spp, Periwinkle, , Wandering Jew, Phalaris spp, Galenia, Rubus spp, Nassella spp, Ragweed, Flax-leaf Broom, Cotoneaster spp, Olive, Radiata Pine, Peppercorn, Hawthorn, Noogoora Burr, African Boxthorn, Karoo Thorn, Pampas Grass, Alligator weed, Salvinia, Water hyacinth, Parrot's Feather • Introduced fish species – Oriental weatherloach, carp redfin, Mosquito fish
Strathbogie Tablelands	• Significant area for peatlands and spring soaks • High vegetation condition (localised), broadly moderate • Distinctive vegetation associations • Wildlife refuge	• Red Fox, Feral Cat, Rabbit, Hare, Sambar Deer, Pig, Indian Mynah, Starling, Blackbird, European Sparrow, , Portuguese Millipede • Paterson's Curse, St John's Wort, Holly Poplar, Rubus spp, Salix spp, English Ivy, Box maple, Periwinkle, Wandering Jew, Japanese Honey-suckle, Radiata Pine, Sycamore Maple, Gorse, Desert Ash, Flax-leaf Broom, Spanish Broom, English Broom, Sweet Pittosporum, Coprosma, Hawthorn, Boxthorn, Cotoneaster spp, Spanish Heath, Glyceria spp, Soft Rush, Giant Knotweed • Introduced fish species - Redfin, Trout, Gambusia
Warby Ranges and Foothills	• Includes diversity of landscapes from foothills to Winton Wetlands where biodiversity restoration potential is high after decommissioning of Lake Mokoan • Some large areas of native vegetation such as the Warby Ranges • Threatened species (e.g., Warby Gum, Carpet Python)	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Portuguese Millipede • Nassella spp, Gazania, Phalaris spp, Pennisetum spp, Galenia, Olive, Radiata Pine, Rubus spp, Salix spp, English Broom, Montpellier Broom, Boneseed, Cotoneaster spp, Hawthorn, Boxthorn, Sweet Pittosporum, Privet, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, Gorse, Spiny Rush, Giant knotweed, Gorse, Serrated tussock, Patterson's Curse

TABLE 9 DISPERSED LANDSCAPES - CHARACTERISTICS AND THREATS

Zone (and functional landscape type)	General characteristics	IPA Threats
Longwood and Violet Town Plains	• Many of the areas within the Northern Inland Slopes (Box-Ironbark) provide high regeneration potential • Large area of native pastures • Highly cleared in some areas, competing productive land use in southern end of zone • East-west running creeks (e.g., Sevens and Pranjip), connecting Strathbogies to Goulburn River	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling • Nassella spp, African Boxthorn, African lovegrass, Cape tulip, Chilean needle grass, Horehound, , Gazania, Phalaris spp, Pennisetum spp, Galenia, Olive, Rubus spp, Salix spp, English Broom, Montpellier Broom, Cotoneaster spp, Hawthorn, Privet, Japanese Honeysuckle, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, , Spiny Rush, Tall Wheat-grass, Karoo Thorn, Serrated tussock
Corop	• Nationally significant wetlands • Highly modified surrounds • Modified flooding regimes	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Mallard • Alligator Weed, Arrowhead, Cabomba, Lippia, Egeria, Parrot's Feather, Salvinia, Cordgrass, Bull-rush, Salix spp, Nassella spp, Phalaris spp, , Rubus spp, Nassella spp, Olive, Peppercorn, Boxthorn, Hawthorn, Noogoora Burr, Pampas Grass, Tall Wheat-grass, Feather • Introduced fish species - Euro Carp, Mosquito fish, Weatherloach
Upper Goulburn River	• Highly regulated stretch of the Goulburn River • Important riparian vegetation • Presence of large trees • Adjoining network of wetlands in various states of condition	• Red Fox, Feral Cat, Rabbit, Hare, Deer, Pig, Indian Mynah, Starling, Blackbird • Alligator weed, Cabomba, Gorse, Paterson's curse, Serrated tussock, Rubus spp, Salix spp, English Ivy, Box maple, Periwinkle, Wandering Jew, Japanese Honey-suckle, Radiata Pine, Sycamore Maple, Gorse, Desert Ash, Flax-leaf Broom, Spanish Broom, English Broom, Sweet Pittosporum, Coprosma, Hawthorn, Boxthorn, Cotoneaster spp, Spanish Heath, Glyceria spp, Ragwort, Salvinia, Water hyacinth, Arrowhead, Parrot's feather • Introduced fish species - Redfin, Trout, Gambusia
Yarck/Mansfield	• Large areas of hill country with native grasses and nationally significant	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Blackbird, European Sparrow, Wild dogs

Zone (and functional landscape type)	General characteristics	IPA Threats
	woodlands – ability (for native vegetation) to respond quickly/positively with improved grazing management	• , Nassella spp, Achnatherum spp Phalaris spp, Pennisetum spp, Olive, Radiata Pine, Salix spp, English Broom, Montpellier Broom, Boneseed, Olive, Cotoneaster spp, Hawthorn, Boxthorn, Sweet Pittosporum, Privet, Box Maple, Japanese Honeysuckle, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, Ragwort, Gorse, Spiny Rush, Spanish Heath, Giant knotweed, Paterson's curse, Serrated tussock, • Introduced fish species - Carp, Trout, Mosquito fish
Piper	• Some large patches of native vegetation such as Cobaw Ranges, Tallarook State Forest and Mt Piper • Significant area for Golden Sun-moth and Striped Legless Lizard • Highly cleared and modified surrounds	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, Blackbird • Box-elder Maple, English Ivy, Nassella spp, , Phalaris spp, Pennisetum spp, , Olive, Radiata Pine, Salix spp, English Broom, Montpellier Broom, Boneseed, Cotoneaster spp, Hawthorn, Boxthorn, Sweet Pittosporum, Privet, Japanese Honeysuckle, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, Gorse, Spiny Rush, Briar Rose, Spanish Heath, Acacia decurrens, Acacia , Tree lucerne, Acacia baileyana, Tall Wheat-grass, Giant knotweed
Dookie	• Some areas of nationally significant remnant vegetation such as the Dookie Bushland Reserve • Highly modified agricultural (mostly cropping) landscape	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, European Sparrow • African Boxthorn, African lovegrass, Chilean needle grass, Horehound, Paterson's curse, Prairie ground cherry, Silverleaf nightshade ,Nassella spp, Gazania, Phalaris spp, Pennisetum spp, Galenia, Radiata Pine, Rubus spp, Salix spp, English Broom, Montpellier Broom, Boneseed, Olive, Cotoneaster spp, Hawthorn, Boxthorn, Privet, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, Gorse, Spiny Rush, Tall Wheat-grass, Karoo Thorn
Northern Relictual Landscapes	• Small patches of threatened vegetation • Highly modified, with a high proportion of irrigation and dryland cropping • Numerous populations of threatened taxa	• Red Fox, Feral Cat, Rabbit, Hare, Indian Mynah, Starling, European Sparrow • African Boxthorn, Blackberry, Karoo Thorn, Horehound, Nassella spp, Gazania, Phalaris spp, Pennisetum spp, Galenia, Olive, Radiata Pine, Salix spp, English Broom, Montpellier Broom, Boneseed, Cotoneaster spp, Hawthorn, Boxthorn, Sweet Pittosporum, Privet, Box Maple, Japanese Honeysuckle, Periwinkle, Wandering Jew, Noogoora Burr, St John's Wort, Gorse, Spiny Rush, Gorse, Serrated tussock, and aquatic weeds such as Water Hyacinth, Parrot's feather, Egeria, Elodea, Arrow-head,

Zone (and functional landscape type)	General characteristics	IPA Threats
		Cabomba etc

A3.3 THREATS

A large number of invasive plants and animals are found in the Goulburn Broken catchment. Tables 7, 8 and 9 list invasive plant and animal species considered as threats to biodiversity assets in the catchment.

The scope of the Goulburn Broken Invasive Plants and Animals Strategy (GB IPAS) is invasive plants and invasive animals which can be any organisms that are, or can be, declared under the CaLP Act 1994 (that is, both declared and non declared invasive plants and animals species). This excludes fish, invertebrates and micro-organisms. Also excluded by this definition are plants or animals that are listed under section 10(1) of the *Flora and Fauna Guarantee Act 1988* or declared to be threatened wildlife or notable wildlife under the *Wildlife Act 1975*. These cannot be declared under the CaLP Act 1994.

Future changes in temperature and rainfall are likely to change the distribution of plants in Australia, including weeds. Government investment in many aspects of weed management needs to take account of possible changes in the vigour or extent of weeds already present and of possible increases in risk of invasion of new weeds.

Recent modelling of potential distributions of 20 weed species under climate change identified a number that are likely to be better able to establish in Victoria in the future. It identifies others that are likely to become less invasive and still others that may not have a noticeable response to climate change. There is considerable uncertainty about what may happen because weed responses to climate change will also be affected by how climate change affects competing plant species, natural enemies and land management practices (DPI 2010).

INVASIVE PLANTS (WEEDS)

Priorities for many invasive plants are already set via the declaration of noxious weeds in the CaLP Act 1994, although priority plant species can include declared or non-declared species. The declaration status makes different management options available. Declaration enables additional tools to be used to achieve the desired level of control, including the legislative requirement to prevent spread and the ability to enforce control. Declaration is also a requirement for biological control research funding. However, lack of declaration status does not preclude land managers from undertaking onground works where appropriate.

Figure 8 shows the location of State and Regionally Prohibited weed infestations in the catchment. (Data sourced from IPMS – Integrated Pest Management System).

The State Guidelines propose a weed prioritisation procedure (Table 10). Information in this table also guides strategic approaches (see major activities column) which can be termed “risk management approaches”.

Pest plants are categorized as follows:

State Prohibited – These weeds either do not occur in Victoria but pose a significant threat if they invade, or are present, pose a serious threat and can reasonably be expected to be eradicated. If present, infestations of a State Prohibited Weed are relatively small. They are to be eradicated if possible from Victoria or excluded from the State. The Victorian Government is responsible for the treatment of all State Prohibited Weeds under Section 70(1) of the CaLP Act 1994. This work is currently being undertaken by the Department of Primary Industries.

Regionally Prohibited weeds are not widely distributed in a Region but are capable of spreading further. It is reasonable to expect that they can be eradicated from a region and they must be managed with that goal. Land owners, including public authorities responsible for Crown land management, must take all reasonable steps to eradicate Regionally Prohibited weeds on their land.

Regionally Controlled Weeds These weeds are usually widespread and are considered important in a particular region. To prevent their spread, continuing control measures are required. Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally Controlled weeds on their land.

Restricted Weeds includes plants that pose an unacceptable risk of spreading in this State or to other parts of Australia if they were to be sold or traded in Victoria, and are a serious threat to another State or Territory of Australia. Trade in these weeds and their propagules, either as plants, seeds or contaminants in other materials, is prohibited.

Appendix 8 provides a link to lists of Declared Noxious Weeds and advisory lists of environmental weeds. Figure 8 shows the location of known State and Regionally Prohibited Weed infestations in the catchment.

Appendix 9 shows a list of Weeds of National Significance (WONS).

FIGURE 8 LOCATION OF STATE AND REGIONALLY PROHIBITED WEED INFESTATIONS IN THE GOULBURN BROKEN CATCHMENT

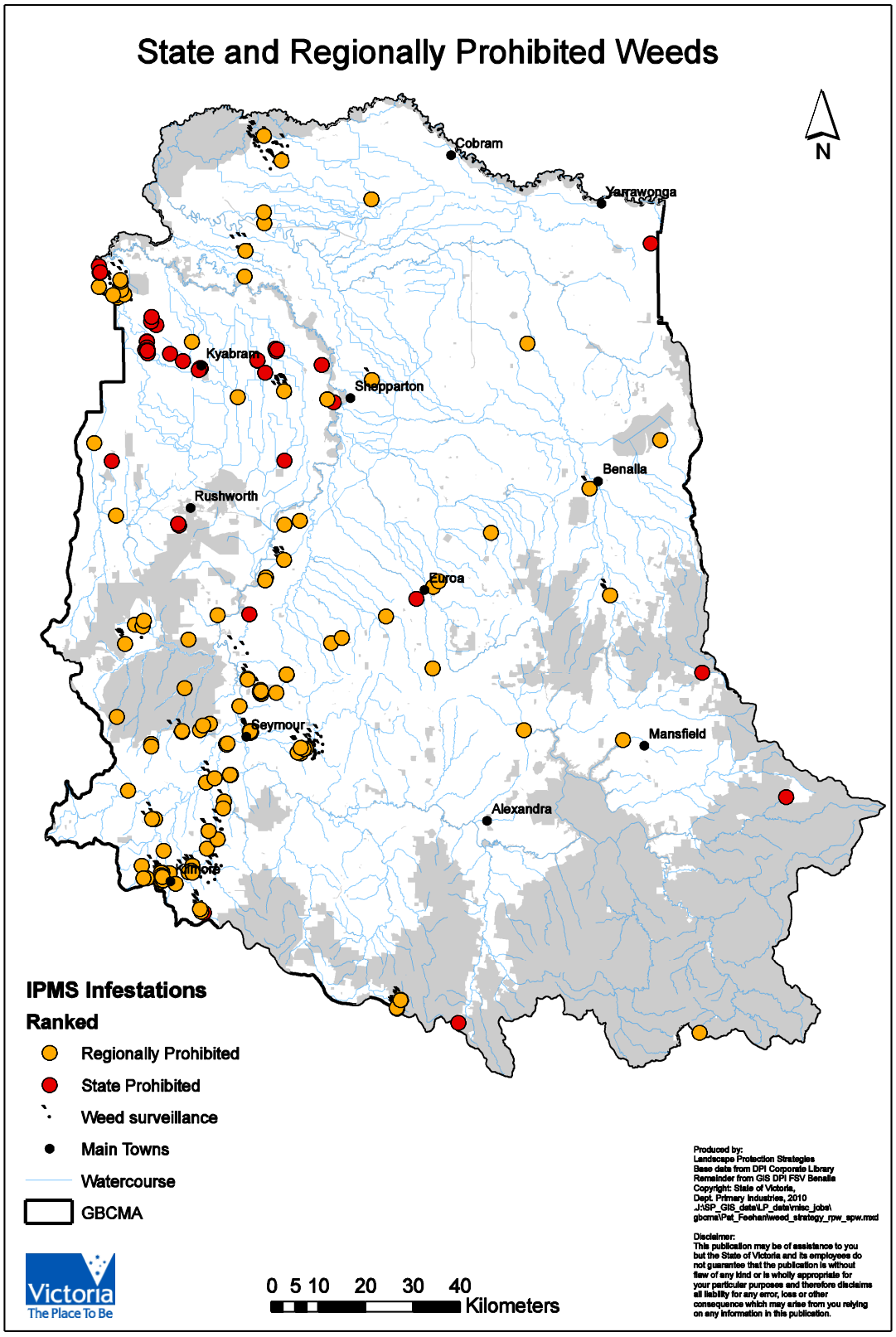

TABLE 10 SPECIES LED WEED PRIORITISATION PROCEDURE – MODIFIED FROM STATE GUIDELINES FOR PREPARING REGIONAL PEST PLANS

Priority	GB IPAS Goal	VWRA score	VWRA distribution score	Alignment with CaLP Category	Descriptions of species that may be included in this group.	Major activities
1	Goal 1 Prevention	Very high Moderately high	1:00	State Prohibited Weeds Restricted Weeds	High risk species not known to exist in the State or region, e.g. some Victorian Alert Weeds	Support Weed Alert program through Weed Spotter activity. Incursion planning
2	2 -Eradication	Very high Moderately high	0.85	State Prohibited Weeds	Declared weeds considered eradicable in the region. Weeds not declared, but VWRA suggests that they may be eradicable. Weeds not declared, rapid assessment suggests they are eradicable, VWRA planned. Weeds not declared, rapid assessments suggest they could / should be eradicated, VWRA is not planned but recommended with potential for CaLP Act 1994 declaration (Stretch Action)	Aim for eradication in the region. Complete VWRA if not done. Collect distribution data for all these species. Support Weed Alert program through Weed Spotter activity.
3	Goal 3 - Containment to prevent spread where the benefit: cost is favourable	Very high Moderately high	0.75 < 0.75	Regionally Prohibited Weeds Regionally Controlled Weeds	Weeds that are established in the state beyond the possibility of eradication but remain localised in small areas of one or more regions. Weeds that are subject to a statewide containment program.	Increase community awareness of species threat. Generate community support for local management Government to support strong existing community led effort, in partnership with industry and community groups. Prioritise eradication of satellite populations. Target activities to prevent the species from spreading outside the current core infestation boundaries including reduction in extent and abundance where appropriate and management of spread pathways.
4	Goal 4 - Asset-based protection		<0.75	Restricted	Plants that pose and unacceptable risk of spreading in Victoria or to other parts of Australia. Trade in these weeds is prohibited. Should also include environmental weeds.	Increase community awareness of species threat. Generate community support for local management Government to support strong existing community led effort, in partnership with industry and community groups – the “Community Weed Model”.

INVASIVE ANIMALS

Invasive animals threaten Victorian parks, forests, waterways, biodiversity and land asset values. They cause a range of serious problems through impacts on one or more of the environment, economic activity, social values or human health.

Invasive animals are non-native (introduced) species that are, or have the potential to become, established in the wild through escape from captivity and domestication, deliberate or accidental release and accidental or illegal importation. Examples of high risk invasive animals known to be established in the wild include rabbits, foxes, wild dogs, feral goats, and feral pigs. Examples of high risk invasive animals detected in the wild include Red-eared Slider Turtle, Grey Squirrel, Cane Toad, and Indian Ring-neck Parakeet. Examples of other high risk invasive animals of concern include Macaque Monkey, Northern Palm Squirrel, Asian Black Spined Toad, Japanese Fire Bellied Newt, and Boa Constrictor.

Invasive animals can be declared under the CaLP Act 1994 as Restricted (Prohibited, Controlled and Regulated) or Established.

Restricted Pest Animals These animals are not established in the wild in Victoria, however they are, or have the potential to become a serious threat to primary production, Crown land, the environment or community health in Victoria. The importation, keeping, breeding and trading of restricted pest animals without a permit is illegal and penalties apply. Occurrences of restricted pest animals, in the wild or being illegally kept, should be reported to DPI customer service centre on 136 186.

Established Pest Animals These animals are established in the wild in Victoria and are a serious threat to primary production, Crown land, the environment or community health in Victoria. Land owners have the responsibility to take all reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land. It is not possible to eradicate these pest animals from the state.

Although not declared as pest animals, in some locations wild horses, feral cats and other vertebrates also threaten the regions assets.

AQUATIC SPECIES

Prevention of entry and establishment of new aquatic invasive organisms is particularly critical given the high connectivity of aquatic systems and relative difficulty in identifying organisms or controlling them once they become established. While the GB IPAS does not cover invasive fish, invertebrates or micro-organisms species these also may pose a significant risk for aquatic assets (both biodiversity and agricultural assets).

APPENDIX 4 - STATE GUIDELINES

State guidelines for preparing regional invasive plants and animals plans have been prepared (DSE 2009). Appendix 3 of the guidelines (core objectives) was updated in November 2009. These aim to facilitate the development of Regional Weed Plans and Regional Pest Animal Plans, or combined Regional Pest Plans, by all Catchment Management Authorities (CMAs) in Victoria by:

- providing background and an explanation of policy and principles relating to invasive plants and animals management in Victoria
- giving references to specific inclusions required in the plans
- describing processes and activities required to complete the document.

The Goulburn Broken Invasive Plants and Animals Strategy has been prepared in line with these Guidelines.

APPENDIX 5 – IPAS GUIDELINE PRINCIPLES

The State guidelines set out key principles to be reflected in IPAS. These principles, in full, are:

Principle 1	The regional pest plans must be aligned with Regional Catchment Strategies (RCS) and the Victorian Invasive Plants and Animals (IPA) Policy Framework. They should also seek to align with other relevant state policies and current national strategies for pest management.

4.2. Scientific and management principles

Principle 2	The highest priority for pest management is the prevention of, and early intervention in, the establishment of new and emerging pest species.
Principle 3	An asset-based approach must be adopted for widespread pests. (PSC notes "An asset-based approach would normally be adopted for widespread pests").
Principle 4	Transparent, scientific, evidence-based decision-making tools or criteria for setting priorities, including risk management, must be employed.
Principle 5	A 'whole of landscape approach' must be taken to ensure coordinated action across land tenures.
Principle 6	Effective long-term solutions must address the cause of pest invasion, not just the symptoms.
Principle 7	Pest management programs must be integrated with the broader management of land and water resources.
Principle 8	An outcomes-based approach to monitoring, evaluation and reporting should be adopted.
Principle 9	Management responses should be guided by consideration of the role of government, industry and community. This includes consideration of: - Existence of market failure (public goods, externalities and potential spill-over benefits). - Whether the level of private and government co-investment reflects the potential beneficiaries of the response. - Whether the economic, environmental and social benefits of the

	proposed project significantly outweigh the costs.

4.3. Stakeholder Engagement principles

Principle 10	The roles and responsibilities of key stakeholders, including both public and private land and water resource managers, must be clearly identified.
Principle 11	Activities for improving regional coordination and the engagement of all stakeholders in the ownership of pest management and partnership opportunities should be described.

APPENDIX 6 - INVESTMENT PRINCIPLES

The purpose of the GB IPAS is to guide investment, from all investors, in IPA related programs and projects within the catchment. The strategy is also required to take a whole of catchment approach, focusing on those invasive plants and animals management issues where the government investment maximises community benefit.

The Victorian Government recently released its new land and biodiversity policy titled 'Securing our natural future: A white paper for land and biodiversity at a time of climate change.' (DSE, 2009b) This document includes a set of principles that will guide future government investment in natural resource management. They are:

1. State investment will focus on providing public, rather than private benefit.
2. Investment will be more likely where projects can show:
    - cost effectiveness which includes urgency of action, feasibility and potential side benefits
    - measurable improvements in both symptoms and causes
    - an adaptive approach that changes as information changes
    - strong support from local and catchment communities
    - a strong evidence base that justifies the investment.

Two additional principles to be applied in the Goulburn Broken catchment are:

- clarity around the justification for a species led or asset based approach
- demonstration that management of invasive plants and animals is linked into management of other threats to that same asset.

Implementation of the GB IPAS will be guided by these principles.

APPENDIX 7 - CONTINUOUS IMPROVEMENT

TABLE 11 - IPAS MER SCHEDULE.

MER framework element (Figure 5)	**How the evaluation question or MER element is addressed**	**Who**	**When**
Design	Outcomes, goals and assumptions are documented in GB IPAS or individual species plans.	Goulburn Broken CMA	Year 1
Plan	Preparation of GB IPAS or individual species plans	Goulburn Broken CMA	Year 1, Year 5
Implementation	Implementation of strategic actions.	Land and water managers and key agencies	Continuous
Monitoring	DPI MER	DPI	Annual
	Asset condition	Goulburn Broken CMA (as part of RCS review) and CMA output monitoring as well as outputs produced by PV/DSE/etc	5 yearly
	Other relevant activities (e.g. short term initiatives)	Land and water managers and key agencies	Annual
Reporting	GB CMA Annual Report (including catchment condition – based on assumptions and incorporating GB IPAS implementation progress). DPI annual report	Goulburn Broken CMA /DPI	Annual
	As part of GB IPAS review and RCS review	Goulburn Broken CMA /DPI	Five yearly
Review	Classification of individual pest species – work through process	Goulburn Broken CMA /DPI	Biennially
Evaluation	At 5 yearly intervals; this will have to address the question "are long-term objectives being achieved – site specific monitoring may be required". To be undertaken as part of GB IPAS review and update or as part of RCS review.	Goulburn Broken CMA /DPI Goulburn Broken CMA /DPI	Year 5

APPENDIX 8 – PRIORITY WEEDS

Table 4 lists invasive plant and animal species considered as threats to biodiversity assets in the catchment.

Listings of Declared Noxious Weeds can be accessed at:

http://www.dpi.vic.gov.au/dpi/nreninf.nsf/v/9A7E2C26C4A1E5ECCA25740A0011BB9E/$file/Declared_Noxious_Weeds_Listed_by_Common_Name.pdf

DSE has produced lists of environmental weeds intended to provide general advice on the current and potential risk associated with plants naturalised in native vegetation. Lists relevant to the Goulburn Broken catchment include

- Aquatic habitats (DSE 2009)
- Ranges bioregion (DSE 2009)
- Inland Plains bioregion (DSE 2009).

These lists can be accessed via

http://www.dse.vic.gov.au/DSE/nrenpa.nsf/fid/A0A2AB32BA40EA90CA25772F001216AC

APPENDIX 9 - WEEDS OF NATIONAL SIGNIFICANCE

From http://www.weeds.org.au/natsig.htm

Common name	***Scientific name***
Alligator Weed	*Alternanthera philoxeroides*
Athel Pine	*Tamarix aphylla*
Bitou Bush	*Chrysanthemoides monilifera*
Boneseed	*Chrysanthemoides monilifera* ssp. *monilifera*
Blackberry	*Rubus fruticosus* agg.
Bridal Creeper	*Asparagus asparagoides*
Cabomba	*Cabomba caroliniana*
Chilean Needle Grass	*Nassella neesiana*
Gorse	*Ulex europaeus*
Hymenachne	*Hymenachne amplexicaulis*
Lantana	*Lantana camara*
Mesquite	*Prosopis* spp.
Mimosa	*Mimosa pigra*
Parkinsonia	*Parkinsonia aculeata*
Parthenium Weed	*Parthenium hysterophorus*
Pond Apple	*Annona glabra*
Prickly Acacia	*Acacia nilotica* spp. *indica*
Rubber Vine	*Cryptostegia grandiflora*
Salvinia	*Salvinia molesta*
Serrated Tussock	*Nassella trichotoma*
Willows	*Salix* spp. except *S. babylonica,* *S. X calodendron* and *S. X reichardtiji*

APPENDIX 10 - INTRODUCTION AND SPREAD PATHWAYS

'Pathway' management is an essential tool used to protect both catchment and local assets from the impact of invasive plants and animals.

The mechanisms and avenues of introduction and/or spread of invasive plants and animals need to be identified to ensure that the spread of high risk invasive plants and animals species is prevented or minimised. The pathway approach is important in the management of new and emerging invasive plants and animals, but is also applicable to other invasive plants and animals that threaten a catchment's assets. It is important to identify the pathways by which invasive plants and animals species expand into new habitat and to target these sources for control. The pathway approach is especially important in containing the further spread of invasive plants and animals to ensure efforts in one area are not negated by unchecked spread from other areas.

Weed introduction pathways and associated risks have been assessed (Thomas, Steel et al. 2007). Identified pathways relevant to the Goulburn Broken are shown in Table 12.

The highest risk pathways for spread of priority species are:

- deliberate introduction via business '
- deliberate introduction via community
- vectors (transport mechanisms)
    - contaminated goods/produce
    - contaminated vehicles
    - contaminated equipment
    - water.

Identification and understanding of pathways of introduction and spread underpin threat assessment and asset protection and is included as a strategic action in the GB IPAS.

TABLE 12. DEFINITIONS, DESCRIPTION AND EXAMPLES OF PATHWAY CATEGORIES (FROM (THOMAS, STEEL ET AL. 2007))

Pathway Category (in no particular priority)	**Description**	**Examples**
Deliberate introduction via community	Deliberate introduction by community members for home or group use – mostly inadvertent.	Internet plants, garden clubs, cuttings, seeds / plants by mail.
Deliberate introduction via business	Deliberate introduction of plants / seeds / plant parts for business purposes.	Garden / aquarium plant sales, cut flowers, research for improved industry species such as pastures, crops or turf. Establishment of grass, shrub, and tree crops for industry.

Pathway Category (in no particular priority)	Description	Examples
Human movement	Inadvertent introduction by humans during business operations or recreation.	Seeds carried on clothing, boots or personal equipment such as when camping.
Controlled Stock movement	External or internal contaminant of livestock.	On wool or coats, mud, and ingestion of contaminated feed.
Contaminated vehicles	Vehicles used for business or recreation excludes equipment / machinery.	4WD, trucks, cars, motorbikes.
Contaminated equipment	Plant and equipment used for business operations.	Slashing, grading, harvesters, earth moving, farm machinery, bee hives, shipping containers, defence force.
Contaminated aquatic equipment	Equipment used on water for recreational or business purposes.	Jet ski, boats (fishing, skiing), boat trailers, house boats, yachts.
Contaminated goods or produce	Inadvertent introduction of weeds through contaminated goods or produce or products containing weeds.	Fodder, grains, straw, agricultural products, potting mix, mulch, soil, gravel, landscape & construction materials.
Waste disposal	Inappropriate disposal techniques for plants or plant parts. (Subsequent distribution of 'mulch' for sale or give away comes under Contaminated produce).	Mulches from tips, garden waste - "over the back fence", dumping of garden waste in reserves, viable seed and plant waste products.
Animal movement	Movement of animals other than stock. Seeds externally on coats or ingested.	Birds, native animals, dogs, cats, foxes.
Wind	Distribution of windblown seeds.	Not Assessed.
Water	Distribution of seeds or parts via waterways.	Not Assessed.

APPENDIX 11 - ROLES AND RESPONSIBILITIES

Reproduced from Weeds and Vertebrate Pests Module 1 within the Invasive Plants and Animals Policy Framework (DPI 2010):

A11.1 COMMONWEALTH GOVERNMENT

The Commonwealth Government's role in managing biosecurity is mainly in relation to national pre-border and border biosecurity, with a coordination and leadership role for achieving national biosecurity outcomes. This is likely to include cost-sharing arrangements for nationally significant incursion management.

A11.2 VICTORIAN GOVERNMENT

The Victorian Government's role is to:

- establish and maintain a statewide strategic direction for invasive species;
- provide preparedness, prevention, eradication and containment for those invasive species that are not yet present across their full potential range and for which government intervention can be justified;
- provide pre-border and border biosecurity on a state level;
- engage with industry to minimise the risks of new incursions and to maximise protection from biosecurity risks;
- act where required as a regulator and enforcer in relation to invasive species and the techniques used to manage them by providing appropriate legislation and resources to achieve compliance;
- manage IPA on public land including where necessary to protect adjoining land, and as required to fulfil responsibilities under relevant legislation;
- manage State Prohibited weeds wherever they occur;
- provide policy and funding for strategic research;
- engage with the community in pursuing coordinated action against widely established invasive plants and animals; and
- engage with Catchment Management Authorities (CMAs) and regional communities in community education, pest management planning, implementation and reporting on both private and public land and in freshwater environments.

The Victorian Government's roles and responsibilities in managing biosecurity are primarily delivered by DPI and DSE, with the management of parks and reserves directed through Parks Victoria. The division of responsibilities between DPI and DSE was affected by a machinery of government change in November 2007.

A11.3 VICTORIAN CATCHMENT MANAGEMENT COUNCIL

The Victorian Catchment Management Council's responsibilities include a statutory function to advise the Minister on:

- matters relating to catchment management which apply throughout the State;

- the condition of the land and water resources of the State;
- priorities for catchment management throughout the State; and
- priorities for research and investigation on matters related to catchment management that apply throughout the State.

A11.4 Catchment Management Authorities

Under the CaLP Act 1994, catchment management authorities' responsibilities include:

- preparing a regional catchment strategy, coordinating and monitoring its implementation and making recommendations to the Minister about funding for the strategy; and
- advising the Minister on any matter referred to it by the Minister, including advice on any proposal to declare or revoke a pest plant.

Catchment management authorities are also responsible for:

- developing regional invasive plants and animals strategies to address IPA in private and public lands in accordance with the regional catchment strategy and any relevant state policy, framework, strategy, plan or guideline; and
- prioritising action needed to address IPA and monitoring, evaluating and reporting (to the extent achievable given available resources) on delivery of these actions by relevant agencies; and
- manage IPA associated with waterways (provided by Melbourne Water in Port Philip and Westernport).

A11.5 Local government

Local government is responsible for:

- meeting all responsibilities as a land manager in relation to declared weeds and pest animals; and
- ensuring that its actions do not spread or exacerbate IPA problems.

These responsibilities need to be met in accordance with the CaLP Act 1994, guided by established state and regional priorities.

Local government can also add value by:

- addressing local weed issues in whatever manner it sees fit, including local laws, provided that they do not duplicate or conflict with the CaLP Act 1994 or other relevant legislation;
- ensuring that planning decisions do not exacerbate weed and pest problems; and
- providing education and incentives to improve land management in the municipality and being an advocate for effective IPA management.

A11.6 Landholders

Landholder responsibilities (both private and public e.g. Goulburn-Murray Water, VicRoads) are to address their obligations under the CaLP Act 1994 and any local laws with respect to declared weeds

and pest animals. Public land managers also have obligations under other Acts that must be met by undertaking further IPA management.

Working with adjoining landholders to achieve effective local coordination will greatly increase landholder's capacity to achieve good outcomes from IPA management.

A11.7 Other organisations

Other organisations may have important roles in helping manage IPAs. For example, the Murray Darling Basin Authority's The Living Murray program aims to achieve a healthy working River Murray system for the benefit of all Australians. Management of invasive plants and animals is an important component of achieving the Authority's goals.

APPENDIX 12 - OTHER RELEVANT STRATEGIES

There are a number of relevant strategies and plans currently guiding invasive plants and animals management in the catchment. These include:

The Australian Weeds Strategy (NRMMC 2007) provides a framework to establish consistent guidance for all parties, and identifies priorities for weed management across the nation with the aim of minimising the impact of weeds on Australia's environmental, economic and social assets.

Australian Pest Animal Strategy (NRMMC 2007) - The focus of the Strategy is to address the undesirable impacts caused by exotic vertebrate animals (mammals, birds, reptiles, amphibians, and fish) that have become pests in Australia, and to prevent the establishment of new exotic vertebrate pests.

Weeds of National Significance (WONS) – Twenty-one Weeds of National Significance (WONS) have been identified by Australian governments because of their invasiveness, impacts on primary production and the environment, potential for spread and socioeconomic impacts.

The issues concerning WONS are of such a magnitude that they need coordination among all levels of government, organisations and individuals with weed management responsibilities. Each WONS has a strategic plan that outlines strategies and actions required to control the weed, and identifies responsibilities for each action.

Each WONS has a Management Coordinator and a National Management Group/Steering Committee to oversee implementation of the goals and actions of the WONS strategic plans and to develop and coordinate priority actions.

Victorian Biosecurity Strategy (Government of Victoria 2009) covers threats to primary industries, the environment, social amenity and human health, across Victorian public and private land, freshwater and marine habitats, caused by:

- plant pests and diseases
- animal pests and diseases, including diseases that can be transmitted between animals and humans (i.e. zoonoses)
- invasive plants and animals.

Victorian Plants and Animals Policy Framework (DPI 2010) represents the Victorian Government's approach to managing existing and potential invasive species across the whole of Victoria. Module 1 of the Framework (DPI 2010) deals with weeds and vertebrate pests.

Victorian Gorse Control Strategy (VGT 2008) sets the longer term strategic direction for Gorse control in Victoria. It sets focus areas, goals and strategies with the overall vision of no further increase in Gorse distribution in Victoria.

Victorian Blackberry Strategy (DPI 2008) sets out the vision for controlling Blackberry across the state, with goals, objectives and accompanying strategic actions for the next five years.

Victorian River Health Strategy (VRHS) (DNRE 2002) includes reference to willow management. A revised VRHS (the Victorian Strategy for Healthy Rivers, Estuaries and Wetlands) (in development, due 2011) will include a section on aquatic invasive species management.

Environmental Weeds – DSE has produced lists of environmental weeds intended to provide general advice on the current and potential risk associated with plants naturalised in native vegetation. Lists relevant to the Goulburn Broken catchment include:

- Aquatic habitats (DSE 2009)
- Ranges bioregion (DSE 2009)
- Inland Plains bioregion (DSE 2009).

Relevant Goulburn Broken Plans. The GB CMA released a Rabbit Management Action Plan in 2000 (DNRE 2000) and a Weed Action Plan in 2001 (DNRE 2001). A draft Pest Animal Plan 2008-2012 was developed by GB CMA in 2007 and 2008 but was not completed.

Other relevant plans also include:

- Willow Strategy (GB CMA 2004)
- Cabomba (GHD 2008)
- Sagittaria (Arrowhead) (RuralPlan 2009)
- Wild Dog Management Strategy (DNRE 2002).

The GB CMA has prepared a series of asset based strategies, including

- Regional Catchment Strategy (GB CMA 2003)
- River Health Strategy (GB CMA 2005)
- Biodiversity Strategy (GB CMA 2010).

While alien fish are not within the scope of this IPAS it is worth noting the *Native Fish Strategy for the Murray-Darling Basin 2003-2013* (the Native Fish Strategy) has identified eight key threats to native fish including the presence of alien fish. Management of alien ("pest") fish populations is addressed in Goulburn Broken Regional River Health Strategy (GB CMA 2005).

APPENDIX 13 – PROGRAM LOGIC DEFINITIONS

Definitions associated with the program logic described in Table 3 are:

- ***Vision*** – the desired state of the catchment after GB IPAS implementation.
- ***Desired outcomes*** for the catchment resulting from implementation of the strategy.
- ***Strategy intent*** – the purpose of the GB IPAS.
- ***Goals*** – the things we seek to achieve.
- ***Strategic approaches*** to implementing the strategy.
- ***Assumptions*** - an assumption is an expectation, based on current knowledge and experience, about what needs to occur for a project's success. By implementing the strategies it is assumed the desired outcomes will be achieved.
- ***Strategies*** - general approaches for achieving the Goals.
- ***Strategic actions (outputs)*** – describe priority activities and programs of all government agencies.
- ***Inputs*** – resources required to support the strategic actions.

APPENDIX 14 – COMMENTS ON DRAFT

Comments on the draft strategy were received from the following organisations:

- GBCMA Board and staff
- DPI
- Strathbogie Tableland Landcare
- Department of Agriculture, Fisheries and Forestry
- DPI – Invasive Plants and Animals Branch
- Howqua Valley Landcare Group.
- DSE – Land and Fire
- DSE - Sustainable Water, Environment and Innovation Division
- Victorian Catchment Management Council
- Mitchell Shire
- Goulburn Murray Landcare Network.