



Glenelg Hopkins

NATIVE VEGETATION PLAN

MARCH 2006

Striving towards a healthy and sustainable relationship
between the natural environment and the community's use of land and water resources

Glenelg Hopkins Native Vegetation Plan

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March 2006

Prepared by the Glenelg Hopkins CMA

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Data limitations and document review

The development of this plan has identified some gaps in our knowledge along with the changing distribution and abundance of the region's flora and fauna due to a range of natural and human-induced pressures or management actions.

The flora and fauna data found in this plan document has been sourced from the Corporate Geospatial Data Library, DSE 2003. Regional and sub-catchment boundaries are those determined to be appropriate at the time the final plan development commenced. A high priority for the Glenelg Hopkins CMA is to resolve the boundary issue associated with 13,600 ha of land in an area known as the Black Range. The area is within the watershed of the Glenelg River but is part of the Wimmera CMA region.

This is a living document. Through a process of adaptive management the plan will continually be improved. An important part of this improvement will be a comprehensive review of all data, assumptions and boundary anomalies within twelve months of the release of this document.

As our knowledge improves and new data becomes available, and upon completion of the first and subsequent reviews, the plan will be updated accordingly.

It is also possible that there will be a need to revise some aspects of particular off-set provisions during the life of the Regional Native Vegetation Plan as a result of new information becoming available and through experience gained in the application of the Net Gain policy.

Glenelg Hopkins Native Vegetation Plan

March 2006

'Research suggests that at the current rate of loss of grasslands, there will be no native grasslands of any quality left within Victoria by the end of the century.'



TABLE OF CONTENTS

	Key terms used in this Plan.....	5
	Abbreviations.....	6
	Glenelg Hopkins CMA Land & Biodiversity Implementation Committee...6	
	Foreword.....	7
	Executive summary.....	9
1	Introduction.....	10
2	Information base analysis.....	13
3	Assets and their condition.....	14
4	Threatening processes.....	16
5	The Strategy.....	18
6	Setting priorities.....	21
7	Objectives, outputs and targets.....	30
8	Cost sharing and native vegetation management.....	42
9	Glenelg River basin sub-catchments.....	46
	Portland River basin sub-catchments.....	72
	Hopkins River basin sub-catchments.....	84
10	References.....	110
11	Appendices.....	114
	Appendix 1 Regional EVC data	
	Appendix 2 Bioregional EVC data	

Key terms used in this Plan:

Biodiversity

The variety of all life-forms, the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part.

Bioregions

Biogeographic areas capturing patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values.

Broad Vegetation Types (BVT)

a classification that provides a simplified view of vegetation based on land system or biophysical attributes (such as geology, rainfall, elevation, soil type and landform). Each broad vegetation type will contain a mixture of EVCs, often in a recognisable pattern, however any one EVC can occur in more than one BVT.

Conservation Status

A description of the rarity of EVCs. The less of an EVC remaining, the rarer it is and the more critical its conservation status.

Core Vegetation Cover

Refers to the cover of permanent vegetation that's similar in terms of species composition and structure to pre-European settlement vegetation types and excludes farm forestry, agroforestry plantations and woodlots planted for production purposes.

Ecological Vegetation Class (EVC)

A native vegetation classification that is described through a combination of its floristic, life form, and ecological characteristics, and through an inferred fidelity to particular environmental attributes. Each EVC includes a collection of floristic communities (i.e. a lower level in the classification that is based solely on groups of the same species) that occur across a biogeographic range, and although differing in species, have similar habitat and ecological processes operating.

Farm Forestry/Woodlots

Areas deliberately planted for production purposes. These areas contribute to Total Vegetation Cover, but not to Core Vegetation Cover.

Habitat-hectare

A site-based measure of quality and quantity of native vegetation that is assessed in the context of the relevant native vegetation type.

Native Vegetation

All plants that are locally indigenous to Victoria, including trees, shrubs, herbs and grasses.

Net Gain

Is where, over a specified area and period of time, losses of native vegetation and habitat, as measured by a combined quality-quantity measure (habitat-hectare), are reduced, minimised and more than offset by commensurate gains.

Regeneration

The natural regeneration of vegetation. Natural regeneration contributes to vegetation cover when the dominant species of the pre-existing vegetation types re-establish, but is less than 10 years of age.

Regional Conservation Significance

A description of a particular remnant based on the conservation status of the EVC, the quality measure (habitat hectares), the presence of endangered or significant flora and fauna and other attributes.

Remnant Vegetation

Areas of existing native vegetation that have not been planted, where the dominant species still remain and is greater than 10 years of age.

Revegetation

The deliberate planting of vegetation. Revegetation contributes to vegetation cover when the species composition and structure (that is, all vegetation strata) is similar to pre-existing vegetation types for that area.

Total Vegetation Cover

The total number of hectares of native vegetation, including remnant and regeneration, farm forestry, agroforestry and woodlots.

Native vegetation management scales:

Regional (or catchment) scale management refers to areas ranging from tens to hundreds of kilometres across, and involves the co-ordination of processes to engage the broad range of landholders, organised interest groups and government agencies. A perspective at this level facilitates medium to long term strategic planning for sustainable land and water management, conservation reserve systems and public land as per the Regional Forest Agreements.

Landscape scale management refers to areas from several kilometres to tens of kilometres across, usually involving a number of properties and individual land managers. At this level, consideration can be given effectively to differences in native vegetation type, coverage and quality, including spatial configuration and connectivity of habitats, and other factors influencing biodiversity and land protection in the local landscape.

Patch (or block) scale management relates to a discrete stand of native vegetation usually within a single rural property, and focuses on the size, shape and location of the patch and on the type(s) of vegetation. This level permits useful insight into how to best protect or enhance the value of patches as habitat and/or for land protection.

Site scale management refers to highly localised activities that may influence the characteristics of vegetation occurring within or adjacent to a patch. Such activities include planting, fencing, direct seeding or regeneration of vegetation, as well as weed control or thinning in established vegetation.

Abbreviations

AROTS	Australian Rare or Threatened Species
BAP	Bioregional Action Planning
BMP	Best Management Practice
BVT	Broad Vegetation Type
CAMBA	China Australia Migratory Bird Agreement
DPI	Department of Primary Industries
DSE	Department of Sustainability and Environment
EMS	Environmental Management Systems
ESD	Ecologically Sustainable Development
EVC	Ecological Vegetation Class
FFG	Flora and Fauna Guarantee (Act, 1988)
GAV	Greening Australia (Victoria)
GHCMA	Glenelg Hopkins CMA
GIS	Geographic Information System
IBRA	Interim Bioregionalisation of Australia
ISC	Index of Stream Condition
JAMBA	Japan Australia Migratory Bird Agreement
NHT	Natural Heritage Trust
NRE	<i>former</i> Department of Natural Resources and Environment
NVP	Native Vegetation Plan/Permit
NVR	Native Vegetation Retention controls
RCS	Regional Catchment Strategy
RFA	Regional Forestry Agreements
RMU	Resource Management Unit
VROTS	Victorian Rare or Threatened Species

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FOREWORD

Our Mission Statement:

“Community, Agencies, and Government working in partnership for the protection and enhancement of our region's native vegetation. Outcomes will be attained through increased awareness and involvement, and priority actions designed to achieve ecologically sustainable targets.”

The Glenelg Hopkins region is recognised as one of Victoria's most vital agricultural areas with good soils and reliable rainfall. It is an important tourism destination for both domestic and overseas visitors and it dominates historic writings about the early settlement of Victoria.

But our place in history and our resource management record, particularly in terms of native vegetation, leaves us in a challenging position early in the 21st Century. Native vegetation now covers just 17.4 per cent of the Glenelg Hopkins region.

There has been a great deal of strategic work done in the area of native vegetation management since the release of the region's draft native vegetation plan in 2000. Most significant are the release of new State Government policy and a revision of the Ecological Vegetation Class (EVC) data that now provides a more accurate description of the native vegetation assets remaining in the region.

Victoria's *Native Vegetation Framework (2002)*, supported by *Operational Guidelines for Achieving Net Gain in Planning Decisions*, applies to all applications to remove, destroy or lop native vegetation under any planning scheme. It also applies to other types of applications for development or use that will result in impacts on native vegetation, including subdivisions. This plan outlines the GHCMA's responses and offset procedures for native vegetation according to conservation significance along with the offset criteria for harvesting timber from naturally-established native forest on private land (See Tables 5 and 6).

The Glenelg Hopkins Regional Catchment Strategy was the first regional plan to be endorsed by the Commonwealth and State governments and is guiding the region's strategic investment in natural resources management.

This Native Vegetation Plan is an integral part of the Regional Catchment Strategy. It is to be the key reference for the overall management of native vegetation in the Glenelg Hopkins region.

This Plan provides us with the framework and opportunity to make sure we protect, manage and enhance what we have left. Whilst at the same time we must continue to engage in dialogue with our regional community to help them recognise the importance of native vegetation to the health and well-being of the catchment and the community.

During the development of this Plan it has become clear that there are information gaps in our knowledge of native vegetation and its management. Primarily these information gaps relate to matters of science and will require further attention over time. They include a better understanding of ecological processes, best practice for managing our diminishing native grasslands, along with the extent and condition of our flora and fauna assets.

The Glenelg Hopkins CMA will lead the implementation of this plan, in partnership with the regional community and the state and federal governments. We can't do it alone, we must all work together.

I am pleased to introduce this Glenelg Hopkins Native Vegetation Plan and thank the members of my committee and the community members who have provided feedback on the final draft plan. I look forward to seeing the implementation of the plan become a reality and trust that we all come to value the role of native vegetation in an ecologically sustainable future.

Laurie Norman
Chair
Land and Biodiversity Implementation Committee



Figure 1: The Glenelg Hopkins region



Figure 2: Sub-catchments within the Glenelg Hopkins region

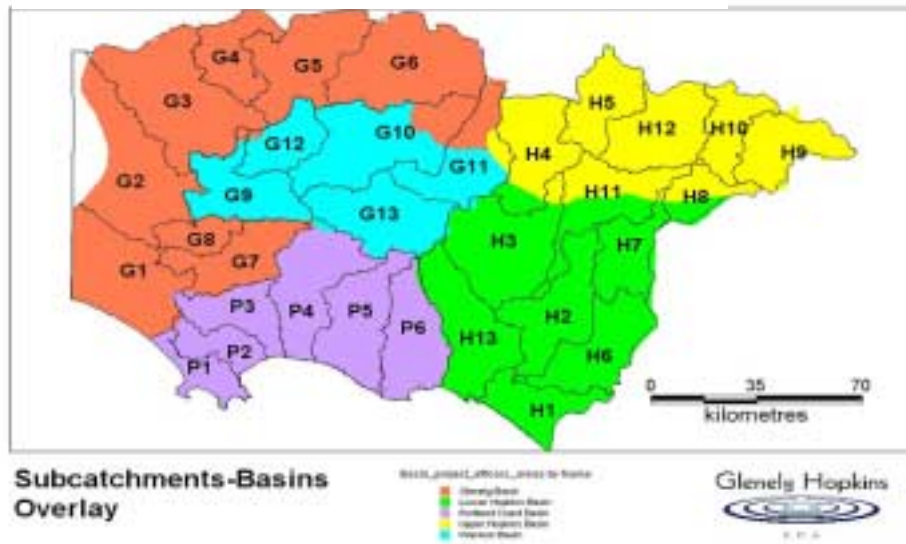
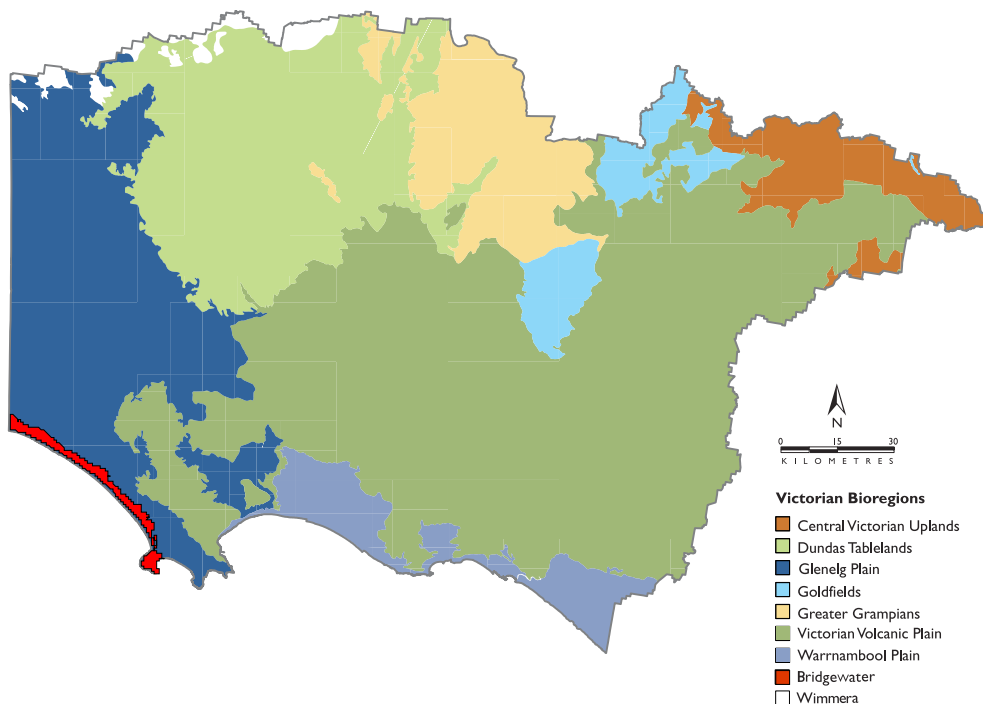


Figure 3: Bioregions within the Glenelg Hopkins region



EXECUTIVE SUMMARY

Much has happened since the release of the 2000 Draft Native Vegetation Plan. In particular the endorsement of the CMAs five-year Regional Catchment Strategy in 2003.

Other important developments since 2000 include the release of the State Native Vegetation Framework and the adoption of sub-catchments as the basic unit for natural resource management planning and action within the Glenelg Hopkins region.

The Glenelg Hopkins region covers 2.68 million hectares in south-west Victoria and comprises three drainage basins - Glenelg, Portland and Hopkins. Within these drainage basins can be found 32 sub-catchments. (See Figures 1 & 2, Page 8).

1. Protecting existing remnant vegetation

The highest priority of this plan is to protect existing remnant vegetation, particularly those vegetation communities that are highly depleted and subject to threatening processes.

Protection encompasses a range of activities ranging from legal agreements to constructing fences for grazing pressure management, financial incentives for landholders to protect and manage their remnants, and the provision of information and extension services.

Whilst this plan clearly identifies the threatened EVC communities that will receive priority in actions at the sub-catchment level, on-going complementary programs will work to protect and enhance other vegetation types to prevent their depletion and reduce the risk of creating further problems.

2. Managing and enhancing existing remnants

Outside of larger conservation reserves, much of the remnant vegetation in the Glenelg Hopkins region is substantially degraded. The prognosis is worst for native grasslands and grassy woodlands: with less than 1% of the original vegetation cover remaining they are critically endangered. At the other end of the spectrum, woody heathlands are well represented in conservation reserves. Enhancement works range from re-introduction of missing species or habitat features to selective control of environmental weeds and pest animals.

Weed invasion is a major threat in all native vegetation communities leading to loss of native plant species as well as the fauna dependent on those plants. The integrity of priority vegetation communities is threatened by invasion from environmental weeds. In particular, a number of significant EVCs (grassy woodlands, riparian ecosystems and wetlands) are at risk of further degradation due to the impact of weed invasion.

Pest animals, particularly rabbits, have a major impact on natural regeneration and vegetation establishment. An integrated approach to pest animal control and vegetation management programs will deliver substantial environmental and economic outcomes.

3. Rebuilding the viability, connectivity and integrity of native vegetation

Clearing of native vegetation disrupts ecosystems and creates remnant 'islands' that are more susceptible to threatening processes such as weed invasion and feral animals. The viability of the region's vegetation communities (and many flora and fauna species)

requires networks and interconnections that link larger blocks of remnant vegetation. A "landscape approach" to vegetation management will ensure that multiple natural resource outcomes will be achieved.

In addition to protecting and restoring existing remnants, a large-scale revegetation effort is required over the medium to long-term to reverse the current trend of land, water and biodiversity decline in the region. The priorities for revegetation are:

- Promoting regeneration, using indigenous species, to increase the size and quality of existing remnants.
- Establishing vegetation links between existing remnants.
- Restoring EVC communities through revegetation
- Targeting revegetation work in high recharge areas and near waterways, including some wetlands, to help reduce salinity and protect water quality.
- Developing and integrating productive tree (and perennial vegetation) systems, including farm forestry, that provide significant benefits in terms of carbon sequestration, runoff, watertable control and water quality.
- Protection of existing vegetation.

4. A partnership approach

To achieve the goal of reversing the decline in extent and quality of the native vegetation will require an informed and supportive community. Hence, community engagement and capacity building are integral to implementing this plan, as it is for the Regional Catchment Strategy. This plan proposes an integrated approach to community capacity building involving all partners. This will ensure that the structures are in place to get the latest information on vegetation to the network of information providers in the region. Implementation of the priorities in this plan will result in a landscape that is ecologically balanced, aesthetically pleasing and will contribute to improved land, water and vegetation quality that sustains our regional communities.

5. An integrated regional approach

This plan is consistent and supportive of relevant State and Commonwealth policy and planning processes and is complementary to a number of other regional strategic documents, including.

- Department of Natural Resources and Environment (1997) Victoria's Biodiversity: Directions in Management
- Department of Natural Resources and Environment (2002a) Acid Soil Strategy for Victoria
- Department of Natural Resources and Environment (2002b) Strategy for conserving Biodiversity - Biodiversity Action Planning
- Department of Natural Resources and Environment (2002) *Victoria's Native Vegetation Management - A Framework for Action*
- Flora and Fauna Guarantee Act 1988
- Glenelg Hopkins CMA (2000) Glenelg Hopkins Rabbit Action Plan 2001-2006
- Glenelg Hopkins CMA (2002a) River Health Strategy
- Glenelg Hopkins CMA (2002b) Glenelg Hopkins Catchment Nutrient Management Plan
- Glenelg Hopkins CMA (2002c) Salinity Plan
- Glenelg Hopkins CMA (2003) Regional Catchment Strategy 2003-2007

The Glenelg Hopkins Native Vegetation Plan therefore provides a key link between other management strategies and plans for the region in articulating a coherent and targeted approach to vegetation management that will provide multiple natural resource outcomes.

1 INTRODUCTION

1.1 Aim

Our primary goal is to protect, enhance and increase indigenous vegetation on public and private land within the Glenelg Hopkins region.

This Native Vegetation Plan will therefore aim to achieve a reversal, across the entire landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain in native vegetation communities within the region.

Because this Plan is framed with multiple outcomes in mind, additional goals include:

- Enhancement of biodiversity
- Improved land and water quality
- Amelioration of the impact of climate change.

1.2 A context for the Regional Native Vegetation Plan

The clearing of native vegetation, and the subsequent agricultural development, has brought considerable short-term wealth to the Glenelg Hopkins region and the State of Victoria. But, this prosperity has come at a cost. The region now suffers from biodiversity loss and a decline in vegetation communities. Healthy, stable soils, and clean water in our rivers and streams, are now harder to find.

Removal of native vegetation has altered many of the processes necessary for the continued survival of working ecosystems. Water and nutrient cycles are no longer in balance - major problems of soil erosion, salinity and flooding are the result. Removal and fragmentation of native vegetation has led to major reductions in habitat, and in the number of birds and other animals able to survive.

Environmental degradation caused through loss of our native vegetation is affecting our quality of life. It also affects the long-term future of the life support systems on which we all depend. Everyone must recognise the urgency of the problem and help to reverse the current trends of native vegetation loss.

Native vegetation now covers less than 18 per cent of the Glenelg Hopkins region. Some vegetation communities are now far less common than this figure may suggest. There is only about 1000 km² of predominantly intact, original native vegetation left on private land in the region. Two of the original Broad Vegetation communities, Box Ironbark Forest and Riparian Forest, now appear to be extinct. The remaining areas of native vegetation are a significant regional resource.

We now have a good knowledge of the extent of original native vegetation remaining in the region. A sophisticated mapping program over recent years provides us with information on how much of a particular Ecological Vegetation Class, or EVC, remains and how much of that EVC would have existed at the time of early settlement.

When we examine the remaining vegetation we find that for the EVCs that are rare, the majority of the remnants occur primarily on private land (NRE, 1999). Therefore much of the conservation of these EVCs will require the co-operation and assistance of private land managers.

1.3 Relationship to the Regional Catchment Strategy

Whilst this plan focuses on private land, protecting and enhancing the native vegetation remaining on both private and public land in the Glenelg Hopkins region is an important part of implementing the new Regional Catchment Strategy.

The Glenelg Hopkins Regional Catchment Strategy (RCS) was first developed in 1997. The Glenelg Hopkins CMA Board undertook a major review of the Strategy in 2002. The new RCS, released in 2003, sets clear objectives and targets for environmental management to the year 2007.

The new RCS identifies six key regional challenges and a strategic framework for taking action. The challenges are regional sustainability, biodiversity, waterway health and water quality, soil decline and salinity, pest plants and animals, and coastal areas. Whilst there are separate strategies in place for each challenge, implementing this Native Vegetation Plan will contribute to positive outcomes in all areas.

The RCS adopts an integrated asset-based approach to target investment into areas that give the greatest return. This Native Vegetation Plan also uses this approach to determine where native vegetation priorities can achieve multiple outcomes for biodiversity and the community at the catchment level.

1.4 Victoria's Native Vegetation Management Framework

In 2002 the Victorian Government released a state-wide framework entitled 'Victoria's Native Vegetation Management - A Framework For Action'. The Framework establishes the strategic direction for protecting, managing and enhancing native vegetation across the State.

The Framework addresses native vegetation management from a whole of catchment perspective. It focuses primarily on private land, but includes public land affected by grazing leases and logging, where the critical issues of past clearing and fragmentation exist.

The Framework outlines the Government's policy of achieving a Net Gain in extent and quality of native vegetation. The Net Gain goal is consistent with the framework for sustainable forest management that guides native forest management on public land.

The primary goal identified for native vegetation management is 'a reversal, across the entire landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain'. Net Gain is the outcome for native vegetation and habitat where overall gains are greater than overall losses and where individual losses are avoided where possible. The losses and gains are based on a combined quality-quantity measure over a specified area and period of time.

A range of actions are grouped under three broad areas of implementation. These are:

- Protection and Enhancement on Private Land
- Monitoring and Evaluation
- Research for Improved Management.

Gains may be either required offsets for permitted clearing actions or as a result of landholder and Government assisted efforts that are not associated with clearing. Additional outcomes are identified for biodiversity, land and water quality, and climate change amelioration.

The Framework identifies principles and goals that apply to private and public land but recognises that the management approaches to achieving the goals will vary according to the management objectives of each tenure and the conservation value of the vegetation.

The Framework identifies a set of principles to guide native vegetation management in Victoria:

- retaining and managing remnant native vegetation is the primary way to conserve the natural biodiversity across the landscape
- conserving native vegetation and habitat in a landscape is dependent on the maintenance of catchment processes
- the cost of vegetation management should be equitably shared according to benefits accrued by the landholder, community and region
- a landscape approach to planning native vegetation management is required.

Goals for native vegetation management are to be based on sub-units within the Catchment Management Authority region. Priorities for vegetation management should be specific for each sub-catchment.

The State Framework provides a strong focus on the protection and net improvement of higher conservation significance vegetation and a flexible but accountable approach for lower conservation significance vegetation to enable landholders to move towards more sustainable land use options.

A range of actions to implement Government policy and achieve the Net Gain goal are grouped under:

- Protection and Enhancement on Private Land
- Monitoring and Evaluation
- Research for Improved Management.

The principles and approaches outlined in this Plan are applicable from the on-ground level upwards. Only by ensuring that decisions about the protection and improvement of individual stands of native vegetation deliver an appropriate contribution to our goals, will the net outcomes be demonstrably achieved.

The State Framework sets out the broad approach and specifies minimum standards, recognising that as native vegetation values and issues vary across the State, so too will the regional priorities and responses identified by this broad approach.

This Glenelg Hopkins Native Vegetation Plan translates the policy objectives of 'Victoria's Native Vegetation Management - A Framework for Action' (2002) to the specific circumstances of the Glenelg Hopkins region.

The Framework sets the State and reflects the National context for the Plan. It also describes:

- the principles of Net Gain;
- the evaluation of native vegetation quality using the habitat hectare method;
- the hierarchy of protecting and enhancing significant values, seeking to avoid the need to remove native vegetation;
- minimising any necessary losses of native vegetation; and
- providing off-set measures for any losses that the outcome is a net gain (See Tables 5 and 6).

This Plan determines regional priorities and sets targets. Our basis for action is to protect and enhance all remaining native vegetation and habitat in the Glenelg Hopkins region. The Plan is the framework for how the CMA and its partners in vegetation management will act to meet the region's commitment to the State Native Vegetation Framework.

1.4.1 Net Gain

The notion of Net Gain recognises that for native vegetation, although "natural is best", it is possible to partially recover both extent and quality by active intervention and thus to effect the net result.

Whilst the priority is to avoid clearing, where clearing is permitted offset criteria have been established to provide a clear link between gains and losses and in this way ensure that the "commensurate" requirement of mitigation is met.

In order to achieve the biodiversity goals for native vegetation management, application of the Net Gain approach needs to be linked to the conservation significance of the native vegetation in question. The conservation significance of a patch of vegetation (from Very High to Low) is determined according to:

- the quality of the vegetation
- the conservation status of the EVC and the species present (and the potential habitat value)
- other recognised site-based criteria.

1.4.2 Protection and Enhancement on Private Land

The highest priority of this plan is to protect existing remnant vegetation assets, particularly those vegetation communities that are highly depleted and subject to threatening processes.

122,909 hectares of remnant vegetation is located on private land in the Glenelg Hopkins region. Whilst this represents just 4.6 per cent of the total region, it is 26.2 per cent of all remnant vegetation. Protecting this vegetation encompasses a range of activities ranging from legal agreements to construction of fences for grazing pressure management.

Whilst this plan clearly identifies the threatened EVC communities that will receive priority in actions at the sub-catchment level, on-going complementary programs will work to protect and enhance other vegetation types to prevent their depletion and reduce the risk of creating further problems.

1.4.3 Monitoring and evaluation

To measure our progress in achieving our goals we will use the accounting system outlined in the State Framework. The system is based on habitat hectares, a site-based measure of quality and quantity of native vegetation that is assessed in the context of the relevant native vegetation type.

1.4.4 Research for Improved Management

On-going research will be fundamental to achieving our goals. Research into optimum width for corridor and 'biolink' planting is just one example of where we need a better knowledge base to maximise the benefits of our work.

Relevant actions arising from Threatened Species Recovery Plans and Flora and Fauna Guarantee Action Statements will become linked to the Native Vegetation Plan as they are produced.

1.5 The process of developing the Plan

The recognition of the need to reverse the decline in native vegetation in the region led to the development of a 'draft regional native vegetation plan', which was released for public comment in December 2000. A series of workshops and partnership forums generated comment on the draft plan. All comments have been incorporated into this current version of the plan.

There has also been a great deal of strategic work done in the area of native vegetation management since the release of the draft native vegetation plan in 2000. Most significant are the release of new State Framework (2002) and a revision of the Ecological Vegetation Class (EVC) data (2002) that now provides a more accurate description of the native vegetation assets remaining in the region.

All new policy information and available flora and fauna data is included in this version of the plan. The plan will be reviewed in 2007, and all new knowledge and data accumulated during the life of this Plan will be incorporated.



1.6 Overview of the region

The clearing of native vegetation, and the subsequent agricultural development, has brought considerable short-term wealth to the Glenelg Hopkins region and the State of Victoria. But, this prosperity has come at a cost. The region now suffers from biodiversity loss and a decline in vegetation communities. Healthy, stable soils, and clean water in our rivers and streams, are now harder to find.

Removal of native vegetation has altered many of the processes necessary for the continued survival of working ecosystems. Water and nutrient cycles are no longer in balance - major problems of soil erosion, salinity and flooding are the result. Removal and fragmentation of native vegetation has led to major reductions in habitat, and in the number of birds and other animals able to survive. For example, many of our woodland birds are facing extinction at the regional level.

Environmental degradation caused through loss of our native vegetation is affecting our quality of life. It also affects the long-term future of the life support systems on which we all depend. Everyone must recognise the urgency of the problem and help to reverse the current trends of native vegetation loss.

An overview of the geographic, economic and social characteristics of the region can be found in Chapter 3 of the Glenelg Hopkins Regional Catchment Strategy 2003-2007.

Since this plan is primarily a 'native vegetation plan' it concentrates on protecting and enhancing the remaining native vegetation assets in the region. Analysis of the distribution of existing remnant vegetation, climate and soil types leads to the determination that the region's native vegetation has been reduced to 17.4 per cent of the cover that existed prior to European settlement. (See Table 1).

TABLE 1: Land information for the Glenelg Hopkins region

Asset	Area (ha)	Percentage of region (%)
Remnant native vegetation (private land)	122,909	4.58
Remnant native vegetation (crown land)	346,991	12.94
Private land (no tree cover)	2,027,268	75.59
Crown land (no tree cover)	108,498	4.05
Plantation	66,785	2.49
Water body	9,037	0.34
Other	240	0.01
Total	2,681,771	100

(Source: Land Information Group, 2002)

The region covers 2.68 million hectares in south-west Victoria and comprises three drainage basins - Glenelg, Portland and Hopkins. Within these drainage basins can be found 32 sub-catchments. It is these sub-catchments that form the basis of planning and action in the Glenelg Hopkins CMA region. (See Figure 2).

2 INFORMATION BASE ANALYSIS

We now have a good knowledge of the extent of original native vegetation remaining in the region. A sophisticated mapping program over recent years provides us with information on how much of a particular Ecological Vegetation Class, or EVC, remains and how much of that EVC would have existed prior to early settlement. EVC data provides us with an important base for planning purposes.

An important point emerges when we examine the remaining vegetation. For the EVCs that are rare, the majority of the remnants occur primarily on private land (NRE, 1999). As such, much of the conservation of these EVCs will require the co-operation and assistance of private land managers.

The Glenelg Hopkins CMA has adopted an innovative method of communicating the region's natural assets. These can be found in the double page spreads for each sub-catchment commencing on page 46.

2.1 Victoria's Bioregional Framework

Native flora and fauna are diverse and exist within complex systems. A framework has been needed for quite some time to simplify this complexity and connect us more readily to the biodiversity assets and challenges in our region. Bioregions identified in Victoria form part of national frameworks for terrestrial and marine environments, the Interim Bioregionalisation of Australia (IBRA) and the Interim Marine and Coastal Regionalisation for Australia (IMCRA). These national frameworks were prepared through the cooperative efforts of the Commonwealth and State/Territory agencies at the request of the Australian and New Zealand Environment Conservation Council (ANZECC).

Bioregions are elements of a new natural framework based on the patterns of ecological characteristics in the landscape or seascape, allowing us to recognise and respond to biodiversity values. Eighty-one bioregions have been identified for Australia. Twenty-seven bioregions have been identified for Victoria.

classified Victorian bioregions are found wholly or partly within the Glenelg Hopkins region. These bioregions are: Bridgewater, Central Victorian Uplands, Dundas Tablelands, Glenelg Plain, Goldfields, Greater Grampians, Victorian Volcanic Plain, Warrnambool Plain & Wimmera. (See Fig. 3)

Each bioregion contains a number of **Broad Vegetation Types** (BVTs). Current and pre-European coverage of BVTs, modelled from 1:250 000 scale land system, climate and other information provide a useful strategic overview.

Thirteen of the 30 classified BVTs are found in the Glenelg Hopkins CMA region. These complexes are:

1. Coastal Scrubs & Grasslands
2. Coastal Grassy Woodland
3. Heathy Woodland
4. Lowland Forest
6. Swamp Scrub
8. Inland Slopes Woodland
10. Dry Foothill Forest
11. Moist Foothill Forest
12. Grassland
18. Plains Grassy Woodland
19. Valley Grassy Forest
20. Herb-rich Woodland
23. Riverine Grassy Woodland

Ecological Vegetation Classes (EVCs)

EVCs are the vegetation mapping data set of choice for detailed biodiversity planning and management. EVCs are mapped at 1:100 000 and 1:25 000 scales based on substantial on-ground survey work. Each EVC represents one or more plant communities that occur in similar types of environments. The communities in each EVC tend to show similar ecological responses to environmental factors such as disturbance.

The Glenelg Hopkins region contains 180 different EVCs. Lists of the priority EVCs for each sub-catchment can be found on pages 46 to 109. A detailed description of each EVC is available from the Glenelg Hopkins CMA.

TABLE 2: Priority Vegetation Communities have been identified for each of the nine bioregions of the Glenelg Hopkins region, but at the sub-catchment level. (See Chapter 6).

Bioregion	Pre-1750 area (hectares)	Remnant vegetation remaining (ha)	Percentage of original	No. of endangered regional EVCs	No. of EVCs targeted by Plan
Greater Grampians	151,140	129,634	86%	22	13
Bridgewater	18,192	11,471	63%	4	4
Glenelg Plain	383,116	148,554	39%	34	20
Wimmera	24,861	4,953	20%	16	12
Goldfields	15,363	4,000	26%	9	8
Central Victorian Uplands	81,351	22,123	27%	12	11
Dundas Tablelands	660,782	64,319	10%	49	24
Warrnambool Plain	113,598	7,742	7%	18	17
Victorian Volcanic Plain	1,223,766	72,286	6%	58	47
Total	2,672,169	465,082	17.4%		

3 ASSETS & THEIR CONDITION

3.1 Vegetation

The distribution of the region's original native vegetation is largely determined by soil type and rainfall. The occurrence of Ecological Vegetation Classes, rather than their distribution based on land management units, is now driving the management of native vegetation across Victoria and in the Glenelg Hopkins region. Nevertheless it is worth visiting the types of vegetation found throughout the region by firstly looking at the distribution of vegetation by land units.

The sands in the south west of the region (Glenelg Plains Bioregion) supported a low eucalyptus woodland of Brown Stringybark and other species. In areas where drainage was impeded a wet heath understorey was present dominated by *Leptospermum* and *Melaleuca* species. On deeper, drier sands, bracken or *Banksia* heaths were dominant in the understorey. Large areas of these vegetation communities, on both Crown and freehold land, remain uncleared, due to the limited agricultural potential of the soil.

The Dundas Tablelands supported an open-woodland dominated by Red Gum, Swamp Gum, Manna Gum; Yellow Gum and Yellow Box also occur widely. Sheoaks were a common understorey shrub and grasses dominated the ground layer. In the Merino Tablelands, the woodlands graded into grasslands dominated by Spear Grasses, Wallaby Grasses and Tussock Grasses. In the Wimmera, the Buloke (*Casuarina luemanni*), Grey box (*Eucalyptus microcarpa*) and Black box (*Eucalyptus largiflorens*) were found on the best wheat land and only vestiges on road and rail reserves now remain. The original vegetation has been progressively cleared or heavily modified since European settlement.

In the south of the region where soils were relatively fertile and rainfall high, open forest dominated by Stringybarks, Peppermints and Manna Gum developed. Understorey species varied with soil types and drainage and included wet and dry heaths and grasses. Native vegetation has been substantially cleared from this area. Remnants are mostly confined to Crown Land.

The extensive basalt plains of the central and eastern part of the Glenelg Hopkins region (Victorian Volcanic Plains bioregion) supported an open savannah woodland dominated by Red Gum and species such as Lightwood and Sheoaks. Ground layer vegetation was typically grassy. Swamp gum and *Leptospermum* scrubs developed along drainage lines and in the vicinity of the wetlands that are common in the area. Almost all native vegetation on the basalt plains has been cleared or substantially modified.

The Greater Grampians bioregion supports a diverse range of native vegetation reflecting variation in rainfall, drainage, soils and aspect. The Grampians and Black Range State Park are dominated by dry eucalypt forests and woodlands, some with a heathy understorey. Tall open forests dominated by Messmate occur in sheltered areas receiving relatively high rainfall. Areas of poor drainage comprise extensive wet heaths dominated by *Leptospermum* and *Melaleuca*. These are often treeless.

The native vegetation of the Grampians is of outstanding conservation significance and is

Glenelg Hopkins CMA

mostly protected in the Grampians National Park. The Grampians contain 1,000 native plants; 23 which are found nowhere else in the world.

The Willaura Plains (Dundas Tablelands bioregion) lying to the east of the Grampians once supported a native grassland which has now been substantially cleared or modified.

The sedimentary rises and hills of the north east of the Region supported dry woodlands and open forests dominated by Long-leafed Box, Red Stringybark, Yellow Box and, along drainage lines, Red Gum. Shrubby or grassy understoreys were common. Similar vegetation types occurred on the granite outcroppings in the area. In the extreme north east, where rainfall is relatively high, tall open forests have developed. Remnants of these communities are protected in the Langhi Ghiran and Buangor State Parks and on other public land around Mt Cole and Ararat.

Of the major flora and fauna communities, only lowland forests and heathlands are still reasonably well represented in the Glenelg Hopkins region. Although subject to a range of pressures associated with recreation, utilisation and fire protection activities and land degradation processes, forests and heathlands are reasonably well protected by comparison with the other Broad Vegetation Types (BVTs), which have been severely affected since European settlement primarily as a result of agricultural expansion.

Most of the woodlands have been cleared or altered for agriculture, although many farms still carry large numbers of trees, mainly red gums, in their paddocks. Relatively few of these remaining trees have been allowed to regenerate. Many areas of woodland remain on public land, often occurring as small remnants. Restricted areas of native grassland occurred north of Hamilton and Willaura - these are now greatly altered by agriculture.

The remnants of woodland vegetation are generally confined to small patches on the edge of public land, as this community originally grew on areas well suited to agriculture. Woodland vegetation once covered large areas of the northern half of the region. This community is dominated by the River Red Gum (*E. camaldulensis*), Yellow Gum (*E. leucoxylon*), Yellow Box (*E. melliodora*) and Grey Box (*E. microcarpa*), often with a grassy understorey.

In the south (Warnambool and Glenelg Plains bioregion) these communities tended to be open woodlands of Swamp Gum (*Eucalyptus ovata*), Manna Gum (*Eucalyptus viminalis*), Silver Banksia (*Banksia marginata*) and Blackwood (*Acacia melanoxylon*). Close to the coast the vegetation tended to include woodlands of Moonah (*Melaleuca lanceolata*), Drooping Sheoak (*Allocasuarina verticillata*), Soap Mallee (*E. diversifolia*) and Brown Stringybark (*Eucalyptus baxterii*).

Pre-settlement native grasslands were the main vegetation community in the Hopkins Basin. These grasslands extended across the centre and north east of the basin with an area of open woodland in the west, and forest and woodland in the south. Clearing for agriculture has stripped the basin of its cover of forest and open woodland. Only a few woodland remnants remain in the far north of the basin. Introduced grasses are now the predominant vegetation community covering 95 per cent of the basin.



Most of the Portland Coast Basin is either flat or gently undulating, with the majority of landforms associated with the development of the western volcanic plains. 82 per cent of the Portland Coast Basin is now predominantly covered by cleared pastures. Native forests and woodlands have been reduced to 18 per cent of the basin area.

Extensive clearing in the Glenelg Basin has removed forests from the northern, central and southern areas. Although native grasslands covered some of the centre of the basin, pasture now covers 68% of the basin's total area. Remnant forest and woodland now only extend over 28% of the basin, in the steeper areas of the Grampians, in the coastal region, and in the west and south.

The Glenelg Hopkins region has ten main parks (Grampians NP, Lower Glenelg NP, Mt Eccles NP, Mt Richmond NP, Discovery Bay CP, Dergholm SP, Crawford River RP, Buangor SP, Langi Ghiran SP, Mt Napier State Park), 15 flora and fauna reserves, 15 streamside reserves, 14 lake reserves, 37 wildlife reserves, 56 bushland reserves, five scenic reserves, five reference areas, two coastal reserves, one education area and 14 other reserves.

The Glenelg Hopkins region contains eight endangered, 30 rare, 17 vulnerable and two depleted flora species. A number of the region's flora species (including the Leafy Greenhood, Austral Toad-Flax and the Limestone Caladenia) are subject to Flora Fauna Guarantee Action Statements.

The most economically important indigenous hardwood species in the region are messmate, brown stringy-bark and durable species such as box. Plantation blue gum has also become important to the economy of the region. Yellow Box stands should be maintained for apiculture with care taken to prevent increases in feral bees.

Extensive softwood plantations exist in the region, providing raw material for particle-board plants, sawlog and veneer mills in both Victoria and South Australia. The softwood plantations are primarily *Pinus radiata*. Initially plantations were developed on areas of low productivity native forest, but they are now being established on land previously cleared for agriculture.

3.2 Riparian vegetation

The Hopkins Basin has the highest proportion of stream lengths in the poor and very poor rating categories in Victoria (Index of Stream Condition, ISC, 1999). Eighty-three per cent of the length of rivers and creeks in this basin are in a poor or very poor environmental condition. Poor vegetation cover on the banks, erosion and sedimentation are the main problems. Stream vegetation in the Portland Coast Basin is generally poor, although the streams appeared fairly stable without severe erosion or sedimentation problems. In the Glenelg Basin 65 per cent of total stream length was found to be in a poor to very poor category, while 25 per cent was considered good to excellent (ISC, 1999).

3.3 Fauna

The decline of the region's vegetation communities has had a serious impact on fauna species in the area. The Glenelg Hopkins region contains 18 endangered, 19 vulnerable, 39 rare, and 12 restricted fauna species. A further 15 species are suspected rare/vulnerable or endangered but there is insufficient knowledge about the species to provide an adequate rating.

Six species are presumed extinct. Some of the fauna subject to action statements include the Hooded Plover, Red-tailed Black Cockatoo, Tiger Quoll and Brolga. The Glenelg Hopkins region suffers one of the lowest flora and fauna survey efforts in the State. Fauna survey information is also limited.

3.4 Wetlands

At present, the Glenelg Hopkins region contains 44% of Victoria's wetlands. Of these, 90% are on private land. Since European settlement there has been a 21% decrease in the number of wetlands and a 49% loss of wetland area (includes partial drainage) in the Glenelg Hopkins region. A large proportion of the decline has been attributed to drainage since settlement, with the majority of decline occurring on private land.

Glenelg Hopkins region wetlands are frequented by migratory birds listed in the Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA). These agreements include obligations to protect the habitat of listed species. The Glenelg Hopkins region contains 16 high value wetlands including the Ramsar listed Lake Bookar. A wide range of human activities have direct and indirect impacts on lakes and wetlands. The major threats to wetlands are drainage, salinity, agriculture, dredging and landfilling, pollution, water supply and recreation.

3.5 Estuarine and marine

The three major basins in the Glenelg Hopkins region all discharge to the Southern Ocean. Estuarine areas therefore occur along the southern border of the region. The Hopkins and Glenelg rivers both have long estuarine sections in their lower reaches. Modification of stream flow in the Glenelg River, by Rocklands Reservoir has affected the system. Opening the mouth of the Surry, Hopkins, Fitzroy and Glenelg Rivers has also affected the estuarine areas of these rivers.

3.6 Ecosystem Services

This Plan recognises the value of ecosystem services provided by native vegetation and considers these services as an important regional asset. Microorganisms, soils and vegetation cover interact to purify air and water, regulate the climate and recycle nutrients and waste.

The vegetation community under greatest threat is the grassland complex, with only 0.04% remaining in the region. Almost half of the remaining Western Basalt Plains grassland community is on private land, with smaller isolated stands located on roadsides, unreserved Crown land, disused rail reserves, rail reserves, biological reserves and cemeteries.

Kangaroo Grass (*Themeda triandra*)

4 THREATENING PROCESSES

A brief overview is provided here of the threats facing the natural resource assets of the Glenelg Hopkins region.

4.1 Land Use Change

Large scale land clearing has raised water tables, leached salt into groundwater, rivers, wetlands and upper layers of the soil. It continues to contribute to widespread loss of native species, loss of ecosystem function, and land and water damage (CSIRO 2003).

'Clearing' is the deliberate removal of grassland, woodland, and scrub or forest habitat. If habitat is completely destroyed in a region then all the animals that are adapted to that habitat type face local extinction. When the habitat is not totally destroyed, the movement of displaced species into the remnants only results in competition between the resident species and the immigrants, resulting in the death of one or the other. Clearance of native vegetation reduces the continuous nature of ecosystems as well as the diversity of habitats and ecological processes occurring within them.

The clearance of native vegetation has significantly impacted on Australian agriculture in both physical and economic terms. Land degradation is responsible for Lost agricultural production owing to land degradation is estimated at \$1.15 billion annually (Walpole 1996).

The most drastic decline in flora and fauna species has been on the grassland plains that were devoted to the grazing of sheep and cattle. In most sheep country, the small mammal fauna has all but disappeared.

4.2 Fragmentation

Habitat fragmentation is the process whereby areas of homogeneous habitat are broken into a mosaic of smaller, dissimilar patches. Throughout Australia clearing and fragmentation has had a profound effect on the status of a number of wildlife species (Bennett 1990).

Fragmentation of natural habitats is now one of the major issues facing flora and fauna management. Two things happen during habitat fragmentation, firstly the total amount of habitat available for a species decreases, and secondly the fragments of suitable habitat become separated. This process leads to changes in the number and composition of species present, and results in changes in ecological processes. For smaller, less mobile species, fragmentation leads to greater isolation, increased predation and the increased likelihood of extinction.

4.3 Decline of single red gums and hollow-bearing trees and fallen wood

Red gum woodlands are particularly obvious in parts of the regional landscape. Their location in association with native grasses on the Basalt Plains and Tableland areas of the region makes them extremely vulnerable. Extensive grazing has led to minimal regeneration and the loss of native grasses. Along with harvesting for timber, the rise of saline watertables and the on-going death of old trees have led to a continuing loss of faunal habitat and landscape values. A defined monitoring program is needed to assess the regional impact of the loss of these species.

Loss of hollows is a threatening process that impacts on the survival of the Red Tailed Black Cockatoo in the Glenelg and West Wimmera Shires. Scattered red gums, and other hollow bearing trees, are also being lost through clearing where, under existing planning provisions, an exemption may apply in some situations where plantation forestry is to occur.

About one-fifth of Australia's native birds require tree-hollows for nesting. Retaining old, senescent trees and stags - even fallen logs - is essential for attracting these species. Nesting boxes are a poor substitute.

4.4 Wildfire

Uncontrolled wildfire is a threat, however, fire is an integral part of the natural Australian environment and, along with the climate, has played a significant part in the evolution of the Australian flora and fauna. While many species are fire adapted, some are considered to be fire-dependant. Some plant species have characteristics like volatile oils and resins, which appear to promote the development and spread of high intensity fires (Gill et al. 1981).

The deliberate use of fire in natural areas is not always detrimental and fire can be applied to achieve certain environmental objectives. Prescribed burning for ecological management can be used where the intention is to provide a diversity of age classes in the vegetation, to favour a certain species or community, and to create conditions conducive to the return of locally extinct species. The Plan recognises the role of fire in both biodiversity and community safety management. However, the broader ramification of quantity and quality of vegetation as fuel needs to be considered.

4.5 Salinity

The Glenelg Hopkins region is identified by the Australian Dryland Salinity Assessment (2000) as a high hazard risk area for dryland salinity. Salinity currently costs the region more than \$44 million annually and already affects more than 27,000 ha. These impacts are expected to increase substantially over the next 30 years. A Salinity Management Plan is in place to deal with this threat.

4.6 Soil acidity

Most of the Glenelg Hopkins region has a high inherent susceptibility to soil acidification, with an estimated 74 per cent of agricultural soils in the region strongly acidic (pH < 5.6). There is a risk of further soil acidification in parts of the region under agriculture, particularly in areas receiving more than 500mm annual rainfall. Under the influence of current agricultural practices around 10 to 15 per cent of the region could become extremely acidic in the future.

4.7 Soil structure decline

Surface crusts and compaction are the direct result of soil structure decline. While compaction does occur naturally, common agricultural practices have increased its incidence and severity. Sixty six percent of the region is considered highly susceptible to soil structure decline.

4.8 Erosion

Sheet and rill erosion are insignificant to low over 94 per cent of agricultural soils in the Glenelg Hopkins region. *Gully and tunnel erosion* are most significant in the Glenelg Basin where 52 per cent of agricultural land is affected to a moderate or severe extent. 125,000 ha of moderate gully erosion and 29,000 ha of severe gully erosion can be found around the north-western rim of the Hopkins Basin. *Coastal erosion* of the beaches and foreshores is evident on Dutton Way and the Henty Bay Estate near Portland. At the Bridgewater Bay surf beach and nearby Shelly Beach, foreshore erosion has been controlled by using fencing to keep people from trampling the area, excluding stock from the dunes and controlling rabbit numbers. The vegetated zone had expanded by 25 per cent from 1947 to 1986. *Stream-bed erosion* is common in the upper reaches of many streams and on the lower slopes and flats as streams cut and widen their course.

4.9 Roadside management

Threats to roadside native vegetation include wildfire, unauthorised clearance and weed invasion. Weeds can spread quickly and invasion is often enhanced by soil disturbance, causing problems for Councils and adjoining landowners. Several of the municipal authorities within the Glenelg Hopkins region have prepared roadside management plans.

4.10 Flooding and drainage

Flooding is one of the main problems in the Glenelg River system below Rocklands Dam. Serious floods appear to originate in the Dundas Tablelands because of the somewhat higher rainfall there and because Rocklands catches floods originating in the Grampians. Nuisance flooding occurs along the coastal streams in winter. To manage the changed flow conditions, improvement works such as river straightening and desnagging have at times been undertaken, particularly in the Glenelg and lower parts of the Wannon Rivers. Mitigation works have been carried out on some sections of the Glenelg, Wannon and Eumeralla Rivers. Effective maintenance of drainage systems is an urgent priority. Concerns about the environmental impact of drainage are also prominent.

4.11 Pest plants

Environmental weeds pose a significant threat to roadside native vegetation, and to vegetation in parks and reserves. Freesias have invaded the western side of the Kiata Sanctuary and the Harlequin flower (*Sparaxis* sp.) has besieged the Gringegalonga and Gatum Reserves. Paterson's Curse is also a significant threat to the region's native grasslands. Willow species are seen as a threat to riparian and wetland systems in the lower Hopkins and Merri rivers. Forty-four proclaimed noxious 'agricultural' weeds occur in the region. Generally their distribution is limited to semi-improved agricultural land, undeveloped land or land that has been disturbed. The region's five priority weeds are Serrated Tussock, Ragwort, Gorse, Cape Tulip and Paterson's curse. Three regionally prohibited weeds (African Daisy, African Feathergrass & Spiny Burr Grass) and 25 regionally controlled weeds also occur.

Weeds are a high priority in the Regional Catchment Strategy. This Plan recognises the need for better weed management, however, assessment of priority weeds in the region is based on the impacts to agriculture, not native vegetation.

Weed invasion can occur from exotic species (pasture grasses, blackberries, *Watsonia*, gorse etc.), plantation species (blue gum and pine wildings), as well as from native environmental weeds such as *Grevillea rosmarinifolia*. An approved regional weed action plan is in place and will be reviewed during 2005.

4.12 Pest animals

Pest animal threats to public and private land include rabbits, foxes, feral goats, cats, pigs, hares, mice, sparrows, starlings, feral bees and brown rats. In some areas large numbers of native animals (e.g. kangaroos, corellas & koalas) put pressure on vegetation. Both foxes and feral cats pose a major threat to native animal populations.

4.13 Climate change

Climate change poses a real threat to the distribution of many faunal species already with limited range. By way of example, a change of just 1- 2 degrees Celsius will restrict the range of the Smoky mouse on Mount William.

4.14 The 'Do-nothing' Scenario

Doing nothing about the decline in native vegetation is not a responsible option in the Glenelg Hopkins region. The remaining native grassland communities will be lost forever and the continued decline of the region's vegetation will have a serious impact on fauna species. 18 endangered, 19 vulnerable, 39 rare, and 12 restricted fauna species will be at risk of joining the six species already presumed to be extinct.

The regeneration of habitat is an ecosystem service maintaining the natural asset that supports biodiversity, which is important to humans in a range of ways. Implementing this Plan will provide habitat that will help to ensure the survival of endangered regional faunal species, including the Bush Stone Curlew, Red-Tailed Black Cockatoo and the Barking Owl.

The decline of ecological systems in the region has resulted in the reduction in extent and condition of many ecological communities, increased habitat fragmentation and exposure to a range of threatening processes. We are still in decline as the impact of past actions is yet to be fully realised. Species extinctions (eg woodland birds) are expected to still occur even if major landscape restoration is achieved over the next 20 years.

Primary impacts arising from the loss of extent and functionality of ecosystems in the region would include:

- Complete loss of vegetation species/communities
- Loss of vegetation dependent species (eg fauna)
- Increased groundwater accessions
- Loss of ecosystem viability, regenerability and resilience
- Increased erosion
- Soil decline (structure, acidification, loss of biotic function)
- Reduced water quality
- Weed invasion
- Increased habitat fragmentation
- Loss of structural habitat values
- Loss of landscape amenity

We are yet to independently quantify the real value of the contribution of native vegetation, habitat and biota to ecosystem goods and services across this region, although it is deemed to be substantial.

5 THE STRATEGY

To fix the problems outlined in chapter 4 we must embrace ecologically sustainable development (ESD). Ecologically sustainable development means using, conserving and enhancing the communities resources so that the ecological processes, on which life depends, are maintained and the total quality of life, now and in the future, can be increased (Environment Australia, 1996). In short, we must learn to take a long-term rather than a short-term view.

More practically, ecologically sustainable development will mean a change to our patterns of resource use. Our native vegetation is one of our most valuable resources. Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations. Where there are threats of serious environmental damage, such as those caused by the removal of native vegetation, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

5.1 Principles for Native Vegetation Management

A set of principles, developed on the basis of the relationship between biodiversity and native vegetation, guides the prioritisation process (Amos & Berwick 1998). When setting priorities for managing native vegetation the following principles apply:

1. All native vegetation and habitat have value, regardless of size in area.
2. The conservation of ecosystems in a landscape depends on maintaining ecological processes.
3. Retaining and managing remnant native vegetation is the best way to conserve natural terrestrial biodiversity.
4. Voluntary programs and regulation are both to be considered when protecting the viable habitats, and populations of endangered species.
5. Biodiversity values are not restricted to threatened and depleted vegetation communities. A proportion of each non-threatened vegetation community must also be managed principally for conservation.
6. Native vegetation management strategies must be integrated with land protection and resource use.
7. Large natural areas of remnant vegetation are vital for nature conservation. Large remnants are more valuable than the same area contained in smaller patches.
8. A landscape approach to planning native vegetation management is required. Targets for native vegetation management should be specific to each bioregion.
9. Multiple patches of the same vegetation community should be retained or enhanced across their geographic range.
10. Remnants can act as migration stepping stones, refuges in times of environmental extremes, provide a link with other habitat; or represent the edge of the geographic range for a species or community.
11. The Precautionary Principle is to be applied. The lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation where the threat of serious or irreversible environmental damage exists.

5.2 The value of native vegetation

Native vegetation is important for a variety of ecological, economic and social reasons. The ecological benefits of native vegetation result from its contribution to various vital, yet usually undervalued ecosystem services. These include:

- Protecting water resources
- Protecting soil
- Producing oxygen
- Cycling of nutrients
- Maintaining biodiversity
- Providing carbon sinks which absorb greenhouse gases
- Contributing to the maintenance of regional rainfall patterns

Native vegetation also has a range of direct economic benefits that include:

- Windbreaks for crops
- Soil erosion control
- Shelter and shade to stock
- Timber and other products such as honey and flowers
- Maintaining microclimates which assist water quality and retention
- Providing habitat for natural predators of crop pests, such as birds
- Providing deep rooted vegetation which assists in maintaining lower water tables
- Conserving genetic resources for future development of pharmaceutical products or hybridisation
- Cultural and social benefits eg. providing a sense of identity and place and providing for recreation

A range of studies has been conducted that quantify the benefits of shelterbelts. Protecting stock from chilling winds may improve livestock health, increase their productivity, reduce feed bills and reduce stock losses. Cold stress can reduce live weight gain in cattle by 31 per cent over several weeks. Sheep in sheltered areas can show a 31 per cent increase in wool production, a 21 per cent increase in live weight, and a 50 per cent reduction in lambing losses compared to those in unsheltered areas (Land for Wildlife News, February 2003).

5.3 Benefits of the Native Vegetation Plan

The Native Vegetation Plan:

- Provides a reference document on the status of the Ecological Vegetation Classes (EVCs) occurring within the Glenelg Hopkins Region.
- Provides a framework for allocating funds by the Catchment Management Authority, government agencies and community groups.
- Is a reference for integrated decision-making by all relevant agencies.
- Is a framework for monitoring vegetation communities.
- Identifies those vegetation communities in need of urgent protection.
- Identifies the threatening processes affecting native vegetation.
- Identifies management or revegetation projects that address these issues.
- Sets some clear goals and processes for improving vegetation quality and quantity in the region.

Implementing this native vegetation plan will:

- Move the regional community closer towards the goal of ecologically sustainable development.
- Help protect biological diversity and maintain essential ecological processes.
- Reverse the decline in the extent and composition of native vegetation communities.
- Enhance the viability of existing vegetation by protection, regeneration and revegetation.

5.4 Preserving remnant vegetation

Remnant native vegetation consists of areas of native plant communities that are left in the landscape. These patches can be of any size or shape. Areas of remnant vegetation represent the native plant communities that existed before clearing took place. We must first protect and enhance the remaining remnant vegetation, particularly those communities that are endangered, or contain rare or threatened species. Whilst this plan clearly identifies the threatened EVC communities that will receive priority in actions at the sub-catchment level, on-going complementary programs will work to protect and enhance other vegetation types to prevent their depletion and reduce the risk of creating further problems.

Victoria's *Native Vegetation Framework (2002)* applies to all applications to remove, destroy or lop native vegetation under any planning scheme. It also applies to other types of applications for development or use that will result in impacts on native vegetation, including subdivisions. Tables 5 and 6 outline the GHCMA's responses and offset procedures for native vegetation according to conservation significance along with the offset criteria for harvesting timber from naturally-established native forest on private land.

5.5 Establishment of corridors and the consolidation of conservation reserves

The clearing of native vegetation interferes with ecosystem functioning and creates remnant islands, which become susceptible to threatening processes such as regional species extinction, weed invasion and pest animals. To ensure the viability of many of our native flora and fauna, corridors are necessary to link blocks of remnant vegetation. Restoration of those links involves replacing some of the vital components that have been lost in order to re-instate ecosystem processes. Revegetation plays an important part of the restoration process.

5.6 Habitat Network Strategy

Fragmentation continues to have a dramatic effect on biodiversity, particularly the avifauna. We are now seeing the lag effects of clearing some 20 years before.

The fragmentation message has reached a number of organisations, including the CMA. However the response has been more reactive than proactive. There is now a recognition of the need for establishing significant areas of corridors and biolinks throughout the region. Taking action in sub-catchments where there is still good connectivity is a priority. However the corridors should be constructed where there once was connectivity and not in areas where grasslands only were the dominant vegetation.

The development and subsequent implementation of the Habitat Network Strategy will guide future investment in habitat protection and enhancement in a cost-effective manner.

It will also determine priority areas and activities for habitat network management in the region.

5.7 Protection of roadside vegetation

Important examples of native vegetation can be found along roadsides, railway lines, and even in cemeteries. Roadside vegetation contributes heavily to remaining remnant vegetation. It is known that 25 per cent of all plant species listed under the Victorian Flora & Fauna Guarantee Act (1988), and 45 per cent of the remaining Western Basalt Grassland communities occur on roadside reserves (NRE, 1992). Several of the municipal authorities within the Glenelg Hopkins region have prepared roadside management plans.

5.8 Biodiversity Action Planning

At present the GHCMA in conjunction with the Department of Sustainability and Environment (DSE) is developing Biodiversity Action Plans (BAP's) for the various bioregions contained within the CMA region. BAP's are a structured approach to identifying priorities and mapping significant areas of native biodiversity conservation at the landscape and bioregional scales. BAP's attempt to take a strategic approach to conservation of a threatened and declining species and vegetation types by looking for opportunities to conserve groups of species in appropriate ecosystems. Not all areas of the landscape have the same "return on investment" for native biodiversity. BAP's help identify where the most significant assets are located within the bioregion. Having identified the location of these assets, it is then possible to ensure that conservation actions focus on the protection, enhancement and restoration of ecosystems at these sites.

Biodiversity Action Planning aims to:

- Conserve native biodiversity by maintaining viable examples of the range of ecosystems that occur naturally across the region.
- Encourage a more strategic approach and shift in public expenditure toward the protection, restoration and ongoing management of priority biodiversity sites.
- Achieve community support for landscape planning for biodiversity and the conservation of strategic assets in rural landscapes.

They provide a detailed summary of biodiversity assets, threats and priority setting process for actions to inform local Biodiversity Action Plans.

The use of Geographical Information Systems (GIS) enables local communities to better visualise biodiversity assets at a range of scales, from the property to sub-catchment level. This has led to more informed planning and targeting of actions at the local level to support catchment wide objectives.

Combined with field work involving bird surveys and vegetation quality assessments local communities are building a clearer picture of their priorities and opportunities for improving native vegetation and nature conservation outcomes.

The Biodiversity Action Planning process has commenced within all bioregions within the GHCMA area dominated by private land. BAP Landscape Zone Plans have been completed for a number of bioregions including Dundas Tablelands and Victorian Volcanic Plains and are now ready to commence the more detailed and site specific process of preparing BAP Local Area Plans.

5.9 Sub-Catchment Implementation Plans

To achieve the aim of this Plan we will develop and implement 'sub-catchment implementation plans' for each sub-catchment in the region. The sub-catchment implementation plans will:

- acknowledge the most important EVC communities in each sub-catchment (identified in this plan)
- outline a process for validating the quality and quantity of the priority vegetation communities.
- determine a priority order for their protection and enhancement
- determine the most appropriate actions for target areas (incentives, biolink, corridor etc)
- detail coordination responsibilities, actions and timelines.
- detail a monitoring, evaluation and reporting framework for the sub-catchment.
- detail the cost-sharing and the budget required to implement the action plan over the timeframe
- identify where the protection and enhancement program will achieve multiple benefits - i.e. where the vegetation plan complements other components of the Regional Catchment Strategy.

Regional plans and strategies already exist for salinity, river health, nutrient and drainage issues. Plans are also being developed for floodplain management, rabbit control, weeds, pest animals, and native vegetation. In an ideal world there would be 32 sub-catchment implementation plans, one for each sub-catchment. Where possible we will work to complement a range of existing projects being implemented at the local area network level.

5.10 Conservation of our wetlands

Over one third of Victoria's wetlands have disappeared since European settlement, and some 80 per cent of the number of wetlands remaining are in private ownership (Oates, 1994). While many of these are small, they are locally important. Watercourses and wetlands are the veins of the landscape.

Within the region there are sixteen listed nationally important wetlands. Many of these meet multiple criteria listed by the Wetlands Scientific Advisory Committee in relation to wetland type, habitat, plant taxa, fauna or cultural significance.

Protection of these vital components is paramount if we are to maintain ecological processes. This involves maintaining or replacing fringing vegetation and ensuring that wetlands are not drained or compromised by activities in surrounding areas. A regional wetland management plan has been developed.

Significant opportunities exist to rehabilitate wetlands on farms through fencing and vegetation programs and by water regulation. The Glenelg Hopkins CMA is well placed to facilitate involvement of interested stakeholders, typically landholders, Parks Victoria, local communities, scientific bodies and interest groups with the aim of developing management plans for all the important wetlands in the region.

Careful planning needs to occur in relation to revegetation programs to ensure that factors such as flight paths for broilgas are considered. This planning is best achieved by developing individual management or action plans.

5.11 Increasing the diversity

The term biodiversity describes the variety of all living things: the different plants, animals and microorganisms, the genetic information they contain and the ecosystems they form (Commonwealth of Australia, 1996b). Australia's biodiversity is a significant national asset that is recognised internationally for its global significance. It is the responsibility of all Australians to maintain our biodiversity.

Governments acknowledge that biodiversity is not just about protecting nature from human impacts, but that it is the foundation of ecologically sustainable development. The Glenelg Hopkins region must contribute to biodiversity conservation. We must increase the diversity of vegetation structure and flora and fauna composition in the landscape.

This is largely common sense. Nature is rarely homogeneous or simple, and diversity leads to a stable and productive landscape.

5.12 Community participation

Participation in voluntary conservation continues to increase. Victoria's Land for Wildlife program now involves 5,881 properties covering 542,590 ha. and containing 158,712 ha of retained or restored habitat. (DPI, December 2003) and Trust for Nature has secured a total of 507 registered covenants covering 21,744 hectares of Victoria's remnant vegetation (TFN, December 2003). There are currently more than 100 Landcare Groups across the region whose members continue to establish and protect native vegetation.

5.13 Other strategies

There are a number of other strategies either nearing completion or yet to commence that will inform the Final draft Native Vegetation Plan. In some cases finalising these strategies requires access to scientific information that is not yet available. The requirement for accurate scientific information to underpin our strategies and decision making is critical. Strategies pending include:

- Regional Wetland Management Plan
- Bucknell Creek Catchment Plan
- Sub-Catchment Implementation Plans
- Regional Native Vegetation Monitoring System
- Monitoring and Evaluation of the Salinity Plan
- Regional Soil Health Management Plan



6 SETTING PRIORITIES

Native vegetation within the Glenelg Hopkins CMA region has been classified into Ecological Vegetation Classes (EVCs) which consist of a number of floristic communities that are associated with a recognisable set of environmental attributes. The two best key selection criteria to prioritise native vegetation within a region are: (1) Conservation Significance and (2) Conservation Status.

The Conservation Significance of each remnant is usually ranked into Very High, High, Medium and Low according to its distribution and quality.

Whilst we have excellent data on the extent of most EVC communities at the bioregional and sub-catchment level, as well as their conservation status (endangered, vulnerable, depleted or rare), we do not have an accurate picture of conservation significance - primarily vegetation quality.

If conservation significance of the vegetation communities was well known then the framework for action would be complete. Determining conservation significance will be a first vital step in implementing this plan.

6.1 Setting priorities at the sub-catchment scale

The guiding principles for native vegetation management in Victoria are set out in the State Framework (2002).

Principle 1: *Retain and manage remnant native vegetation as the primary way to conserve the natural biodiversity across the landscape.*

In the Glenelg Hopkins region we recognise that all native vegetation has value and that important habitats and populations of threatened species should be protected through voluntary or regulatory means.

We also recognise that biodiversity values are not restricted to threatened or depleted vegetation communities and that an adequate proportion of each non-threatened vegetation community must also be managed principally for conservation. Large areas of remnants are particularly important for nature conservation.

The priority setting process used in formulating this plan arrived at sub-catchment G6 as the highest priority for protection and enhancement works. G6 has the greatest percentage of intact native vegetation of all the sub-catchments. It also comprises 67 EVC communities making it the second-highest in floral diversity in the region. Work in this sub-catchment will have important multiple benefits.

Principle 2: *The conservation of native vegetation and habitat in a landscape is dependent on the maintenance of catchment processes.*

Native vegetation is fundamental to catchment processes providing a wide range of environmental and ecological services. The Glenelg Hopkins Native Vegetation Plan is designed to maintain ecological processes that provide biodiversity, productivity, salinity, water quality and other land management benefits.

Principle 3: *The cost of vegetation management should be equitably shared according to benefits accrued by the landholder, community and region.*

This principle underlies existing approaches to native vegetation management in the region. Current incentive schemes do not cover the full cost of revegetation or protection. The Plan estimates that a total of \$1500 per hectare needs to be contributed by the each of the partners in native vegetation management including the landholder, the community, and Government through the Catchment Management Authority.

Principle 4: *A landscape approach to planning native vegetation management is required. Goals for native vegetation management will be based on sub-units within the Catchment Management Authority region.*

All planning and action in the Glenelg Hopkins region now occurs at the sub-catchment level. This is an agreed unit of management determined to be appropriate by the GHCMA. It ensures that we take action within a 'landscape' framework and recognise the importance of other ecological processes.

The actions in this plan are complemented by other programs and projects:

- The revegetation component of implementing the regional salinity management plan
- The revegetation component of implementing the River Health Strategy
- The revegetation component of implementing the wetland management strategy
- Biodiversity action planning
- Corridor planning and implementation
- Implementation of pest plant and animal control programs
- Implementation of management agreements by those responsible for the management of public land
- Work done by environmental programs such as Greening Australia, Trust for Nature, Land for Wildlife.
- Landcare and other community group revegetation projects

Each sub-catchment was attributed a value for the criteria listed above. A ranking was determined for each criterion and a score from 32 (highest value) down to 1 (lowest value) was allocated. The exceptions were the threat of soil acidification (where very high and high were used) and 'a priority in the Regional Salinity Management Plan' (where 'yes' and 'no' were used).

6.2 Risk analysis

The risk of key threatening process has been taken into account in determining priorities in each sub-catchment.

Each threat has been considered in the light of the current risk it poses to vegetation and the probability of it occurring in the future. A three-tiered approach (low-level threat, medium-level threat and high-level threat) has been used.

Threats such as weed invasion are partly controllable. Others, such as changed land use and agricultural practices are largely within our control. The threat of salinity will be reduced with the implementation of both the Salinity Management Plan and the Native Vegetation Plan, but over a much longer time frame.

6.3 Provisional assessment - Conservation Status of EVCs

Now that native vegetation has been mapped at a scale of 1:100,000 in the Glenelg Hopkins region (1:25,000 for the Grampians), vegetation managers have access to better information about which EVCs need to be protected for their biodiversity values. Local Government and referral authorities also have access to an improved decision making framework for assessing permit applications to clear. Within this more detailed framework priority will lie with vegetation communities of high conservation significance. However, it is important that all decision-makers have a clear understanding of how conservation status is determined.

Assessment of the conservation status of vegetation types is traditionally based on the broad concepts of inherent rarity, degree of threat (including consideration of historic and on-going impacts) and importance for supporting other significant features (for example, as a drought refuge for native fauna). These concepts have been expressed as more specific criteria in a number of processes at State and National levels.

The Regional Forest Agreement process undertaken in partnership by Commonwealth and State agencies used National Forest Reserve Criteria which included a number of biodiversity criteria for establishing a Comprehensive Adequate and Representative reserve system (outlined in JANIS 1997).

Some of these criteria can be used as the basis for assessing conservation status of vegetation types in the Native Vegetation Plan. However, there are inherent differences between the processes - RFAs focus primarily on establishing a reserve system for forests in largely natural landscapes across public land, while the Native Vegetation Plan focuses primarily on prioritising protection of all types of remnant vegetation in rural landscapes across private land. These differences necessitate a refinement of the criteria.

The key refinements are as follows:

- depletion and rarity of occurrence assessments are made within a Victorian bioregional framework which is more informative than the RFA study area framework
- combinations of depletion-degradation-rarity which give equivalent conservation status to depletion-only thresholds are more explicitly defined
- a "depleted" category is added to allow identification of vegetation types which may become threatened if broad-scale depletion or degradation activities are not managed appropriately.

The criteria are detailed in Table 3 on page 23 and have been used to assign a provisional conservation status for each combination of EVC and bioregion. The status of each combination may be amended with time as more complete or better scale mapping of vegetation type and condition becomes available. Where an EVC is only a minor occurrence (M) in a bioregion it is assigned the conservation status from an appropriate neighbouring bioregion, unless the occurrence is considered to represent a threatened floristic community.

Complexes/mosaics are assigned the conservation status of the most threatened component EVC. Similarly, where threatened EVCs / floristic communities are known to exist but mapping is not available at this level of discrimination, decision-making processes based on more generalised datasets (for example, Broad Vegetation Types at 1:250 000) should be driven by the conservation status of the most threatened component likely to be present.

Definitions used in the criteria are:

subject to a threatening process - includes currently acting threats that will lead to degradation (moderate or severe) OR risk of significant rapid change (e.g. rising groundwater; change of land use)

majority - greater than 50% of area

minority - greater than 10% and up to 50% of area

severely degraded - floristic and/or structural diversity is greatly reduced (and/or subject to a threatening process which will lead to an equivalent reduction) and unlikely to recover naturally in medium to long term

moderately degraded - floristic and/or structural diversity is significantly reduced (and/or subject to a threatening process which will lead to an equivalent reduction) but may recover naturally with removal of threatening processes

little to no degradation - floristic and/or structural diversity is largely intact

range - area of smallest concave polygon which includes all occurrences.

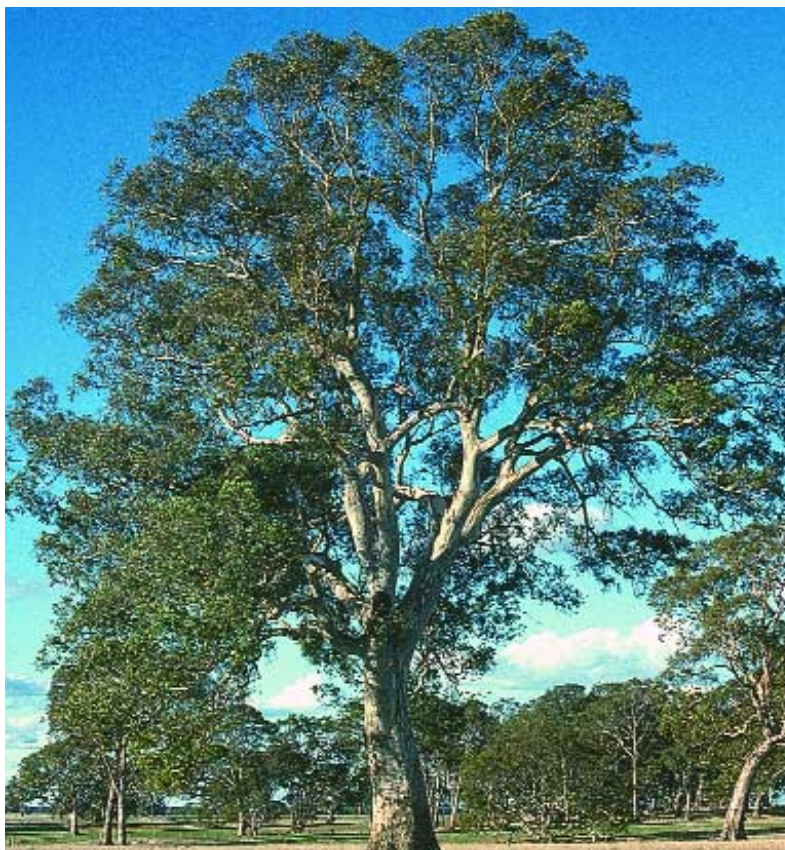


TABLE 3: CONSERVATION STATUS CATEGORIES FOR EVCs AT BIOREGIONAL LEVEL
(derived from the most threatened component EVC)

STATUS	CRITERIA
Presumed Extinct X	<ul style="list-style-type: none"> · probably no longer present in the bioregion (the accuracy of this presumption is limited by the use of remotely-sensed 1:100 000 scale woody vegetation cover mapping to determine depletion - grassland, open woodland and wetland types are particularly affected)
Endangered E1 E2	<ul style="list-style-type: none"> · contracted to less than 10% of former range; or · less than 10% pre-European extent remains; Combination of depletion, degradation, current threats and rarity is comparable overall to E1: <ul style="list-style-type: none"> · 10 to 30% pre-European extent remains and severely degraded over a majority of this area; or · naturally restricted EVC reduced to 30% or less of former range and moderately degraded over a majority of this area; or · rare EVC cleared and/or moderately degraded over a majority of former area.
Vulnerable V1 V2	<ul style="list-style-type: none"> · 10 to 30% pre-European extent remains; Combination of depletion, degradation, current threats and rarity is comparable overall to V1: <ul style="list-style-type: none"> · greater than 30% and up to 50% pre-European extent remains and moderately degraded over a majority of this area; or · greater than 50% pre-European extent remains and severely degraded over a majority of this area; or · naturally restricted EVC where greater than 30% pre-European extent remains and moderately degraded over a majority of this area; or · rare EVC cleared and/or moderately degraded over a minority of former area.
Depleted D1 D2	<ul style="list-style-type: none"> · greater than 30% and up to 50% pre-European extent remains Combination of depletion, degradation and current threats is comparable overall to D1: <ul style="list-style-type: none"> · greater than 50% pre-European extent remains and moderately degraded over a majority of this area
Least Concern LC (Common in map legend)	<ul style="list-style-type: none"> · greater than 50% pre-European extent remains and subject to little to no degradation over a majority of this area
Rare R1 R2 R3	<ul style="list-style-type: none"> - total range generally less than 10 000ha; or - pre-European extent in Victorian bioregion less than 1000 ha; or - patch size generally less than 100 ha
Naturally Restricted NR	<ul style="list-style-type: none"> - pre-European extent in Victorian bioregion less than 10 000 ha.
Common C	<ul style="list-style-type: none"> - pre-European extent in Victorian bioregion greater than 10 000 ha.
Minor M	<ul style="list-style-type: none"> - pre-European extent in Victorian bioregion less than approximately 1% of Statewide extent

TABLE 4: CONSERVATION SIGNIFICANCE OF NATIVE VEGETATION
(based on EVC Conservation Status and other Biodiversity attributes)

BIODIVERSITY ATTRIBUTES				
CONSERVATION SIGNIFICANCE	VEGETATION TYPES		OR SPECIES	OR OTHER ATTRIBUTES
	Conservation Status ¹	Habitat Score ²		
Very High	Endangered	0.4 - 1	best 50% of habitat for each threatened species in a Victorian bioregion	<p>Sites with unique National Estate values</p> <p>Sites identified as being of national significance as a relict, endemic, edge of range or other non-species values</p> <p>Ramsar, JAMBA/CAMBA sites for migratory birds</p> <p>Areas identified as providing refuges (e.g. during drought) for threatened species</p>
	Vulnerable	0.5 - 1		
	Rare	0.6 - 1		
High	Endangered	< 0.4	the remaining 50% of habitat for threatened species in a Victorian bioregion	<p>Sites with rare National Estate values</p> <p>Sites identified as being of state significance for relictual, endemic edge of range or other non-species values</p> <p>Wetlands of national significance for migratory waterbirds</p> <p>Areas identified as providing refuges (e.g. during drought) for rare species</p> <p>Priority areas for the re-establishment of habitat for a threatened species (as determined by Biodiversity Action Plans)</p>
	Vulnerable	0.3 - 0.5	best 50% of habitat for rare species in a Victorian bioregion	
	Rare	0.3 - 0.6		
	Depleted	0.6 - 1		
Medium	Vulnerable	< 0.3	the remaining 50% of habitat for rare species in a Victorian bioregion	<p>Sites with uncommon National Estate values</p> <p>Sites identified as being of regional significance for edge of range or other non-species values</p> <p>Wetlands of bioregional significance (based on application of National Land and water Resources criteria).</p>
	Rare	< 0.3	best 50% of habitat for regionally significant species	
	Depleted	0.3 - 0.6		
	Least Concern	0.6 - 1		
Low	Depleted	< 0.3		
	Least Concern	< 0.6		

1. See Table 3, Page 23. 2. Conservation status of species determined with reference to DSE Victorian Rare or Threatened Flora and Fauna lists, supplemented by this Native Vegetation Plan. The relative quality and suitability of habitat for threatened species depends on particular requirements and therefore must be estimated on a species-by-species and location-by-location basis.

TABLE 5: RESPONSES AND OFFSET PROCEDURES FOR NATIVE VEGETATION ACCORDING TO CONSERVATION SIGNIFICANCE

Conservation Significance	Very High	High	Medium	Low
Response to proposal to clear & offset	Clearing not permitted unless exceptional circumstances apply (i.e. impacts are an unavoidable part of a development project with approval of the Minister for the Environment (or delegate) based on considerations of environmental, social and economic values from a statewide perspective)	Clearing generally not permitted	Clearing generally not permitted	clearing may be permitted but only as part of an appropriate sustainable use response as determined by the responsible planning authority
Net outcome of offset	substantial net gain i.e. at least 2 X the calculated loss in habitat hectares ¹	net gain i.e. at least 1.5 X the calculated loss in habitat hectares ¹	no net loss in medium term i.e. at least 1 X the calculated loss in habitat hectares ^{1, 2}	no net loss in long-term i.e. at least 1 X the calculated loss in habitat hectares ^{1, 2}
<p><small>1 Gains can include active improvements of quality and/or avoiding potential losses of quality by agreement to forego permitted uses. Note that applying all of the following offset criteria (where relevant) may require more than the minimum habitat hectares specified by these multipliers. 2 Where gains are achieved in vegetation/habitat of a higher significance than the vegetation lost, then the amount of the offset will be proportionally reduced (eg. offsetting losses in medium conservation significance with very high conservation significance gains will reduce the amount of the offsets required by half, i.e. the medium multiplier divided by the very high multiplier).</small></p>				
Formal agreement to offset	Management agreement for the period required to achieve the quality objective		Permit conditions for the period required to achieve the quality objective	
Security of offset	Gains must be of an on-going and secure nature			
	Requirement to maintain the offset once achieved, to be registered on title		Requirement to maintain the offset once achieved, to be recorded on DSE Native Vegetation Permit Tracking System.	
LIKE-FOR-LIKE				
Vegetation or habitat type of offset	the same vegetation/habitat type	the same vegetation/habitat type OR a Very High significance vegetation/ habitat in the same Bioregion	Any EVC in the Bioregion OR a Very High or High significance vegetation/ habitat in an adjacent Bioregion	
Landscape role	Similar or more effective ecological function AND land protection function as impacted by the loss	Similar or more effective ecological function OR land protection function as impacted by the loss	Similar or more effective land protection function as impacted by the loss	
Quality objectives for offset	The existing vegetation proposed as the basis of an offset must be at least			
	90% of the quality in the area being lost.	75% of the quality in the area being lost	50% of the quality in the area being lost	
	The proportion of revegetation included in the offset (in habitat hectares) is limited to			
	10%	25%	50%	100%

Conservation Significance	Very High	High	Medium	Low
Large old tree⁴ objectives for offset	For remnant patches of native vegetation that contain large old trees ⁴ for each large old tree removed as part of permitted clearing ³ :			
	8 other large old trees to be protected AND 40 new trees to be recruited ⁵	4 other large old trees to be protected AND 20 new trees to be recruited ⁵	2 other large old trees to be protected AND 10 new trees to be recruited ⁵	no specific tree offset required
	For parcels of land greater than 4 ha and with 8 or more scattered old trees ⁴ / ha for each large old tree removed as part of permitted clearing ³ :			
	8 other large old trees to be protected 40 new trees to be recruited ⁵	4 other large old trees to be protected 20 new trees to be recruited ⁵	2 other large old trees to be protected 10 new trees to be recruited ⁵	10 new trees to be recruited ⁵
	For each medium old tree removed as part of permitted clearing ³ :			
	4 other medium old trees to be protected 20 new trees to be recruited ⁵	2 other medium old trees to be protected 10 new trees to be recruited ⁵	1 other medium old tree to be protected 5 new trees to be recruited ⁵	5 new trees to be recruited
VLT offset ³ > 1.5 benchmark LT offset > 1 benchmark MT offset > 0.75 benchmark	For parcels of land greater than 4 ha with less than 8 scattered old trees/ha, or for parcels of land less than 4 ha with any number of scattered old trees/ha.			
	6 + 40	4 + 20	2 + 10	1 + 5
	4 + 20	2 + 10	1 + 5	0 + 5 ⁵
	2 + 10	1 + 5	1 + 5	0 + 5 ⁵
Vicinity	Gains must be within the same bioregion, and within the same priority landscape zone* as the loss where considered appropriate by the planning authority	Gains must be within the same bioregion as the loss	Gains must be within the same bioregion as the loss OR an adjacent bioregion if offsets are in Very High or High significance vegetation	
Timing	Offsets to be initiated prior to the loss	Offsets to be initiated as soon as possible after loss occurs but no more than 1 year (seasonal requirements to be considered)		

³ these offsets are only required as a consequence of native vegetation clearing which requires and receives a planning permit, and not where tree removal is exempt from the requirement to have such a permit

⁴ old trees, large or medium, are defined as individuals of key long-lived dominant tree species (as specified in the relevant EVC benchmark) that are greater than certain diameters (for large or medium) at 1.5 m above ground level

⁵ on a case-by-case basis at the discretion of the planning authority, this requirement to recruit new trees may be either through plantings to a prescribed standard (e.g. species composition, density, survivorship) and/or through regeneration associated with protection of other old trees. Recruitment should meet the timing criterion below. Any plantings that have been undertaken by the landholder in the previous 5 years and that meet all the relevant offset criteria, can be used to meet this requirement.

⁶ identified in local landscape-scale biodiversity action plans.

*Recruitment means planting and follow up maintenance for 2 years or until height sufficient to resist browsing damage from livestock and other grazers-whichever is longer. Recruitment can include planting or regeneration or a combination of the two.

TABLE 6: SUMMARY OF OFFSET CRITERIA FOR HARVESTING TIMBER FROM NATURALLY-ESTABLISHED NATIVE FOREST ON PRIVATE LAND

CONSERVATION SIGNIFICANCE	VERY HIGH	HIGH	MEDIUM	LOW
Response to proposal	Harvesting generally not permitted, unless harvesting is currently allowed on public land within the same bioregion for areas of vegetation which have equivalent conservation values.		Harvest and regeneration may be permitted as part of sustainable land use option.	
Net outcome of offset			Regeneration undertaken according to the following criteria will be considered to have achieved sufficient offset.	
Vegetation or Habitat Type of offset			Same as harvested	
Landscape role			Same as harvested	
Quality objectives for offset			<p>For clearfell harvest & regeneration Regeneration to be managed so that it has the best opportunity to reach a target of 50% of the quality of the vegetation that was harvested within 10 years and ultimately the same quality (minus large tree component) as required by permit condition. Where large old trees are included in the harvest area, mitigation will be determined on a case-by-case basis ensuring sufficient seed and habitat trees for regeneration of the forest values. Where private land forest is not substantially contiguous with the public forest estate, a higher level of mitigation will be required. (See recruitment only options below).</p> <p>For selective harvesting The reduction in quality in a site due to selective harvesting must not be greater than the percentage specified in the Operational Guidelines.</p>	
Vicinity			Same as harvested	
Timing			Regeneration to be initiated as soon as possible after harvesting but no more than one year (seasonal requirements to be considered by planning authority).	
Security of offset			Planning permit conditions to apply until the regeneration achieves the equivalent quality of the vegetation that was harvested (excluding the large old tree component).	

		Conservation Significance			
Recruitment ONLY option		Very High	High	Medium	Low
Very Large Old Tree - VLOT (1.5 or > X benchmark DBH) DBH = Diameter at breast height	No. of new trees to be recruited	400	200	100	50
Large Old Tree - LOT (1 x benchmark DBH)	No. of new trees to be recruited	200	100	50	50
Medium Tree - MT (0.75 - 1x benchmark DBH)	No. of new trees to be recruited	100	50	50	50
Small tree - ST (<0.75 x benchmark DBH)	No. of new trees to be recruited	N/A			

6.4 Extent and Quality of Native Vegetation

It is important to determine not just how much native vegetation is present but how good it is. On-ground actions, including protection and improved management of existing vegetation and revegetation can increase the overall quantity and quality of habitats and ecosystem services across the local landscape - particularly in terms of the levels of biodiversity and catchment protection that they can support.

6.4.1 Measuring extent and quality

In determining what exists, what could be lost and what could be gained, there needs to be a measure. The quality of native vegetation is relevant to the effectiveness of both biodiversity conservation and catchment protection roles, but the biodiversity conservation role has the more specific requirements and accordingly has been the primary focus in developing a quality assessment approach.

The two primary determinants of the general vegetation and habitat quality of an area are:

- **Site condition** - If the site condition is very good then there is a retention of the cover and diversity within the understorey lifeforms. The question to be asked is 'How altered is the site from a notionally optimal state?'
- **Viability in the landscape context** - Here the key question is: 'Does the patch of vegetation that the site is within retain its broader ecological functions and linkages, in a manner that enables it to respond successfully to natural fluctuations and other disturbances?'

The criteria used for assessing site condition are:

- Retention of large old trees (for woodlands and forests)
- Retention of tree canopy cover (for woodlands and forests)
- Presence of appropriate recruitment
- Site specific attributes such as understorey species, organic litter and logs
- Absence of weeds.

The criteria used for assessing landscape context are:

- size of remnant vegetation patch
- links to, and amount of, neighbouring patches

Native vegetation at a site is assessed by comparing it to a benchmark which represents the average characteristics of a mature and apparently long-undisturbed stand of the same type of vegetation.

General vegetation/habitat quality is scored from one (complete retention of natural quality as described by benchmark characteristics) to zero (complete loss) - (Parkes et al, Journal of Ecological Management and Restoration, Volume 4 Supplement, February 2003). This approach has been successfully utilised in the BushTender Trial (See Page 38).

6.4.2 Habitat Hectare

A habitat hectare is a site-based measure of quality and quantity of native vegetation that is assessed in the context of the relevant native vegetation type. (habitat score X area = habitat hectare). A habitat hectare assessment:

- provides a snap-shot of current quality
- can be the basis for estimating what and how much change will occur at a site under different management scenarios
- provides a means of calculating net outcomes across losses and gains.

If it is assumed that an unaltered area of natural habitat (given that it is large enough and is within a natural landscape context) is at 100% of its natural quality, then one hectare of such habitat will equivalent to one habitat hectare. That is quality multiplied by the quantity. Ten hectares of this high quality habitat would be equivalent to ten habitat hectares, and so on. If an area of habitat had lost 50% of its quality (say, through weed invasion and loss of understorey), then one hectare would be equivalent to 0.5 habitat hectares, ten hectares would be equivalent to five habitat hectares, and so on.

6.5 Net Gain

Net Gain is where, over a specified area and period of time, losses of native vegetation and habitat, as measured by a combined quality-quantity measure, are reduced, minimised and more than offset by commensurate gains.

The notion of Net Gain:

- recognises that for native vegetation, although "natural is best", it is possible to partially recover both extent and quality by active intervention and thus to effect the net result
- identifies a quantitative approach to the "reverse the decline" pathway, allowing us to set targets and measure performance at the on-ground level, expresses the principle that where losses are directly permitted and/or incurred, effort should be made, at a minimum, to balance such losses with commensurate gains in some way at the regional level, facilitates establishment of a complete picture of the native vegetation asset, against which incremental losses and emerging issues can be evaluated
- plays an important part in assessing ecologically sustainable development

Guidance is available from DSE on the details necessary to fully implement the Net Gain approach to planning decisions. Future clearing of vegetation with very high conservation significance will not be permitted.

6.5.1 Contributing to the Net Outcome

With respect to the quality and quantity of native vegetation, a broad range of actions, both human-related and natural, contribute to the net outcome for the region and the State.

Losses in extent include:

- permanent clearing of native vegetation, both approved and illegal
- incremental reduction of woodlands through tree decline

Losses in quality include:

- on-going decline resulting from insufficient management of threatening processes
- impact of forest product harvesting and mining operations
- impact of wildfires and fuel-reduction burns

Gains in extent include:

- new areas of revegetation primarily for biodiversity conservation
- new areas of revegetation for land protection, greenhouse or other purposes which have included sufficient locally indigenous species to be considered part of the native vegetation estate.

Gains in quality will include:

- improved management of threatening processes within existing native vegetation including both active improvement (e.g. control of weeds) and avoidance of further impacts by landholders agreeing to forego permitted uses (e.g. stock grazing, harvesting timber for on-farm use)
- recovery from forest product harvesting and mining operations
- recovery from wildfires
- supplementary plantings into depleted existing native vegetation

6.6 Considering Land Protection and Conservation Significance in Net Gain

In order to achieve the goals for native vegetation management, application of the Net Gain approach needs to be linked to the land protection and conservation significance of the native vegetation in question.

For land protection, the significance of a patch of vegetation (from the point of view of both hazard avoidance and mitigation) is determined according to:

- the role of the site in surface and groundwater behaviour
- the erosion hazard and soil structure characteristics of the site
- the ability of the vegetation to provide ongoing land protection role
- the productive capability of the site
- other recognised criteria (for example, whether climatic conditions favour rapid re-establishment of vegetation cover).

For biodiversity, the conservation significance of a patch of vegetation (from Very High to Low) is determined according to:

- the conservation status of vegetation types present
- the quality of the vegetation
- the conservation status of species present (and the potential habitat value)
- the strategic location in the local landscape
- other recognised criteria (for example, commitments under international conventions).

The approach to assessing bioregional conservation status of vegetation types (Ecological Vegetation Classes) is described in Table 3 on Page 23.

The criteria and approach for determining conservation significance for biodiversity are outlined in Table 4 on P. 24.

6.7 Resource Condition Targets

The Regional Catchment Strategy includes reference to the establishment of a complete set of Resource Condition Targets over the next three years. The Glenelg Hopkins CMA has commenced down this path, having two projects in place to determine Resource Condition Targets as well as Sustainable Indicators.

The targets within the Regional Vegetation Plan are based on the Reserve - JANIS criteria. The conservation status of each EVC on private land is determined at both the regional scale as well as the sub-catchment scale.

The EVC data has been clipped to equate to sub-catchment boundaries, as were the VROT data and the AROT data to give extra weight to the decision. For example, creating habitat for the Red-Tailed Black Cockatoo would add to the urgency of selecting the sub-catchments. In addition, the actual number of Endangered EVCs in each sub-catchment is used as a first cut.

This target equates to reaching 15% of the Pre- 1750 Ecological Vegetation Class. As a number of the EVCs reside mainly on private land, it will need to be a co-operative process. (See Flow Chart, Page 30).

Aspirational targets:

- Increase the extent and condition of all EVCs above self sustaining thresholds (to restore ecosystem function)
- Increase the extent of endangered and vulnerable EVCs to at least 15% of pre-European extent by 2030.

Re-establishing vegetation cover will not, in isolation, protect and conserve the region's biodiversity. Ecological Vegetation Classes (which form the keystones of biodiversity) must be protected and enhanced to ensure that the goal of the strategy is a sustainable one. Recent mapping of EVCs across the region has enabled the determination of extent but little or no information is available to indicate the quality of remnants of these vegetation communities across the region.

Natural regeneration, the most cost effective and ecologically sound method of vegetation establishment, in most cases only restores early successional stages of vegetation communities.

This plan recommends that resources should be invested in areas of highest conservation status and potential for multiple outcomes including improved habitat quality and connectivity.

In the Glenelg Hopkins region, existing remnants of varying quality form important nodes for the forecast revegetation effort outlined at the Bioregional scale. This accords with the principles of vegetation management previously outlined

Resource condition targets:

- Overall goal of improving by 10% (measured by HabHa) of native vegetation across all levels of conservation significance by 2013
- Improve the quality of 90% of existing (2004) native vegetation by 10% by 2030.

Resource condition outcome:

The targets outlined above provide a focus for native vegetation management with an emphasis on gains in extent and quality of remnant vegetation (EVCs). Additional targets for threatened species, wetlands and river health have been developed through Bioregional Planning processes and renewal of the Regional Catchment Strategy.

The plan acknowledges the continuing efforts of landholders to improve the condition and extent of remnant vegetation through mitigation of threatening processes such as overgrazing, weed invasion and pest animal proliferation.

6.8 Prioritising sub-catchments for action

A range of datasets was used to devise a priority listing of sub-catchments as part of this plan. (See Page 31)

The criteria used to set the priorities in this Plan are:

- extent of the EVC communities in each sub-catchment and the percentage remaining compared to pre 1750 cover.
- the original number of EVCs in the sub-catchment.
- the number of very high conservation status EVCs targeted by the Plan.
- the number of threatened floral and faunal species recorded in the sub-catchment that will benefit from the plan.
- the level of fragmentation of the remaining patches of vegetation. (The more intact the vegetation the more likely that establishing corridors and biolinks will be successful).
- the priority rating of the sub-catchment in the Regional River Health Strategy (the Vegetation Plan seeks multiple benefits).
- the priority rating of the sub-catchment in the Regional Wetland Management Strategy (the Vegetation Plan seeks multiple benefits)
- the amount of salt-affected land in the sub-catchment and the priority rating of the sub-catchment in the Regional Salinity Management Plan. (the Vegetation Plan seeks multiple benefits)
- whether implementing the proposed work in the sub-catchment will help reduce risks such as increasing soil acidification.

6.9 A decision-making framework for setting priorities

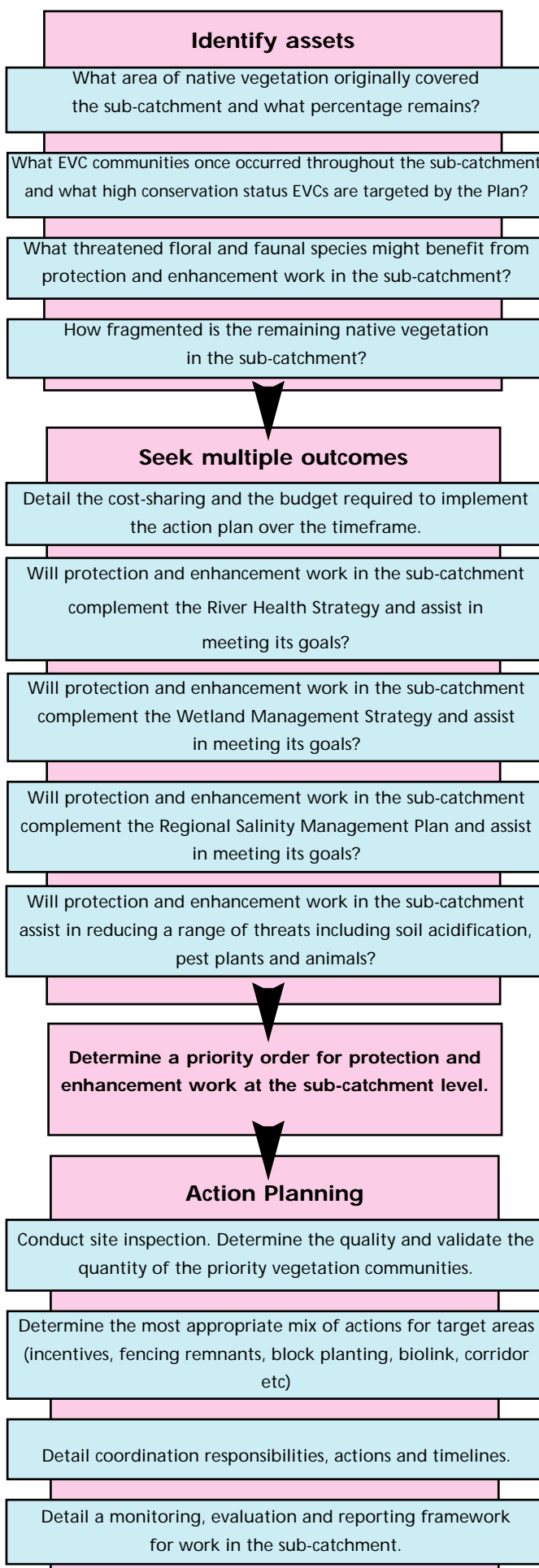


TABLE 7: SUB-CATCHMENT PRIORITY CRITERIA

Sub-catchment	Pre-1750 vegetation area (hectares)	Percentage native vegetation remaining	Original No. of EVCs	No. of very high conservation status EVCs targeted by the Plan	No. of threatened flora species recorded in sub-catchment	No. of threatened fauna species recorded in sub-catchment	Fragmentation (no. of patches)	Regional Priority River Health Strategy	Regional Priority Wetland Management Plan	Risk of soil acidification	Salinity discharge area (hectares)	A1 Priority salinity sub-catchment
G1	118,122	38.6%	41	5	45	110	1,876	3,18,23	14	High	0	No
G2	170,856	31.8%	52	16	33	45	4,006	40	3	High	0	No
G3	156,258	21.8%	42	12	39	61	2,772	13,30	16	High	385	Yes
G4	58,604	9.8%	33	10	6	22	759	46	28	High	754	Yes
G5	103,166	12.8%	46	10	21	41	1,544	16,29	19	High	2,615	Yes
G6	135,072	77%	67	5	95	62	6,229	2,26	2	High	825	Yes
G7	71,649	28.4%	67	11	19	66	800	17,21,31	26	High	269	No
G8	30,584	45.6%	26	12	13	27	650	22,38	30	High	0	No
G9	77,204	5.75%	24	9	4	31	432	49	24	High	130	Yes
G10	137,228	22.2%	82	10	52	59	2,345	14,20,25	7	High	2,928	Yes
G11	84,207	30.1%	64	12	63	56	1,826	15,19,24	5	High	1,110	Yes
G12	50,416	0.24%	22	9	4	16	314	52	31	High	468	No
G13	98,422	0.7%	24	12	8	53	203	4,35	9	High	1,559	No
P1	34,095	37.8%	25	1	58	96	1,347	54	29	High	0	No
P2	37,620	51.0%	22	4	19	95	909	10,27	32	High	11	No
P3	55,547	40.3%	19	2	18	62	744	37	27	High	0	No
P4	97,930	16.7%	25	14	16	79	581	6,42	20	High	131	No
P5	90,912	2.4%	31	15	10	50	185	8,39	17	High	191	No
P6	82,779	0.71%	30	12	15	70	173	5,45	21	High	0	No
H1	55,928	5.07%	23	15	7	47	2,709	36	25	High	0	No
H2	91,525	1.9%	22	17	10	25	1,617	7,43	12	High	862	No
H3	122,139	0.77%	21	20	15	25	1,331	41	10	Very High	1,556	Yes
H4	85,702	4.8%	32	13	29	29	1,080	50	4	Very High	1,102	No
H5	64,346	11.1%	25	9	35	37	1,636	11,44	18	Very High	673	Yes
H6	81,357	2.1%	19	17	2	32	2,844	9,28	13	High	667	No
H7	57,982	0.62%	21	19	18	36	992	53	8	High	1,133	Yes
H8	35,819	3.4%	12	8	13	28	691	47	22	Very High	68	No
H9	63,120	7.6%	16	9	13	33	961	12,48	6	Very High	46	No
H10	48,801	18.5%	16	7	7	31	456	51	15	Very High	235	Yes
H11	83,309	0.82%	22	19	15	50	1,570	32	1	Very High	611	No
H12	87,228	8.2%	25	14	31	32	901	33	11	Very High	321	Yes
H13	100,369	1.02%	26	16	12	62	1,084	1,34	23	High	360	No

TABLE 8: PRIORITY SUB-CATCHMENTS FOR IMPLEMENTING THE NATIVE VEGETATION PLAN

Native Vegetation Plan Priority	Sub-catchment	Cumulative Point Score (SEE CRITERIA TABLE 7)
1	G6	277
2	G11	272
3	G10	252
4	H12	227
5	G3	225
6	G2	220
7	G5	219
8	H5	219
9	G1	211
10	H4	210
11	G7	210
12	G13	206
13	H11	205
14	P5	203
15	H3	200
16	P6	197
17	H13	194
18	P4	193
19	H7	191
20	P2	175
21	H9	173
22	H2	172
23	H10	170
24	G4	165
25	G8	160
26	P1	156
27	H6	155
28	P3	155
29	G9	152
30	H8	137
31	H1	134
32	G12	109

7 Objectives, Outcomes and Targets

7.1 Retention - Protection

KEY OBJECTIVE

· To maintain the extent and quality of native vegetation communities at Year 2000 levels, and to achieve both an immediate and incremental net gain over the next thirty years.

Areas of remnant native vegetation have far higher conservation values, and are more efficient and economically viable, than planted areas. The retention of remnant vegetation is one of the most important priorities for biodiversity protection. Remnant vegetation clearly provides the skeleton upon which restoration projects can be built. The sustainable management of existing areas of native vegetation takes precedence over the re-establishment of trees and other habitat components.

Areas of native vegetation that are regarded as being of particular significance on both a local and regional level include:

- habitats for rare or threatened flora and fauna;
- vegetation communities under-represented in conservation reserves such as grasslands and grassy woodlands;
- areas that act as movement corridors for native fauna;
- plant communities shown to occur at the limit of their geographical distribution and;
- areas of remnant vegetation as being of particular importance as repositories of Aboriginal cultural heritage resources.

Vegetation that is vital for catchment protection includes:

- native riparian vegetation
- vegetation occurring in and immediately adjacent to the head of drainage networks
- vegetation occurring on escarpments and on steep and unstable slopes
- areas critical for the management of dryland salinity, soil erosion, and streambank erosion.

7.1.2 Single & Scattered Trees

Enhancing remnant vegetation in the Glenelg Hopkins region will also need to focus on the value of single and scattered trees.

Scattered trees are naturally occurring indigenous trees (commonly eucalypts), usually two or more metres in height. The term 'scattered trees' is distinct from the broader term 'remnant vegetation' primarily due to an absence of understorey of native species and a highly altered (very sparsely distributed) distribution from that considered to be close to the original distribution (pre European settlement). All native vegetation is considered to be remnant vegetation whether it comprises a block of bushland, a scattered tree in a cultivated paddock, or a small area of sparse remnant native grass on a roadside.

Scattered trees play an important and undervalued role in the landscape and ecology of the Glenelg Hopkins region.

trees usually occur in paddocks, but may also occur along road reserves, parks and other areas where the native understorey plants have been removed. Scattered trees are commonly remnants of original bushland that was cleared for agriculture or other developments. They may also be trees that have naturally regenerated from seed from the original trees.

In comparison to research on areas of remnant vegetation there has been limited investigation into the ecological and land protection values of individual trees in the agricultural landscape. The Glenelg Hopkins landscape is often characterised by individual trees and isolated clumps of trees with degraded understorey as a result of a prior history of grazing and clearing. These trees help to define the landscape and to give the community a sense of place.

THE VALUE OF SCATTERED TREES:

Scattered trees tend to be large old trees, which have a variety of economic, ecological and aesthetic benefits.

Economic Productivity

Scattered trees provide a range of benefits to farmers and other land managers. Scattered trees in paddocks provide valuable shade and shelter for stock, can help to control soil erosion, acidification, and to prevent salinity by lowering the watertable. Trees can also bring nutrients to the surface through their root system, and add organic matter to the soil by dropping material from above.

Scattered trees often form the basis for pest control, providing roosts and protection for predatory animals such as bats, raptors and other birds, as well as spiders and predatory insects. Trees also provide wood and can be used for the production of bush foods, flowers, honey and oils.

Wildlife habitat attributes

Scattered trees can provide important habitat and resources such as nectar, pollen, fruit, seed, foliage, bark, roots, litter, perches and hollows for many native mammal, marsupial, bird, bat, reptile and invertebrate species.

The value of scattered trees for wildlife is generally considered to increase with larger tree size, as well as the number of nesting and roosting hollows. Proximity to other trees and remnant vegetation is also important. Scattered trees that house threatened wildlife species are very valuable to the ecology of a region.

Large dead trees are also important for wildlife habitat, as their hollows and dropped branches provide shelter and protection for many wildlife species.

Nutrient cycling

Trees perform a valuable role of cycling nutrients within an ecosystem to assist other plant growth and the overall sustainability of an area. Large trees bring nutrients to the surface from their root system, and add organic matter to the soil in the form of dropped bark, wood, leaves and seeds. Trees also convert atmospheric carbon dioxide into oxygen, helping to mitigate the global greenhouse effect. Leguminous trees such as acacia species are able to fix nitrogen in the soil, thereby producing valuable accessible nutrients for other plant species.

Scattered trees as remnant vegetation

Scattered trees are often highly valuable to the genetic diversity of areas within the region because they may represent the last remaining stand of a particular naturally occurring species. They can be used as a focus for revegetation, with seeds collected from the trees. The trees can act as nodes for revegetation, and with replanting between them, or fencing and excluding stock from the area, can lead to plant regrowth and move towards a plant distribution more similar to that originally occurring in the area.

The value of scattered trees as remnant vegetation generally depends on the extent of clearance in the local vicinity, and the extent to which the trees retain their original density. In general, the more extensively cleared an area is, the more significant the remaining trees become, and the closer the trees resemble their original density, the more likely they are to be considered significant remnants.

Scattered trees can facilitate dispersal of wildlife between remnant blocks of native vegetation and thus maintain gene flow (flora and fauna) between otherwise isolated blocks of habitat. Large remnant trees can reduce wind velocity benefiting understorey species, pastures and livestock.

Single and scattered trees in the landscape help to frame the way in which the Glenelg Hopkins region is viewed.

KEY STRATEGIC ACTIONS

- Native Vegetation Retention Controls will be used by local government and DSE/DPI staff to protect native vegetation. (Years 1-30)
- Action plans will be developed by the CMA, in conjunction with DSE/DPI staff, landholders, landcare groups, local government and environment groups to protect riparian and wetland habitats -including the provision of adequate environmental flows for wetland, riparian and floodplain vegetation communities. (Years 1-5)
- Institutional arrangements, such as environmental overlays, will be used to protect native vegetation. We will build on the good work being done by Glenelg and West Wimmera Shires to incorporate environmental significance overlays into their Planning Scheme. (Years 1-3)
- Community education programs will be implemented by the CMA and DSE/DPI staff to increase community awareness and recognition of all native vegetation communities. (Years 1-5)
- Remnant vegetation on private land in high priority areas will be assessed by the CMA and DSE/DPI staff and appropriate management techniques will be promoted. (Years 1-5)
- Native grassland communities will be identified and plans developed for their protection. (Years 1-5)
- The extent and health of single red gums and hollow bearing trees will be monitored. (Years 1-10)
- A range of incentives to protect remnant native vegetation will be developed with all levels of government. (Years 1-3)

7.1.3 Enhancing Existing Remnants

There is an on-going decline in remnants in the Glenelg Hopkins region. There is an urgent need to both halt and reverse this decline.

Decisions affecting native vegetation, such as planting trees in grasslands, are often made outside any easily understood or rigorous framework. Because there is often a time delay between decisions made, degradation of the resource occurring and the long-term consequences on the environment, we are only now discovering the errors in judgement made some 30-40 years ago.

Existing remnant vegetation is under threat by further clearing, increased fragmentation and isolation, and weed invasion. (See Chapter 4 Threatening Processes).

The Plan recognises wetlands as important sites of native vegetation, and wetland planting will be included as an appropriate way of protecting vegetation, including grasslands. The Sustainable Grazing Systems Project site at Vasey, near Hamilton, has a biodiversity element. Blue gum plantations and the growing interest in raised bed cropping are threats to wetlands in the region.

The wider community, including private companies need to be provided with access to appropriate information on wetlands and grasslands. There is an opportunity here to make better use of the 'Land for Wildlife' network and the Flora and Fauna database. The protection and enhancement of all water catchment areas is a high priority. (See Regional Catchment Strategy).

Native Grasses

This Plan is an important document that provides a sound foundation for supporting future work. The plan aims to facilitate regional input into work that will protect native grasses. The plan will also facilitate education about native grasses. The plan recognises that keeping native grasses and harvesting the seed can provide an important source of income for some farmers. Research into the relationship between native pasture and carcass weight is already being done (RIRDC, 1999). Native grasses are also known to be very efficient in controlling recharge.

Native grasses also have an important role in determining how the changes to the landscape can influence land use and fuel types. Native grasses actually carry a lower fuel load than say phalaris, and therefore have a positive future as a firebreak.

Profitability of native vegetation

The Plan acknowledges that farmer profitability is closely related to retaining native vegetation. Tree plantations offer economic benefits, particularly as wind breaks. On the other hand, incentives are likely to be required to get farmers to develop a serious interest in native pasture, which is currently seen as not profitable. Current research may change this view. In NSW researchers and farmers are exploring the option of direct drilling into dormant summer growing native pasture and are achieving sustainable agricultural outcomes.

KEY OBJECTIVE

- To enhance and restore the quality of existing remnant native vegetation

Restoration efforts will be used in conjunction with retention programs to increase the amount and quality of remnant vegetation. Restoration efforts will seek to create healthy systems, which form an integral part of the landscape. Efforts to reverse land degradation will be directed towards the restoration of ecological processes, including the restoration of the natural hydrological balance to reduce the severity and incidence of salinity.

Priority for restoration will be given to remnants degraded by past management practices, but in which:

- a large proportion of the original species have been retained
- remaining components are in good health, showing few signs of declining health.

Within this framework, efforts directed at restoration will include:

- re-establishing effective wildlife corridors used by locally important fauna, and increasing the viability of existing wildlife populations in remnant vegetation
- increasing the area of individual remnants of priority plant communities through natural regeneration, and replanting immediately adjacent to the remnant stand
- re-introducing locally native flora and fauna which have been lost as a result of past management practices, and for which there is a high probability of re-establishment.

KEY STRATEGIC ACTIONS

- Implement agreed weed and rabbit action plans in partnership with DPI/DSE (Years 1-5)
- Review regional priority weed species (Years 1 -3)
- Develop and implement a targeted research program for enhancing native vegetation. (Years 1-10)
- Compile and publicise an inventory of all native vegetation research occurring within the Catchment. (Years 1-3)
- Develop opportunities for tertiary institutes, particularly those within the Catchment, to add to the adaptive science that underpins this Plan. (Years 1-10)
- Identify gaps in our knowledge base about enhancing remnants. (Years 1-5)

7.1.4 Revegetating Cleared Land

KEY OBJECTIVES

- To increase the cover of endangered vegetation communities occurring within the Glenelg Hopkins region to 15% of their original area by 2030.
- To achieve a 'net gain' in communities of high conservation significance by 2030.
- To achieve land and water resource protection benefits.

Revegetation of cleared areas will be a long and costly process. However, the benefits of revegetation work will be significant. We will in effect be recreating the environment where we live, but we will also overcome many of the existing land degradation problems.

Revegetation is not straightforward. In many areas we lack adequate information on the optimum mix of plants, and the optimum layout of plantings to increase the chances of success on areas already seriously affected by salinity, soil erosion and structural decline.

The estimated magnitude of tree losses suggests that the cost of replanting a major proportion of the original trees will be prohibitive. Furthermore, the current and potential land uses for dryland agriculture in our region suggest that tree planting alone will not be adopted on a large enough scale to be a practical solution to address the land degradation problems. Social and economic realities compel us to recognise that replanting local native trees, in an attempt to reconstruct the original vegetation of an area, may not always be possible.

The concept of incorporating habitat corridors into plans for the management and conservation of wildlife has received much attention. There is a growing concern that clearing and fragmentation of habitats has resulted in the isolation and extinction of animal populations. We must take practical steps towards restoring continuity by using appropriately designed corridors and Biolinks. The Habitat Network Strategy goes some way to address this issue.

The Glenelg Hopkins region offers a range of education programs that benefit individual land managers and the broader community in terms of biodiversity conservation and native vegetation protection measures. Appropriate sites for revegetation will be identified during the implementation of this plan. These will include planting up parts of wetlands, planting in priority water catchment areas, identifying where blue gum or pine plantations are acceptable, as well as where plantations are not appropriate.

This plan acknowledges that when implementing whole farm plans, tree planting along drainage lines achieves better survival results compared to planting on ridges.

Our aim will be to develop a series of appropriate goals for the cover of each of the Ecological Vegetation Classes (EVCs) in our bioregions. If modest increases of cover are attained, it will be a dramatic improvement on present levels and is likely to arrest the decline of some species within the Catchment.

Our focus will be on the endangered communities of native vegetation in locations in the best quality, using data from Ecological Vegetation Class mapping. Additional mapping and survey is required in the case of Grasslands and Grassy Woodlands.

Interim targets for regionally appropriate revegetation of native species are considered to be:

- Increase the overall cover of native vegetation to 30% of the catchment.
- Increase the cover of endangered Ecological Vegetation Classes (EVCs) to at least 15 per cent of their pre-European vegetation cover by 2030.

Supplying seed to reach targets.

Increasing the overall cover of native vegetation to 30% of the catchment requires the establishment of 450,000 hectares over 30 years, or an aspirational goal of 15,000 hectares per year. Victoria is developing a statewide seed supply strategy that will inform this Plan. One large provider of native seed in the region currently produces 300 kg of seed per year. To reach our target would require 15 tonne of seed each year for the next 30 years. This is obviously a long-term goal and the GHCMA recognises the realities of achieving such a target. Nevertheless it remains a worthwhile goal.

KEY STRATEGIC ACTIONS

- Develop a planned region-wide network of parks, reserves and corridors. (Years 1-3)
- Ensure that information on the habitat requirements of fauna is used to guide the design of Corridors and Biolinks. (Years 1-10)
- Develop revegetation action plans at the local area level for community groups to facilitate strategic revegetation. (Years 1-5)
- Identify and assess remnant vegetation communities at greatest risk due to land-use changes. (Years 1-3)
- Promote the use of indigenous species for land and water protection, with particular emphasis given to riparian zones. (Years 1-30)
- Investigate options for incorporating biodiversity outcomes with Private forestry. (Years 1-5)
- Encourage and facilitate the development of Sub-catchment Action Plans, including sourcing local seed. (Years 1-5)
- Identify priority areas for private forestry within the Glenelg Hopkins Catchment for reversing land degradation and maintaining biodiversity values in light of new EVC data. (Years 1-5)
- Encourage the planting of indigenous trees, wherever possible, for Greenhouse benefits including carbon sinks. (Years 1-30)
- Promote the use of indigenous species to protect land and waterways from rising saline water tables and saline run-off where achievable. (Years 1-30)

7.1.5 Native Vegetation Management

KEY OBJECTIVES

- To support the adoption of land stewardship practices, the development of Environmental Management Systems (EMS), and the pursuit of markets for ecosystem services.
- To use a Best Management Practice (BMP) approach to native vegetation management on all land tenures, including private land, leased public land, land managed by utilities and roadsides.
- To improve decisions made by all stakeholders in the management of native vegetation.

Environmental Management Systems

The Glenelg Hopkins CMA is keen to see ecosystem services brought into the market, so they can be paid for by the broader community. To support the development of markets or market-like mechanisms, contracts may be required so that agreements or deals can be made.

Planning and measuring tools such as Environmental Management Systems, Whole Farm Business Planning and Biodiversity Action Planning could be used to develop contracts. They could be used to clarify the current condition of the land, what actions are desirable, which are most practical, and a measurement of the amount of improvement gained. Additionally, robust forms of evaluation will be required.

Environmental Management Systems (EMS) are being used in various parts of Victoria to assist enterprises to identify and manage impacts on the environment, while providing opportunities for improved business performance.

EMS provides a management framework based on a simple 'plan, do, check, act' cycle that achieves continuous improvement. As an integrated business management tool, an EMS can complement and build on other existing activities such as property management planning, best management practices, codes of practice and quality assurance schemes. A manager can use the system to identify their environmental impacts and legal responsibilities, to implement and review changes and to build in improvements in a structured way. To provide credibility for external stakeholders, managers may decide to have their EMS externally audited and may become certified to the international standard, ISO 14001.

Best Management Practices

Best Management Practice (BMP) is defined as actions that result from decisions based on the best available information, which considers the complete needs of the land manager, the land capability and the rest of the community.

For BMPs to be effective, agreed cost-sharing arrangements should be in place. Best Management Practices for native vegetation encompass objectives for production and sustainability, and include consideration of farm forestry issues, salinity, water quality, flora and fauna habitat and landscapes.

Best Management Practices for native vegetation aim:

- To achieve protection of valuable fragments of native vegetation (see targets in sub-catchment tables Chapter 9).
- To manage and enhance remnant vegetation so as to achieve natural regeneration, increasing its viability;
- To revegetate priority areas which achieve the best outcomes for biodiversity and land management and;
- To be realistic, reasonable and viable for the land manager.

The adoption of BMPs based on ecologically sustainable land management will provide direct benefits to land managers as well as assisting in the protection of biodiversity. Development of a best management practice promotes adoption of sustainable management principles and ensures an integrated approach to managing and protecting native vegetation. Adoption also provides a measure of progress towards a sustainable future.

KEY STRATEGIC ACTIONS

- Ensure that regional vegetation management is consistent with the implementation of the State Framework and the National Framework for the Management and Monitoring of Australia's Native Vegetation (ANZECC, 1999) (Yrs 1-30).
- Compile Environmental Management Systems and Best Management Practices (BMPs) for different vegetation communities and threatening processes, using existing knowledge and research. (Years 1-10)
- Identify gaps in our knowledge of the management of native vegetation. (Years 1-5)
- Target new research for the management of native vegetation. (Years 1-10)
- Encourage the use of BMPs for Ecologically Sustainable Development (ESD). (Years 1-30)
- Encourage the use of BMPs for native vegetation management on all land tenures, including private land, leased public land, land managed by utilities and roadsides. (Years 1-30)

7.2 Partnerships - Building the Links

7.2.1 Building Community Capacity

KEY OBJECTIVES

- To develop a community that is well-informed about the importance, use and the need for the protection of native vegetation.
- To increase the level of community participation in vegetation management throughout the Glenelg Hopkins Catchment to 10,000 individuals (10% of population) by 2010.
- To promote community awareness and understanding of the extent of pressures exerted on remnant areas and past, present and future effects of those pressures.

Strong channels of communication are needed to underpin the effective implementation of the Native Vegetation Plan. Community attitude changes with improved knowledge, and some practices that were once encouraged by Government, such as wholesale clearing of native vegetation, are now recognised by the community to pose a serious risk to the environment.

Education about biodiversity issues is a key factor in ensuring that on-property remnant native vegetation is not cleared and is managed. Land managers are more likely to have a positive view about their vegetation if they have a greater understanding of biodiversity and its value. (Land managers are defined as those that own or have management responsibility for the land, water and habitat of a rural or rural/residential landholding).

However, the broader community must acknowledge that the effect of native vegetation removal and the resulting degradation is not something that only affects the land manager. Urban communities must accept that financial assistance will need to be provided to address the decline of native vegetation if they expect ecological sustainability, water quality, and recreational opportunities and landscape amenities to be maintained and enhanced.

While land managers have a vital role to play, the community in general must ultimately take responsibility for preventing land degradation and restoring areas already affected by vegetation loss. Land managers who are working towards achieving sustainable land management on their properties should be assisted with available funding.

Community education will be the cornerstone program to achieve sustainable catchment management in the Glenelg Hopkins region. Achieving our goals in restoration and revegetation will depend ultimately upon our ability to educate the community. The Glenelg Hopkins CMA will take a lead role in community education.

There are diverse channels and networks through which to effectively deliver community education. Mass media has an important role in raising awareness, but is less effective in enhancing detailed knowledge or skills. More participatory methods are required to move beyond background awareness to genuine learning and commitment. Engagement is most likely to occur through activities that are meaningful to people because they align with their values and aspirations, and/or because they appeal to enlightened self interest.

Activities that are local in focus, which improve amenity, and which align with hobbies or leisure activities, are most likely to attract involvement and support. Existing community networks such as 'Friends' groups, bird observers, field naturalists, garden clubs and service clubs will form the basis of a comprehensive community engagement strategy.

Native vegetation continues to play a role in farming systems in the Glenelg Hopkins region. Native trees, shrubs and grasses provide a range of benefits to a sustainable agricultural system and can provide a direct economic return through the production of wood, bush foods, flowers and oils.

The FarmBis (formerly Farm\$mart) Program has a role in educating about the role of native vegetation in farming systems. Don Jowett has done some excellent work on grazing regimes in sheltered paddocks. Alley farming is having a positive effect in the Wimmera, demonstrating that the role of vegetation in the system is very much a regional issue.

There are many other benefits of native vegetation in farming systems. This includes land protection from problems such as salinity, soil erosion and declining water quality. An important role for extension staff in implementing this Plan includes communicating the conversion practices that farmers should include when safeguarding both income and production.

KEY STRATEGIC ACTIONS

- Develop and promote strong links between the community and the Glenelg Hopkins CMA in whole of catchment management. (Years 1-30)
- Implement a Communication Action Plan promoting a co-ordinated approach to community education. (Years 1-30)
- Develop and implement best practice communication options to inform the community about native vegetation issues. (Years 1-30)
- Encourage a high level of participation by the community in all levels of decision making affecting native vegetation management. (Years 1-30)



7.2.2 Local Government & Other Statutory Authorities

KEY OBJECTIVE

- To identify appropriate links and mechanisms and to foster co-operation and co-ordination with all Local Municipalities and Statutory Authorities within the Glenelg Hopkins region.
- To provide education and training to local government staff to assist with implementing the Glenelg Hopkins Native Vegetation Plan.
- To enhance the capacity of local government to fulfil their natural resource management role.

A diverse range of individuals and groups are responsible for the protection of the remaining native vegetation covering both private and public ownership. Local Government has a statutory responsibility to manage the impact of development on the environment, and key pieces of legislation, including the Flora & Fauna Act 1988 and the Planning & Environment Act 1987, rely on the vigilance of Local Government to maximise biodiversity outcomes.

While the importance of private land to nature conservation needs to be recognised by all levels of government, local government in particular has a vital role in the development and implementation of regional strategies and plans which facilitate a regional perspective and integrated planning. Since many habitat types now exist only on private land, to achieve nature conservation on these, governments must work with private land managers and provide real incentives. Integration will be a key to the successful implementation of the Regional Vegetation Plan.

Environmental planning overlays are reviewed every 3 - 5 years, and is an opportunity to incorporate overlays for existing remnants and other significant areas. Buffer zones should accompany the active use of environmental overlays to protect remnant vegetation, and also parks and reserves from weed invasion.

Planning overlays are a most appropriate tool for identifying acceptable land uses. This Plan helps by identifying overlays for vegetation for inclusion into the planning scheme.

This Plan recognises that there is a growing number of Environmental Officers employed by local government who will work with the CMA to implement the revised plan. Local government staff training and skilling in native vegetation management remains a priority. Local governments need to be able to adequately resource the implementation and compliance of roadside and environmental plans through internal or external funding.

As managers of roadsides, local governments need to be accountable. Available data on roadside remnant vegetation should be consistent and accessible to work centres.

Councils are encouraged to acknowledge their responsibility, under the State Framework, to apply the principal of net gain to the clearing of run-of-the-mill vegetation for paddock access, road widening and regrowth maintenance. Municipal Fire Prevention Plans prepared by local government should acknowledge and reference this Native Vegetation Plan.

The Glenelg Shire, at the direction of the Valuer General, is now valuing bush blocks at commercial value. This provides an important education tool to complement the implementation of the plan. Rate rebate schemes should be introduced to protect remnant vegetation and wetlands. Since the remnant vegetation remaining on private land averages 8 -11 hectares, not much money is involved. Importantly, rate rebate systems can be used to ensure that permit conditions are being met.

The Glenelg Hopkins CMA is working towards providing councils with concise accurate data and maps on native vegetation assets, and management as well as revegetation targets at the Shire level. The Glenelg Hopkins CMA will work with Councils in targeted protection of native grasslands.

Provision of EVC data at the same level of detail for adjoining CMAs and local government is essential, particularly given that some municipalities straddle more than one region.

Biodiversity mapping is an approach to identifying priorities for asset conservation and mapping significant areas for native biodiversity conservation at multiple scales. Bioregions are broad scale mapping units for biodiversity planning in Victoria's Biodiversity Strategy and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. Bioregional planning takes a strategic approach to conservation of native biodiversity assets (threatened and declining species, vegetation types, rivers, wetlands) by looking for opportunities to conserve groups of species in priority remnant vegetation types on private and public land. Having identified the location of these assets, it is then possible to recommend conservation actions that focus on the protection, maintenance and restoration of viable populations and ecosystems at these sites.

KEY STRATEGIC ACTIONS

- In taking a lead role, the Glenelg Hopkins CMA will
- Work with local government to ensure that the Regional Vegetation Plan becomes a key resource document for use within Planning Schemes. (Years 1-3)
 - Work with local government to secure adequate resources to carry out enforcement, particularly for roadside and environmental overlay monitoring. (Years 1-5)
 - Develop and promote strong partnerships between itself, Local Government and other Authorities within the Glenelg Hopkins region. (Years 1-10)
 - Encourage Local Government and other Statutory Authorities to implement the Native Vegetation Plan in works projects. (Years 1-5)
 - Promote the use of overlays for rare and threatened species, vegetation protection, significant landscape values and environmental significance. (Years 1-5)
 - Promote planning overlay use to target appropriate land use for landscape changes, e.g. plantations. (Years 1-10)
 - Encourage all municipalities within the Glenelg Hopkins region to develop and implement roadside management plans for vegetation. (Years 1-5)
 - Inform Utilities, particularly Telstra and Powercor, of significant areas of native vegetation. (Years 1-3)
 - Promote the education of staff and elected officers in Local Government and other Statutory Authorities about the Native Vegetation Plan and biodiversity conservation. (Years 1-10)
 - Hold a series of training workshops for staff from local government and appropriate utilities. (Years 1-3).

7.2.3 Other Agencies and Stakeholders

KEY OBJECTIVES

- To improve the level of participation by the various agencies and stakeholders in all levels of decision making on native vegetation management.
- To ensure a catchment-scale approach to policy development concerning biodiversity, with a close link between policy development and implementation.

A large number of stakeholders are involved in implementing this plan. For this plan to be successful, an integrated catchment management (ICM) approach to native vegetation will need to be adopted. Action will occur on both private and public lands and involve many groups and agencies within the region. All groups need to accept that they have a role to play in achieving sustainability and biodiversity outcomes for native vegetation.

To commit to improving the approach to managing our native vegetation, each stakeholder must be confident that processes exist to resolve the range of competing needs. This can only occur with strong partnerships between the various groups, agencies and individuals.

Ten Native Vegetation Officers have been employed by the Department of Primary Industries across Victoria to help resource the implementation of Victoria's Native Vegetation Framework.

Key Stakeholders, including Landcare groups, 'Trust for Nature', Water authorities and government agencies will become, and remain involved, only if they can have a real influence on the processes and the results.

Roadside management plans have been developed by VicRoads for all highways and tourist roads throughout the Glenelg Hopkins catchment. Glenelg Hopkins CMA has commented on the plans for high category roads. On-going dialogue with VicRoads will have positive impacts on native vegetation on roadsides during the implementation of the plan.

Parks Victoria

Parks Victoria is another important partner as managers of reserves. This Plan acknowledges that Parks Victoria needs to have input to corridor planning so as to complement revegetation works in parks and reserves. As a partner in native vegetation management, Parks Victoria should continue to have input to appropriate environmental overlays. The plan also encourages participants to think broadly when planning future habitat networks and to involve Parks Victoria.

Community sentiment reveals that the plan needs to cover both private and public land. Pest plant and animal control requires urgent partnership approaches where private land adjoins public land. It is also recognised that some crown land reserves have no management plans. Land purchase of conservation-significant sites adjoining existing conservation reserves is also a useful conservation tool.

Country Fire Authority

The CFA also has an important role in implementing this Plan. Roadside management plans, and their associated activities, impinge on the plan in both harmful and beneficial ways.

CFA guidelines for fire risk management in plantations, provide a useful guide for fire management of native vegetation established for conservation purposes.

CFA spraying and break burning impacts on native vegetation. Whilst roadside burning can have positive impacts, the use of sprays and ploughing needs to be carefully managed. The plan encourages the preparation of detailed Municipal fire Prevention Strategies, to prevent unnecessary damage to roadside remnants.

Landcare Groups

The Glenelg Hopkins CMA recognises the importance of working with Landcare groups to protect and improve native vegetation in the region. By way of example, in 1998 Glenelg Hopkins Landcare groups established an estimated 105,975 trees or shrubs and erected protective fencing around an estimated 134 hectares of remnant vegetation.

Ten Community Facilitators are in place to assist Landcare groups implement their local area plans. Service Club's and CFA Groups also provide important assistance to Landcare groups. It is acknowledged that some Landcare Group members are also members of 'Friends Groups' and that Landcare groups are not the only groups responsible for assisting with implementation of the plan.

Whilst the Plan recommends a one-to-one cost-sharing arrangement for funding of fences between crown land and private land, this should be part of an integrated process that includes weed and vermin control, particularly where reserve boundaries adjoin farming land.

Private Forestry developers

Plantation forestry is a tool for getting trees in the ground, but does not necessarily achieve biodiversity goals.

Private (or farm) forestry in the Glenelg Hopkins Region includes softwood plantations, blue gum plantations (largely harvested for woodchips) as well as the strategic integration of native hardwood plantations into existing farm enterprises for both products, such as wood and timber, and environmental objectives. Private forestry primarily focuses on the establishment and management of trees on previously cleared agricultural land, and is a growing opportunity for the community to integrate economic and environmental objectives.

Private forestry represents one of the few productive land use options that offers long term protection and enhancement of native vegetation. Private forestry provides the opportunity to leverage investment into revegetation for a combination of products and services, and also address specific processes threatening the regions vegetation communities. It provides a cost-effective, market driven means of revegetation and has the capacity to provide a significant extension to current revegetation efforts.

The Plan provides the opportunity for all land managers to participate voluntarily, and this is how we can make gains. The Plan also provides the opportunity to get other organisations using planning overlays not just Plantation companies. Planning overlays should be based on valid environmental information.

State Forest Management

DSE manages over 160,000 ha of state forest in the Glenelg Hopkins CMA. A forest management plan for this area is currently being developed with extensive community consultation. More than 83,000 ha of state forest is set aside specifically for conservation purposes and is managed as a part of the National Forest Reserve System. The management plan will set out management objectives and strategies for the conservation of biodiversity in State forests. Pest plant and animal control will continue to be necessary to maintain the quality of native vegetation within State forests. State forest should be included in future habitat corridor development. Ecological burning will be a key management tool to maintain the biodiversity of the range of vegetation communities that occur in state forest.

Roadside Managers

It is recommended that roadside management plans include overlays for both dead and living trees. Education is urgently required about the value of dead trees, particularly in terms of fauna habitat. It is also recommended that Best Management Practices be developed and implemented for all roadside management activities.

In some municipalities developers must undertake an 'Environmental Care' course as part of their permit condition. This is to be encouraged. At the moment such an approach is ad hoc through the statutory planning process. In particular, environmental compliance auditing requirement for works should be undertaken by the utilities for vegetation clearances.

High priority is given in this plan for the development of a regional code of practice for care of native vegetation. Roadsides offer important gains in native vegetation, particularly because of their significance as biolinks.

KEY STRATEGIC ACTIONS

- Promote and enhance the strong partnerships between the Glenelg Hopkins CMA, DPI, DSE, Greening Australia, Trust for Nature and other Environment Groups, Victorian Farmers Federation, Regional Plantation Committee and other peak industry bodies, including Plantation companies, within the Glenelg Hopkins region. (Years 1-5)
- Inform Plantation companies of significant areas of native vegetation. (Years 1-3)
- Ensure that roadside management plans include overlays for both dead and living trees. Education is urgently required about the value of dead trees, particularly in terms of fauna habitat. (Years 1-10)
- Ensure that Best Management Practices are developed and implemented for all roadside management activities. (Years 1-5).
- Encourage the preparation of property management and work plans as a basis for lodging applications to clear native vegetation. DSE/DPI, local government and the Glenelg Hopkins CMA will promote the best use of property management plans where they exist. (Years 1-5)

7.3 Implementation

7.3.1 Cost-sharing and incentives

KEY OBJECTIVES

- To ensure the equitable sharing of costs associated with the protection of native vegetation.
- To ensure that all stakeholder costs and benefits are clearly identified so that appropriate levels of investment are made.
- To promote wide recognition that any attempt to manage remnant native vegetation, whether on a local or regional level, is dependent on increasing awareness of land managers, extension workers, and the community in general about the value associated with native vegetation.

Currently, inadequate incentives exist to encourage a landholder to preserve remnant vegetation. Incentives that involve in-kind support, flexible development options, rate rebates, grants, dollar for dollar funding are all examples of the approaches that broadly come under the heading of incentives. These activities encourage action, better understanding and ultimately better protection of remnant native vegetation.

In the first instance we will work towards a practical strategy of rate rebate for remnant areas that have a conservation covenant. A Shire would be reimbursed from the general taxes - sharing the costs among all State taxpayers - and the remnant would be managed for the long-term.

Such arrangements should reflect the extent of the public benefit and take into account the different imperatives of the individual programs; while recognising that there are multiple benefits. The multiple objectives would include pest plant and animal control, salinity, water quality and biodiversity benefits.

BushTender

In the BushTender Program, sealed bids are sought from private landholders to undertake conservation activities on their land, e.g. maintaining 100 hectares of native forest weed free with no grazing or firewood harvesting. Successful bids are determined on the basis of value for money and environmental priority. Priority is determined using a biodiversity benefits index, which measures the aspects of biodiversity that are relevant to policy objectives. DNRE initiated the BushTender pilot in June 2001 with an information campaign in the North-East and North-Central regions of Victoria. Landholders expressing an interest in the scheme were mailed further information and subsequently contacted to arrange a property visit. During the visits the quality and significance of native vegetation on the property was assessed and management options were discussed with the landholder.

A draft management plan was then developed based on the actions that a property owner was willing to undertake. Landholders had the option to subsequently submit a bid for what they were willing to accept in return for implementing their draft management plan. By February 2002, 126 expressions of interest in the trial and 98 landholder bids had been received. Land management agreements are established with successful bidders for a duration of three years. These will be a contract registered with landholders rather than on title. Compliance will be monitored using random inspections.

KEY STRATEGIC ACTIONS

- To undertake an assessment of market-based incentives for the conservation of native vegetation, including the BushTender Program.* (Years 1-3)
- Work with all levels of government, the community and prospective partner organisations to develop a range of flexible and accessible incentives such as rate rebates, tax concessions and other incentives. (Years 1-3)
- Undertake cost-benefit analysis using case studies that investigate the benefits of remnant vegetation adding to the gross value of farm productivity. (Years 1-3)
- Undertake cost-benefit analysis using case studies that investigate the costs of retaining remnant vegetation on disposable farm income and future property values. (Years 1-3)
- Develop a broad range of criteria for funding.(Years 1-3)

*The following criteria will be used to assess incentives:

- The financial responsibility for achievement of land management, water quality and conservation goals and objectives should be shared by the wider community in circumstances where costs cannot be met by the use of market instruments
- The costs associated with reducing or preventing the impacts of damaging practices or threatening processes on remnant vegetation should be carried by those causing them
- Land managers have a duty of care to protect remnant vegetation, including rare and threatened species
- The use of conservation covenants should be linked to other incentives, such as local government rating systems that recognise the values associated with uncleared land.

Biodiversity Risk Mitigation Protocols

It is important that actions aimed at mitigating the impacts of salinity and improving water quality do not have adverse impacts on biodiversity assets. Future funding application proposals will be required to consider the risks to biodiversity associated with proposed activities, both on site and in the wider landscape context. The Protocols provide guidance on assessing the likelihood and consequences of the risks, and options for mitigation of potential impacts to native biodiversity, and generally to make the trade-off decisions inherent in natural resource management more explicit.

Developed for the CMA in 2002, the Protocols help assess the risks to biodiversity associated with major State and Commonwealth funded schemes, such as NAP and NHT. One of the central themes of the Protocols is to achieve greater levels of protection and enhancement of native biodiversity.

The Protocols process comprises seven key components:

- **Project / Program Details.** This component of the Protocols identifies the nature of the program and/or location of works and proponent details. The Protocols will be an integral part of existing NAP and NHT application forms and databases information systems for this detail.
- **Identification of Assets.** This involves identifying and assessing the status (conservation values) of four classes of biodiversity asset and requires the completion and lodgement of Form 1 with any funding submission.
- **Risk Assessment.** This involves eight steps, identifying and selecting the activities, biodiversity impacts, likelihood of impact, consequences of impact, risk ranking score and the level of mitigation and enhancement required.

- **Mitigation Tools.** This involves supporting information and checklists to identify the range of existing tools and mechanisms available to reduce the likelihood of impact occurring and/or minimise the consequences of impact.
- **Outputs and Reporting.** This component combines the two forms that provide the biodiversity risk assessment report essential for inclusion in any funding submission.

7.4 Reporting, Monitoring and Evaluation

KEY OBJECTIVES

- To monitor the implementation of the Native Vegetation Plan against its targets.
- To track the increase in individual endangered EVC communities to 15 per cent of their pre-1750 cover.
- To determine the appropriateness of the assumptions underlying the Plan.
- To regularly review and modify the Plan and the assumptions on which it is based.

The monitoring and evaluation of this plan will become an integral part of the contribution that all our efforts make to the environmental health of the region and the State. This can be achieved by linking the evaluation with catchment condition indicators. These indicators will be linked with Bioregional Networks. Catchment condition, including vegetation assessment, will describe the results of changes in catchment processes as well as the resultant changes in ecological, social and economic health.

An indicator is a significant physical, chemical, biological, social or economic variable that can be measured in a defined way for management purposes. A set of core data will be developed, maintained and regularly updated. Monitoring of the effectiveness of the Regional Vegetation Plan will build on that core data set. A major review of the Native Vegetation Plan will be aligned with the review of the Regional Catchment Strategy. Assessing vegetation quality on private and public land remains a high priority.

Regional Monitoring

The Glenelg Hopkins CMA has initiated a project to develop a practical regional monitoring and reporting system for native vegetation in the Glenelg Hopkins region. The system will allow implementation of this Plan to be monitored and to objectively measure a reversal in the long-term decline in the extent and quality of the region's native vegetation. The proposed system will allow the CMA to:

- 1 Validate the extent of native vegetation in the region.
- 2 Determine the condition of existing native vegetation.
- 3 Measure the rate of change in quantity and quality of the region's native vegetation.
- 4 Monitor and report on how well the CMA, its partners and the community, are implementing the Native Vegetation Plan.
- 5 Determine the minimum base information required to answer the following questions:
 - What measurable improvements are we making in native vegetation cover?
 - What measurable improvements are we making in condition? (biodiversity and habitat).
 - What measurable improvements are we making in people's valuing of native vegetation?

- What measurable improvements are we making in reporting, particularly in terms of linkages to other strategies and organisational objectives?
- What are the current baseline benchmarks against which progress can be measured?
- What level of confidence can we have in these benchmarks?
- What critical information is required by the Program Managers responsible for the key International, Federal and State strategies, and in what form?
- How can the information be most efficiently collected and reported?
- What measurable improvement are we making in skilling the community to participate in accurately monitoring native vegetation extent and condition?

The Glenelg Hopkins CMA expects that the Native Vegetation Monitoring and Reporting System will comprise:

- A vegetation inventory, data collection and baseline mapping.
- Biodiversity assessment. How much of a vegetation type remains, its regional significance, how much of it is protected in formal conservation reserves, potential threats, and targets for conservation.
- Regional vegetation management planning. Regional targets for EVCs, management actions, and levels of stakeholder participation. These goals and actions then provide a framework for monitoring and evaluation.
- Vegetation management and infrastructure. Equipment and services required to underpin the efforts of landholders, community groups and governments. This includes advice and specialist services to support mapping and monitoring, seedbanks and nurseries to provide sufficient quantities of local species, and equipment for seed harvesting and planting.
- Incentives. Effectiveness of a range of different incentives to determine the most effective strategies.
- Regulatory Mechanisms. Effectiveness of legislation to protect threatened species and communities.
- Land clearing regulation. Use of aerial photographs and satellite mapping to measure the effect of regulation on preventing the inappropriate clearing of native vegetation.
- Industry land use 'Codes of Practice'. Measure the adoption of environmental management systems and 'best practice' environmental practices for a range of industries including dairying, raised-bed cropping and plantation forestry.
- Monitoring and Evaluation. Extent to which the regional activity is underpinned by relevant baseline data, at the appropriate scale, against which assessment of change can be made. Monitoring is required of both the extent of vegetation cover and its condition. A vegetation condition checklist comprising a 'poor', 'okay' or 'good' assessment of 'Site features', 'Plant diversity audit', 'Vegetation health', 'Habitat features' and 'Disturbances' will be developed.
- Consistency with other monitoring systems. Any regional monitoring system must be consistent with other monitoring systems including the National Vegetation Information System (NVIS).
- The regional monitoring system must be consistent with the NLWRA Australia-wide standard for collecting and reporting information. Any monitoring system must benchmark 2004 regional data and make future data collection cost effective. It must also ensure access to information about native vegetation for the entire community.

KEY STRATEGIC ACTIONS

- Develop a framework for reporting using sub-catchment boundaries. (Years 1-3)
- Explore the use of satellite imagery to predict quantity and quality of remnant vegetation. (Years 1-3)
- Establish a workable monitoring system with measurable targets. (Years 1-3)
- Develop, in partnership with Trust for Nature and Parks, Flora & Fauna, a list of flora and fauna for each property (available to all property owners) by 2007. (Years 1-5)
- Evaluate annually the outcomes of all actions in this Plan. (Years 1-30)
- Ensure that common and consistent data collection standards are used. (Years 1-30)
- Align reporting, monitoring and evaluation with Victorian Catchment Indicators On-Line. (Years 1-30)
- Monitor the number of properties and the area of vegetation under conservation covenants. (Years 1-30)
- Report to the community each year on the progress with implementing the Plan. (Years 1-30).
- Implement a defined monitoring program to assess the regional impact of the loss of individual scattered tree species.

8 Cost Sharing and Native Vegetation Management

8.1 Duty of Care

Land managers have a 'duty of care' to retain native vegetation for current and future generations. The Glenelg Hopkins CMA aims to make all land managers aware of the range of voluntary and financial incentives available to help them protect the native vegetation on their land.

This chapter summarises the measures available to all land managers. The text also explores approaches that may be introduced in the future. The Glenelg Hopkins CMA is committed to exploring, with land managers, any or all of these measures to help conserve the remaining native vegetation on private land in the region.

The Glenelg Hopkins CMA acknowledges that many landowners recognise that it is in their interest to protect biodiversity, in both the short and long term. In these cases where society's interest in protecting biodiversity coincides with the land user's interest, self-regulation may be a cost-effective and appropriately non-interventionist strategy.

However in the large majority of circumstances, there is a considerable gap between the public interest in biodiversity conservation and the private interests of individual land users. While the preservation of remnant vegetation may provide long term benefits to land users (acting as windbreaks, reducing salinity etc) these benefits are less tangible and immediately realisable than the increase in short term productivity which remnant removal promises.

For land users who are economically marginal, the short-term production pay-offs are often perceived to outweigh possible long-term benefits of conservation and a reduction in land degradation. This is a major limitation of self-regulation and other motivational based approaches to biodiversity protection.

The Glenelg Hopkins CMA acknowledges the need to have available a range of voluntary and financial measures to protect the region's remaining remnant vegetation. The Authority will ensure that it communicates these measures to all land managers.

Society vests in individual landholders the right to use natural resources for private gain; in return landholders have a mutual obligation, or duty, to manage and care for these resources in a sound and sustainable manner, for current and future generations. Landholders are expected by society to honour this obligation and manage natural resources, within the limitations set by current knowledge, in such a way as to prevent natural resource problems arising, both on their property and throughout the wider catchment or region.

A duty of care is established in law in relation to people not causing damage to the land or property of another person or adversely affecting their income producing capacity. While a statutory duty of care may not be practical, a broader concept of a duty of care should be embraced by all of society.

8.2 Cost sharing - when should the community pay?

Because some past Australian government policies encouraged activities which degraded the natural resource base there is a strong case for investment by government in both land degradation and conservation issues. However, investment by government must provide benefit to the broader Australian public and not just the individual landholder.

The revenue implications of compensating for lost production would be well beyond the resources of the Natural Heritage Trust, and more generally Commonwealth and State governments. Therefore, we must continue to seek to share with the community the cost of protecting the region's biodiversity and ameliorating land and water degradation.

A landholder's duty of care should include sustainable land management. The Glenelg Hopkins CMA adopts the view that land managers in the region need access to a range of measures to assist them in protecting native vegetation. In the short term the CMA is confident that incentive payments can help speed transition to native vegetation protection and maintain community support..

The development of management agreements and more broadly, programs promoting nature conservation on private land, are largely dependent on off-farm, government or philanthropic funding, however, most Australian conservation programs only have very modest funds available for payment of incentives. If the role of private land conservation is going to be significantly enhanced, then mechanisms are needed which encourage greater numbers of landholders to participate. Along with education and awareness, financial incentives remain the most powerful and direct means of encouraging more people to consider participating in nature conservation programs.

Incentives have another important role in encouraging landholders to enter into and honour a management agreement. They provide a tangible example of public appreciation for a landholder's role as a steward of remnant native vegetation that is valued by society.

Existing responsibilities in land management are defined by legislation and policies and by what is generally accepted as reasonable and fair within a region or community (Industry Commission, 1997).

The term 'duty of care' is used to explain these responsibilities. 'Duty of care' defines the point at which the 'polluter pays principle' ceases to apply and the 'beneficiary pays principle' takes effect.

The Industry Commission regards the Victorian Catchment and Land Protection Act 1994 as embracing the concept of duty of care in relation to land managers obligations about soil, water, weeds and pest animals. Over and above legal requirements, farmers are responsible for what is 'reasonable and practical' for resource managers to do so they do not damage native vegetation.

The level of government support provided to protect native vegetation on private land depends on the significance of the vegetation community. Government aims to protect all native vegetation sites in the region, however initial priority work will concentrate on sites that are Internationally, Nationally and Regionally significant.

8.3 Cost-sharing mechanisms

The cost-sharing mechanisms included here represent a sample of the range available to protect native vegetation.

· Indirect assistance

The following measures are either available now to land managers in the region to protect native vegetation or are under consideration by the Glenelg Hopkins CMA.

i) Tax instruments

Capital expenditure incurred by a taxpayer on measures to prevent land degradation qualifies for outright deduction in the year the expenditure is incurred (Section 75D of the Income Tax Act). Taxation incentives were broadened in 1997 giving landholders the choice of claiming accelerated tax deductions for landcare works or a tax rebate or credit set at the rate of 34 cents in the dollar for qualifying expenditure incurred from 1 July 1997.

While tax rebates are relevant, in the absence of a taxable income, these are of little return to landholders who might want to take conservation initiatives but are unable to do so for financial reasons. Tax credits, allow producers to defer their tax deductions based on expenditure for remnant vegetation conservation to a year in which they have a taxable income.

ii) Land tax and Local Government rebates

There is support for a form of rating concession for those areas of a property set aside for conservation purposes. However, local government is concerned that it will need additional skills and resources to administer such a system, and would expect some financial support from other levels of government in order to introduce a rate concession scheme.

iii) Voluntary Programs

Voluntary conservation programs do not require the landholder or resource user to commit to participate for any set period. Withdrawal from a program only results in cessation of assistance. Voluntary programs are non-interventionist and have low on-going administrative costs for Governments and Statutory Authorities.

iv) Carbon Trading

Carbon is fixed (or sequestered) by growing native vegetation. Carbon pooling, where government or companies can own carbon fixed by environmental plantings, is being encouraged. Companies able to demonstrate that they are making significant moves to reduce their overall emissions will be eligible to claim an 'offset' and access the greenhouse credit pool. (Landcare Australia Annual Report, 1999).

v) Grants or subsidies

The biggest single incentive identified by landholders for protecting native vegetation is the provision of money for fencing materials. Government is expected to provide for the cost of fencing material and the landholder provides the labour. Advice on management issues is also seen as desirable.

The Glenelg Hopkins CMA administers incentives to fence out remnants in return for entry into management agreement to maximise the conservation value of selected remnants. In addition the CMA acknowledges that well-targeted grants to facilitate specific projects have multiplier effects. This is confirmed in a study (Olsen, 1992) that identified for every one dollar spent by governments, voluntary conservation organisations throughout Australia generated \$3.22 to the conservation effort.

Information on how to access a range of programs can be obtained from the office of the Glenelg Hopkins CMA.

vi) Land for Wildlife

Victoria's Land for Wildlife scheme has operated since the early 1980s. It is administered by the Department of Sustainability and Environment in which landholders interested in wildlife management on their land can register that interest. The Land for Wildlife program involves over 5,881 participating properties across Victoria covering 542,590 hectares and containing 158,712 ha of retained or restored habitat (DPI, Dec 2003).

vii) Trust for Nature

The Trust is a statutory authority that helps private landholders to protect remnant habitat. The Trust focuses on its conservation covenant program and the purchase of land of high conservation value through a revolving fund. The Conservation Covenant Program in Victoria is administered by Trust for Nature (Conservation Trust Act 1972). Participation in the Program in the form of entry into agreements is voluntary. The covenant is registered on title and binds all future owners. A total of 507 covenants covering 21,744 hectares have been approved since 1972.

viii) Voluntary standard-based incentives

Accrediting people and businesses that meet prescribed standards is another useful incentive, worth pursuing in the Glenelg Hopkins region. The standards are normally accompanied by codes of practice, which may be voluntary but can be powerful in creating environmental awareness and influencing the behaviour of others.

ix) Property-Right instruments

· Exclusive-use rights

Many farmers already have exclusive rights (via state government trespass laws) to determine who may drive, camp and hunt on their property. In areas of high biodiversity, the ability to control access to natural resources can provide an incentive for investment in biodiversity conservation and to develop nature-based tourism.

· Bioprospecting Contracts

Bioprospecting contracts are a special form of exclusive right used to maintain equity and encourage people to maintain a resource in the hope that people will find an asset that can be marketed. They seek to make biodiversity protection the 'highest and best use' for a resource.

· Individually Transferable Property-Rights

Well designed individually transferable property-right mechanisms force administrators to set targets for threats to biodiversity. They are more dependable than levies and charges because they use institutional mechanisms to work out the optimal trade-off between use and conservation and then market mechanisms to determine how to achieve that trade-off.

Individually transferable property-right mechanisms require targets to be set for threats to biodiversity. This approach is currently being explored by the Glenelg Hopkins CMA.

x) Covenants

Covenants and easements are instruments that help preserve areas that support certain types of vegetation or wildlife. Generally speaking, easements allow someone other than the owner to use a resource, whilst covenants determine the agreed actions of existing and all future landowners.

xi) Management Agreements

A contractual agreement, whereby landholders are reimbursed for the cost of providing services along with the capital costs associated with building fences necessary to conserve biodiversity, can be established as part of a management agreement.

While management agreements "buy time" they do not provide or promise permanent conservation. The Glenelg Hopkins CMA recognises the need for strategic protection of important vegetation communities. Ecosystems cut across property boundaries. By refusing to cooperate, one person with a strategic land holding can effectively destroy a wildlife corridor or leave a destructive gap in a buffer zone. A regulatory fall back position, as an alternative to an outright purchase of the land, is even more necessary where the land in question is a core area.

xii) Off-set arrangements

Another form of agreement, where you can't avoid the damage, involves giving industry the choice between off-setting the damage they cause or paying an authority to do it on their behalf. The approach has been applied to wetland conservation in the United States - known as wetland mitigation - where a developer may be asked to pay for the cost of reclaiming a wetland whose environmental services are equivalent to those to be lost.

xiii) Revolving funds

Trust for Nature manages a unique Revolving Fund to purchase significant native habitats, place a conservation covenant on it and sell it to a caring new owner. Money from the sale is returned to the Revolving Fund to purchase another valuable property for conservation. Trust for Nature's successful Revolving Fund is the model now being adopted by other states in Australia. Bequests and major donations that are given for land purchases have ensured the fund is a sustainable and easily managed tool for preserving some of our most precious habitat.

xiv) Fencing Costs and Agreements

It is estimated that for every \$1 million of public funds spent, conservation of 10,000 hectares would result. This is based on 100% assistance and remnants of approximately 25 hectares in size. If remnants are larger than 25 hectares, or less than 100% assistance is provided, the number of hectares conserved per dollar spent will rise (Elix and Lambert, 1998).

One approach, suggested by Binning and Young (1997), is to tie fencing incentives to the level of commitment of the landholder to a binding management agreement. Different levels of subsidies would apply.

- 33% for non-binding agreement such as a person involved in Land for Wildlife or Trust for Nature
- 66% for a fixed term agreement, for example 30 years
- 100% for an agreement in perpetuity such as for a site that is important for an endangered species.

The steps in the assistance provided are designed to provide a strong incentive to landholders to enter into agreements in perpetuity.

The cost of fencing for revegetation or restoration can vary from \$900 to \$3,550 per kilometre (Schirmer and Field, 2000). The variations arise due to differences in rural suppliers retail prices, topography, the combination of materials used and whether the group of landholders has any sponsorship arrangement with suppliers of fencing material. Networks of Landcare groups in the Glenelg Hopkins region have achieved significant savings by joining forces and combining their buying power.

The size of the area to be fenced is also important. Fencing a square one-hectare remnant would require 400 metres of fencing, whereas fencing a square 10-hectare remnant would require 1270 metres of fencing. At \$3.00 per metre (materials only), the smaller area can be fenced for \$1200 per hectare, whereas the larger area can be fenced for \$381 per hectare.

9 Sub-catchment assets and priority EVCs

The following 64 pages present asset-based information on vegetation at the sub-catchment level. The information includes the endangered EVCs identified for each sub-catchment, the threats facing vegetation communities in each sub-catchment, the cost of protecting and enhancing the endangered EVCs and the flora and fauna to benefit from the work.

The significant flora and fauna included in the tables for each sub-catchment that will benefit from implementing the Native Vegetation Plan usually only include AROTS and VROTS listed species. A full list of the flora and fauna recorded in each sub-catchment is available from the Glenelg Hopkins CMA.

On-going validation of the current AROTS and VROTS listings will be important to the integrity of the Native Vegetation Plan. For example, whilst the Eastern Barred Bandicoot is listed as occurring in sub-catchment G11 anecdotal evidence suggests it is not longer present. In contrast the Brolga is not listed in G11, whereas the bird has recently been sighted in the sub-catchment.

The lists of EVC communities for each sub-catchment includes those communities that are either endangered, vulnerable or depleted. A complete list of all EVCs for each sub-catchment is available from the Glenelg Hopkins CMA.

The figure used to determine the cost of the works program to restore each endangered EVC community to 15 per cent of its pre-1750 cover by 2030 is based on \$1,500 per hectare (2004 dollar value). This is consistent with revegetation and native vegetation protection work carried out by the Glenelg Hopkins CMA along with that noted by Schirmer and Field in their 2000 report for Greening Australia. However, costs do not reflect on-going weed control, monitoring, or technical assistance.

The \$1,500 per hectare is an average amount used to determine a strategic budget for native revegetation and protection work across the catchment. Differential rates have not been applied for establishment or restoration techniques. For example, different costs will be incurred restoring a remnant patch of 80 hectares, revegetating a 40-hectare site with the characteristic overstorey of the original EVC community, or extending the area of original native grassland by just three hectares.

The Glenelg Hopkins CMA will monitor implementation of this Native Vegetation Plan and revise its costings on an annual basis. Based on all the available data and the CMAs local experience with revegetation, the \$1,500 per hectare figure is considered both reasonable and achievable. Whilst this amounts to significant costs for revegetation and restoration at a sub-regional level, it also highlights the desperate state of native vegetation decline in the region and the size of the task ahead of us if we to achieve vegetation cover across the region of 30 per cent by 2030. To reach this target will require significant investment by all levels of government and the private sector.

GLENELG HOPKINS SUB-CATCHMENTS

G1 Glenelg Estuary

The Glenelg River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the southeast, tributaries including Glenaulin and Moleside Creeks. Sub-catchment one extends from the South Australian border in the west to the Mount Richmond Community fire shed. The northern boundary is Mumbannar while the southern border is the coastline. The main townships of the region are Nelson and Dartmoor, and the districts of Mumbannar, Drik Drik, Wanwin, Kentbruck and Eaglehawk Bend. The main reserve in this sub-catchment is the Lower Glenelg National Park and the lower reach of the Glenelg River is a Heritage River.

Native vegetation currently covers 38.6 per cent of the sub-catchment comprising a total of 41 EVC communities. Prior to 1750 EVC communities covered 118,122 ha of this sub-catchment. The dominant remaining EVC is Damp Sands Herb-rich Woodland and the largest intact remnant is 3,526 ha. This EVC community is dominated by an overstorey of Swamp Gum and other eucalypts and an understorey of Manuka, Prickly Currant-bush and Victorian Christmas-bush.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the five endangered EVC communities identified in Table G1-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G1-4).

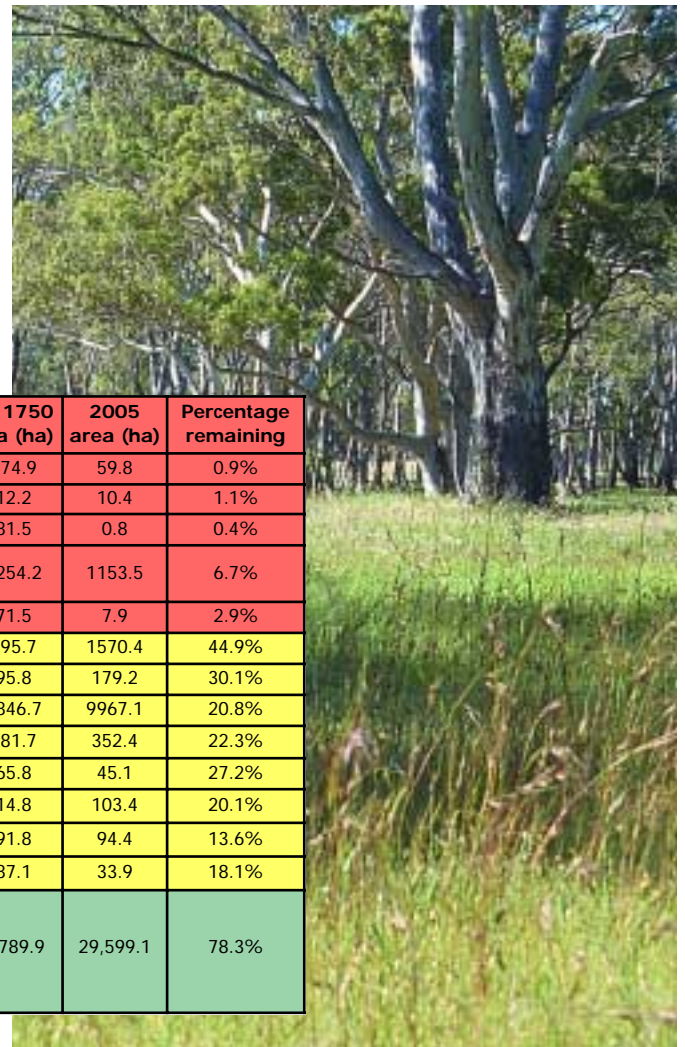
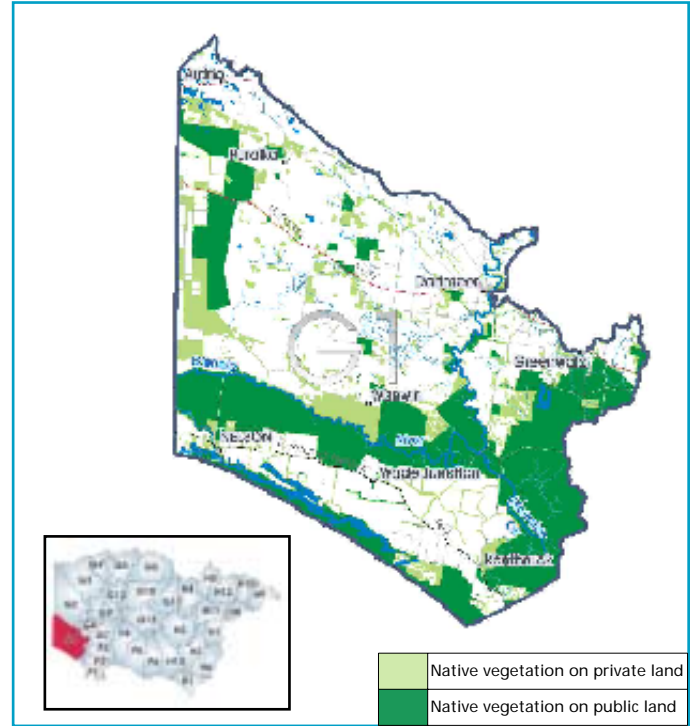


Table G1-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	6574.9	59.8	0.9%
	292	Red Gum Wetland	912.2	10.4	1.1%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	181.5	0.8	0.4%
	713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	17254.2	1153.5	6.7%
	739	Plains Grassy Woodland / Plains Swampy Woodland	271.5	7.9	2.9%
Vulnerable or depleted	23	Herb-rich Foothill Forest	3495.7	1570.4	44.9%
	650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	595.8	179.2	30.1%
	3	Damp Sands Herb-rich Woodland	47846.7	9967.1	20.8%
	53	Swamp Scrub	1581.7	352.4	22.3%
	136	Sedge Wetland	165.8	45.1	27.2%
	200	Shallow Freshwater Marsh	514.8	103.4	20.1%
	680	Freshwater Meadow	691.8	94.4	13.6%
	710	Damp Heathland	187.1	33.9	18.1%
Other		Other vegetation assets well represented	37,789.9	29,599.1	78.3%

REGIONAL NATIVE VEGETATION PLAN

Table G1-2: THREATS

Ecological & societal processes	Clearance and fragmentation	
	Salinity	
	Land use change	
	Waterlogging and drainage and drainage	
	Poorly managed grazing	
	Inappropriate Fire Regime	
	Disease eg Mundulla yellow, Phytophthora	
	Firewood collection	
	Pest plants	
	Pest animals	
Significant threat		
Medium threat		
Low threat		

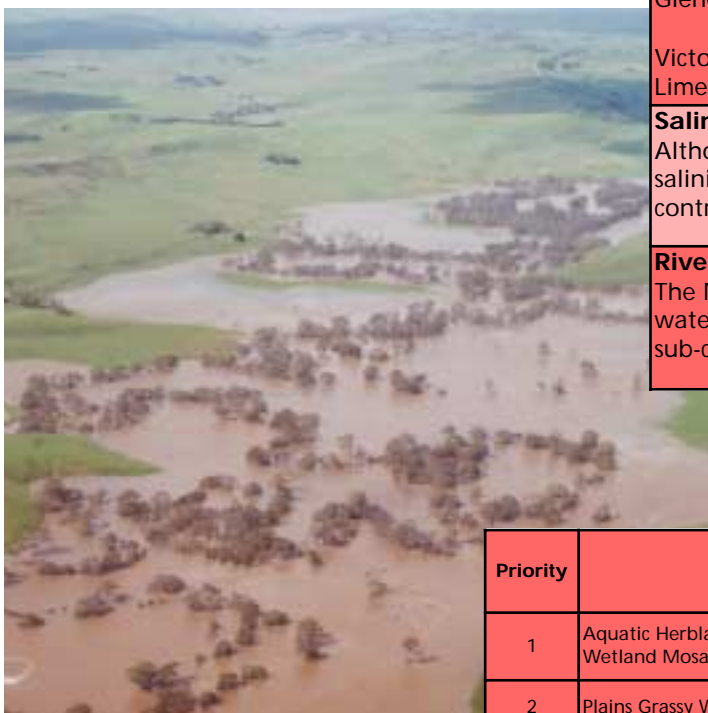


Table G1-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian vulnerable and Victorian endangered species - Striped Legless Lizard (<i>Delma impar</i>)</p> <p>Australian endangered and Victorian endangered species - Swift Parrot (<i>Lathamus discolor</i>) Eastern Barred Bandicoot (<i>Perameles gunnii</i>)</p> <p>Victorian rare species - Latham's Snipe (<i>Gallinago hardwickii</i>) Bush Stone-curlew (<i>Burhinus grallarius</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan includes 2.9 kms of Conservation Status 'depleted' EVC's as riparian vegetation.</p> <p>Australian endangered species - Small Western Spider orchid (<i>Caladenia colarata</i>) Metallic Sun-orchid (<i>Thelymitra epipactoides</i>) Maroon Leek-orchid (<i>Prasophyllum frenchii</i>) Mellblom's Spider-orchid (<i>Caladenia hastata</i>) Adamson's Blown-grass (<i>Agrostis adamsonii</i>)</p> <p>Australian and Victorian rare species - Glenelg Pomaderris (<i>Pomaderris continentis</i>)</p> <p>Victorian Endangered Species - Lime Fern (<i>Pneumatopteris pennigera</i>)</p>
<p>Salinity Although G1 is not a sub-catchment threatened by increasing salinity, native vegetation has an important role in recharge control.</p>
<p>River health, wetland and water quality The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River, reaches of which in this sub-catchment are listed as a Victorian Heritage River.</p>

Table G1-4: WORKS PROGRAM

(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Aquatic Herbland/Plains Sedgy Wetland Mosaic	0.8	27	\$39,300
2	Plains Grassy Woodland	60	986	\$1,389,000
3	Red Gum Wetland	10	137	\$190,500
4	Plains Grassy Woodland / Plains Swampy Woodland	8	41	\$49,500
5	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	1154	2588	\$2,151,000
	Total	1233	3779	\$3,819,300

GLENELG HOPKINS SUB-CATCHMENTS

G2 Lower Glenelg River

The Glenelg River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from tributaries including the Bowtell, Cawker, Scott and Limestone Creeks. The furthest point west is the South Australian border to 7 km north west of Merino. Northern most point of 7 km north of Dorodong to approximately level with Dartmoor in the south.

There are no townships in this sub-catchment, but it includes the regions of Bahgallah, Lindsay, Kaladbro, Arдно, Wilderness, Strathdownie, Wilkin, Killara, Puralka and Dorodong. The Lower Glenelg National Park is the main reserve in this sub-catchment and the southern section of the sub-catchment has numerous wetlands and swamps.

Native vegetation currently covers 31.8 per cent of the sub-catchment comprising a total of 52 EVC communities. Prior to 1750 EVC communities covered 170,856 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 9,048 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 16 endangered EVC communities identified in Table G2-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G2-4).

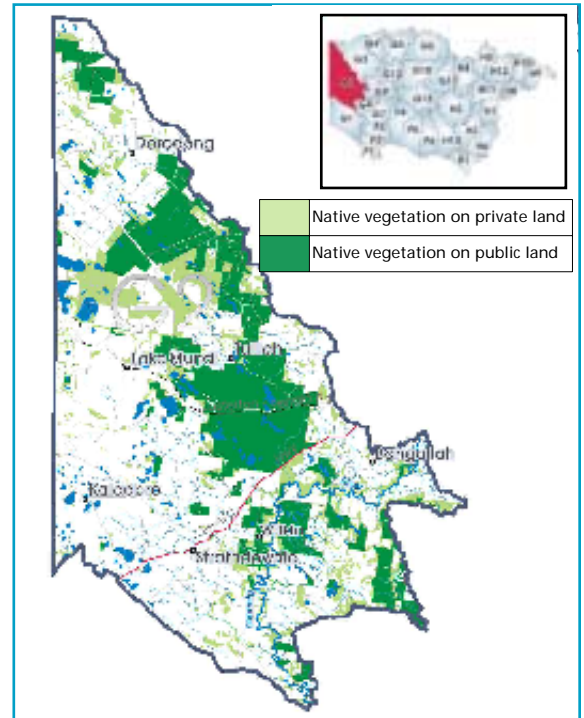


Table G2-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	34145.1	804.9	2.4%
	68	Creepline Grassy Woodland	93.5	0.2	0.2%
	200	Shallow Freshwater Marsh	152.3	6.7	4.4%
	292	Red Gum Wetland	6801.3	96.8	1.4%
	647	Plains Sedgy Wetland	604	43.1	7.1%
	652	Lunette Woodland	252.3	4.0	1.6%
	680	Freshwater Meadow	71.2	4.4	6.1%
	681	Deep Freshwater Marsh	131.0	4.1	3.1%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	4809.7	270.8	5.6%
	719	Grassy Woodland / Damp Sands Herb-rich Woodland	1929.6	179.2	9.3%
	732	Damp Sands Herb-rich Woodland /Plains Swampy Woodland /Aquatic Herbland	1208.2	61.1	5.1%
	739	Plains Grassy Woodland / Plains Swampy Woodland	1784.8	80.8	4.5%
	763	Damp Heathland / Damp Heathy Woodland /Seasonally Inundated Shrubby Woodland	839.8	4.9	0.6%
	785	Heathy Herb-rich Woodland / Damp Sands Herb-rich Woodland	4547.6	248.6	5.5%
885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	7966.9	648.1	8.1%	
892	Heathy Woodland/Sand Heath Mosaic	2146.4	208.9	9.7%	
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	16868.5	4965.1	29.4%
	56	Floodplain Riparian Woodland	2475.4	719.2	29.1%
	125	Plains Grassy Wetland	116.1	20.8	17.9%
	651	Plains Swampy Woodland	125.5	16.3	13%
	653	Aquatic Herbland	907.2	209.4	23.1%
	657	Freshwater Lignum Shrubland	51.3	8	15.6%
	707	Sedgy Swamp Woodland	355.9	48.4	13.6%
	751	Seasonally Inundated Shrubby Woodland / Plains Sedgy Woodland	1832.1	221.2	12.1%
793	Damp Heathy Woodland	1968.6	359.1	18.2%	
Other		Other vegetation assets well represented	40,965	30,049	73.4%



Heathy Woodland Complex

REGIONAL NATIVE VEGETATION PLAN

Table G2-2: THREATS

Ecological & societal processes	Clearance and fragmentation				
	Salinity				
	Land use change				
	Waterlogging and drainage				
	Poorly managed grazing				
	Inappropriate Fire Regime				
	Disease eg Mundulla yellow, Phytophthora				
	Firewood collection				
	Pest plants				
	Pest animals				
Significant threat		Medium threat		Low threat	



Heath Mouse (*Pseudomys shortridgei*)

Table G2-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>) Australian vulnerable and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Australian vulnerable and Victorian rare species - Variegated Pigmy Perch (<i>Nannoperca variegata</i>) Warty Bell Frog (<i>Litoria raniformis</i>) Australian and Victorian Endangered Species - Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii</i>) Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>) Southern Brown Bandicoot (<i>Isodon obesulus</i>)</p> <p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan: Australian and Victorian rare species - Glenelg Pomaderris (<i>Pomaderris Continentis</i>) Australian and Victorian vulnerable species - Swamp Fireweed (<i>Senecio psilocarpus</i>), Clover Glycine (<i>Glycine latrobeana</i>) Australian rare and Victorian endangered species - Scented Spider-orchid (<i>Caladenia fragrantissima ssp. fragrantissima</i>) Australian and Victorian endangered species - Metallic Sun-orchid (<i>Thelymitra epipactoides</i>) Maroon Leek-orchid (<i>Prasophyllum frenchii</i>) Mellblom's Spider-orchid (<i>Caladenia hastata</i>)</p> <p>Salinity</p> <p>G2 is not a sub-catchment threatened by increasing salinity, yet native vegetation has an important role in recharge control.</p> <p>River health, wetland and water quality</p> <p>The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River, reaches of which in this sub-catchment are listed as a Victorian Heritage River.</p>

Table G2-4: WORKS PROGRAM
(based on 2005 dollars)



Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Creekline Grassy Woodland	0.2	14	\$20,666
2	Damp Heathland / Damp Heathy Woodland / Seasonally Inundated Shrubby Woodland	4.9	126	\$181,612
3	Red Gum Wetland	96.8	1020	\$1,384,733
4	Lunette Woodland	4	38	\$51,047
5	Plains Grassy Woodland	804.9	5122	\$6,475,640
6	Deep Freshwater Marsh	4.1	20	\$23,813
7	Shallow Freshwater Marsh	6.7	23	\$24,516
8	Plains Grassy Woodland / Plains Swampy Woodland	80.8	268	\$280,803
9	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	61.1	181	\$179,841
10	Heathy Herb-rich Woodland/Damp Sands Herb-rich Woodland	248.6	682	\$650,069
11	Aquatic Herbland/Plains Sedgy Wetland Mosaic	270.8	721	\$675,275
12	Freshwater Meadow	4.4	11	\$9,932
13	Plains Sedgy Wetland	43.1	91	\$71,811
14	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	648.1	1195	\$820,422
15	Grassy Woodland / Damp Sands Herb-rich Woodland	179.2	289	\$164,657
16	Heathy Woodland/Sand Heath Mosaic	208.9	322	\$169,698
	Total	2666.6 ha	10,123 ha	\$11,184,534

GLENELG HOPKINS SUB-CATCHMENTS

G3 Mid Glenelg River

The Glenelg River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the north and east and includes tributaries such as Kadnook, Stewarts, Smokey, Powers, Adams, Ferres, McPherson, Booroite, Salt, Nolan, Red Cap and Deep Creeks. Other tributaries include the Chetwynd and Wando Rivers, and Steep Bank Rivulet. Sub-catchment extends from 11 km North of Burkes Bridge to the confluence of the Wannan and Glenelg River. It stretches from Poolajelo in the west across to Konongwootung in the east.

The main townships in this sub-catchment are Casterton, Dergholm, Chetwynd and Wando Vale. It also includes the regions of Dunrobin, Wando Vale, Nangeela, Wando Bridge and Warrock.

Native vegetation currently covers 21.8 per cent of the sub-catchment comprising a total of 42 EVC communities. Prior to 1750 EVC communities covered 156,258 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 8,759 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 12 endangered EVC communities identified in Table G3-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G3-4).

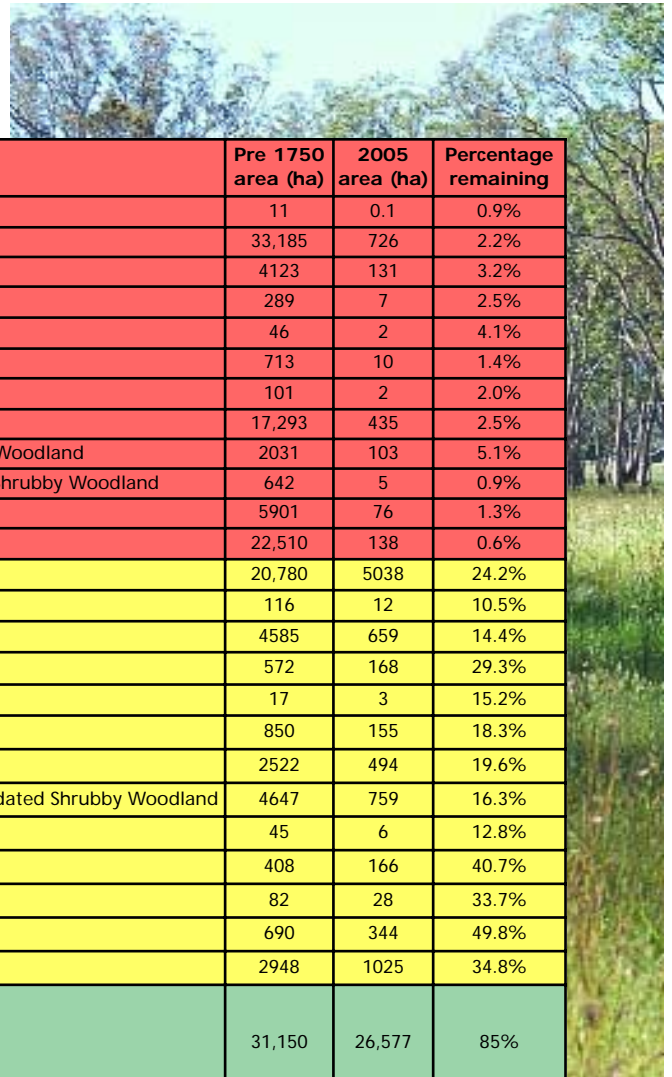
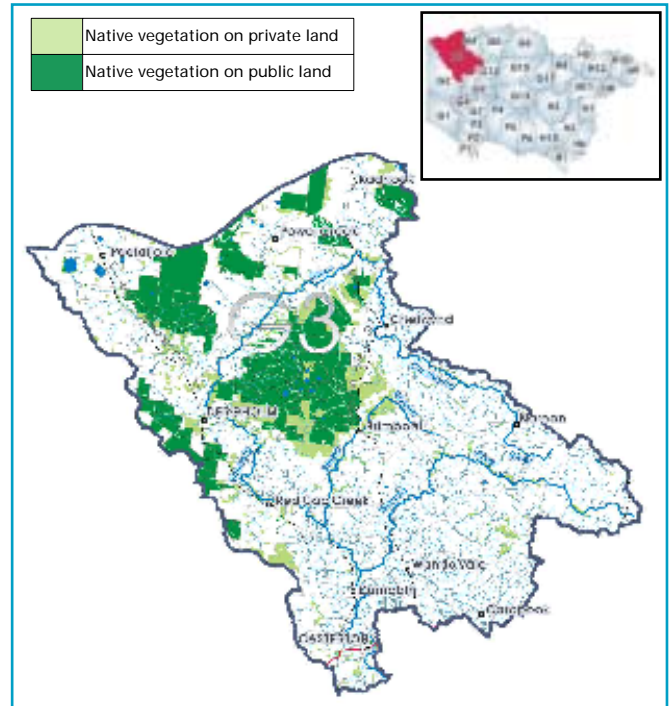


Table G3-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	6	Sand Heathland	11	0.1	0.9%
	55	Plains Grassy Woodland	33,185	726	2.2%
	68	Creekline Grassy Woodland	4123	131	3.2%
	292	Red Gum Wetland	289	7	2.5%
	647	Plains Sedgy Wetland	46	2	4.1%
	651	Plains Swampy Woodland	713	10	1.4%
	653	Aquatic Herbland	101	2	2.0%
	719	Grassy Woodland / Damp Sands Herb-rich Woodland	17,293	435	2.5%
	752	Grassy Woodland /Hills Herb-rich Woodland /Damp Sands Herb-rich Woodland	2031	103	5.1%
	763	Damp Heathland / Damp Heathy Woodland / Seasonally Inundated Shrubby Woodland	642	5	0.9%
Vulnerable or depleted	791	Damp Sands Herb-rich Complex / Plains Grassy Woodlands Complex	5901	76	1.3%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	22,510	138	0.6%
	3	Damp Sands Herb-rich Woodland	20,780	5038	24.2%
	53	Swamp Scrub	116	12	10.5%
	56	Floodplain Riparian Woodland	4585	659	14.4%
	71	Hills Herb-rich Woodland	572	168	29.3%
	125	Plains Grassy Wetland	17	3	15.2%
	641	Riparian Woodland	850	155	18.3%
	674	Sandy Stream Woodland	2522	494	19.6%
	750	Shallow Sands Woodland / Plains Sedgy Woodland / Seasonally Inundated Shrubby Woodland	4647	759	16.3%
Other	895	Escarpment Shrubland	45	6	12.8%
	136	Sedge Wetland	408	166	40.7%
	195	Seasonally Inundated Shrubby Woodland	82	28	33.7%
	751	Seasonally Inundated Shrubby Woodland / Plains Sedgy Woodland	690	344	49.8%
	882	Shallow Sands Woodland	2948	1025	34.8%
		Other vegetation assets well represented	31,150	26,577	85%

REGIONAL NATIVE VEGETATION PLAN

Table G3-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat		Red
Medium threat		Yellow
Low threat		Green



Southern Brown Bandicoot (*Isoodon obesulus*) in a trap



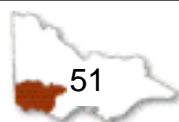
Plains Grassy Woodland

Table G3-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Australian and Victorian endangered species - Swift Parrot (<i>Lathamus discolor</i>) Victorian rare species - Silky Mouse (<i>Pseudomys apodemoides</i>) Victorian endangered species - Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii</i>) Great Egret (<i>Ardea alba</i>) Australian vulnerable and Victorian endangered species - Striped Legless Lizard (<i>Delma impar</i>), Warty Bell Frog (<i>Litoria raniformis</i>) Australian vulnerable and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>), Heath Mouse (<i>Pseudomys shorridgei</i>) Powerful Owl (<i>Ninox strenua</i>) Australian and Victorian vulnerable species - Variegated Pigmy Perch (<i>Nannoperca variegata</i>). Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isoodon obesulus</i>)</p>
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan: Australian and Victorian endangered species - Stiff Groundsel (<i>Senecio behrianus</i>) Australian and Victorian vulnerable species - Trailing Hop-bush (<i>Dodonaea procumbens</i>) Clover Glycine (<i>Glycine latrobeana</i>) Elegant Spider-orchid (<i>Caladenia formosa</i>) Swamp Fireweed (<i>Senecio psilocarpus</i>) Dergholm Guinea-flower (<i>Hibbertia humifusa ssp. debilis</i>)</p>
<p>Salinity</p> <p>G3 has 385 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 25 km of tree belts and 841 ha of tree blocks in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality</p> <p>The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>

Table G3-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	138	3,377	\$5,064,750
2	Damp Heathland / Damp Heathy Woodland /Seasonally Inundated Shrubby Woodlands	5	96	\$144,450
3	Sand Heathland	0.1	2	\$3,000
4	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	76	885	\$1,327,725
5	Plains Swampy Woodland	10	107	\$160,425
6	Aquatic Herbland	2	15	\$22,725
7	Plains Grassy Woodland	726	4,978	\$7,466,625
8	Red Gum Wetland	7	43	\$65,025
9	Grassy Woodland / Damp Sands Herb-rich Woodland	435	2,594	\$3,890,925
10	Creekline Grassy Woodland	131	618	\$927,675
11	Plains Sedgy Wetland	2	7	\$10,350
12	Grassy Woodland / Hills Herb-rich Woodland /Damp Sands/ Herb-rich Woodland	103	305	\$456,975
	Total	1,503 ha	13,027 ha	\$19,540,500



GLENELG HOPKINS SUB-CATCHMENTS

G4 Glenelg River - Dundas Tablelands

The Glenelg River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the north and south and includes tributaries such as Schofield, Pigeon Ponds, Tea Tree and Sugarloaf Creeks. This sub-catchment stretches from 5 km southeast of Douglas in the north to Nareen in the south. Kanagulk in the east to the confluence of the Glenelg River and Chetwynd River in the west.

The main township in this sub-catchment is Harrow. It also includes the regions of Pigeon Ponds; Culla, St Evins, Kanagulk, Telangatuk, Kadnook, Tarrayoukyan and Connewirricoo. This sub-catchment contains the Harrow Scrub Reserve, Edgars State Forest and several bush-land reserves.

Red-tailed Black Cockatoos inhabit the forests and reserves and the regional wetlands support nesting Brolgas.

Native vegetation currently covers 9.8 per cent of the sub-catchment comprising a total of 33 EVC communities. Prior to 1750 EVC communities covered 58,604 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 653 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 10 endangered EVC communities identified in Table G4-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G4-4).

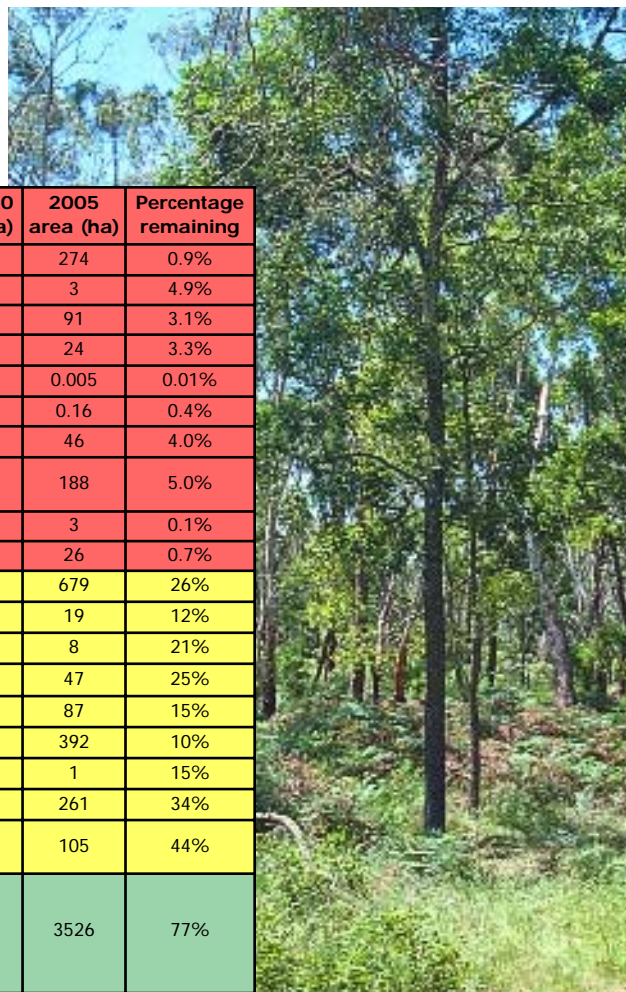
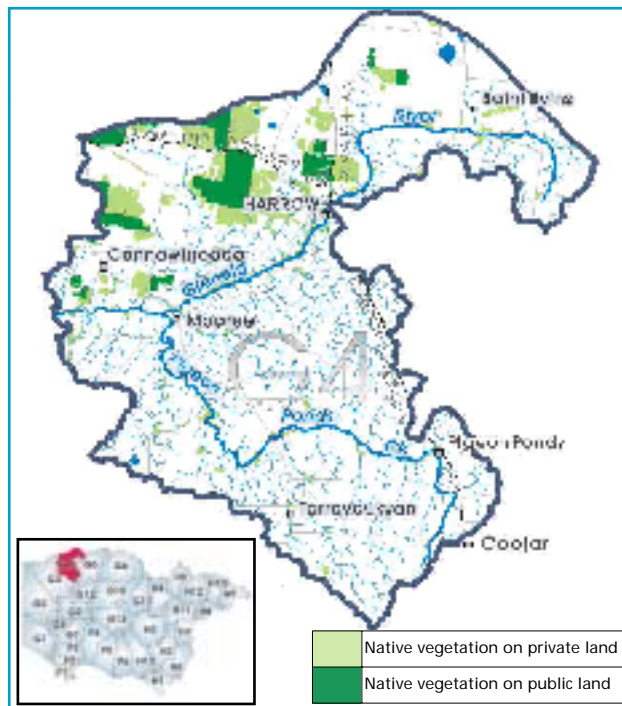


Table G4-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	30225	274	0.9%
	67	Alluvial Terraces Herb-rich Woodland	51	3	4.9%
	68	Creekline Grassy Woodland	2892	91	3.1%
	643	Brackish Drainage Line Herbland/Sedgeland	742	24	3.3%
	647	Plains Sedgy Wetland	70	0.005	0.01%
	653	Aquatic Herbland	43	0.16	0.4%
	719	Grassy Woodland / Damp Sands Herb-rich Woodland	1155	46	4.0%
	752	Grassy Woodland /Hills Herb-rich Woodland /Damp Sands Herb-rich Woodland	3761	188	5.0%
	803	Plains Woodland	2918	3	0.1%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	3770	26	0.7%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	2592	679	26%
	53	Swamp Scrub	165	19	12%
	283	Plains Sedgy Woodland	38	8	21%
	241	Riparian Woodland	187	47	25%
	674	Sandy Stream Woodland	567	87	15%
	882	Shallow Sands Woodland	3821	392	10%
	895	Escarpment Shrubland	9	1	15%
Other	56	Floodplain Riparian Woodland	758	261	34%
	757	Damp Sands Herb-rich Woodland /Seasonally Inundated Shrubby Woodland	241	105	44%
		Other vegetation assets well represented	4600	3526	77%

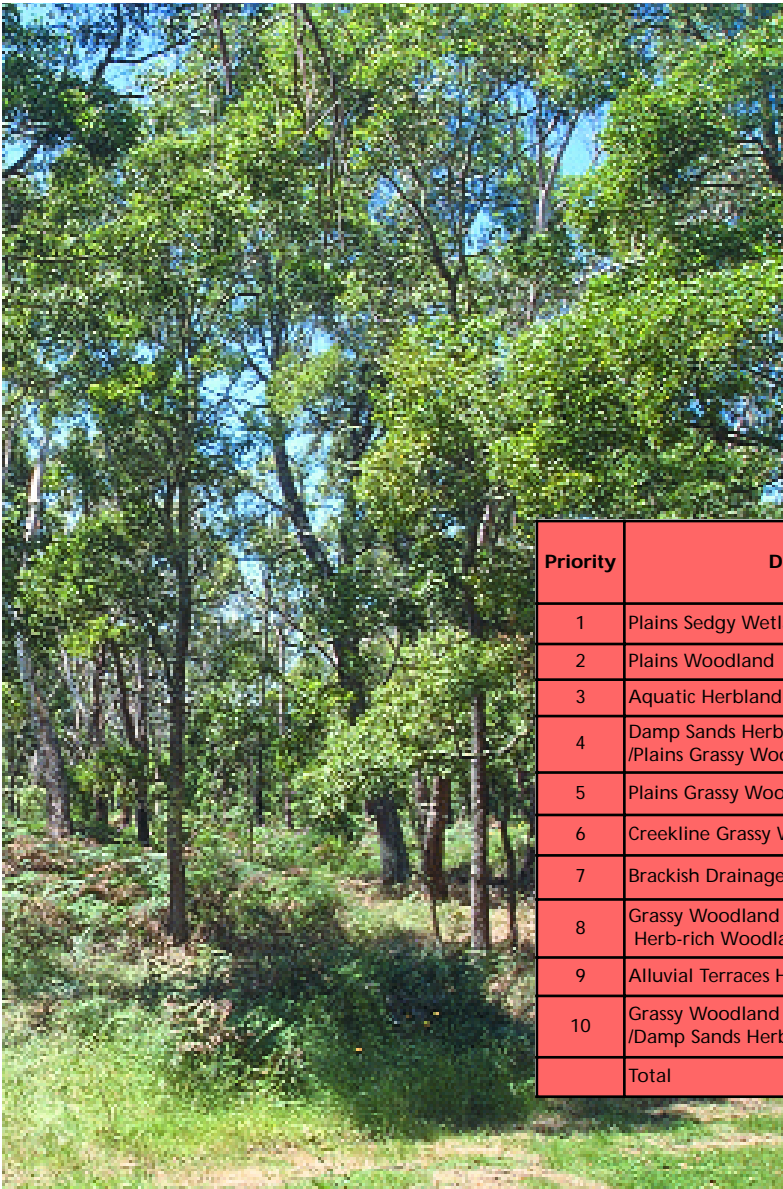
REGIONAL NATIVE VEGETATION PLAN

Table G4-2: THREATS

Ecological & societal processes	Clearance and fragmentation	High
	Salinity	Medium
	Land use change	High
	Waterlogging and drainage	High
	Poorly managed grazing	High
	Inappropriate fire regime	Medium
	Disease eg Mundulla yellow, Phytophthora	High
	Firewood collection	High
	Pest plants	High
	Pest animals	High
Significant threat		High
Medium threat		Medium
Low threat		Low

Table G4-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian and Victorian endangered species - Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii</i>) Swift Parrot (<i>Lathamus discolor</i>) Australian and Victorian vulnerable species - Variegated Pigmy Perch (<i>Nannoperca variegata</i>) Australian vulnerable and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Victorian vulnerable species - Heathy Guinea-flower (<i>Hibbertia sessiliflora</i>) Victorian rare species - Violet Bladderwort (<i>Utricularia violacea</i>) Common Beard-heath (<i>Leucopogon virgatus</i> var. <i>brevifolius</i>) Tufted Grass-tree (<i>Xanthorrhoea caespitosa</i>)</p>
<p>Salinity G4 has 754 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 34 km of tree belts and 479 ha of tree blocks in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>



Herb-rich woodland

Table G4-4: WORKS PROGRAM

(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Sedgy Wetland	0.005	10	\$14,993
2	Plains Woodland	3	438	\$651,790
3	Aquatic Herbland	0.16	6	\$8,760
4	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	26	566	\$809,394
5	Plains Grassy Woodland	274	4534	\$6,389,651
6	Creepline Grassy Woodland	91	434	\$514,958
7	Brackish Drainage Line Herbland/Sedgeland	24	111	\$129,993
8	Grassy Woodland / Damp Sands Herb-rich Woodland	46	173	\$191,077
9	Alluvial Terraces Herb-rich Woodland	3	8	\$8,238
10	Grassy Woodland / Hills Herb-rich Woodland /Damp Sands Herb-rich Wood	188	564	\$563,256
Total		656 ha	6,844 ha	\$9,282,109

GLENELG HOPKINS SUB-CATCHMENTS

G5 Glenelg River & Mathers Creek

The Glenelg River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the south and includes tributaries such as Yarramyllup and Mathers Creeks.

The main township in this sub-catchment is Balmoral with a population of approximately 200 people. The sub-catchment also includes the regions of Englefield, Vasey, Gringegalgon, Telangatuk East, Konongwootong North and Coojar.

The main Parks and Reserves in this sub-catchment are The Claude Austin Reserve, Fulhams Streamside Reserve and several small areas of state forest. The Red-tailed Black Cockatoo is known to inhabit this section of the Glenelg River, and the Brushtailed Phascogale (Tuan) has also been cited within this region.

Native vegetation currently covers 12.8 per cent of the sub-catchment comprising a total of 46 EVC communities. Prior to 1750 EVC communities covered 103,166 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 933 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 10 endangered EVC communities identified in Table G5-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G5-4).

Note: Data limitations exist due to boundary anomalies. Refer inside front cover for details.

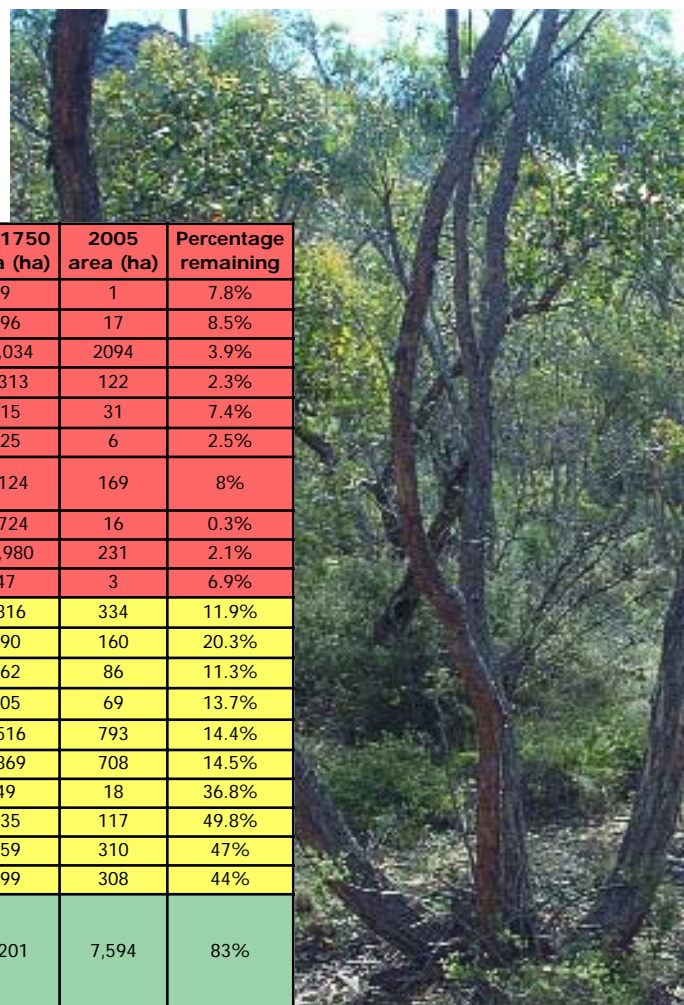
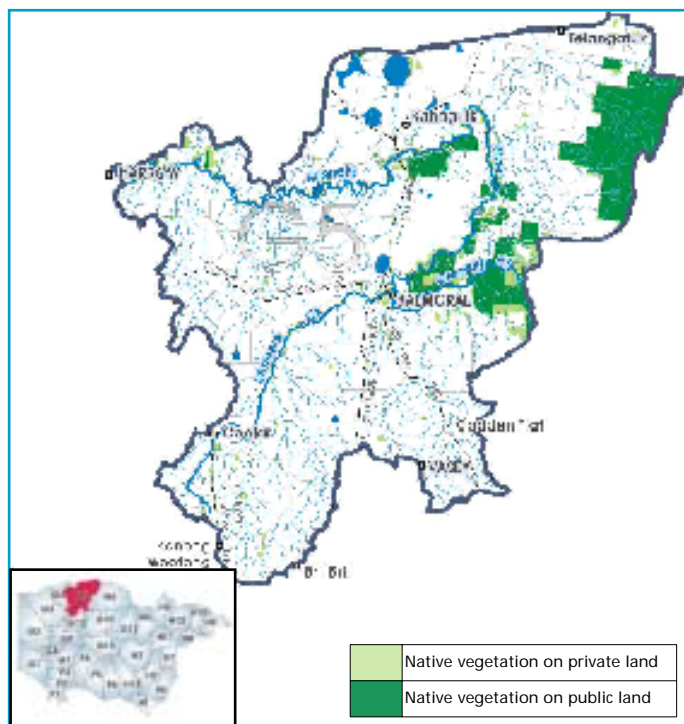


Table G5-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	9	Coastal Saltmarsh	9	1	7.8%
	53	Swamp Scrub	196	17	8.5%
	55	Plains Grassy Woodland	53,034	2094	3.9%
	68	Creeklane Grassy Woodland	5,313	122	2.3%
	291	Cane Grass Woodland	415	31	7.4%
	647	Plains Sedgy Wetland	225	6	2.5%
	752	Grassy Woodland /Hills Herb-rich Woodland /Damp Sands Herb-rich Woodland	2,124	169	8%
	803	Plains Woodland	4,724	16	0.3%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	10,980	231	2.1%
	895	Escarpment Shrubland	47	3	6.9%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	2816	334	11.9%
	674	Sandy Stream Woodland	790	160	20.3%
	704	Lateritic Woodland	762	86	11.3%
	719	Grassy Woodland / Damp Sands Herb-rich Woodland	505	69	13.7%
	745	Hills Herb-rich Woodland / Plains Grassy Woodland	5516	793	14.4%
	882	Shallow Sands Woodland	4869	708	14.5%
	67	Alluvial Terraces Herb-rich Woodland	49	18	36.8%
	283	Plains Sedgy Woodland	235	117	49.8%
Other	641	Riparian Woodland	659	310	47%
	646	Heathy Woodland / Plains Grassy Woodland	699	308	44%
		Other vegetation assets well represented	9,201	7,594	83%

REGIONAL NATIVE VEGETATION PLAN

Table G5-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Yellow
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat		Red
Medium threat		Yellow
Low threat		Green



Above: Clover Glycine (*Glycine latrobeana*)

Table G5-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>) Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Brush-tailed Rock-wallaby (<i>Petrogale penicillata</i>) Striped Legless Lizard (<i>Delma impar</i>) Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>) Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>) Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Australian and Victorian rare species - Mt. Byron Bush-pea (<i>Pultenaea patellifolia</i>)</p>
<p>Salinity G5 has 2,615 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 140 km of tree belts and 538 ha of tree blocks in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>



Dry Foothills Forest

Table G5-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Woodland	16	709	\$1,039,500
2	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	231	1647	\$2,124,000
3	Creepline Grassy Woodland	122	797	\$1,012,500
4	Plains Sedgy Wetland	6	34	\$42,000
5	Plains Grassy Woodland	2094	7955	\$8,791,500
6	Escarpment Shrubland	3	7	\$6,000
7	Cane Grass Wetland	31	62	\$46,500
8	Coastal Saltmarsh	0.7	1.3	\$900
9	Grassy Woodland / Hills Herb-rich Woodland /Damp Sands Herb-rich Woodland	169	319	\$225,000
10	Swamp Scrub	17	29	\$18,000
Total		2,690 ha	11,560 ha	\$13,305,900

GLENELG HOPKINS SUB-CATCHMENTS

G6 Grampians Headwaters

The Glenelg River, including Rocklands Reservoir, is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the north and the east and includes tributaries such as Red Rock, Tea Tree, Cattle Station and Pendyk Creeks. The sub-catchment extends from the Rocklands Reservoir wall in the west to 5 km east of Glenisla CFA.

There are no main townships in this sub-catchment, but includes the regions of Brodies, Glendinning, Andersons, Fergusons, Woohlpooer, Glenisla, Mooralla, Chimney Gap, Cherrypool, and Hynes. This sub-catchment contains the Black Range State Park and part of the Grampians National Park.

Native vegetation currently covers 77 per cent of the sub-catchment comprising a total of 67 EVC communities. Prior to 1750 EVC communities covered 135,072 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 3,258 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the five endangered EVC communities identified in Table G6-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G6-4).

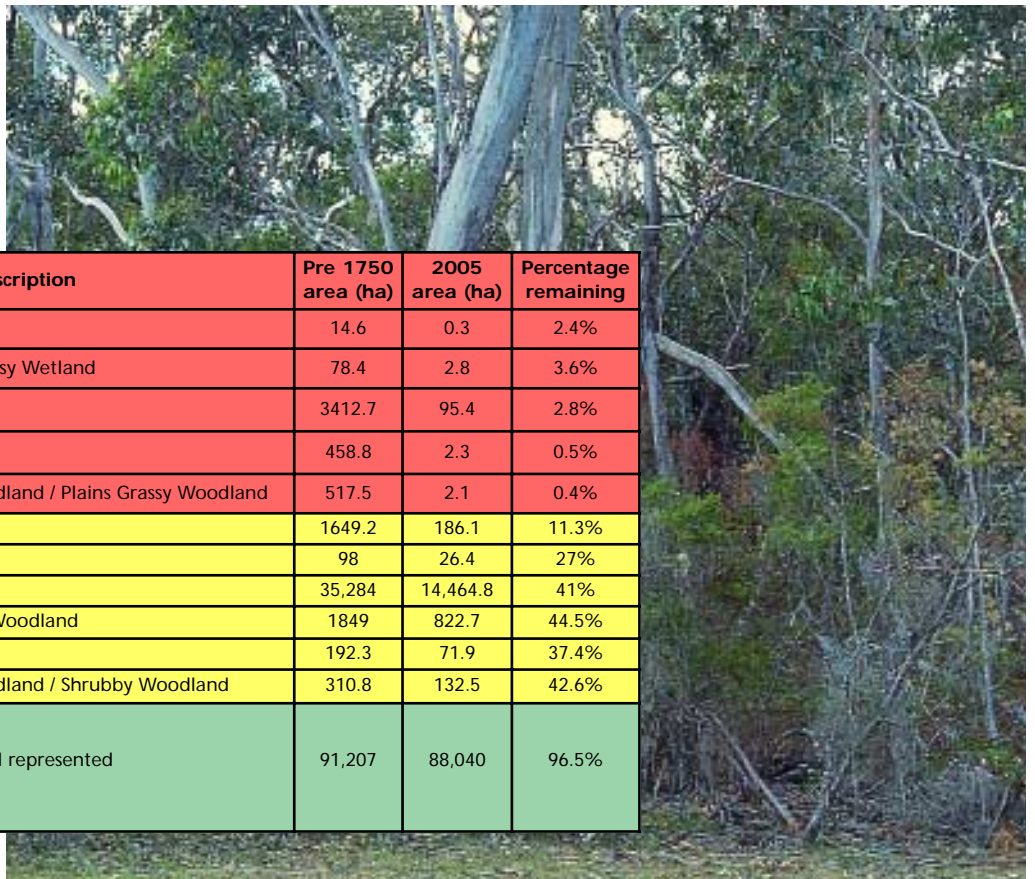
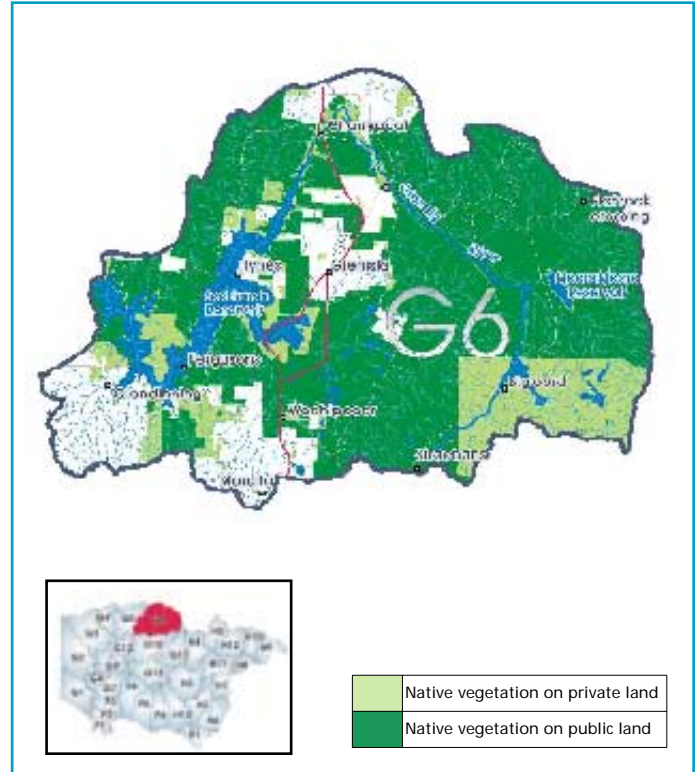


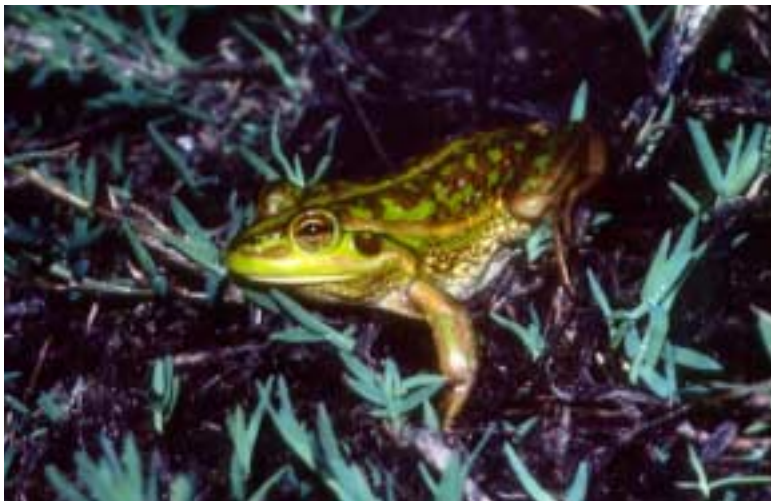
Table G6-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	292	Red Gum Wetland	14.6	0.3	2.4%
	660	Plains Woodland/Plains Grassy Wetland	78.4	2.8	3.6%
	704	Lateritic Woodland	3412.7	95.4	2.8%
	882	Shallow Sands Woodland	458.8	2.3	0.5%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	517.5	2.1	0.4%
Vulnerable or depleted	161	Creepline Grassy Woodland	1649.2	186.1	11.3%
	668	Dry Creepline Woodland	98	26.4	27%
	18	Plains Grassy Woodland	35,284	14,464.8	41%
	160	Alluvial Terraces Herb-rich Woodland	1849	822.7	44.5%
	162	Sedge Wetland	192.3	71.9	37.4%
	16	Damp Sands Herb-rich Woodland / Shrubby Woodland	310.8	132.5	42.6%
Other		Other vegetation assets well represented	91,207	88,040	96.5%

REGIONAL NATIVE VEGETATION PLAN

Table G6-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Green
	Salinity	Green
	Land use change	Yellow
	Waterlogging and drainage	Yellow
	Poorly managed grazing	Yellow
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Yellow
	Pest plants	Yellow
	Pest animals	Yellow
Significant threat	Red	
Medium threat	Yellow	
Low threat	Green	



Inland Slope Woodland

Table G6-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Victorian Listed Species - Common Dunnart (<i>Sminthopsis murina</i>) Australian vulnerable and Victorian rare species Heath Mouse (<i>Pseudomys shortridgei</i>) Australian vulnerable and Victorian endangered species Warty Bell Frog (<i>Litoria raniformis</i>), Brush-tailed rock wallaby (<i>Petrogale pencillata</i>), Malleefowl (<i>Leipoa ocellata</i>) Long-nosed Potoroo (<i>Potorous tridactylus</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isoodon obesulus</i>) Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>) Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>), Smoky Mouse (<i>Pseudomys fumeus</i>), Swift Parrot (<i>Lathamus discolor</i>)</p>
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan: This sub-catchment contains 26 AROT species either vulnerable, endangered or rare. They include: Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Downy Star-Bush (<i>Asterolasia pheballoides</i>) Trailing Hop-bush (<i>Dodonaea procumbens</i>) Spiral Sun-orchid (<i>Thelymitra matthewsii</i>) Spiny Peppergrass (<i>Lepidium aschersonii</i>) Australian and Victorian endangered species - Southern Pipewort (<i>Eriocaulon australasicum</i>) Metallic Sun-orchid (<i>Thelymitra epipactoides</i>)</p>
<p>Salinity</p> <p>G6 has 825 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 50 km of tree belts in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality</p> <p>The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>

Table G6-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	2.1	78	\$113,891
2	Shallow Sands Woodland	2.3	69	\$100,121
3	Red Gum Wetland	0.3	2.2	\$2,776
4	Lateritic Woodland	95.4	512	\$624,851
5	Plains Woodland/Plains Grassy Wetland	2.8	12	\$13,821
	Total	103 ha	673 ha	\$855,460

GLENELG HOPKINS SUB-CATCHMENTS

G7 Crawford River

The Crawford River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the south and the north-east and includes tributaries such as Kangaroo, Portland, Deep and Springburn Creeks. The sub-catchment extends from level with Branxholme in the east to Dartmoor in the west and from Grassdale in the north to 5 km south of Lyons.

There are no townships in this sub-catchment, however this area includes the regions of Condah, Winnap, Greenwald, Lyons, Hotspur and Morven. This sub-catchment has a substantial area of crown land that has not been cleared in is also within The Winaying and The Annya State Forests.

Native vegetation currently covers 28.4 per cent of the sub-catchment comprising a total of 67 EVC communities. Prior to 1750 EVC communities covered 71,649 ha of this sub-catchment. The dominant remaining EVC is Lowland Forest and the largest intact remnant is 4,022 ha. This EVC community is dominated by an overstorey of Brown Stringybark and Messmate, often accompanied by Mountain Grey-gum. The understorey includes Common Heath, Pink-bells, Silver Banksia, Common Correa, Rough Bush-pea, Myrtle Wattle and Manuka.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 11 endangered EVC communities identified in Table G7-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G7-4).

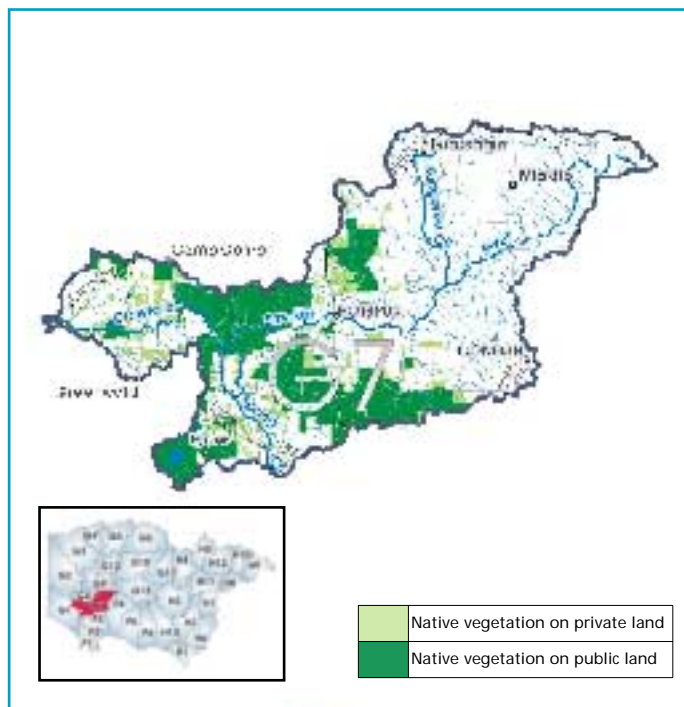


Table G7-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	8437	13.2	0.16%
	68	Creekline Grassy Woodland	564.3	1.9	0.34%
	642	Basalt Shrubby Woodland	3060	1.3	0.04%
	647	Plains Sedgy Wetland	329.4	22.3	6.76%
	651	Plains Swampy Woodland	225	14.1	6.26%
	680	Freshwater Meadow	52.3	2.1	3.99%
	739	Plains Grassy Woodland / Plains Swampy Woodland	1614.6	8.2	0.5%
	776	Plains Swampy Woodland / Swamp Scrub	2439.3	76.1	3.12%
	781	Damp Sands Herb-rich Woodland / Herb-rich Foothill Forest	2131.9	122	5.72
	791	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	5394.6	16.4	0.3%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	4630.5	6.8	0.15%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	8926.7	2539.6	28.5%
	23	Herb-rich Foothill Forest	10,757.9	2974.6	27.7%
	53	Swamp Scrub	2428.8	343.1	14.1%
	200	Shallow Freshwater Marsh	86.8	21.9	25.2%
	710	Damp Heathland	1008.2	227.2	22.5%
	746	Damp Heathland / Damp Heathy Woodland	147.1	15.3	10.4%
	136	Sedge Wetland	69.2	27.2	39.3%
733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	96.5	33.3	34.5%	
Other		Other vegetation assets well represented	19,249	13,864	72%



REGIONAL NATIVE VEGETATION PLAN

Table G7-2: THREATS

Ecological & societal processes	Clearance and fragmentation	
	Salinity	
	Land use change	
	Waterlogging and drainage	
	Poorly managed grazing	
	Inappropriate fire regime	
	Disease eg Mundulla yellow, Phytophthora	
	Firewood collection	
	Pest plants	
	Pest animals	
Significant threat		
Medium threat		
Low threat		



Straw-necked Ibis



Creekline Grassy Woodland

Table G7-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian and Victorian vulnerable species - Variegated Pigmy Perch (<i>Nannoperca variegata</i>) Dwarf Galaxias (<i>Galaxiella pusilla</i>)</p> <p>Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>)</p> <p>Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Long-nosed Potoroo (<i>Potorous tridactylus</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isoodon obesulus</i>) Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian vulnerable species: Clover Glycine (<i>Glycine latrobeana</i>), Curly Sedge (<i>Carex tasmanica</i>) River Swamp Wallaby-grass (<i>Amphibromus fluitans</i>) Australian and Victorian rare species - Showy Lobelia (<i>Lobelia beaugleholei</i>) Australian and Victorian endangered species - Gorae Leek-orchid (<i>Prasophyllum diversiflorum</i>) Mellblom's Spider-orchid (<i>Caladenia hastata</i>)</p>
<p>Salinity G7 has 269 ha of salt affected land and is threatened by increasing salinity. However the Regional Salinity Plan does not propose any revegetation in this sub-catchment over the next 30 years.</p>
<p>River health, wetland and water quality The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>

Table G7-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Basalt Shrubby Woodland	1.3	459	\$686,550
2	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	6.8	695	\$1,032,300
3	Plains Grassy Woodland	13.2	1266	\$1,879,200
4	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	16.4	809	\$1,188,900
5	Creekline Grassy Woodland	1.9	85	\$124,650
6	Plains Grassy Woodland /Plains Swampy Woodland	8.2	242	\$350,700
7	Plains Swampy Woodland / Swamp Scrub	76.1	366	\$434,850
8	Freshwater Meadow	2.1	8	\$8,850
9	Damp Sands Herb-rich Woodland /Herb-rich Foothill Forest	122	320	\$297,000
10	Plains Swampy Woodland	14.1	34	\$29,850
11	Plains Sedgy Wetland	22.3	49	\$40,050
Total		284 ha	4,333 ha	\$6,073,350

GLENELG HOPKINS SUB-CATCHMENTS

G8 Stokes River

The Stokes River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the north west and south east and includes tributaries such as Emu, One Mile, Buckle, Humpy, Island, Bobby, McKenzie, Teakettle, and Boundary Creeks. This sub-catchment extends from 6 km north to north east of Dartmoor in the west to 7 km east of Digby in the east and the Southern border is 11 km south east of Digby and the northern most point is 5 km north west of Digby.

The main township in this sub-catchment is Digby with a population of approximately 50 people. The sub-catchment also includes the region of Rifle Downs. There are large areas of uncleared crown land (reserved forest) in this sub-catchment and is within The Winayung State Forest.

Native vegetation currently covers 45.6 per cent of the sub-catchment comprising a total of 26 EVC communities. Prior to 1750 EVC communities covered 30,548 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland Forest and the largest intact remnant is 1,518 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 12 endangered EVC communities identified in Table G8-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G8-4).

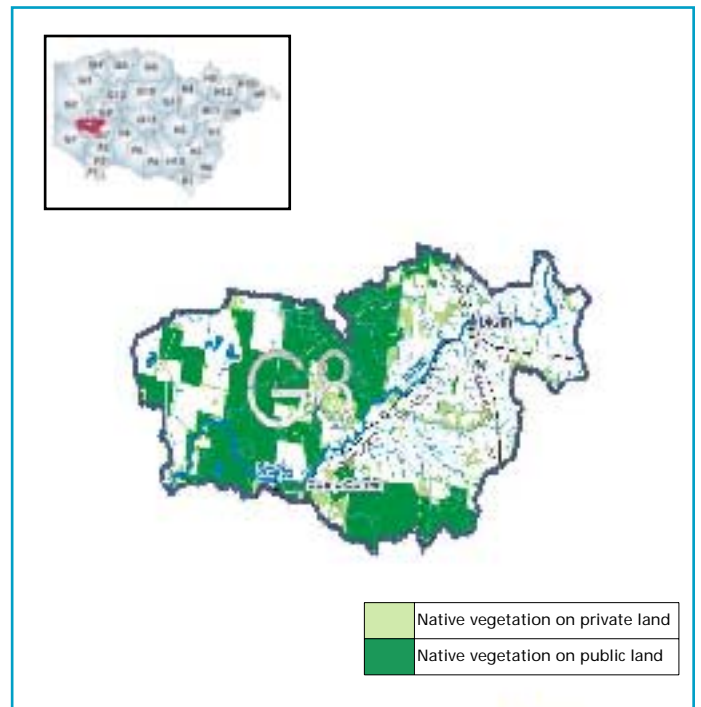
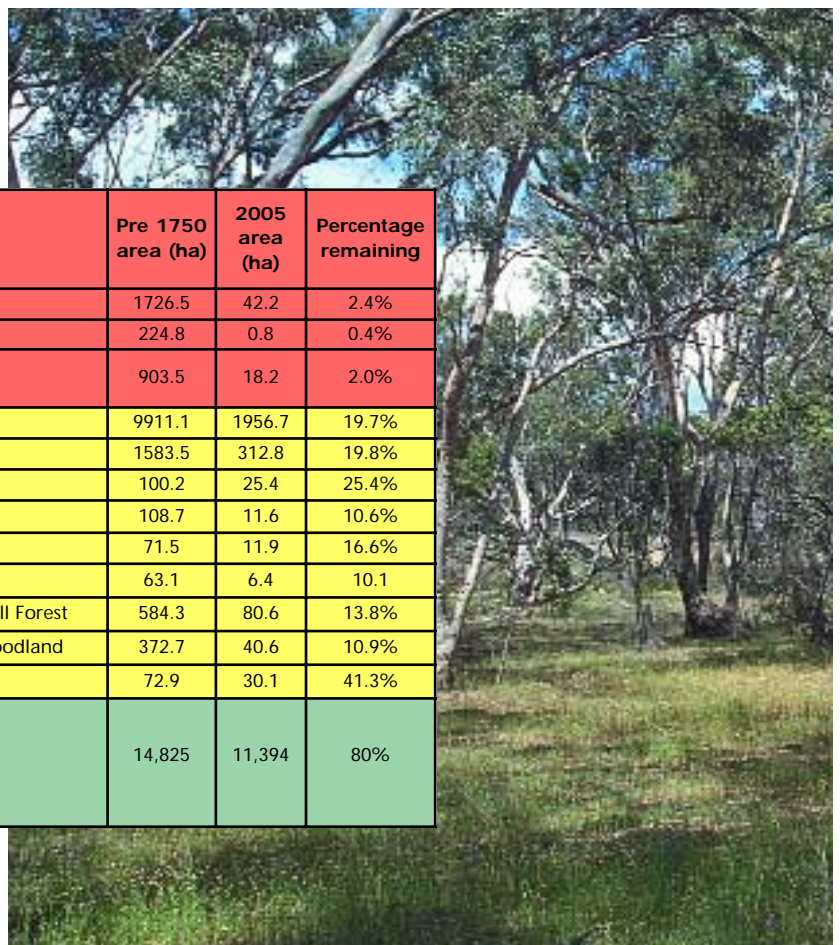


Table G8-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	739	Plains Grassy Woodland/Plains Swampy Woodland	1726.5	42.2	2.4%
	776	Plains Swampy Woodland/Swamp Scrub	224.8	0.8	0.4%
	791	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	903.5	18.2	2.0%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	9911.1	1956.7	19.7%
	53	Swamp Scrub	1583.5	312.8	19.8%
	179	Herb-rich Heathy Woodland	100.2	25.4	25.4%
	200	Shallow Freshwater Marsh	108.7	11.6	10.6%
	674	Sandy Stream Woodland	71.5	11.9	16.6%
	680	Freshwater Meadow	63.1	6.4	10.1%
	781	Damp Sands Herb-rich Woodland/Herb-rich Foothill Forest	584.3	80.6	13.8%
	885	Damp Sands Herb-rich Woodland/Plains Grassy Woodland	372.7	40.6	10.9%
	681	Deep Freshwater Marsh	72.9	30.1	41.3%
Other		Other vegetation assets well represented	14,825	11,394	80%



REGIONAL NATIVE VEGETATION PLAN

Table G8-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat	Red	
Medium threat	Yellow	
Low threat	Green	

Table G8-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shorridgei</i>) Australian and Victorian vulnerable species - Variegated Pigmy Perch (<i>Nannoperca variegata</i>) Australian vulnerable and Victorian endangered species Warty Bell Frog (<i>Litoria raniformis</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>) Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian rare species - Showy Lobelia (<i>Lobelia beaugleholei</i>) Australian and Victorian endangered species - Metallic Sun-orchid (<i>Thelymitra epipactoides</i>)</p>
<p>Salinity G8 is not threatened by increasing salinity, although salinity trends are rising within the sub-catchment.</p>
<p>River health, wetland and water quality The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>



Moist Foothill Forest

Table G8-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Swampy Woodland/Swamp Scrub	0.8	33.75	\$49,414
2	Damp Sands Herb-rich Complex/Plains Grassy Woodlands Complex	18.2	135.6	\$176,086
3	Plains Grassy Woodland/Plains Swampy Woodland	42.2	259.05	\$325,332
	Total	61.2 ha	428 ha	\$550,832

GLENELG HOPKINS SUB-CATCHMENTS

G9 Lower Wannon River

The Wannon River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the north and south and includes tributaries such as Bryans, Wennicott, Boggy, Henty and Dwyer Creeks. The soils are mostly heavy black cracking clays. Topography is very large and often steep hills above rich flats, which are usually dissected by very deep active erosion.

The main township of this sub-catchment is Merino with a population of approximately 150 people. Other regions include Sandford, Henty, Muntham, Carapook, Paschendale, Tahara Bridge, Tahara, Tarrenlea and Hilgay. The Wannon Falls Reserve is within this sub-catchment and The Points Arboretum at Coleraine contains an extremely diverse range of vegetation from across Australia and has the largest collection of eucalypts in the world.

Native vegetation currently covers 5.75 per cent of the sub-catchment comprising a total of 24 EVC communities. Prior to 1750 EVC communities covered 77,204 ha of this sub-catchment. The dominant remaining EVC is Damp Sands Herb-rich Woodlands and the largest intact remnant is 495 ha. This EVC community is dominated by an overstorey of Swamp Gum and other eucalypts and an understorey of Manuka, Prickly Currant-bush and Victorian Christmas-bush.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the nine endangered EVC communities identified in Table G9-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G9-4).

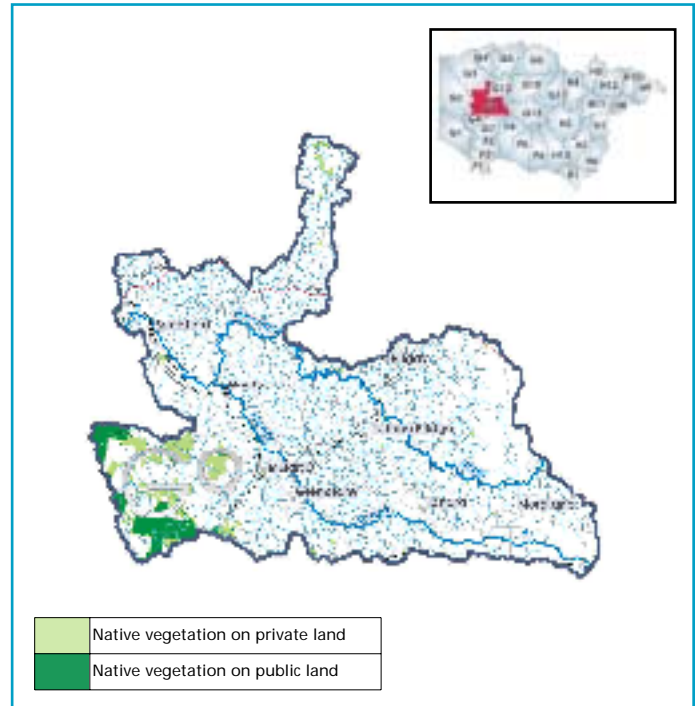


Table G9-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	20,475.4	39.7	0.2%
	56	Floodplain Riparian Woodland	4698.5	224.5	4.8%
	68	Creepline Grassy Woodland	2685.2	30.2	1.1%
	641	Riparian Woodland	361.1	4.4	1.2%
	647	Plains Sedgy Wetland	107.8	10.0	9.3%
	674	Sandy Stream Woodland	2782.8	17.5	0.6%
	719	Grassy Woodland/Damp Sands Herb-rich Woodland	13535.8	139.2	1.0%
	791	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	16322.4	53.8	0.3%
	885	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	3463.2	40.2	1.2%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	8406.4	1629.1	19.4%
	53	Swamp Scrub	453.5	50.8	11.2%
	136	Sedge Wetland	29.6	5.6	18.8%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	34.4	4.2	12.3%
	895	Escarpment Shrubland	62.3	8.3	13.3%
	16	Lowland Forest	191.8	94.1	49.1%
Other	191	Riparian Scrub	416.9	184.0	44.1%
		Other vegetation assets well represented	3177.0	1904.0	60.0%

REGIONAL NATIVE VEGETATION PLAN

Table G9-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Yellow
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat	Red	
Medium threat	Yellow	
Low threat	Green	



Red-tailed Black-Cockatoo
(*Calyptorhynchus banksii*)

Table G9-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Australian and Victorian vulnerable species - Variegated Pigmy Perch (<i>Nannoperca variegata</i>) Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>) Swift Parrot (<i>Lathamus discolor</i>) Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>) Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>) Australian vulnerable and Victorian endangered species - Striped Legless Lizard (<i>Delma impar</i>)</p>
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan: Victorian vulnerable species - Heathy Guinea-flower (<i>Hibbertia sessiliflora</i>) Victorian endangered species - Plump Swamp Wallaby-grass (<i>Amphibromus pithogastrus</i>) Victorian rare species - Dwarf Boronia (<i>Boronia nana</i> var. <i>nana</i>)</p>
<p>Salinity</p> <p>G9 has 130 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 5 km of tree belts and 564 ha of tree blocks in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality</p> <p>The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>



Lower Wannon River near Sandford

Table G9-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Grassy Woodland	39.7	3071	\$4,546,909
2	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	53.8	2448	\$3,591,374
3	Sandy Stream Woodland	17.5	417	\$599,200
4	Grassy Woodland/Damp Sands Herb-rich Woodland	139.2	2030	\$2,836,196
5	Creepline Grassy Woodland	30.2	403	\$559,205
6	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	40.2	520	\$719,667
7	Riparian Woodland	4.4	54	\$74,436
8	Floodplain Riparian Woodland	224.5	705	\$720,698
9	Plains Sedgy Wetland	10	16	\$8,930
	Total	560 ha	9,664 ha	\$13,656,614

GLENELG HOPKINS SUB-CATCHMENTS

G10 Wannon River - Dwyers Creek to Falls

The Wannon River is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the south and includes tributaries such as Back, Dwyer, Sawpit, Fern Hill and Tulloch Creeks, and the Dundas River.

The main townships of this sub-catchment are Cavendish with a population of approximately 300 people, and Wannon with a population of approximately 100 people. Regions include Bulart, Mount Bainbridge, Hensley Park, Kanawalla, Karabeal, Gatum and Mooralla. The Wannon River is in the Grampians National Park and the Dundas Ranges, the Wannon and Nigretta Falls also exist within this sub-catchment.

Native vegetation currently covers 22.2 per cent of the sub-catchment comprising a total of 82 EVC communities. Prior to 1750 EVC communities covered 137,228 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 2,297 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 10 endangered EVC communities identified in Table G10-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G10-4).

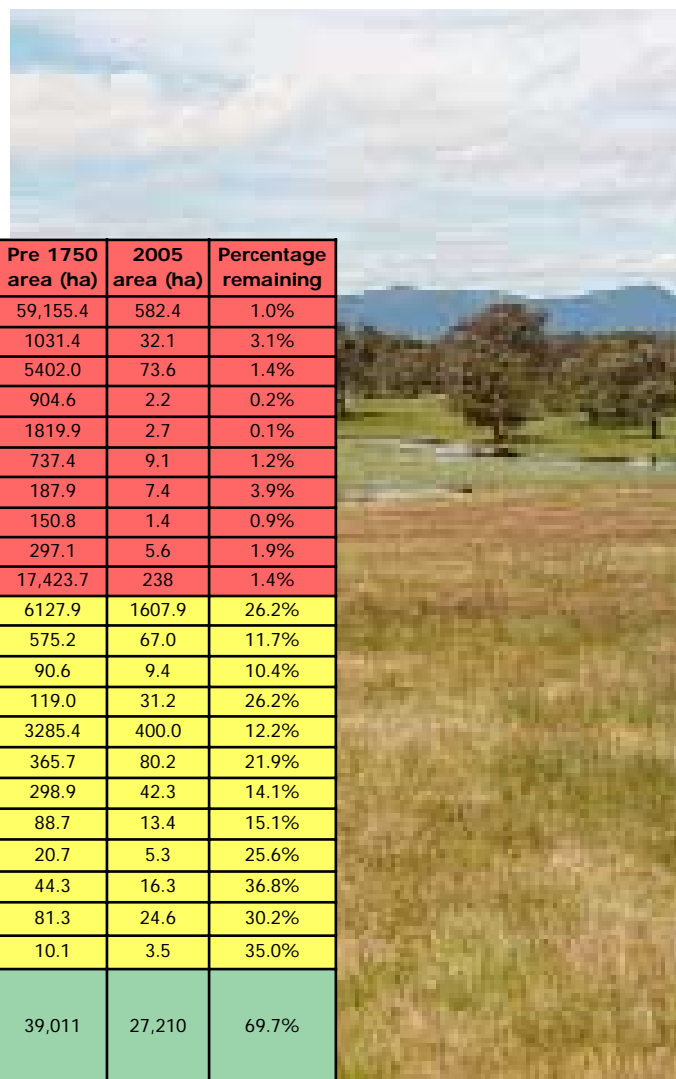
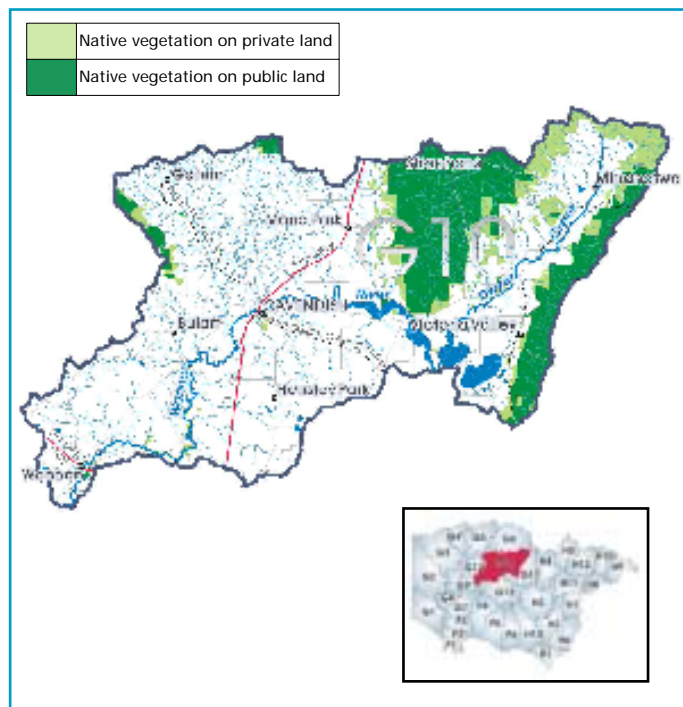


Table G10-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	59,155.4	582.4	1.0%
	56	Floodplain Riparian Woodland	1031.4	32.1	3.1%
	68	Creepline Grassy Woodland	5402.0	73.6	1.4%
	647	Plains Sedgy Wetland	904.6	2.2	0.2%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1819.9	2.7	0.1%
	719	Grassy Woodland/Damp Sands Herb-rich Woodland	737.4	9.1	1.2%
	745	Hills Herb-rich Woodland/Plains Grassy Woodland	187.9	7.4	3.9%
	761	Hills Herb-rich Woodland/Lateritic Woodland Mosaic	150.8	1.4	0.9%
	794	Floodplain Riparian Woodland/Plains Grassy Woodland	297.1	5.6	1.9%
	885	Damp Sands Herb-rich Woodland/Plains Grassy Woodland	17,423.7	238	1.4%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	6127.9	1607.9	26.2%
	53	Swamp Scrub	575.2	67.0	11.7%
	136	Sedge Wetland	90.6	9.4	10.4%
	174	Aquatic Herbland/Plains Sedgy Wetland Mosaic	119.0	31.2	26.2%
	195	Seasonally Inundated Shrubby Woodland	3285.4	400.0	12.2%
	641	Riparian Woodland	365.7	80.2	21.9%
	660	Plains Woodland/Plains Grassy Woodland	298.9	42.3	14.1%
	751	Seasonally Inundated Shrubby Woodland/Plains Sedgy Woodland	88.7	13.4	15.1%
	895	Escarpment Shrubland	20.7	5.3	25.6%
Other	646	Heathy Woodland/Plains Grassy Woodland	44.3	16.3	36.8%
	666	Riparian Shrubland/Escarpment Shrubland/Grassy Woodland	81.3	24.6	30.2%
	730	Plains Grassy Woodland/Shrubby Woodland	10.1	3.5	35.0%
		Other vegetation assets well represented	39,011	27,210	69.7%

REGIONAL NATIVE VEGETATION PLAN

Table G10-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Low threat
	Salinity	Significant threat
	Land use change	Significant threat
	Waterlogging and drainage	Medium threat
	Poorly managed grazing	Significant threat
	Inappropriate fire regime	Low threat
	Disease eg Mundulla yellow, Phytophthora	Medium threat
	Firewood collection	Significant threat
	Pest plants	Significant threat
	Pest animals	Significant threat
Significant threat		Significant threat
Medium threat		Medium threat
Low threat		Low threat



Growling Grass Frog



Aquatic Herbland/Plains Sedgy Wetland Mosaic

Table G10-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>) Australian vulnerable and Victorian vulnerable species - Warty Bell Frog (<i>Litoria raniformis</i>) Striped Legless Lizard (<i>Delma impar</i>) Dwarf Galaxias (<i>Galaxiella pusilla</i>) Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>) Swift Parrot (<i>Lathamus discolor</i>) Smoky Mouse (<i>Pseudomys fumeus</i>) Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>) Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora</p> <p>Australian Endangered Species - Thready Bush-pea (<i>Pultenaea luehmannii</i>), Yarra Gum (<i>Eucalyptus yarraensis</i>), Large White Spider-orchid (<i>Caladenia venusta</i>), Mount William Beard-heath (<i>Leucopogon neurophyllus</i>), Grampians Grevillea (<i>Grevillea confertifolia</i>), Rosy Bush-pea (<i>Pultenaea subalpina</i>), Branched Trymalium (<i>Trymalium X ramosissimum</i>) Victoria Range Bush-pea (<i>Pultenaea victoriensis</i>), Serra Grevillea (<i>Grevillea williamsonii</i>)</p>
<p>Salinity</p> <p>G10 has 2,928 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 191 km of tree belts and 616 ha of tree blocks in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality</p> <p>The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>

Table G10-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Aquatic Herbland/Plains Sedgy Wetland Mosaic	2.7	273	\$405,492
2	Plains Sedgy Wetland	2.2	138	\$203,641
3	Hills Herb-rich Woodland/Lateritic Woodland Mosaic	1.4	23	\$32,467
4	Plains Grassy Woodland	582.4	8873	\$12,435,930
5	Grassy Woodland/Damp Sands Herb-rich Woodland	9.1	111	\$152,889
6	Creekline Grassy Woodland	73.6	810	\$1,104,581
7	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	238	2614	\$3,563,928
8	Floodplain Riparian Woodland /Plains Grassy Woodland	5.6	45	\$59,071
9	Floodplain Riparian Woodland	32.1	155	\$184,384
10	Hills Herb-rich Woodland/Plains Grassy Woodland	7.4	28	\$30,974
	Total	959.6 ha	13,080 ha	\$18,180,567

GLENELG HOPKINS SUB-CATCHMENTS

G11 Wannon River - Grampians Headwaters

The Wannon River is the major waterway of this sub-catchment within the Glenelg Basin. This is the headwaters of the Wannon River, and the drainage area is from numerous tributaries in the Grampians National Park and other man-made drains.

The main townships in this sub-catchment are Dunkeld with a population of approximately 450 people, and Glenthompson with a population of approximately 170 people. Regions include Strathmore, Yarram Park and Mafeking and Watgania. This sub-catchment is surrounded by the Grampians National Park in the north, east and west, and covers most of this area, this sub-catchment also holds many seasonal lakes and wetlands.

Native vegetation currently covers 30.1 per cent of the sub-catchment comprising a total of 64 EVC communities. Prior to 1750 EVC communities covered 84,207 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 2,297 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 12 endangered EVC communities identified in Table G11-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G11-4).

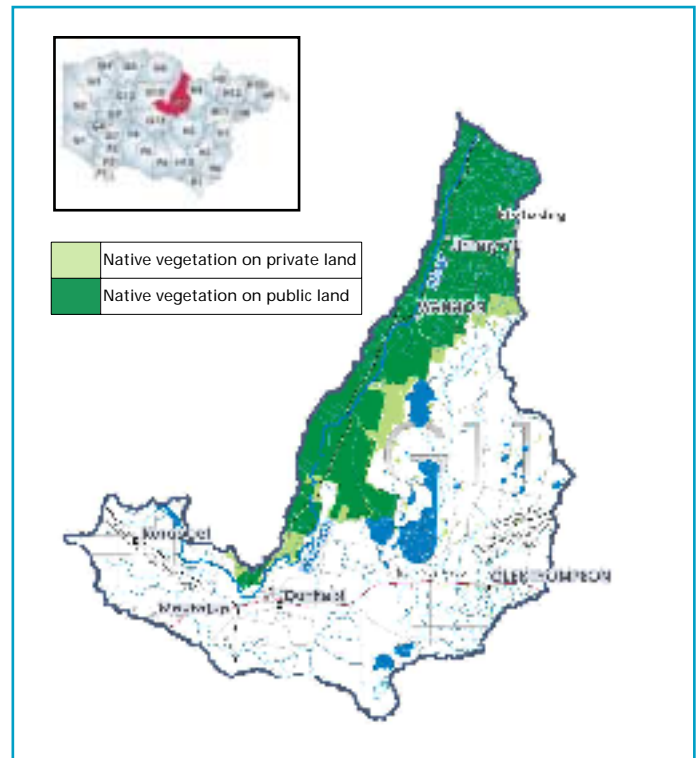


Table G11-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	37716.9	542.9	1.44%
	56	Floodplain Riparian Woodland	113.1	0.7	0.63%
	68	Creekline Grassy Woodland	1169.3	24.9	2.13%
	125	Plains Grassy Wetland	1203.9	0.1	0.01%
	134	Sand Forest	553.5	39.1	0.07%
	175	Grassy Woodland	32.5	0.1	0.003%
	647	Plains Sedgy Wetland	1267.1	6.8	0.005%
	690	Floodplain Riparian Woodland/Billabong Wetland Mosaic	2299.0	1.8	0.001%
	691	Aquatic Hermland/Plains Sedgy Wetland Mosaic	646.9	0.2	0.0004%
	719	Grassy Woodland/Damp Sands Herb-rich Woodland	1915.9	14.4	0.007%
Vulnerable or depleted	885	Damp Sands Herb-rich Woodland/Plains Grassy Woodland	816.1	4.7	0.006%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	2984.4	0.1	0.00002%
	195	Seasonally Inundated Shrubby Woodland	49.4	7.6	15%
	200	Shallow Freshwater Marsh	1263.3	252.7	20%
Other	641	Riparian Woodland	106.2	16.6	16%
	67	Alluvial Terraces Herb-rich Woodland	1136.4	430.8	38%
		Other vegetation assets well represented	30,933	24,015	77.6%

GLENELG HOPKINS SUB-CATCHMENTS

Table G11-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Green
	Salinity	Red
	Land use change	Red
	Waterlogging and drainage	Yellow
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Grassy Woodland Victoria Valley

Table G11-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan:</p> <p>Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>)</p> <p>Striped Legless Lizard (<i>Delma impar</i>)</p> <p>Powerful Owl (<i>Ninox strenua</i>)</p> <p>Australian bustard (<i>Ardeotis australis</i>)</p> <p>Bush stone curlew (<i>Burhinus grallarius</i>)</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>),</p> <p>Warty Bell Frog (<i>Litoria raniformis</i>)</p> <p>Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii</i>), Swift Parrot (<i>Lathamus discolor</i>), Smoky Mouse (<i>Pseudomys fumeus</i>), Regent Honeyeater (<i>Xanthomyza phrygia</i>), Eastern Barred Bandicoot (<i>Perameles gunnii</i>)</p> <p>Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>)</p> <p>Yarra Pigmy Perch (<i>Edelia obscura</i>)</p> <p>Australian vulnerable and Victorian endangered species - Long-nosed Potoroo (<i>Potorous tridactylus</i>)</p>
<p>Biodiversity - Flora</p> <p>Australian rare species - Mount William Beard-heath (<i>Leucopogon neurophyllus</i>), Rosy Bush-pea (<i>Pultenaea subalpina</i>), Grampians Boronia (<i>Boronia latipinna</i>), Grampians Grevillea (<i>Grevillea confertifolia</i>), Large White Spider-orchid (<i>Caladenia venusta</i>), Thready Bush-pea (<i>Pultenaea luehmannii</i>), Branched Trymalium (<i>Trymalium X ramosissimum</i>), Grampians Broom-heath (<i>Monotoca billawinica</i>)</p> <p>Australian endangered species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>)</p> <p>Gorae Leek-orchid (<i>Prasophyllum diversiflorum</i>)</p>
<p>Salinity</p> <p>G11 has 1,110 ha of salt affected land and is threatened by increasing salinity. No revegetation is proposed in this sub-catchment over the next 30 years.</p>
<p>River health, wetland and water quality</p> <p>The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>

Table G11-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Grassland/Plains Grassy Woodland Mosaic	0.1	448	\$671,901
2	Aquatic Herbland/Plains Sedgy Wetland Mosaic	0.2	97	\$145,125
3	Floodplain Riparian Woodland/Billabong Wetland Mosaic	1.8	345	\$514,768
4	Grassy Woodland	0.1	5	\$7,359
5	Plains Sedgy Wetland	6.8	190	\$274,847
6	Plains Grassy Wetland	0.1	181	\$271,399
7	Damp Sands Herb-rich Woodland/Plains Grassy Woodland	4.7	122	\$176,014
8	Grassy Woodland/Damp Sands Herb-rich Woodland	14.4	287	\$408,963
9	Sand Forest	39.1	83	\$65,818
10	Floodplain Riparian Woodland	0.7	17	\$24,436
11	Plains Grassy Woodland	542.9	5658	\$7,672,692
12	Creekline Grassy Woodland	24.9	175	\$225,197
	Total	635.7 ha	13,080 ha	\$10,458,518

GLENELG HOPKINS SUB-CATCHMENTS

G12 Bryan Creek

Bryans Creek is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the north and includes tributaries such as Konong and Den Hills Creeks. This area is gently undulating in the northern part on lighter to sandier soils dissected by many small creeks which are usually brackish to often very salty, changing gradually to very steep hills and deep eroded gullies in heavier soils in the south.

The main township of this sub-catchment is Coleraine with a population of approximately 1000 people. Regions include Hilgay, Wootong Vale, Gritjurk, Brit Brit and Konongwootong, Gringegalgon, Melville Forest and Vasey. The north-eastern boundary of The Dundas Ranges, the western sections of The Grampians and The Great Dividing Ranges supports the majority of the flora species of this sub-catchment. The Points Arboretum at Coleraine contains an extremely diverse range of vegetation from across Australia and the water reserves at Gringe and Melville Forest are significant areas of remnant vegetation especially of native grasses and flowers.

Native vegetation currently covers 0.24 per cent of the sub-catchment comprising a total of 22 EVC communities. Prior to 1750 EVC communities covered 50,416 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 196 ha. This EVC community is dominated by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the nine endangered EVC communities identified in Table G12-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G12-4).

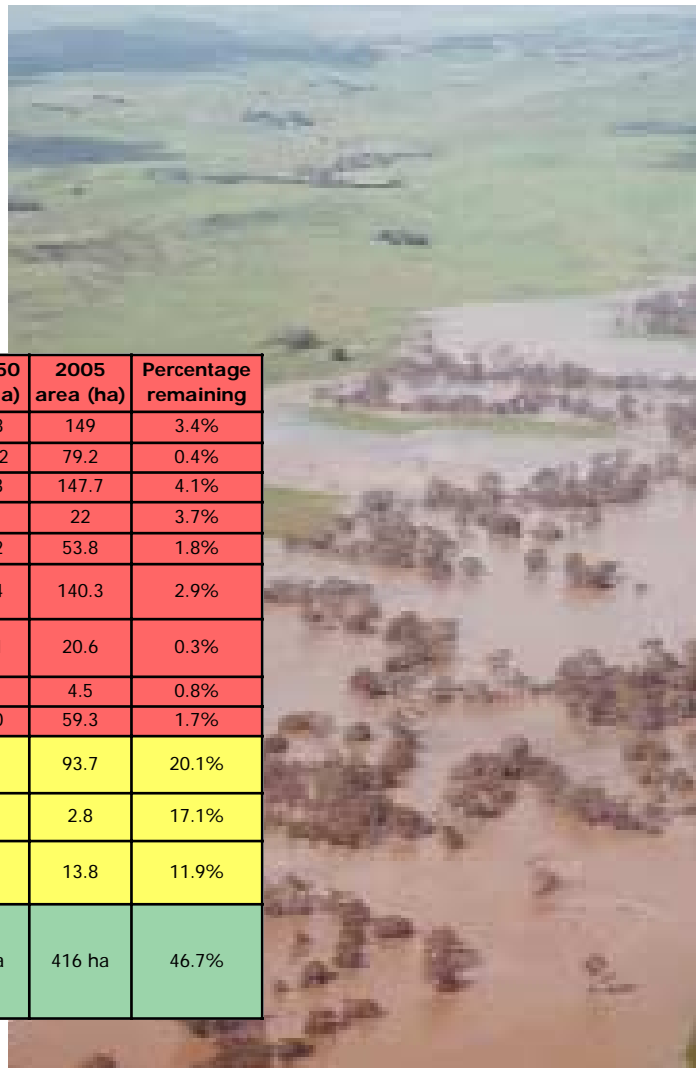
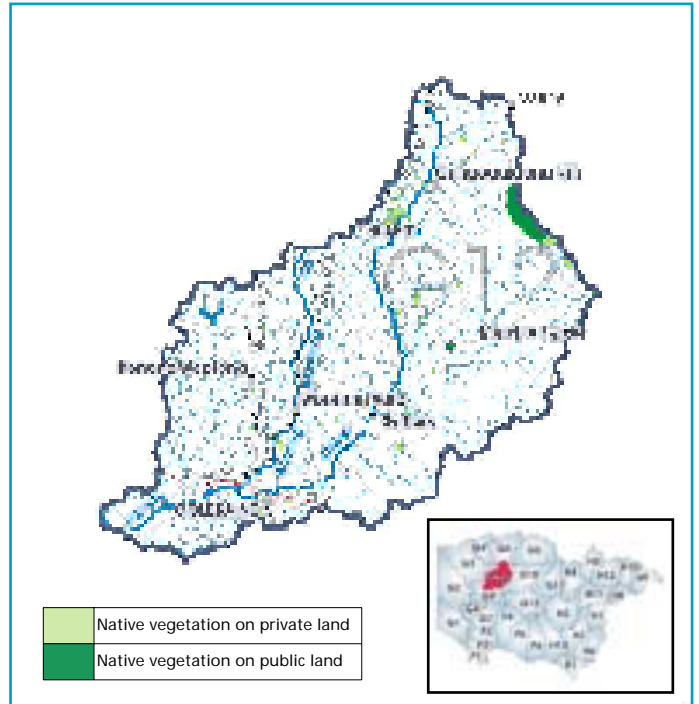


Table G12-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	3	Damp Sands Herb-rich Woodland	4383.8	149	3.4%
	55	Plains Grassy Woodland	22066.2	79.2	0.4%
	68	Creekline Grassy Woodland	3603.3	147.7	4.1%
	674	Sandy Stream Woodland	589.6	22	3.7%
	719	Grassy Woodland/Damp Sands Herb-rich Woodland	2959.2	53.8	1.8%
	752	Grassy Woodland/Hills Herb-rich Woodland /Damp Sands Herb-rich Wood	4871.4	140.3	2.9%
	791	Damp Sands Herb-rich Complex/Plains Grassy Woodlands Complex	6494.1	20.6	0.3%
	794	Floodplain Riparian Woodland/Plains Grassy Woodland	561.8	4.5	0.8%
	885	Damp Sands Herb-rich Woodland/Plains Grassy Woodland	3396.0	59.3	1.7%
Vulnerable or depleted	641	Riparian Woodland	467.1	93.7	20.1%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	16.2	2.8	17.1%
	895	Escarpment Shrubland	115.7	13.8	11.9%
Other		Other vegetation assets well represented	891 ha	416 ha	46.7%

GLENELG HOPKINS SUB-CATCHMENTS

Table G12-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Yellow
	Waterlogging and drainage	Yellow
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals (especially rabbits)	Red
	Significant threat	Red
Medium threat	Yellow	
Low threat	Green	

Table G12-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian and Victorian vulnerable species Striped Legless Lizard (<i>Delma impar</i>) Australian and Victorian endangered species - Swift Parrot (<i>Lathamus discolor</i>) Eastern Barred Bandicoot (<i>Perameles gunnii</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Victorian rare species - Corkscrew Spear-grass (<i>Austrostipa setacea</i>) Hairy Correa (<i>Correa aemula</i>) Australian and Victorian vulnerable species Clover Glycine (<i>Glycine latrobeana</i>) Victorian endangered species - Annual Buttons (<i>Leptorhynchus scaber</i>)</p>
<p>Salinity G12 has 468 ha of salt affected land and is threatened by increasing salinity. The Regional Salinity Plan proposes 43 km of tree belts and 229 ha of tree blocks in this sub-catchment for recharge control over the next 30 years.</p>
<p>River health, wetland and water quality The Native Vegetation Plan will help to maintain and improve water quality in the Glenelg River and associated wetlands.</p>



Flooded red gums in the Wannon River Valley

Table G12-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Damp Sands Herb-rich Complex /Plains Grassy Woodlands Complex	20.6	974	\$1,430,035
2	Plains Grassy Woodland	79.2	3310	\$4,846,156
3	Floodplain Riparian Woodland /Plains Grassy Woodland	4.5	84	\$119,229
4	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	59.3	509	\$674,516
5	Grassy Woodland/Damp Sands Herb-rich Woodland	53.8	444	\$585,371
6	Grassy Woodland/Hills Herb-rich Woodland/Damp Sands Herb-rich Wood	140.3	731	\$886,065
7	Damp Sands Herb-rich Woodland	149	658	\$763,535
8	Sandy Stream Woodland	22	88	\$98,926
9	Creekline Grassy Woodland	147.7	541	\$589,974
	Total	676.5	7339 ha	\$9,993,806

GLENELG HOPKINS SUB-CATCHMENTS

G13 Grange Burn

The Grange Burn Creek is the major waterway of this sub-catchment within the Glenelg Basin. The main drainage area is from the south and includes tributaries such as Muddy, McKinnon and Violet Creeks.

The main township of this sub-catchment is Hamilton with a population of approximately 9250 people. Other towns include Tarrington, Penshurst, Wannon, and the regions of Bochara, Strathkellar, Warrayure, Moutajup, Yatchaw, Buckley Swamp, Tabor, Croxton East, Burn Brae, Woodhouse, Linlithgow, Mount Bainbridge and Yulecart. There are no State or Regional Parks in this sub-catchment, however small reserves exist including the Hamilton Parklands (Bandicoot Protection Area), Lake Linlithgow and neighbouring wetlands, Lake Kennedy, Bullrush Lake and Lake Hamilton. Mount Rouse is a scoria cone which is within this sub-catchment and the Grangeburn and Muddy creeks contain fossil beds with fossilised skeletons of animals and fish.

Native vegetation currently covers 0.7 per cent of the sub-catchment comprising a total of 24 EVC communities. Prior to 1750 EVC communities covered 98,422 ha of this sub-catchment. The dominant remaining EVC is Stony Rises Herb-rich Woodland and the largest intact remnant is 173 ha. This EVC community is dominated by an overstorey of Manna Gum and Blackwood and an understorey of Bracken, Tussock grass, Shiny Cassinia, Common Groundsel and Bidgee-widgee.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 12 endangered EVC communities identified in Table G13-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table G13-4).

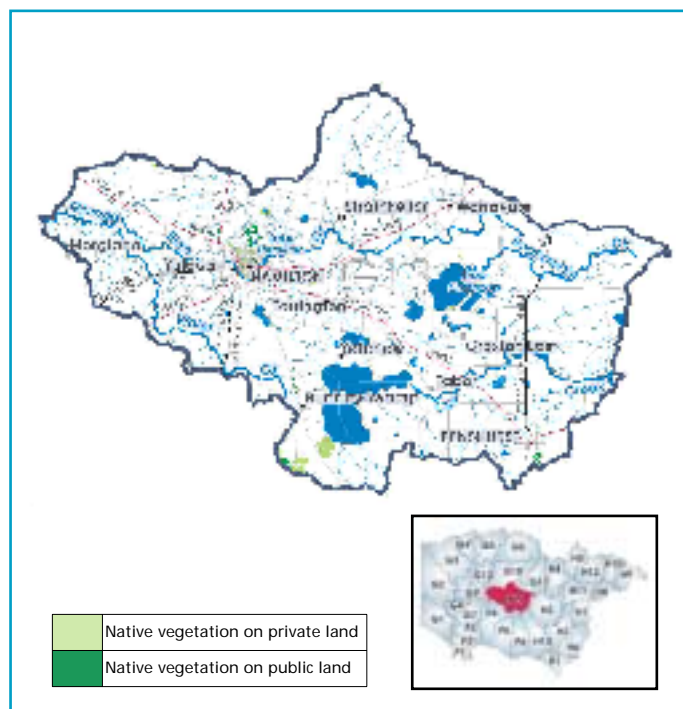


Table G13-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	53	Swamp Scrub	751.6	14.8	2.0%
	55	Plains Grassy Woodland	46564.4	243.5	0.5%
	68	Creekline Grassy Woodland	3360.9	2.0	0.1%
	83	Swampy Riparian Woodland	80.6	2.7	3.3%
	641	Riparian Woodland	440.2	0.5	0.1%
	647	Plains Sedgy Wetland	816.5	0.1	0.0%
	651	Plains Swampy Woodland	906.2	9.2	1.0%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	4044.2	7.2	0.2%
	714	Stony Knoll Shrubland/Plains Grassy Woodland/Plains Grassy Wetland	2603.4	2.4	0.1%
	716	Plains Grassy Woodland/Stony Knoll Shrubland	451.7	2.2	0.5%
897	Plains Grassland/Plains Grassy Woodland Mosaic	31109.0	31.4	0.1%	
Vulnerable or depleted	203	Stony Rises Herb-rich Woodland	1573.7	332.7	21.1%
	894	Scoria Cone Woodland	125.6	37.6	29.9%
Other		Other vegetation assets	3,768	0.0	0.0%



GLENELG HOPKINS SUB-CATCHMENTS

Table G13-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Yellow
	Salinity	Red
	Land use change	Red
	Waterlogging and drainage	Yellow
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat	Red	
Medium threat	Yellow	
Low threat	Green	



Bochara Falls

Table G13-3: BENEFITS

Biodiversity - Fauna

Significant rare fauna to benefit from the Plan:
 Australian vulnerable and Victorian rare species - Striped Legless Lizard (*Delma impar*)
 Australian and Victorian vulnerable species - Dwarf Galaxias (*Galaxiella pusilla*)
 Warty Bell Frog (*Litoria raniformis*)
 Australian and Victorian endangered species - Red-tailed Black-Cockatoo (*Calyptorhynchus banksii*)
 Swift Parrot (*Lathamus discolor*)
 Regent Honeyeater (*Xanthomyza phrygia*)
 Eastern Barred Bandicoot (*Perameles gunnii*)
 Australian vulnerable and Victorian endangered species - Variegated Pigmy Perch (*Nannoperca variegata*)
 Plains wanderer (*Pedionomus torquatus*)
 Spot-tailed Quoll (*Dasyurus maculatus*)

Biodiversity - Flora

Significant rare flora to benefit from the Plan:
 Australian and Victorian vulnerable species - Salt-lake Tussock-grass (*Poa sallacustris*)
 Clover Glycine (*Glycine latrobeana*)
 Victorian rare species - Reader's Daisy (*Brachyscome readeri*)
 Victorian vulnerable species - Gilgai Blown-grass (*Agrostis aemula* var. *setifolia*)
 Gilgai Blown-grass (*Agrostis billardierei* var. *filifolia*)

Salinity

G13 is threatened by increasing salinity. G13 has 1,110 ha of salt affected land and is threatened by increasing salinity. However the Regional Salinity Plan does not propose any revegetation in this sub-catchment over the next 30 years.

River health, wetland and water quality

The Native Vegetation Plan will help to maintain and improve water quality in the Wannon and Glenelg Rivers and associated wetlands.

Table G13-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Sedgy Wetland	0.1	123	\$184,342
2	Creepline Grassy Woodland	2.0	504	\$753,065
3	Stony Knoll Shrubland/Plains Grassy Woodland /Plains Grassy Wetland	2.4	391	\$582,887
4	Plains Grassland/Plains Grassy Woodland Mosaic	31.4	4666	\$6,951,975
5	Riparian Woodland	0.5	66	\$98,266
6	Aquatic Herbland/Plains Sedgy Wetland Mosaic	7.2	607	\$899,642
7	Plains Grassy Woodland/Stony Knoll Shrubland	2.2	68	\$98,631
8	Plains Grassy Woodland	243.5	7135	\$10,337,222
9	Plains Swampy Woodland	9.2	136	\$190,163
10	Swamp Scrub	14.8	113	\$147,290
11	Swampy Riparian Woodland	2.7	12	\$13,981
	Total	634.5 ha	13,560 ha	\$19,906,030

GLENELG-HOPKINS SUB-CATCHMENTS

P1 Portland & Wattle Creek

The Wattle Creek is the main waterway of this sub-catchment within the Portland Basin. There are numerous terminal lake systems including Bridgewater Lakes and Fawthorp Lagoon. The main township of the region is Portland. Other small townships and districts include Cape Bridgewater, Trawalla, Cashmore, Curries, Tarragal, Gorac West, Lower Cape Bridgewater and Mount Richmond.

Native vegetation currently covers 37.8 per cent of the sub-catchment comprising a total of 25 EVC communities. Prior to 1750 EVC communities covered 34,095 ha of this sub-catchment. The dominant remaining EVC is Calcarenite Dune Woodland and the largest intact remnant is 3,591 ha. This EVC community is dominated by an overstorey of She-oak and/or Moonah and an understorey of Coast Beard Heath, Sallow Wattle and Coast Sword Sedge.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the one endangered EVC community identified in Table P1-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC to be achieved by 2030 (see Table P1-4).

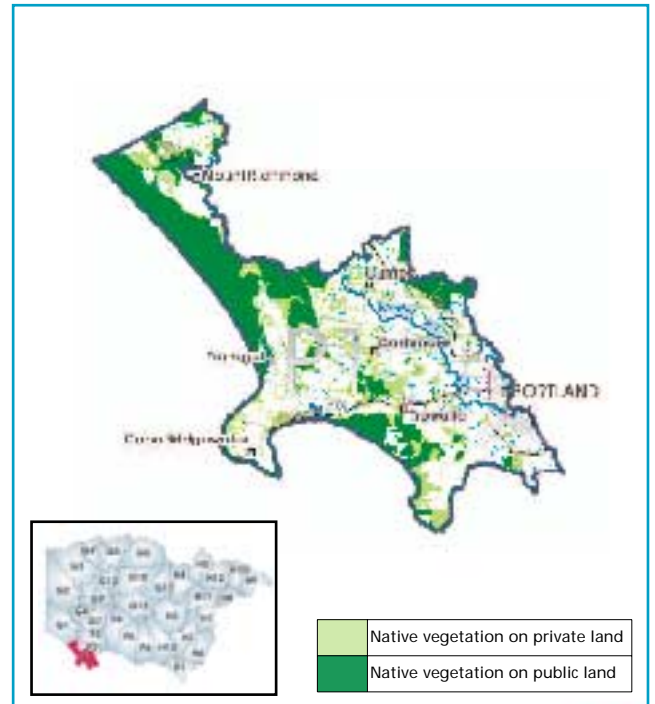
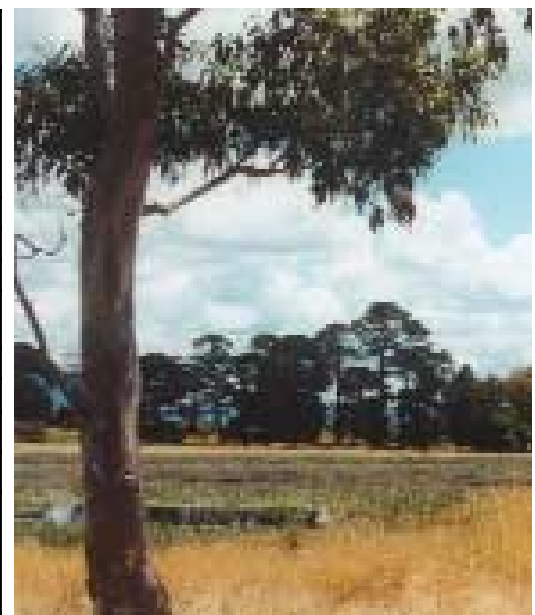


Table P1-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	200	Shallow Freshwater Marsh	136.3	4.1	3%
Vulnerable or depleted	23	Herb-rich Foothill Forest	4379.8	620.8	14.2%
	53	Swamp Scrub	186.4	21.9	11.8%
	645	Wet Heathland / Heathy Woodland	754.9	205.6	27.2%
	650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	4986.9	763.3	15.3%
	681	Deep Freshwater Marsh	237.9	25.9	10.9%
	746	Damp Heathland / Damp Heathy Woodland	2583.2	295	11.4%
	3	Damp Sands Herb-rich Woodland	6677.6	2154.1	32.3%
	8	Wet Heathland	589.2	231.2	39.2%
Other		Other vegetation assets well represented	13,563	8,608	63.5%



REGIONAL NATIVE VEGETATION PLAN

Table P1-2: THREATS

Ecological & societal processes	Clearance and fragmentation.	
	Salinity	
	Land use change	
	Waterlogging and drainage and drainage	
	Poorly managed grazing	
	Inappropriate fire regime	
	Disease eg Mundulla yellow, Phytophthora	
	Firewood collection	
	Pest plants	
	Pest animals (especially rabbits)	

Significant threat	Medium threat	Low threat
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Southern Brown Bandicoot (*Isoodon obesulus*)



Shallow freshwater marsh

Table P1-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>)</p> <p>Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksi</i>) Orange-bellied Parrot (<i>Neophema chrysogaster</i>)</p> <p>Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>)</p> <p>Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Long-nosed Potoroo (<i>Potorous tridactylus</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Malleefowl (<i>Leipoa ocellata</i>)</p> <p>Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isoodon obesulus</i>) Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian vulnerable species - Limestone Spider-orchid (<i>Caladenia calcicola</i>), Square Raspwort (<i>Haloragis exalata ssp. exalata var. exalata</i>), Ixodia (<i>Ixodia achillaeoides ssp. arenicola</i>), Clover Glycine (<i>Glycine latrobeana</i>), Leafy Greenhood (<i>Pterostylis cucullata</i>) River Swamp Wallaby-grass (<i>Amphibromus fluitans</i>)</p> <p>Australian rare species - Scented Spider-orchid (<i>Caladenia fragrantissima ssp. fragrantissima</i>), Lizard Orchid (<i>Burnellia cuneata</i>), Robust Spider-orchid (<i>Caladenia valida</i>), Bog Gum (<i>Eucalyptus kitsoniana</i>), Large White Spider-orchid (<i>Caladenia venusta</i>), Dwarf Coast Tussock-grass (<i>Poa halmaturina</i>)</p> <p>Australian endangered species - Mellblom's Spider-orchid (<i>Caladenia hastata</i>), Maroon Leek-orchid (<i>Prasophyllum frenchii</i>)</p>
<p>Salinity P1 is not threatened by increasing salinity. No salinity control works are planned for this sub-catchment in the Glenelg Hopkins Salinity Management Plan.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the streams and associated wetlands in this sub-catchment.</p>

Table P1-4: WORKS PROGRAM

(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Shallow Freshwater Marsh	4.1	20.4	\$24,450
	Total	4.1 ha	20.4 ha	\$24,450

GLENELG-HOPKINS SUB-CATCHMENTS

P2 Surry River

The Surry River is the main waterway of this sub-catchment within the Portland Basin. The Surry River runs from the Cobbobboonee State Forest in the northwest of the sub-catchment to the ocean at Narrawong.

The main township is Narrawong. Other small townships and districts include Allestree, Bolwarra, Gorae and Heathmere.

Native vegetation currently covers 51.0 per cent of the sub-catchment comprising a total of 22 EVC communities. Prior to 1750 EVC communities covered 37,620 ha of this sub-catchment. The dominant remaining EVC is Lowland Forest and the largest intact remnant is 6,703 ha. This EVC community is dominated by an overstorey of Brown Stringybark and Messmate, often accompanied by Mountain Grey-gum. The understorey includes Common Heath, Pink-bells, Silver Banksia, Common Correa, Rough Bush-pea, Myrtle Wattle and Manuka.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the four endangered EVC communities identified in Table P2-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table P2-4).

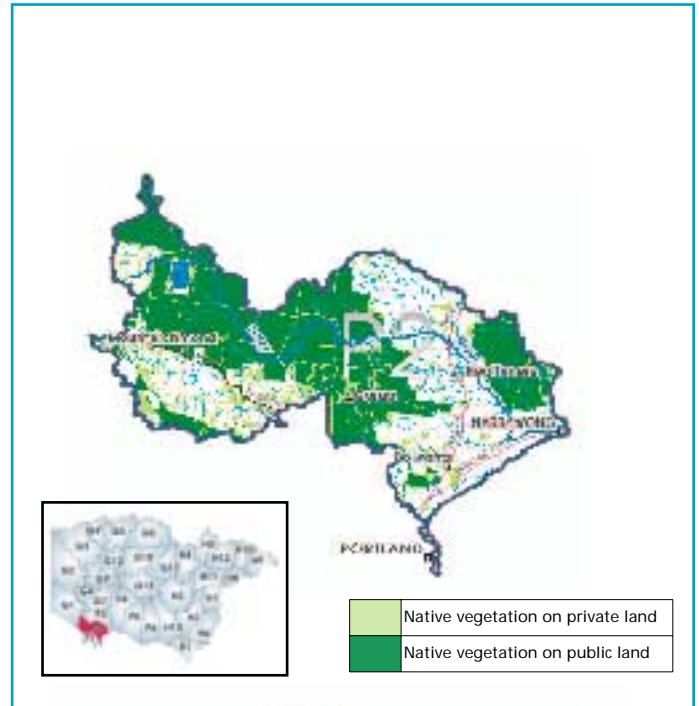


Table P2-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	53	Swamp Scrub	608.6	41.9	6.9%
	160	Coastal Dune Scrub	299.7	6.1	2%
	680	Freshwater Meadow	282.8	20.6	7.3%
	713	Damp Sands Herb-rich Woodland/Damp Heathland /Damp Heathy Woodland	4975.8	299.1	6%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	1726.4	222.5	12.9%
	200	Shallow Freshwater Marsh	149.1	37.8	25.4%
	683	Semi-permanent Saline	9.1	1.0	11.3%
	746	Damp Heathland / Damp Heathy Woodland	654.6	66.7	10.2%
	23	Herb-rich Foothill Forest	9356.5	2922.6	31.2%
	645	Wet Heathland / Heathy Woodland	1352.2	582.4	43.1%
	681	Deep Freshwater Marsh	446.6	176.9	39.6%
Other	684	Permanent Saline	4.1	1.6	38.2%
		Other vegetation assets well represented	17,754	14,803	83.4%

Coastal dune scrub

REGIONAL NATIVE VEGETATION PLAN

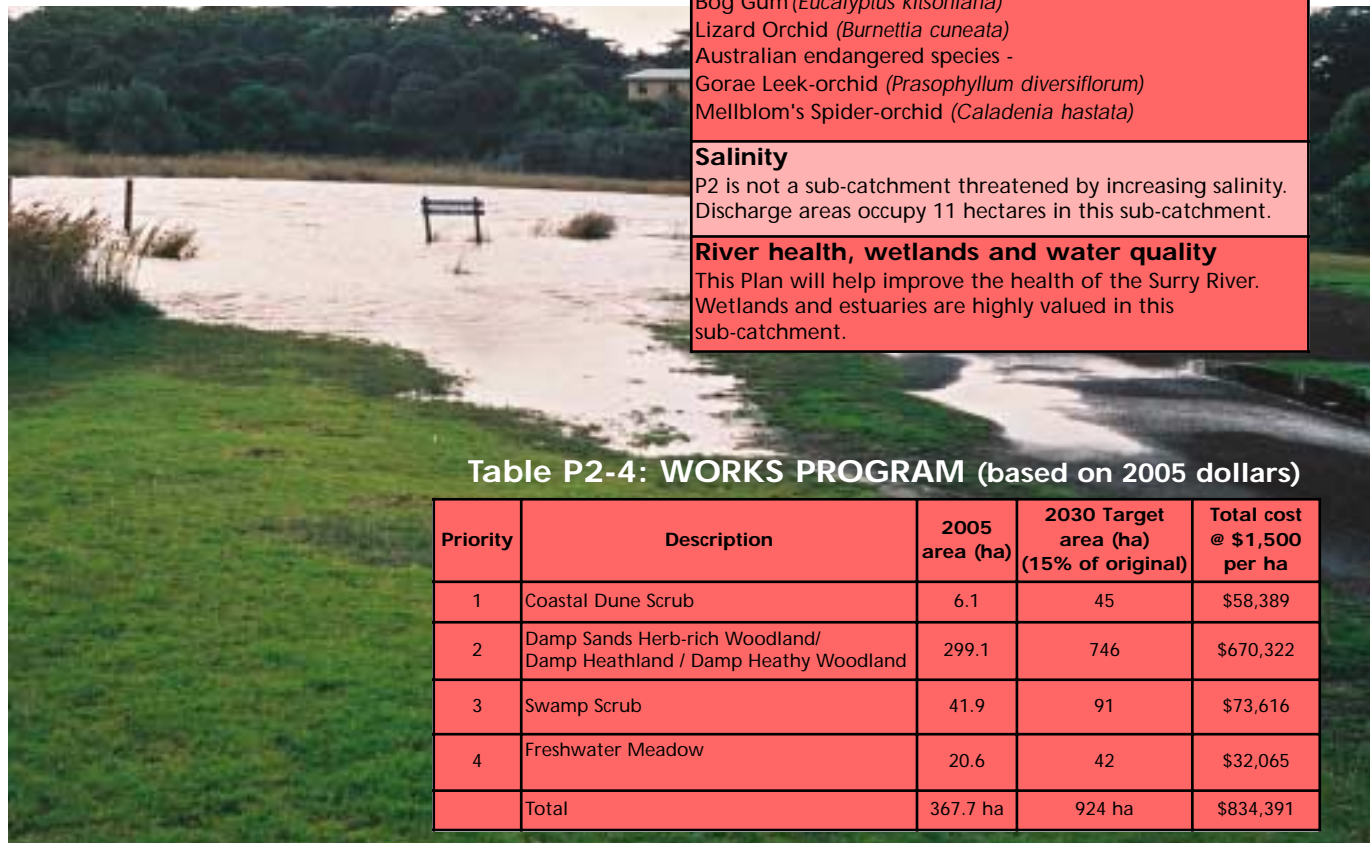
Table P2-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Yellow
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Yellow
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Heath Mouse (*Pseudomys shortridgei*)



Surry Estuary boat ramp

Table P2-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>)</p> <p>Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksi</i>) Orange-bellied Parrot (<i>Neophema chrysogaster</i>) Regent Honeyeater (<i>Xanthomyza phrygia</i>) Swift Parrot (<i>Lathamus discolor</i>)</p> <p>Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>)</p> <p>Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Long-nosed Potoroo (<i>Potorous tridactylus</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Malleefowl (<i>Leipoa ocellata</i>)</p> <p>Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>)</p> <p>Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian vulnerable species - River Swamp Wallaby grass (<i>Amphibromus fluitans</i>) Green-striped Greenhood (<i>Pterostyllis chlorogramma</i>) Australian rare species - Bog Gum (<i>Eucalyptus kitsoniana</i>) Lizard Orchid (<i>Burnettia cuneata</i>) Australian endangered species - Gorae Leek-orchid (<i>Prasophyllum diversiflorum</i>) Mellblom's Spider-orchid (<i>Caladenia hastata</i>)</p>
<p>Salinity P2 is not a sub-catchment threatened by increasing salinity. Discharge areas occupy 11 hectares in this sub-catchment.</p>
<p>River health, wetlands and water quality This Plan will help improve the health of the Surry River. Wetlands and estuaries are highly valued in this sub-catchment.</p>

Table P2-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Coastal Dune Scrub	6.1	45	\$58,389
2	Damp Sands Herb-rich Woodland/ Damp Heathland / Damp Heathy Woodland	299.1	746	\$670,322
3	Swamp Scrub	41.9	91	\$73,616
4	Freshwater Meadow	20.6	42	\$32,065
	Total	367.7 ha	924 ha	\$834,391

GLENELG-HOPKINS SUB-CATCHMENTS

P3 Fitzroy River

The Fitzroy River is the main waterway of this sub-catchment within the Portland Basin. The Fitzroy River runs from the Lower Glenelg National Park in the northwest of the sub-catchment to the ocean at Narrawong East.

The main township is Heywood. Other small townships and districts include Drumborg, Homerton, Milltown, Mount Eckersley, Myamyn, Narrawong East and West Sinclair.

Native vegetation currently covers 40.3 per cent of the sub-catchment comprising a total of 19 EVC communities. Prior to 1750 EVC communities covered 55,547 ha of this sub-catchment. The dominant remaining EVC is Lowland Forest and the largest intact remnant is 8,831 ha. This EVC community is dominated by an overstorey of Brown Stringybark and Messmate, often accompanied by Mountain Grey-gum. The understorey includes Common Heath, Pink-bells, Silver Banksia, Common Correa, Rough Bush-pea, Myrtle Wattle and Manuka.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the two endangered EVC communities identified in Table P3-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table P3-4).

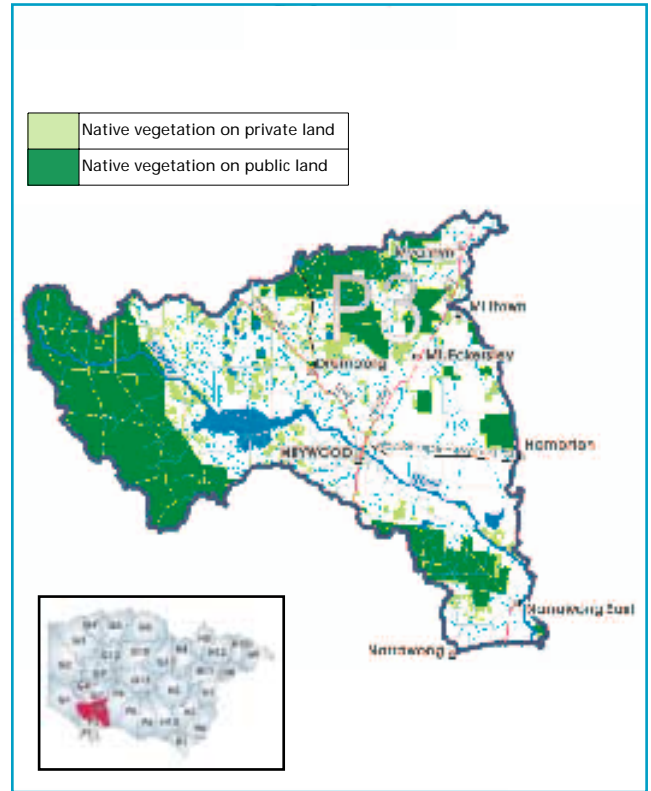


Table P3-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	713	Damp Sands Herb-rich Woodland/ Damp Heathland / Damp Heathy Woodland	11656.2	730.2	6.3%
	746	Damp Heathland / Damp Heathy Woodland	661	18.8	2.8%
Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	1758.4	207.5	11.8%
	23	Herb-rich Foothill Forest	21544.6	5450.4	25.3%
	53	Swamp Scrub	1164.3	268.2	23%
	200	Shallow Freshwater Marsh	228.8	33	14.4%
	203	Stoney Rises Herb-rich Woodland	995.8	206.1	20.7%
	681	Deep Freshwater Marsh	988.5	269.3	27.2%
	720	Swamp Scrub / Aquatic Herbland	35.6	6.1	17.2%
Other		Other vegetation assets well represented	16,513	15,182	91.9%

Herb-rich woodland

REGIONAL NATIVE VEGETATION PLAN

Table P3-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Yellow
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat		Red
Medium threat		Yellow
Low threat		Green

Table P3-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>)</p> <p>Australian and Victorian endangered species - Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksi</i>)</p> <p>Australian vulnerable and Victorian rare species - Heath Mouse (<i>Pseudomys shortridgei</i>)</p> <p>Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Long-nosed Potoroo (<i>Potorous tridactylus</i>) Plains-wanderer (<i>Pedionomus torquatus</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Malleefowl (<i>Leipoa ocellata</i>)</p> <p>Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>)</p> <p>Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Curly Sedge (<i>Carex tasmanica</i>) Wrinkled Cassinia (<i>Cassinia rugata</i>)</p> <p>Australian and Victorian rare species - Snowy Lobelia (<i>Lobelia beauglehole</i>)</p> <p>Australian rare and Victorian listed species - Elongate Woodruff (<i>Asperula charophyton</i>)</p> <p>Australian listed and Victorian endangered species - Rough Eyebright (<i>Euphrasia scabra</i>)</p> <p>Australian and Victorian endangered species - Maroon Leek-orchid (<i>Prasophyllum frenchii</i>)</p>
<p>Salinity P3 is not a sub-catchment threatened by increasing salinity. P3 is not a priority in the Glenelg Hopkins Salinity Management Plan.</p>
<p>River health and water quality The river reaches in the sub-catchment have very good riparian vegetation width and structural intactness.</p>



Table P3-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Damp Heathland / Damp Heathy Woodland	18.8	99	\$120,365
2	Damp Sands Herb-rich Woodland/ Damp Heathland /Damp Heathy Woodland	730.2	1748	\$1,526,759
	Total	748.9 ha	1,847 ha	\$1,647,124

GLENELG HOPKINS SUB-CATCHMENTS

P4 Darlots Creek

Darlots Creek is the main waterway of this sub-catchment within the Portland Basin. Darlots Creek flows from Condah to the Fitzroy River at Tyrendarra.

The main townships are Branxholme and Tyrendarra. Other small townships and districts include Breakaway Creek, Byaduk, Condah, Knebsworth, Wallacedale and Weerangourt.

Native vegetation currently covers 16.7 per cent of the sub-catchment comprising a total of 25 EVC communities. Prior to 1750 EVC communities covered 97,930 ha of this sub-catchment in 289 patches averaging 339 ha in size. Today the remaining EVC communities cover 16,356 ha remaining in 581 patches averaging 28.2 ha in size. The largest remaining patch of contiguous original native vegetation in the sub-catchment is 7,304 ha of Stoney Rises Herb-rich Woodland. This EVC community is dominated by an overstorey of Manna Gum and Blackwood and an understorey of Bracken, Tussock Grass, Shiny Cassinia Common Groundsel and Bidgee-Widgee.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the fourteen endangered EVC communities identified in Table P4-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table P4-4).

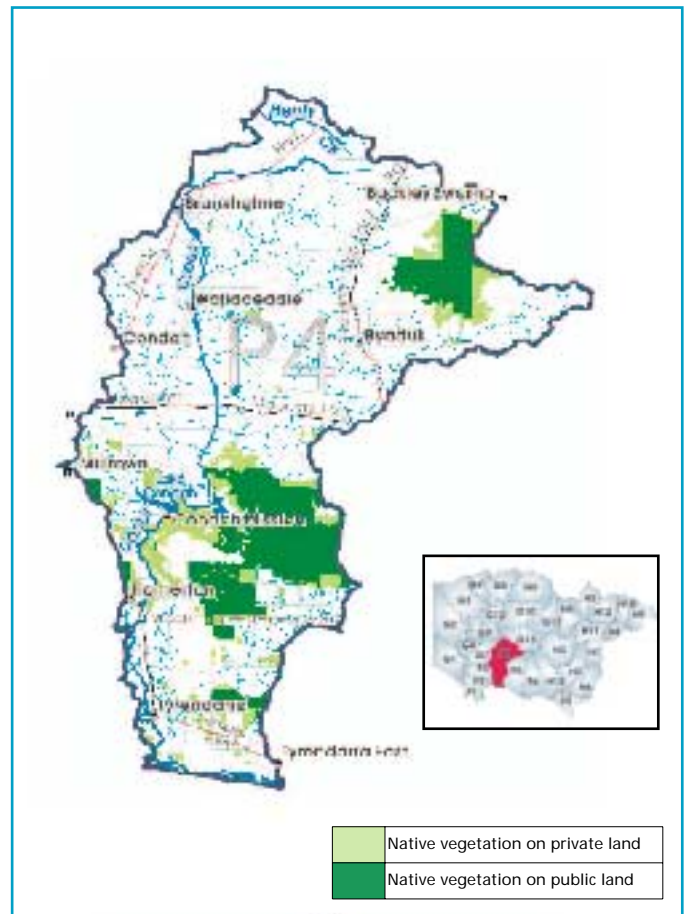


Table P4-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	3	Damp Sands Herb-rich Woodland	1332.5	73.8	5.5%
	53	Swamp Scrub	2727	58.7	2.2%
	55	Plains Grassy Woodland	25277.5	44	0.2%
	68	Creekline Grassy Woodland	1026.6	3.7	0.4%
	161	Coastal Headland Scrub	14.9	0.2	1.7%
	200	Shallow Freshwater Marsh	498.2	8.1	1.6%
	642	Basalt Shrubby Woodland	8609.9	9.8	0.1%
	651	Plains Swampy Woodland	1835.7	1.1	0.1%
	681	Deep Freshwater Marsh	575.3	18.3	3.2%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	242.1	4.4	1.8%
	713	Damp Sands Herb-rich Woodland / Damp Heathland /Damp Heathy Woodland	11480	540.5	4.7%
	733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	4213	28.9	0.7%
	792	Stony Rises Woodland / Stony Knoll Shrubland	1227	46.7	3.8%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	12830	2.6	0.02%
Vulnerable or depleted	10	Estuarine Wetland	34.6	8.6	24.9%
	160	Coastal Dune Scrub	145.6	39	26.8%
	684	Permanent Saline	20.8	4.6	22%
	23	Herb-rich Foothill Forest	8987.2	4063.9	45.2%
Other		Other vegetation assets well represented	16,662	11,342	68.1%



REGIONAL NATIVE VEGETATION PLAN

Table P4-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Significant threat
	Salinity	Low threat
	Land use change	Significant threat
	Waterlogging and drainage	Significant threat
	Poorly managed grazing	Significant threat
	Inappropriate fire regime	Low threat
	Disease eg Mundulla yellow, Phytophthora	Medium threat
	Firewood collection	Significant threat
	Pest plants	Significant threat
	Pest animals	Significant threat
Significant threat		Significant threat
Medium threat		Medium threat
Low threat		Low threat



Spot-tailed Quoll
(*Dasyurus maculatus*)

Table P4-3: BENEFITS

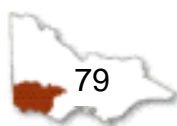
<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>) Australian and Victorian endangered species - Red-tailed Black Cockatoo (<i>Calyptorhynchus banksi</i>) Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Australian vulnerable and Victorian endangered species - Long-nosed Potoroo (<i>Potorous tridactylus</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Brush-tailed Rock-wallaby (<i>Petrogale penicillata</i>) Striped Legless Lizard (<i>Delma impar</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>) Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Australian and Victorian vulnerable species - Curly Sedge (<i>Carex tasmanica</i>) Australian and Victorian rare species - Bog Gum (<i>Eucalyptus kitsoniana</i>)</p>
<p>Salinity Although this sub-catchment is not a priority in the Salinity Management Plan, EC levels have increased by more than 5 per cent over the last 10 years. Discharge areas cover 131 ha.</p>
<p>River health, wetlands and water quality The river reaches in the sub-catchment have very good riparian vegetation width and structural intactness. Nationally significant wetlands can be found in this sub-catchment.</p>

Table P4-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	2.6	1925	\$2,883,586
2	Plains Swampy Woodland	1.1	75	\$410,859
3	Basalt Shrubby Woodland	9.8	1291	\$1,921,849
4	Plains Grassy Woodland	44	3792	\$5,621,930
5	Creekline Grassy Woodland	3.7	154	\$225,524
6	Swamp Scrub / Plains Sedgy Wetland /Aquatic Herbland	28.9	632	\$904,584
7	Shallow Freshwater Marsh	8.1	75	\$100,395
8	Coastal Headland Scrub	0.2	2	\$2,631
9	Aquatic Herbland/Plains Sedgy Wetland Mosaic	4.4	36	\$47,392
10	Swamp Scrub	58.7	409	\$525,386
11	Deep Freshwater Marsh	18.3	86	\$101,606
12	Stony Rises Woodland / Stony Knoll Shrubland	46.7	184	\$206,002
13	Damp Sands Herb-rich Woodland / Damp Heathland /Damp Heathy Woodland	540.5	1722	\$1,772,198
14	Damp Sands Herb-rich Woodland	73.8	200	\$189,253
	Total	840.9 ha	10,783 ha	\$14,913,194



Plains Grassy Woodland



GLENELG HOPKINS SUB-CATCHMENTS

P5 Eumeralla River

The Eumeralla River is the main waterway of this sub-catchment within the Portland Basin. The Eumeralla and Shaw Rivers both flow south from the edge of the lava flows at Gerrigerrup Road east of Warrabkook to Yambuk Lake at Yambuk on the coast.

The main townships are Macarthur and Yambuk. Other small townships and districts include Ardonachie, Bessibelle, Saint Helens, Codrington, Dunmore, Gazette, Orford and Ripponhurst.

Native vegetation currently covers 2.4 per cent of the sub-catchment comprising a total of 31 EVC communities. Prior to 1750 EVC communities covered 90,912 ha of this sub-catchment. The dominant remaining EVC is Stony Rises Herb-rich Woodland and the largest intact remnant is 1,181 ha. This EVC community is dominated by an overstorey of Manna Gum and Blackwood and an understorey of Bracken, Tussock Grass, Shiny Cassinia Common Groundsel and Bidgee-Widgee.

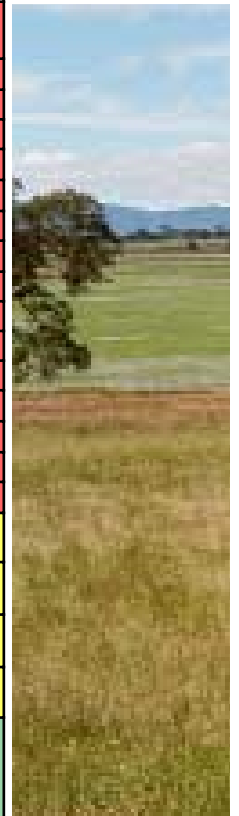
Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the fifteen endangered EVC communities identified in Table P5-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table P5-4).



Table P5-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	3	Damp Sands Herb-rich Woodland	2547.3	168.3	6.6%
	23	Herb-rich Foothill Forest	2474.9	241.2	9.7%
	53	Swamp Scrub	1040.4	11.9	1.1%
	55	Plains Grassy Woodland	5004.5	8.0	0.2%
	83	Swampy Riparian Woodland	329.3	1.0	0.3%
	641	Riparian Woodland	405.8	0.3	0.1%
	642	Basalt Shrubby Woodland	22458.4	21.4	0.1%
	651	Plains Swampy Woodland	3548.7	5.0	0.1%
	680	Freshwater Meadow	79.3	3.9	4.9%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1148.5	9.6	0.8%
	713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	17544.6	124.6	0.7%
	714	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	11140.8	0.5	0.005%
	732	Damp Sands Herb-rich Woodland/Plains Swampy Woodland/Aquatic Herbland	7237.2	165.3	2.3%
	733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	1477.7	9.6	0.6%
	894	Scoria Cone Woodland	76.0	1.3	1.7%
Vulnerable or depleted	10	Estuarine Wetland	218.7	63.6	29.1%
	998	Water Body - Natural or man made	129.1	13.5	10.5%
	160	Coastal Dune Scrub	299.6	103.7	34.6%
	684	Permanent Saline	18.2	6.5	35.9%
Other		Other vegetation assets well represented	13,862	1,199	8.6%



REGIONAL NATIVE VEGETATION PLAN

Table P5-2: THREATS

Ecological & societal processes	Clearance and fragmentation	
	Salinity	
	Land use change	
	Waterlogging and drainage	
	Poorly managed grazing	
	Inappropriate fire regime	
	Disease eg Mundulla yellow, Phytophthora	
	Firewood collection	
	Pest plants	
	Pest animals	

Significant threat		Medium threat		Low threat	
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Southern Brown Bandicoot (*Isoodon obesulus*)



Table P5-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Orange-bellied Parrot (<i>Neophema chrysogaster</i>) Swift Parrot (<i>Lathamus discolor</i>) Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isoodon obesulus</i>) Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian and Victorian endangered species - Gorae Leek-orchid (<i>Prasophyllum diversiflorum</i>) Victorian vulnerable species - Hairy Shepherd's Purse (<i>Microlepidium pilosulum</i>)</p>
<p>Salinity Although this sub-catchment is not a priority in the Glenelg Hopkins Salinity Management Plan, EC levels have increased by more than 5 per cent over the last 10 years. Discharge areas cover 191 ha in this sub-catchment.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve the health of the Eumeralla River. Yambuk Lake wetlands are of national significance.</p>

Table P5-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	0.5	1671	\$2,505,688
2	Riparian Woodland	0.3	61	\$91,025
3	Basalt Shrubby Woodland	21.4	3369	\$5,021,474
4	Plains Swampy Woodland	5	532	\$790,463
5	Plains Grassy Woodland	8	751	\$1,114,573
6	Swampy Riparian Woodland	1	49	\$72,065
7	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	9.6	222	\$318,610
8	Damp Sands Herb-rich Woodland/Damp Heathland/Damp Heathy Woodland	124.6	2632	\$3,761,076
9	Aquatic Herbland/Plains Sedgy Wetland Mosaic	9.6	172	\$243,647
10	Swamp Scrub	11.9	156	\$216,205
11	Scoria Cone Woodland	1.3	11	\$14,585
12	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	165.3	1086	\$1,381,019
13	Freshwater Meadow	3.9	12	\$12,225
14	Damp Sands Herb-rich Woodland	168.3	382	\$320,495
15	Herb-rich Foothill Forest	241.2	371	\$194,661
	Total	771.8 ha	11,477 ha	\$16,057,811

GLENELG HOPKINS SUB-CATCHMENTS

P6 Moyne River

The Moyne River is the main waterway of this sub-catchment within the Portland Basin. The Moyne River flows south through Belfast Lough at Port Fairy to the ocean and from the edge of the lava flows west-southwest of Peshurst.

The main townships are Port Fairy and Hawkesdale. Other small townships and districts include Aringa, Crossley, Killarney, Kirkstall, Koroit, Moyne, Rosebrook, Toolong, Tower Hill, Warrong and Willatook.

Native vegetation currently covers 0.71 per cent of the sub-catchment comprising a total of 30 EVC communities. Prior to 1750 EVC communities covered 82,779 ha of this sub-catchment. The dominant remaining EVC is Cinder Cone Woodland and the largest intact remnant is 151.1 ha. This EVC community is dominated by an overstorey of Manna Gum and/or swamp Gum with a grassy or bracken-characterised understorey in which Silver Tussock Grass is prominent.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the twelve endangered EVC communities identified in Table P6-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table P6-4).

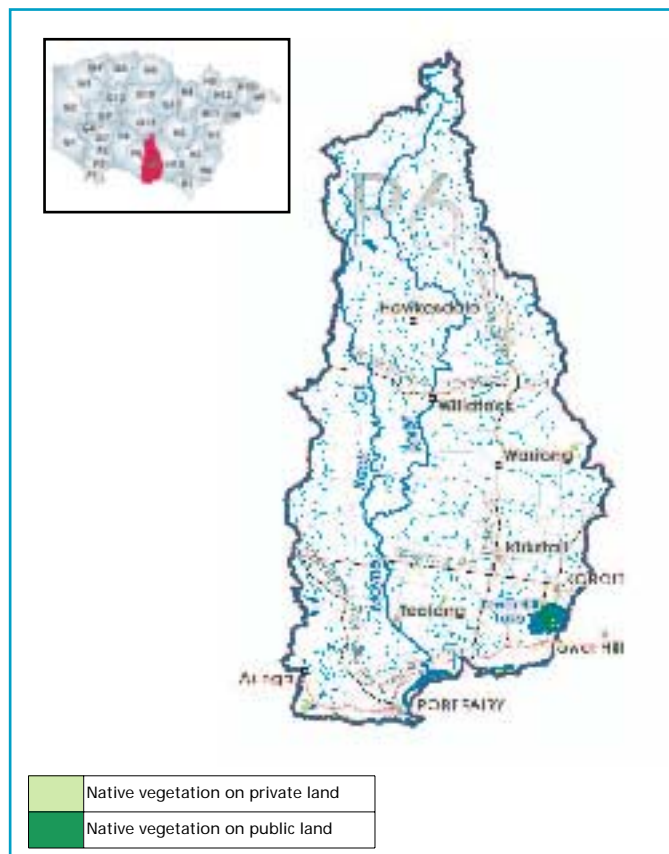


Table P6-1: ASSETS

	EVC No.	Description	Pre 1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	3	Damp Sands Herb-rich Woodland	1626.2	27.4	1.7%
	53	Swamp Scrub	4319.6	0.2	0.0%
	55	Plains Grassy Woodland	3940.9	19.1	0.5%
	83	Swampy Riparian Woodland	1386.4	0.5	0.03%
	641	Riparian Woodland	364.6	1.5	0.4%
	642	Basalt Shrubby Woodland	24468.4	40.7	0.2%
	651	Plains Swampy Woodland	4279.6	0.2	0.004%
	653	Aquatic Herbland	49.4	0.1	0.1%
	705	Basalt Creekline Shrubby Woodland	1537.4	0.7	0.04%
	713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	4146.7	32.0	0.8%
	714	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	20634.7	3.1	0.02%
	720	Swamp Scrub / Aquatic Herbland	964.4	13.8	1.4%
Vulnerable or depleted	10	Estuarine Wetland	95.8	10.6	11.1%
	162	Coastal Headland Scrub/Headland Coastal Tussock Grassland Mosaic	91.9	9.5	10.3%
	684	Permanent Saline	153.9	19.5	12.7%
	998	Water Body - Natural or man made	341.7	48.2	14.1%
	160	Coastal Dune Scrub	556.8	184.6	33.1%
797	Coastal Landfill / Sand Accretion	15.1	4.7	31.2%	
Other		Other vegetation assets well represented	14,147	226	1.6%

REGIONAL NATIVE VEGETATION PLAN

Table P6-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals (Rabbits are a major threat)	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Basalt Creekline Shrubby Woodland

Table P6-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Dwarf Galaxias (<i>Galaxiella pusilla</i>)</p> <p>Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Orange-bellied Parrot (<i>Neophema chrysogaster</i>)</p> <p>Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Western Water-starwort (<i>Callitriche cyclocarpa</i>) Leafy Greenhood (<i>Pterostylis cucullata</i>)</p> <p>Victorian vulnerable species - Hairy Shepherd's Purse (<i>Microlepidium pilosulum</i>)</p> <p>Australian and Victorian endangered species - Basalt Peppergrass (<i>Lepidium hyssopifolium</i>) Maroon Leek-orchid (<i>Prasophyllum frenchii</i>)</p>
<p>Salinity Although this sub-catchment is not a priority in the Glenelg Hopkins Salinity Management Plan, EC levels have increased over the last 10 years.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve the health of the Moyne River, particularly the severely degraded riparian vegetation and loss of in-stream habitat.</p>

Table P6-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Swampy Woodland	0.2	642	\$962,725
2	Swamp Scrub	0.2	648	\$971,675
3	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	3.1	3095	\$4,637,807
4	Swampy Riparian Woodland	0.5	208	\$311,280
5	Basalt Creekline Shrubby Woodland	0.7	231	\$345,479
6	Aquatic Herbland	0.1	7	\$10,392
7	Basalt Shrubby Woodland	40.7	3670	\$5,443,956
8	Riparian Woodland	1.5	55	\$80,293
9	Plains Grassy Woodland	19.1	591	\$857,915
10	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	32	622	\$885,009
11	Swamp Scrub / Aquatic Herbland	13.8	145	\$196,768
12	Damp Sands Herb-rich Woodland	27.4	244	\$324,958
	Total	139.2 ha	10,158 ha	\$15,028,257

GLENELG HOPKINS SUB-CATCHMENTS

H1 Hopkins River / Brucknell Creek

The Hopkins River between the Hopkins Falls and its meeting with the Great Southern Ocean, is the major waterway within this sub-catchment. The 9 km estuary on the outskirts of Warrnambool is a recreational paradise for a wide variety of sports. The main drainage area is from tributaries to the east and southeast of the sub-catchment. The Brucknell Creek (named Cudjee Creek between Cudjee and the junction with the Hopkins River, approximately 3 kilometres) is the only significant named or defined tributary in the sub-catchment, and has a catchment area of approximately 500 km². Buckley Creek is a small waterway in the south of the sub-catchment.

The City of Warrnambool, with a population of approximately 30,000 people is the major population base. Small townships include Allansford and Cudjee, and the districts of Mepunga, Naringal, Nullawarre, Nirranda, Laang and Ecklin South. The Bay of Islands Coastal Park is a significant feature of the sub-catchment and is located between Warrnambool and Peterborough. The Coastal Park consists of coastal sand dunes, exposed cliffs, islands, coves and bays.

Native vegetation currently covers 5.07 per cent of the sub-catchment comprising a total of 23 EVC communities. Prior to 1750 EVC communities covered 55,928 ha of this sub-catchment. The dominant remaining EVC is Herb-rich Foothill Forest and the largest intact remnant is 103.25 ha. This EVC community is characterised by an overstorey of Messmate with Grey Gum and Manna Gum, and an understorey of Blackwood.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 15 endangered EVC communities identified in Table H1-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVCs to be achieved by 2030 (see Table H1-4).

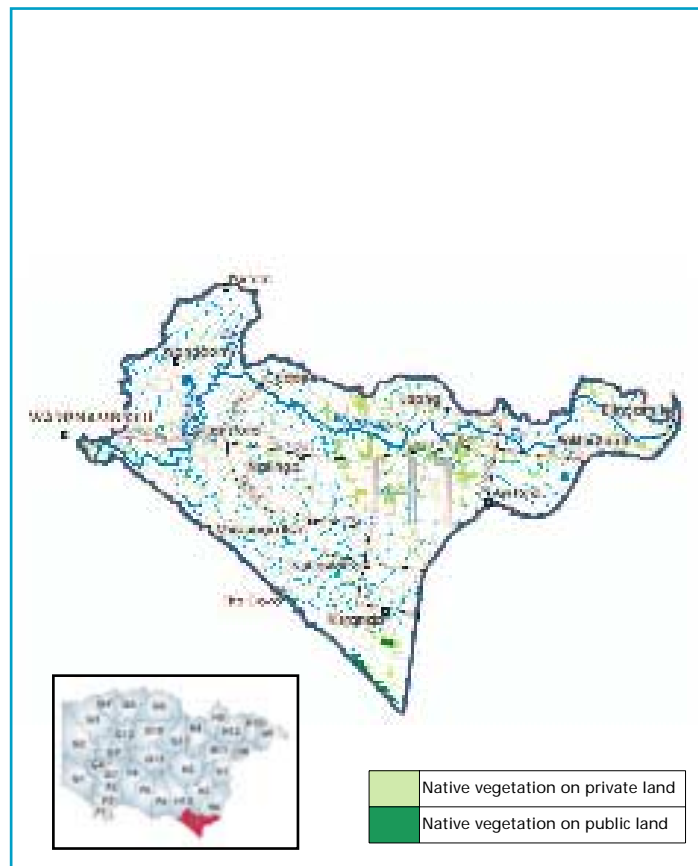


Table H1-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	3	Damp Sands Herb-rich Woodland	2,707.6	116.5	4.3%
	23	Herb-rich Foothill Forest	10,558.3	918.4	8.7%
	53	Swamp Scrub	3,574.8	140.3	3.9%
	55	Plains Grassy Woodland	7,025.4	105.2	1.5%
	200	Shallow Freshwater Marsh	56.9	0.2	0.4%
	644	Cinder Cone Woodland	126.6	6.4	5.0%
	651	Plains Swampy Woodland	1,594.2	10.1	0.6%
	653	Aquatic Herbland	132.6	6.0	4.5%
	680	Freshwater Meadow	172.8	4.4	2.5%
	684	Permanent Saline	148.0	14.2	9.6%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	85.8	0.7	0.8%
	713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	17,281.4	402.1	2.3%
	720	Swamp Scrub / Aquatic Herbland	14.7	0.3	2.1%
	746	Damp Heathland / Damp Heathy Woodland	8,569.7	226.7	2.6%
	894	Scoria Cone Woodland	162.2	2.2	1.4%
Vulnerable or depleted	16	Lowland Forest	2,382.3	590.9	24.8%
	18	Riparian Forest	351.9	99.5	28.3%
	160	Coastal Dune Scrub	122.0	31.1	25.5%
	162	Coastal Headland Scrub/Headland Coastal Tussock	684.5	133.4	19.5%
	668	Riparian Woodland/Escarpment Shrubland	104.7	15.5	14.8%
	161	Coastal Headland Scrub	28.2	11.4	40.3%
Other		Other vegetation assets	44.2 ha	0 ha	0%



Freshwater Marsh

REGIONAL NATIVE VEGETATION PLAN

Table H1-2: THREATS

Ecological & societal processes	Clearance and fragmentation.	Red
	Salinity	Red
	Land use change	Red
	Waterlogging and drainage and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Yellow
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals (especially rabbits)	Red
Significant threat	Red	
Medium threat	Yellow	
Low threat	Green	



Leafy Greenhood
(*Pterostylis cucullata*)

Table H1-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Australian Grayling (<i>Prototroctes maraena</i>) Warty Bell Frog (<i>Litoria raniformis</i>)</p> <p>Australian vulnerable and Victorian endangered species - Long-nosed Potoroo (<i>Potorous tridactylus</i>)</p> <p>Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>) Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian and Victorian endangered species - Metallic Sun-orchid (<i>Thelymitra epipactoides</i>)</p> <p>Victorian vulnerable species - Swamp Diuris (<i>Diuris palustris</i>)</p> <p>Australian and Victorian vulnerable species - Leafy Greenhood (<i>Pterostylis cucullata</i>) Clover Glycine (<i>Glycine latrobeana</i>)</p>
<p>Salinity H1 is threatened by increasing salinity. Although H1 is not a priority in the Glenelg Hopkins Salinity Management Plan, native vegetation has an important role in salinity recharge control.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment.</p>

**Table H1-4:
WORKS PROGRAM
(based on 2005 dollars)**

Shallow Freshwater Marsh EVC is the highest priority EVC community in this sub-catchment.



Priority	Description	2005 area (ha)	2030 target area (ha)	Total cost @\$1500/ha
1	Shallow Freshwater Marsh	0.2	9	\$13,130
2	Plains Swampy Woodland	10.1	239	\$343,279
3	Aquatic Herbland/Plains Sedgy Wetland Mosaic	0.7	13	\$18,495
4	Scoria Cone Woodland	2.2	24	\$32,632
5	Plains Grassy Woodland	105.2	1054	\$1,423,145
6	Swamp Scrub / Aquatic Herbland	0.3	2	\$2,531
7	Damp Sands Herb-rich Woodland / Damp Heathland/ Damp Heathy Woodland	402.1	2592	\$3,284,862
8	Freshwater Meadow	4.4	26	\$32,398
9	Damp Heathland / Damp Heathy Woodland	226.7	1285	\$1,587,510
10	Swamp Scrub	140.3	536	\$593,531
11	Damp Sands Herb-rich Woodland	116.5	406	\$434,220
12	Aquatic Herbland	6.0	20	\$20,961
13	Cinder Cone Woodland	6.4	19	\$18,972
14	Herb-rich Foothill Forest	918.4	1584	\$998,418
15	Permanent Saline	14.2	22	\$11,649
	Total	752 ha	5244 ha	\$6,737,983

GLENELG HOPKINS SUB-CATCHMENTS

H2 Hopkins River/Blind Creek

The Hopkins River, between the confluence with Salt Creek and the Hopkins Falls, is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is to the north and east, comprising the Blind Creek and Stoney Creek drainage areas. The main township of the sub-catchment is Mortlake with a population of approximately 1000 people. Other small townships include Ellerslie, Framlingham and Purnim, and the regions of Kolara, The Sisters and Ballangeich. Framlingham Forest is bounded by the Hopkins River to the east and is the only large area of remnant native vegetation in this sub-catchment and has many ecological vegetation classes. Native grasslands are a particular feature of the north-west of the sub-catchment on both roadsides and as native pasture paddocks.

Native vegetation currently covers 1.9 per cent of the sub-catchment comprising a total of 22 EVC communities. Prior to 1750 EVC communities covered 91,525 ha of this sub-catchment. The dominant remaining EVC is Herb-rich Foothill Forest and the largest intact remnant is 891 ha. This EVC community is characterised by an overstorey of Messmate with Grey Gum and Manna Gum, and an understorey of Blackwood.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 17 endangered EVC communities identified in Table H2-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H2-4).

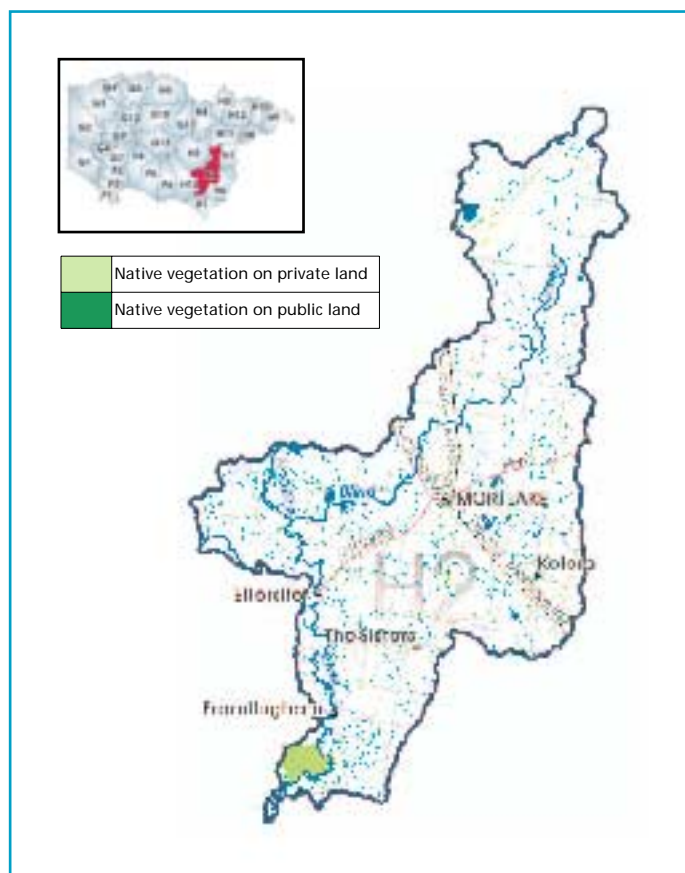


Table H2-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	26,977.0	193.8	0.7%
	56	Floodplain Riparian Woodland	31.6	1.6	4.9%
	68	Creekline Grassy Woodland	1,405.0	5.6	0.4%
	124	Grey Clay Drainage Line Complex	509.0	1.4	0.3%
	125	Plains Grassy Wetland	7093.0	13.2	0.2%
	132	Plains Grassland	12,482.4	73.2	0.6%
	647	Plains Sedgy Wetland	859.1	0.7	0.1%
	648	Saline Lake Verge Herbland/Sedgeland	457.2	8.3	1.8%
	651	Plains Swampy Woodland	127.0	0.3	0.2%
	652	Lunette Woodland	658.3	13.1	2.0%
	654	Creekline Tussock Grassland	823.0	2.1	0.3%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	515.5	0.8	0.1%
	714	Stoney Knoll Shrubland/Plains Grassy Woodland/Plains Grassland	9187.9	46.1	0.5%
	716	Plains Grassy Woodland/Stoney Knoll Shrubland	76.7	0.4	0.6%
	794	Floodplain Riparian Woodland/Plains Grassy Woodland	746.7	30.9	4.1%
894	Scoria Cone Woodland	1295.9	24.5	1.9%	
897	Plains Grassland/Plains Grassy Woodland Mosaic	26,288.6	230.6	0.9%	
Vulnerable or depleted	641	Riparian Woodland	761.6	198.9	26.1%
	668	Riparian Woodland/Escarpment Shrubland	142.2	29.8	21.0%
Other		Other vegetation assets well represented	1,088 ha	896 ha	82.4%



REGIONAL NATIVE VEGETATION PLAN

Table H2-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Yellow
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Clover Glycine (*Glycine latrobeana*)

Table H2-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Australian and Victorian vulnerable species - Australian Grayling (<i>Prototroctes maraena</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>)</p>
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Australian vulnerable and Victorian endangered species - Spiny Peppergrass (<i>Lepidium aschersonii</i>) Spiny Rice-flower (<i>Pimelea spinescens</i> ssp. <i>spinescens</i>) Australian and Victorian endangered species - Matted Flax-lily (<i>Dianella amoena</i>)</p>
<p>Salinity</p> <p>H2 is not a sub-catchment identified as a priority in the Glenelg Hopkins Salinity Management Plan. However 862 ha of discharge area can be found in the sub-catchment.</p>
<p>River health, wetlands and water quality</p> <p>The Native Vegetation Plan will help improve water quality in the sub-catchment.</p>



Creekline Grassy Woodland

Table H2-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 target area (ha)	Total cost @\$1500/ha
1	Plains Sedgy Wetland	0.7	129	\$192,375
2	Aquatic Herbland/Plains Sedgy Wetland Mosaic	0.8	77	\$114,346
3	Plains Grassy Wetland	13.2	1,064	\$1,576,219
4	Plains Swampy Woodland	0.3	19	\$28,084
5	Creekline Tussock Grassland	2.1	123	\$181,408
6	Grey Clay Drainage Line Complex	1.4	76	\$111,967
7	Creekline Grassy Woodland	5.6	211	\$308,150
8	Stoney Knoll Shrubland/Plains Grassy Woodland/Plains Grassland	46.1	1,378	\$1,997,909
9	Plains Grassy Woodland/Stoney Knoll Shrubland	0.4	11	\$15,835
10	Plains Grassland	73.2	1,872	\$2,698,268
11	Plains Grassy Woodland	193.8	4,047	\$5,779,851
12	Plains Grassland/Plains Grassy Woodland Mosaic	230.6	3,943	\$5,568,546
13	Saline Lake Verge Herbland/Sedgeland	8.3	69	\$91,047
14	Scoria Cone Woodland	24.5	194	\$254,249
15	Lunette Woodland	13.1	99	\$128,921
16	Floodplain Riparian Woodland/Plains Grassy Woodland	30.9	112	\$121,681
17	Floodplain Riparian Woodland	1.6	5	\$5,164
	Total	646.3 ha	13,429 ha	\$19,174,020

GLENELG HOPKINS SUB-CATCHMENTS

H3 Hopkins River/Muston Creek

Part of the Hopkins River is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from numerous gullies and tributaries to the west of the sub-catchment that are both named and unnamed. Some of the named tributaries include Back, Reedy, Delany, Bushy, Chirrip Chirrip, Gray and Muston Creeks.

The main townships of the region are Wickliffe, Chatsworth, Hexham and Caramut. Regional districts include Nareeb, Woodhouse and Narrapumelap South. Cobra Killuc Wildlife Reserve is located approximately 6 kilometres north-east of Hexham, has an area of approximately 250 hectares, and is one of the few remaining areas of remnant vegetation in the sub-catchment. The sub-catchment also supports numerous areas of native grasslands.

Native vegetation currently covers 0.77 per cent of the sub-catchment comprising a total of 21 EVC communities. Prior to 1750 EVC communities covered 122,139 ha of this sub-catchment. The dominant remaining EVC is Plains Grassy Woodlands and the largest intact remnant is 209 ha. This EVC community is characterised by an overstorey of Yellow Gum and Yellow Box, although sometimes Grey Box and River Red Gum can also be present. The understorey is virtually devoid of low shrubs, with the Cranberry Heath the most common.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 20 endangered EVC communities identified in Table H3-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H3-4).



Table H3-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	39,895.2	373.9	0.9%
	56	Floodplain Riparian Woodland	777.9	17.6	2.3%
	68	Creeklane Grassy Woodland	5,688.6	46.4	0.8%
	83	Swampy Riparian Woodland	228.6	4.8	2.1%
	124	Grey Clay Drainage Line Complex	302.7	1.2	0.4%
	125	Plains Grassy Wetland	2,842.6	4.9	0.2%
	132	Plains Grassland	15,590.2	63.4	0.4%
	175	Grassy Woodland	3,527.6	22.4	0.6%
	641	Riparian Woodland	1,392.1	8.0	0.6%
	647	Plains Sedgy Wetland	1,414.0	9.9	0.7%
	648	Saline Lake Verge Herbland/Sedgeland	320.6	1.5	0.5%
	651	Plains Swampy Woodland	59.4	2.8	4.7%
	652	Lunette Woodland	20.2	0.2	0.9%
	654	Creeklane Tussock Grassland	432.4	0.9	0.2%
	668	Riparian Woodland/Escarpment Shrubland	41.3	0.6	1.4%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	403.6	1.6	0.4%
	719	Grassy Woodland / Damp Sands Herb-rich Woodland	817.9	2.6	0.3%
	752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Wood	5835.4	227.9	3.9%
	794	Floodplain Riparian Woodland/Plains Grassy Woodland	1,209.9	18.7	1.5%
897	Plains Grassland/Plains Grassy Woodland Mosaic	41323.9	135.4	0.3%	
Other		Other vegetation assets	14.7 ha	0 ha	0%



REGIONAL NATIVE VEGETATION PLAN

Table H3-2: THREATS

Ecological & societal processes	Clearance and fragmentation	
	Salinity	
	Land use change	
	Waterlogging and drainage	
	Poorly managed grazing	
	Inappropriate fire regime	
	Disease eg Mundulla yellow, Phytophthora	
	Firewood collection	
	Pest plants	
	Pest animals	

Significant threat	Medium threat	Low threat
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Table H3-3: BENEFITS

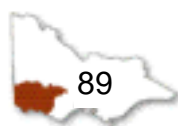
<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Striped Legless Lizard (<i>Delma impar</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunni</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Australian and Victorian endangered species - Hoary Sunray (<i>Leucochrysum albicans ssp. albicans var. tricolor</i>) Purple Eyebright (<i>Euphrasia collina ssp. muelleri</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>) Victorian vulnerable species - Wine-lipped Spider-orchid (<i>Caladenia oenochila</i>)</p>
<p>Salinity H3 has 1,556 ha of discharge areas within the sub-catchment. The Glenelg Hopkins Salinity Management Plan proposes 54 km of tree belts and 1,126 ha of tree blocks for recharge control in this sub-catchment.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment. Nationally significant wetlands exist in this sub-catchment.</p>

Table H3-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 target area (ha)	Total cost @\$1500/ha
1	Plains Grassy Wetland	4.9	426	\$631,694
2	Creekline Tussock Grassland	0.9	65	\$96,188
3	Grassy Woodland / Damp Sands Herb-rich Woodland	2.6	123	\$180,578
4	Plains Grassland/Plains Grassy Woodland Mosaic	135.4	6199	\$9,095,381
5	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1.6	61	\$89,132
6	Grey Clay Drainage Line Complex	1.2	45	\$65,724
7	Plains Grassland	63.4	2339	\$3,413,458
8	Saline Lake Verge Herbland/Sedgeland	1.5	48	\$69,688
9	Riparian Woodland	8.0	209	\$301,544
10	Grassy Woodland	22.4	529	\$759,950
11	Plains Sedgy Wetland	9.9	212	\$303,120
12	Creekline Grassy Woodland	46.4	853	\$1,209,932
13	Lunette Woodland	0.2	3	\$4,216
14	Plains Grassy Woodland	373.9	5,984	\$8,415,131
15	Riparian Woodland/Escarpment Shrubland	0.6	6	\$8,156
16	Floodplain Riparian Woodland/Plains Grassy Woodland	18.7	181	\$243,396
17	Swampy Riparian Woodland	4.8	34	\$43,741
18	Creekline Grassy Woodland/Floodplain Riparian Woodland	17.6	117	\$149,088
19	Grassy Woodland / Hills Herb-rich Woodland /Damp Sands Herb-rich Wood	227.9	875	\$970,695
20	Plains Swampy Woodland	2.8	9	\$9,321
	Total	944.6 ha	18,318 ha	\$26,060,132



Plains Grassy Woodland



GLENELG HOPKINS SUB-CATCHMENTS

H4 Mid Hopkins River

The Hopkins River is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from the north and includes tributaries such as Good Morning Bill Creek, numerous other tributaries, and terminal lake systems.

The main township in this sub-catchment is Willaura with a population of approximately 300 people. Regions include Stavely, Watgania, Kiaora, Mafeking, Yarram Park, and Bornes Hill. This sub-catchment is within the Lake Buninjon Game Reserve. The significant features of this sub-catchment are the many seasonal lakes and wetlands. Mount William Swamp and Lake Muirhead are both significant cultural features.

Native vegetation currently covers 4.8 per cent of the sub-catchment comprising a total of 32 EVC communities. Prior to 1750 EVC communities covered 85,702 ha of this sub-catchment. The dominant remaining EVC is Heathy Woodland and the largest intact remnant is 492 ha. This EVC community is characterised by an overstorey of brown stringybark, yellow gum and messmate, and an understorey of silver banksia and tea tree.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the thirteen endangered EVC communities identified in Table H4-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H4-4).

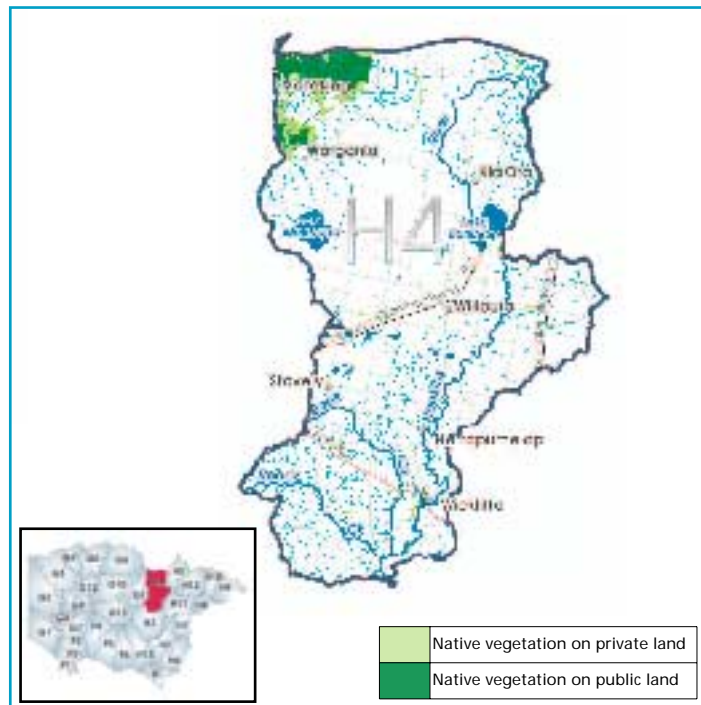


Table H4-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	48,618.4	279.5	0.6%
	56	Floodplain Riparian Woodland	1,833.8	50.4	2.7%
	67	Alluvial Terraces Herb-rich Woodland	172.7	10.7	6.2%
	68	Creekline Grassy Woodland	2,286.1	29.6	1.3%
	125	Coastal Headland Scrub	2,565.5	3.2	0.1%
	175	Shallow Freshwater Marsh	1,452.6	3.7	0.3%
	641	Basalt Shrubby Woodland	105.8	2.0	1.9%
	647	Plains Sedgy Wetland	657.2	0.4	0.1%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	4,000.5	1.1	0.03%
	719	Grassy Woodland / Damp Sands Herb-rich Woodland	2,293.1	11.8	0.5%
	752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Wood	1,461.4	1.8	0.1%
	885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	1,949.8	10.2	0.5%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	9,851.3	42.8	0.4%
	Vulnerable or depleted	3	Damp Sands Herb-rich Woodland	550.9	113.3
22		Grassy Dry Forest	2,965.3	319.2	26.8%
47		Valley Grassy Forest	1,439.6	699.4	22%
Other		Other vegetation assets well represented	3,498	2,550	72.9%

REGIONAL NATIVE VEGETATION PLAN

Table H4-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Significant threat
	Salinity	Significant threat
	Land use change	Significant threat
	Waterlogging and drainage	Significant threat
	Poorly managed grazing	Significant threat
	Inappropriate fire regime	Low threat
	Disease eg Mundulla yellow, Phytophthora	Medium threat
	Firewood collection	Significant threat
	Pest plants	Significant threat
	Pest animals	Significant threat

Significant threat	Medium threat	Low threat
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Table H4-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian endangered species - Striped Legless Lizard (<i>Delma impar</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunni</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Trailing Hop-bush (<i>Dodonaea procumbens</i>) Clover Glycine (<i>Glycine latrobeana</i>) Australian and Victorian rare species - Mount William Beard-heath (<i>Leucopogon neurophyllus</i>) Grampians Boronia (<i>Boronia latipinna</i>) Rosy Bush-pea (<i>Pultenaea subalpina</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>) Australian and Victorian endangered species - Hoary Sunray (<i>Leucochrysum albicans</i> ssp. <i>albicans</i> var. <i>tricolor</i>) Button Wrinklewort (<i>Rutidosis leptorhynchoides</i>)</p>
<p>Salinity H4 contains 1,102 ha of discharge areas and is threatened by increasing salinity. H4 is a priority in the Glenelg Hopkins Salinity Management Plan which proposes 4 km of tree belts for this sub-catchment. Native vegetation has an important role in salinity recharge control.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment. Nationally significant wetlands exist in this sub-catchment.</p>

Table H4-4: WORKS PROGRAM (based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1.1	600	\$898,345
2	Plains Sedgy Wetland	0.4	99	\$147,883
3	Grassy Woodland / Hills Herb-rich Woodland /Damp Sands Herb-rich Wood	1.8	219	\$325,772
4	Coastal Headland Scrub	3.2	385	\$572,659
5	Shallow Freshwater Marsh	3.7	218	\$321,403
6	Plains Grassland/Plains Grassy Woodland Mosaic	42.8	1478	\$2,152,767
7	Grassy Woodland / Damp Sands Herb-rich Woodland	11.8	344	\$498,247
8	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	10.2	292	\$422,666
9	Plains Grassy Woodland	279.5	7,293	\$10,520,307
10	Creepline Grassy Woodland	29.6	343	\$470,049
11	Basalt Shrubby Woodland	2.0	16	\$20,987
12	Floodplain Riparian Woodland	50.4	275	\$336,866
13	Alluvial Terraces Herb-rich Woodland	10.7	26	\$22,884
	Total	447.4 ha	11,588 ha	\$16,710,836



Healthy Woodland Complex

GLENELG HOPKINS SUB-CATCHMENTS

H5 Upper Hopkins River

The Hopkins River is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from the north-east and includes the headwaters of the river system. Tributaries include Three Mile, Denicull, Gorrin, Cemetery and Jackson's Creeks, Captains Creek, Good Morning Bill Creek, numerous other tributaries, and terminal lake systems.

The main township in this sub-catchment is Ararat with a population of approximately 7800 people. Small townships include Maroona and Rossbridge, and the regions of Denicull Creek, Cathcart, Dobie, Langi Logan, Jackson's Creek and Tatyoon. This sub-catchment is within the Mount Langi Ghiran State Park and the Ararat Hills Regional Park.

Native vegetation currently covers 11.1 per cent of the sub-catchment comprising a total of 25 EVC communities. Prior to 1750 EVC communities covered 64,346 ha of this sub-catchment. The dominant remaining EVC is Grassy Dry Forest and the largest intact remnant is 600 ha. This EVC community is characterised by an overstorey of eucalypts including Red Stringybark, Long leaved Box Red Box, Yellow Box Candle Bark. An understorey is often absent or consists of sparse low shrubs such as Blunt-leaved Bitter Pea and Myrtle Wattle.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the nine endangered EVC communities identified in Table H5-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H5-4).

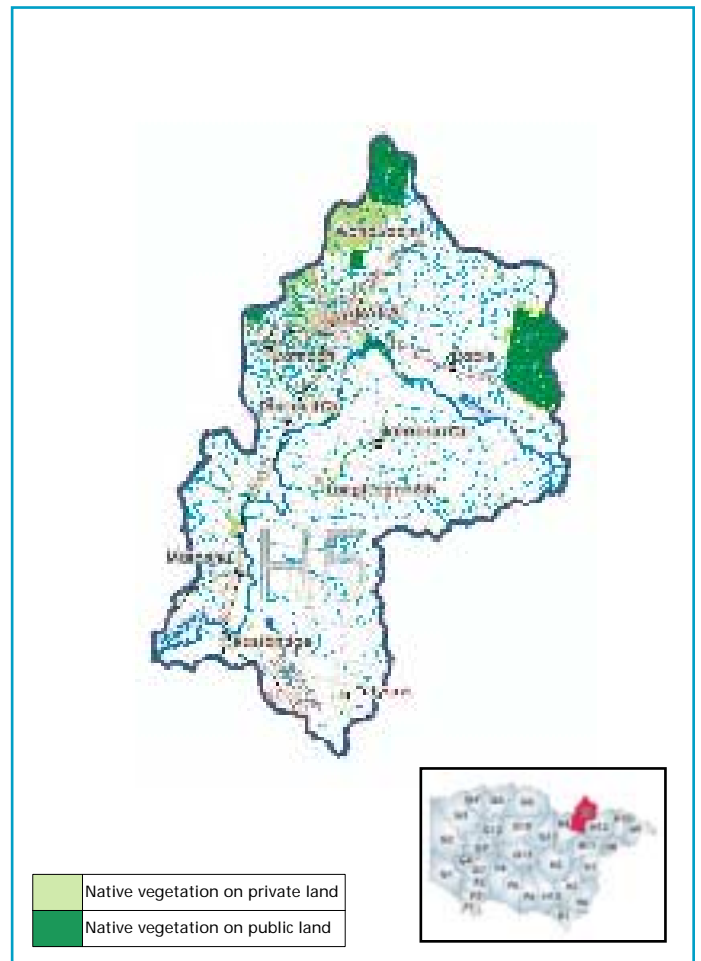


Table H5-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	8,486.5	128.5	1.5%
	56	Floodplain Riparian Woodland	3,020.4	38.7	1.3%
	68	Creekline Grassy Woodland	1,096.2	10.9	1.0%
	72	Granitic Hills Woodland	2,073.5	19.9	1.0%
	152	Alluvial Terraces Herb-rich Woodland /Plains Grassy Woodland Complex	2,100.7	8.6	0.4%
	175	Shallow Freshwater Marsh	6,808.0	523.3	7.7%
	647	Plains Sedgy Wetland	448.7	1.7	0.4%
	896	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	6,116.9	85.6	1.4%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	14,607.9	44.1	0.3%
Vulnerable or depleted	20	Heathy Dry Forest	3,998.4	1,158.4	29.0%
	22	Grassy Dry Forest	10,178.2	1,779.5	17.5%
	48	Heathy Woodland	567.2	209.5	36.9%
	67	Alluvial Terraces Herb-rich Woodland	2,717.8	950.5	35.0%
Other		Other vegetation assets well represented	2,125.0	2,125	100%



REGIONAL NATIVE VEGETATION PLAN

Table H5-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat		Red
Medium threat		Yellow
Low threat		Green



Dry Foothill Forest

Table H5-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian and Victorian endangered species - Regent Honeyeater (<i>Xanthomyza phrygia</i>) Swift Parrot (<i>Lathamus discolor</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian vulnerable and Victorian endangered species - Large-fruit Fireweed (<i>Senecio macrocarpus</i>) Spiny Peppergrass (<i>Lepidium aschersonii</i>) Australian rare species - Yarra Gum (<i>Eucalyptus yarraensis</i>) Mount William Beard-heath (<i>Leucopogon neurophyllus</i>) Emerald-lip Greenhood (<i>Pterostylis smaragdina</i>) Mount Cole Grevillea (<i>Grevillea montis-cole</i>) Australian and Victorian endangered species - Button Wrinklewort (<i>Rutidosia leptorhynchoides</i>) Metallic Sun-orchid (<i>Thelymitra epipactoides</i>) Mclvor Spider-orchid (<i>Caladenia audasii</i>) Purple Eyebright (<i>Euphrasia collina</i> ssp. <i>muelleri</i>) Early Golden Moths (<i>Diuris</i> sp. aff. <i>lanceolata</i> - <i>Derrinallum</i>)</p>
<p>Salinity H5 is not threatened by increasing salinity however it does have 673 ha of discharge area. The Glenelg Hopkins Salinity Management Plan proposes 8 km of tree belts and 897 ha of tree blocks because of the important role played by native vegetation in salinity recharge control.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment. Nationally significant wetlands exist in this sub-catchment.</p>

Table H5-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Grassland/Plains Grassy Woodland Mosaic	44.1	2,191	\$3,220,338
2	Plains Sedgy Wetland	1.7	67	\$97,938
3	Alluvial Terraces Herb-rich Woodland /Plains Grassy Woodland Complex	8.6	315	\$459,533
4	Granitic Hills Woodland	19.9	311	\$436,717
5	Creekline Grassy Woodland	10.9	164	\$229,691
6	Floodplain Riparian Woodland	38.7	453	\$621,403
7	Damp Sands Herb-rich Woodland /Plains Grassy Woodland	85.6	918	\$1,248,674
8	Plains Grassy Woodland	128.5	1273	\$1,716,713
9	Shallow Freshwater Marsh	523.3	1021	\$746,546
	Total	861.3 ha	6,713 ha	\$8,777,550

GLENELG HOPKINS SUB-CATCHMENTS

H6 Lower Mt Emu Creek

The Mount Emu Creek is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from tributaries including Blind and Elingamite Creeks, and the Pejark Drain.

The main township of the region is Terang, with a population of approximately 10,000 people. Other townships include Panmure, Garvoc and Noorat, and the districts of Glenormiston, Boorcan, Cobrico, Taroon, Eddington and Bookaar. Lake Bookaar Wildlife Reserve is a Ramsar listed wetland, and is the only one in the Glenelg Hopkins catchment.

There is significant native remnant vegetation throughout this sub-catchment, particularly on roadsides and rail reserves and along the Mount Emu Creek.

Native vegetation currently covers 2.1 per cent of the sub-catchment comprising a total of 19 EVC communities. Prior to 1750 EVC communities covered 81,357 ha of this sub-catchment. The dominant remaining EVC is Plains Grassy Woodland and the largest intact remnant is 72.3 ha. This EVC community is characterised by an overstorey of Yellow Gum and Yellow Box, although sometimes Grey Box and River Red Gum can also be present. The understorey is virtually devoid of low shrubs, with the Cranberry Heath the most common.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 17 endangered EVC communities identified in Table H6-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H6-4).



Table H6-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	23	Herb-rich Foothill Forest	8262.8	447.2	5.4%
	53	Swamp Scrub	2138.9	16.2	0.8%
	55	Plains Grassy Woodland	48,921.3	766.4	1.6%
	56	Floodplain Riparian Woodland	1,288.4	62.7	4.9%
	68	Creekline Grassy Woodland	818.4	5.5	0.7%
	125	Plains Grassy Wetland	1,861.7	4.9	0.3%
	132	Plains Grassland	5,132.4	14.7	0.3%
	175	Grassy Woodland	528,937.8	37.8	7.1%
	203	Stoney Rises Herb-rich Woodland	1,480.6	6.2	0.4%
	641	Riparian Woodland	2,435.3	125.0	5.1%
	647	Plains Sedgy Wetland	1,369.5	6.3	0.5%
	654	Creekline Tussock Grassland	391.5	0.4	0.1%
	668	Riparian Woodland/Escarpment Shrubland	14.6	1.4	9.5%
	714	Stoney Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	392.4	0.9	0.2%
	716	Plains Grassy Woodland / Stoney Knoll Shrubland	22.0	0.1	0.7%
	894	Scoria Cone Woodland	4,204.6	197.0	4.7%
897	Plains Grassland/Plains Grassy Woodland Mosaic	1,184.7	44.8	3.8%	
Other		Other vegetation assets	909 ha	0 ha	0%



REGIONAL NATIVE VEGETATION PLAN

Table H6-2: THREATS

Ecological & societal processes	Clearance and fragmentation	
	Salinity	
	Land use change	
	Waterlogging and drainage	
	Poorly managed grazing	
	Inappropriate fire regime	
	Disease eg Mundulla yellow, Phytophthora	
	Firewood collection	
	Pest plants	
	Pest animals (Rabbits are a major threat)	

Significant threat		Medium threat		Low threat	
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Southern Brown Bandicoot (*Isodon obesulus*)

Table H6-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian vulnerable and Victorian endangered species - Long-nosed Potoroo (<i>Potorous tridactylus</i>)</p> <p>Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>)</p> <p>Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Victorian known species - Wedge-leaf Daisy (<i>Brachyscome cuneifolia</i>)</p> <p>Victorian endangered species - Basalt Sun-orchid (<i>Thelymitra gregaria</i>)</p>
<p>Salinity H6 is not threatened by increasing salinity, however it does contain 667 ha of discharge area. The Glenelg Hopkins Salinity Management Plan does not propose any recharge control works in this sub-catchment.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment. Nationally significant wetlands exist in this sub-catchment.</p>

Table H6-4: WORKS PROGRAM (based on 2005 dollars)



Creekline Grassy Woodland

Priority	Description	2005 area (ha)	2030 target area (ha)	Total cost @\$1500/ha
1	Creekline Tussock Grassland	0.4	59	\$87,844
2	Stoney Knoll Shrubland/ Plains Grassy Woodland/Plains Grassetland	0.9	59	\$87,197
3	Plains Grassy Wetland	49	279	\$411,111
4	Plains Grassland	14.7	770	\$1,132,932
5	Stoney Rises Herb-rich Woodland	6.2	222	\$323,703
6	Plains Sedgy Wetland	6.3	205	\$297,990
7	Plains Grassy Woodland / Stoney Knoll Shrubland	0.1	3	\$4,283
8	Creekline Grassy Woodland	5.5	123	\$176,234
9	Swamp Scrub	16.2	321	\$457,199
10	Plains Grassy Woodland	766.4	7,338	\$9,857,378
11	Plains Grassland/Plains Grassy Woodland Mosaic	44.8	178	\$199,870
12	Scoria Cone Woodland	197.0	631	\$650,927
13	Floodplain Riparian Woodland	62.7	193	\$195,490
14	Riparian Woodland	125.0	365	\$359,990
15	Herb-rich Foothill Forest	447.2	1,239	\$1,187,744
16	Grassy Woodland	37.8	79	\$61,790
17	Riparian Woodland/Escarpment Shrubland	1.4	2	\$924
	Total	1,737.6ha	12,066 ha	\$15,492,603

GLENELG HOPKINS SUB-CATCHMENTS

H7 Mid Mt Emu Creek

The Mount Emu Creek is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from numerous small tributaries and gullies to the east and west of the waterway, including Darlington Creek.

The only main township of the region is Darlington. Other districts within the sub-catchment are Dundonnell and Pura Pura. There are significant native grasslands throughout this sub-catchment on roadsides, rail reserves and along the Mount Emu Creek.

Native vegetation currently covers 0.62 per cent of the sub-catchment comprising a total of 21 EVC communities. Prior to 1750 EVC communities covered 57,982 ha of this sub-catchment. The dominant remaining EVC is Plains Grassland/Plains Grassy Woodland Mosaic and the largest intact remnant is 4.12 ha. This EVC community is characterised by an open woodland, shrubland or tussock grassland, dominated by perennial grasses with a wide range of inter-tussock herbs and geophytes.

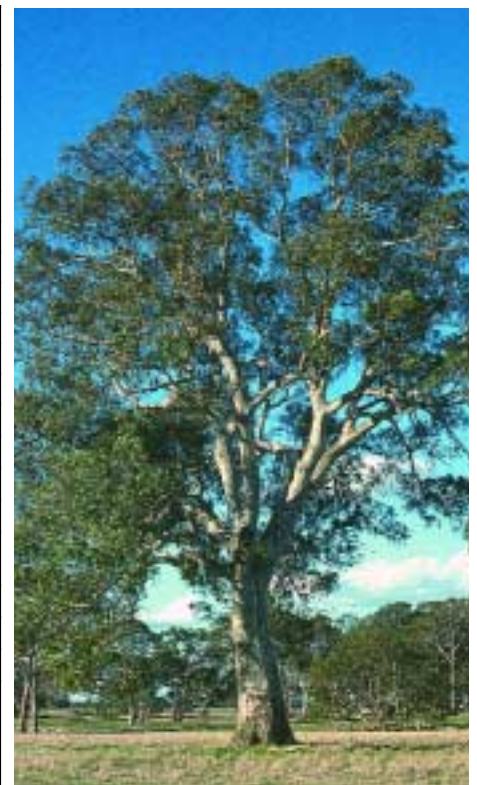
Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 19 endangered EVC communities identified in Table H7-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H7-4).



Table H7-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	17751.8	90.4	0.5%
	56	Floodplain Riparian Woodland	124.0	0.2	0.2%
	68	Creekline Grassy Woodland	299.1	7.8	2.6%
	125	Plains Grassy Wetland	3278.2	8.6	0.3%
	132	Plains Grassland	2943.9	9.4	0.3%
	203	Stoney Rises Herb-rich Woodland	643.3	8.7	1.4%
	636	Brackish Lake	40.4	1.7	4.2%
	641	Riparian Woodland	693.8	23.8	3.4%
	643	Brackish Drainage Line Herbland/Sedgeland	20.7	0.4	1.8%
	647	Plains Sedgy Wetland	1471.8	10.8	0.7%
	648	Saline Lake Verge Herbland/Sedgeland	886.5	25.1	2.8%
	654	Creekline Tussock Grassland	421.7	1.9	0.5%
	656	Brackish Wetland	29.0	0.5	1.7%
	668	Riparian Woodland/Escarpment Shrubland	154.4	4.8	3.1%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	618.1	6.7	1.1%
	714	Stoney Knoll Shrubland/ Plains Grassy Woodland/Plains Grassy Wetland	8943.5	44.4	0.5%
	716	Plains Grassy Woodland / Stoney Knoll Shrubland	467.1	2.5	0.5%
718	Freshwater Lake Mosaic	152.5	7.7	5.0%	
897	Plains Grassland/Plains Grassy Woodland Mosaic	18,386.6	106.0	0.6%	
Other		Other vegetation assets	656 ha	0 ha	0%



REGIONAL NATIVE VEGETATION PLAN

Table H7-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Red
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Green
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Straw-necked Ibis

Table H7-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Striped Legless Lizard (<i>Delma impar</i>) Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Long-nosed Potoroo (<i>Potorous tridactylus</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunni</i>) Australian endangered and Victorian rare species - Southern Brown Bandicoot (<i>Isodon obesulus</i>)</p>
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Ridged Water-milfoil (<i>Myriophyllum porcatum</i>) Australian and Victorian endangered species - Basalt Greenhood (<i>Pterostylis basaltica</i>) Fragrant Leek-orchid (<i>Prasophyllum suaveolens</i>)</p>
<p>Salinity</p> <p>H7 is threatened by increasing salinity. H7 is a priority in the Glenelg Hopkins Salinity Management Plan with 1,133 ha of discharge area. Native vegetation has an important role in salinity recharge control.</p>
<p>River health, wetlands and water quality</p> <p>The Native Vegetation Plan will help improve water quality in the sub-catchment. Nationally significant wetlands exist in this sub-catchment.</p>

Table H7-4: WORKS PROGRAM
(based on 2005 dollars)



Red Gum Woodland

Priority	Description	2005 area (ha)	2030 target area (ha)	Total cost @\$1500/ha
1	Floodplain Riparian Woodland	0.2	19	\$28,140
2	Plains Grassy Wetland	8.6	492	\$725,132
3	Plains Grassland	9.4	442	\$648,950
4	Creeklime Tussock Grassland	1.9	63	\$91,638
5	Stoney Knoll Shrubland/ Plains Grassy Woodland /Plains Grassy Wetland	44.4	1342	\$1,946,462
6	Plains Grassy Woodland	90.4	2663	\$3,858,868
7	Plains Grassy Woodland / Stoney Knoll Shrubland	2.5	70	\$101,315
8	Plains Grassland/Plains Grassy Woodland Mosaic	106.0	2758	\$3,977,991
9	Plains Sedgy Wetland	10.8	221	\$315,288
10	Aquatic Herbland/Plains Sedgy Wetland Mosaic	6.7	93	\$129,513
11	Stoney Rises Herb-rich Woodland	8.7	96	\$130,930
12	Brackish Wetland	0.5	4	\$5,250
13	Brackish Drainage Line Herbland/Sedgeland	0.4	3	\$3,948
14	Creeklime Grassy Woodland	7.8	45	\$55,807
15	Saline Lake Verge Herbland/Sedgeland	25.1	133	\$161,794
16	Riparian Woodland/Escarpment Shrubland	4.8	23	\$27,351
17	Riparian Woodland	23.8	104	\$120,350
18	Brackish Lake	1.7	6	\$6,483
19	Freshwater Lake Mosaic	7.7	23	\$22,988
	Total	361.2 ha	8,600 ha	\$12,358,199

GLENELG HOPKINS SUB-CATCHMENTS

H8 Upper Mt Emu Creek

The Mount Emu Creek is the major waterway of this sub-catchment within the Hopkins Basin.

The main township of the region is Skipton. Slater Lake is the largest freshwater body in this sub-catchment.

Land use in this sub-catchment includes sheep and beef production and cropping of grains such as canola, wheat, oats, barley and triticale. Hay production is also a main land use in spring.

There is significant native remnant vegetation throughout this sub-catchment, particularly on roadsides and rail reserves and along the Mount Emu Creek.

Native vegetation currently covers 3.4 per cent of the sub-catchment comprising a total of 12 EVC communities. Prior to 1750 EVC communities covered 35,819 ha of this sub-catchment. The dominant remaining EVC is Heathy Dry Forest and the largest intact remnant is 352 ha. This EVC community is characterised by an overstorey of Brown Stringybark and Messmate, sometimes in company with Shining Peppermint, Scentbark and Mountain Grey Gum. Prominent understorey species include Silver Banksia, Heath Tea-tree, Myrtle Wattle, Prickly Tea-tree and heath species.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 8 endangered EVC communities identified in Table H8-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H8-4).

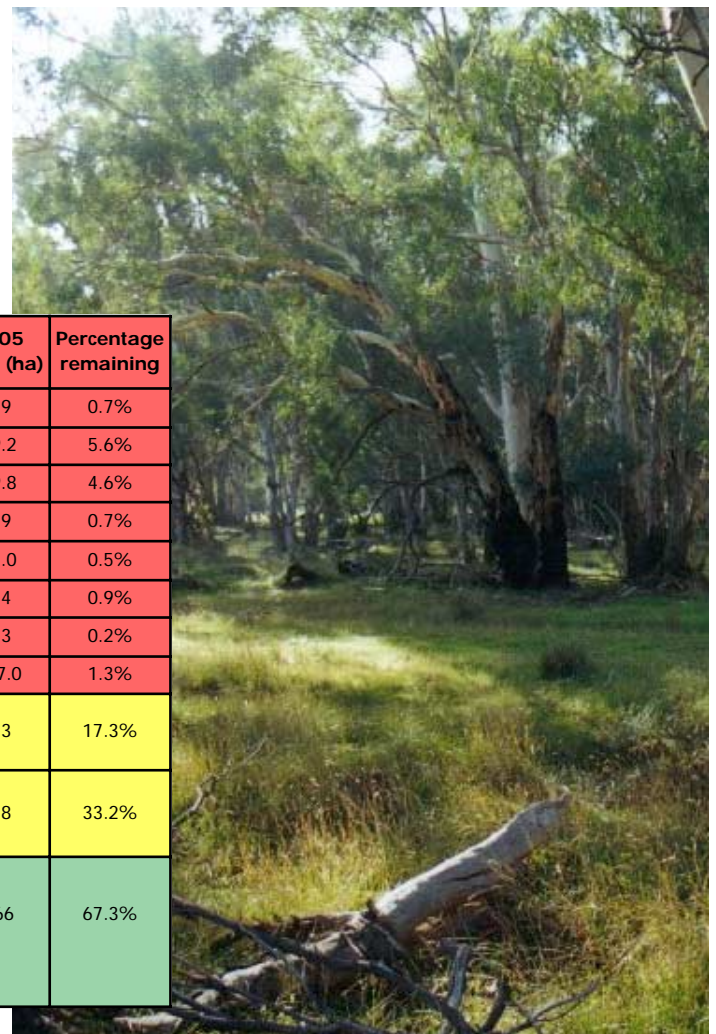
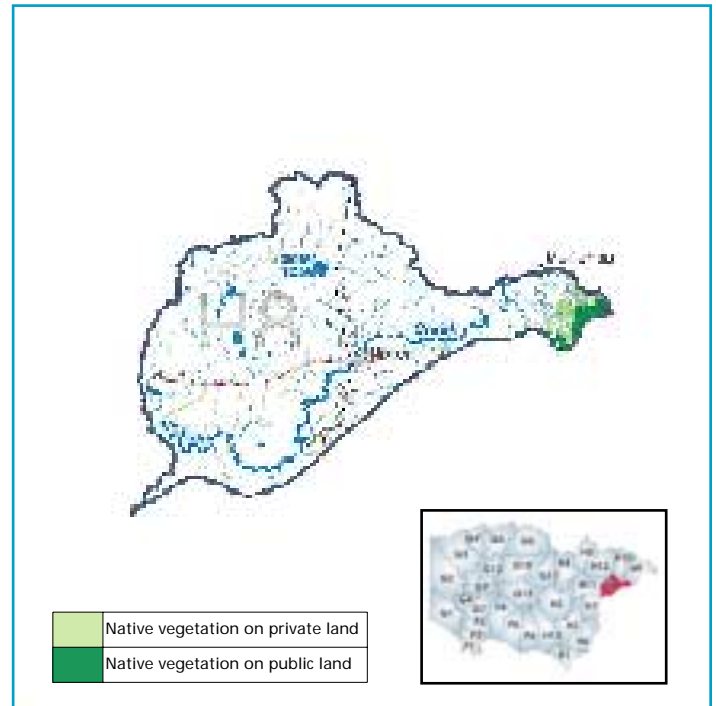


Table H8-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	937.2	6.9	0.7%
	68	Creekline Grassy Woodland	518.5	29.2	5.6%
	125	Plains Grassy Wetland	865.6	39.8	4.6%
	175	Grassy Woodland	585.3	3.9	0.7%
	203	Stoney Rises Herb-rich Woodland	7,695.8	42.0	0.5%
	647	Plains Sedgy Wetland	1,076.6	9.4	0.9%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	187.2	0.3	0.2%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	22,764.7	297.0	1.3%
Vulnerable or depleted	20	Grassy Dry Forest	42.0	7.3	17.3%
	22	Riparian Woodland	8.4	2.8	33.2%
Other		Other vegetation assets well represented	1,138.0	766	67.3%

REGIONAL NATIVE VEGETATION PLAN

Table H8-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Table H8-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian endangered species - Plains-wanderer (<i>Pedionomus torquatus</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Regent Honeyeater (<i>Xanthomyza phrygia</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Australian vulnerable and Victorian endangered species - Large-fruit Fireweed (<i>Senecio macrocarpus</i>) Spiny Peppergrass (<i>Lepidium aschersonii</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>) Australian and Victorian endangered species - Hoary Sunray (<i>Leucochrysum albicans ssp. albicans var. tricolor</i>) Southern Shepherd's Purse (<i>Ballantinia antipoda</i>) Basalt Peppergrass (<i>Lepidium hyssopifolium</i>)</p>
<p>Salinity H8 is not threatened by increasing salinity, however 68 ha of discharge area is found in this sub-catchment.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment. Highly significant wetlands exist in this sub-catchment.</p>



Creekline Grassy Woodland

Table H8-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Aquatic Herbland/Plains Sedgy Wetland Mosaic	0.3	28	\$41,532
2	Stoney Rises Herb-rich Woodland	42.0	1154	\$1,667,976
3	Grassy Woodland	3.9	88	\$126,153
4	Plains Grassy Woodland	6.9	141	\$201,153
5	Plains Sedgy Wetland	9.4	161	\$227,375
6	Plains Grassland/Plains Grassy Woodland Mosaic	297.0	3415	\$4,677,060
7	Plains Grassy Wetland	39.8	130	\$135,276
8	Creekline Grassy Woodland	29.2	78	\$73,212
	Total	428.5 ha	5,195 ha	\$7,149,736

GLENELG HOPKINS SUB-CATCHMENTS

H9 Burrumbeet Creek

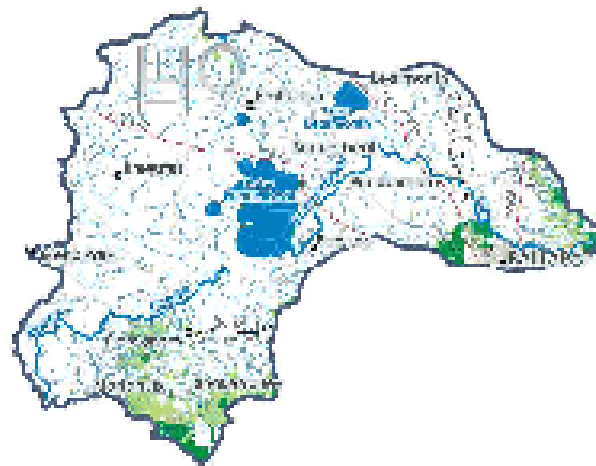
The Burrumbeet and Baillies Creeks are the major waterways of this sub-catchment within the Hopkins Basin. The main drainage area is from the north-east and includes numerous un-named and named tributaries such as Blind and Burrumbeet Creeks, and Lakes Burrumbeet and Learmonth.

The main town in this sub-catchment is Ballarat, with a population of approximately 85 000 people. Townships in this sub-catchment include Miners Rest, Invermay, Windermere, Blowhard, Burrumbeet, Cardigan Village, Learmonth, Snake Valley, Carngham and Mortchup. Regions include Sulky, Chepstowe and Chinaman Flat. This sub-catchment contains part of the Linton State Forest and some native forest west of White Swan Reservoir. The significant features of this sub-catchment include Lakes Burrumbeet and Learmonth, Mount Ercildoun and Mount Emu.

Native vegetation currently covers 7.6 per cent of the sub-catchment comprising a total of 16 EVC communities. Prior to 1750 EVC communities covered 63,120 ha of this sub-catchment. The dominant remaining EVC is Heathy Dry Forest and the largest intact remnant is 1756 ha. This EVC community is characterised by an overstorey of Brown Stringybark and Messmate, sometimes in company with Shining Peppermint, Scentbark and Mountain Grey Gum. Prominent understorey species include Silver Banksia, Heath Tea-tree, Myrtle Wattle, Prickly Tea-tree and heath species.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the nine endangered EVC communities identified in Table H9-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H9-4).



	Native vegetation on private land
	Native vegetation on public land

Table H9-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	30,349.5	617.0	2.0%
	68	Creekline Grassy Woodland	344.7	0.7	0.2%
	71	Hills Herb-rich Woodland	1257.1	70.8	5.6%
	125	Plains Grassy Wetland	851.7	4.9	0.6%
	175	Grassy Woodland	782.2	18.6	2.4%
	641	Riparian Woodland	363.5	9.3	2.6%
	647	Plains Sedgy Wetland	2184.9	3.1	0.1%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1261.5	18.4	1.5%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	18,788.0	100.3	0.5%
Vulnerable or depleted	20	Grassy Dry Forest	1525.5	426.4	28.0%
	22	Riparian Woodland	4965.9	2,478.3	49.9%
	47	Valley Grassy Forest	170.9	57.9	33.8%
Other		Other vegetation assets well represented	275.0	93.0	33.8%

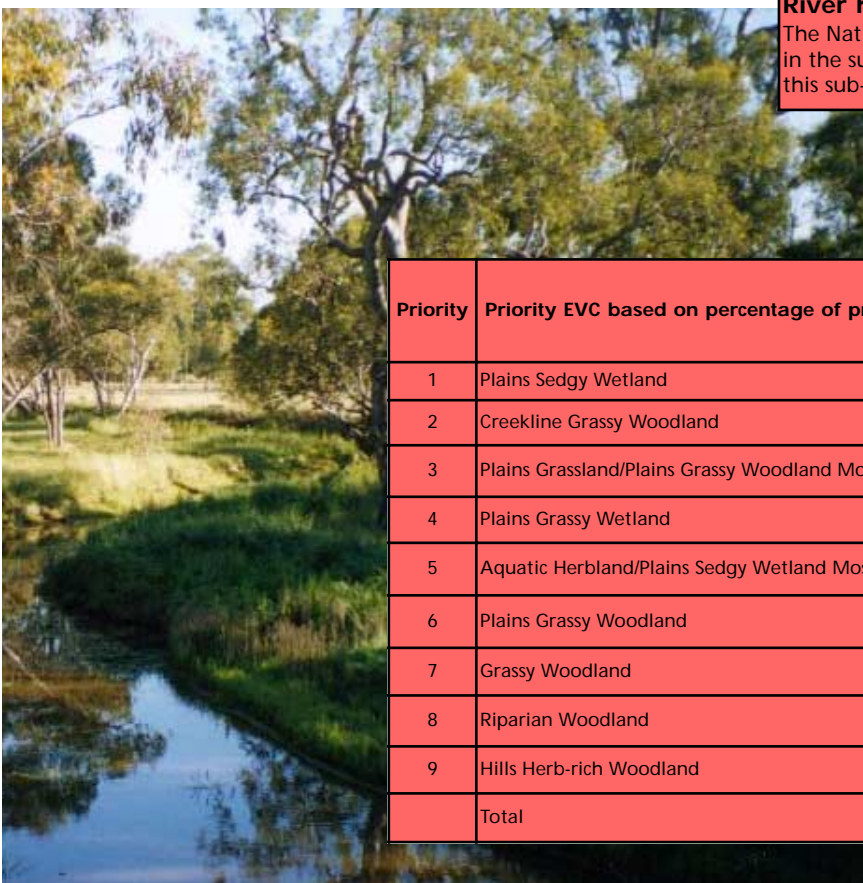


REGIONAL NATIVE VEGETATION PLAN

Table H9-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Significant threat
	Salinity	Low threat
	Land use change	Significant threat
	Waterlogging and drainage	Significant threat
	Poorly managed grazing	Significant threat
	Inappropriate fire regime	Low threat
	Disease eg Mundulla yellow, Phytophthora	Medium threat
	Firewood collection	Significant threat
	Pest plants	Significant threat
	Pest animals	Significant threat

Significant threat	Medium threat	Low threat
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Creekline Grassy Woodland

Table H9-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan:</p> <ul style="list-style-type: none"> Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Striped Legless Lizard (<i>Delma impar</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Regent Honeyeater (<i>Xanthomyza phrygia</i>)
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan:</p> <ul style="list-style-type: none"> Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Swamp Everlasting (<i>Bracteantha palustris</i>) Australian rare species - Yarra Gum (<i>Eucalyptus yarraensis</i>) Australian vulnerable and Victorian endangered species - Large-fruit Fireweed (<i>Senecio macrocarpus</i>) Spiny Peppergrass (<i>Lepidium aschersonii</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>) Australian and Victorian endangered species - Fragrant Leek-orchid (<i>Prasophyllum suaveolens</i>) Hoary Sunray (<i>Leucochrysum albicans</i> ssp. <i>albicans</i> var. <i>tricolor</i>) Australian and Victorian rare species - Hairy Anchor Plant (<i>Discaria pubescens</i>) Victorian endangered species - Plump Swamp Wallaby-grass (<i>Amphibromus pithogastrus</i>)
<p>Salinity</p> <p>H9 is not threatened by increasing salinity, however 46 ha of discharge area is found in this sub-catchment.</p>
<p>River health, wetlands and water quality</p> <p>The Native Vegetation Plan will help improve water quality in the sub-catchment. Highly significant wetlands exist in this sub-catchment.</p>

Table H9-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Priority EVC based on percentage of pre-1760 area	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Sedgy Wetland	3.1	328	\$487,371
2	Creekline Grassy Woodland	0.7	52	\$76,944
3	Plains Grassland/Plains Grassy Woodland Mosaic	100.3	2818	\$4,076,592
4	Plains Grassy Wetland	4.9	128	\$184,717
5	Aquatic Herbland/Plains Sedgy Wetland Mosaic	18.4	189	\$255,829
6	Plains Grassy Woodland	617.0	4552	\$5,902,500
7	Grassy Woodland	18.6	117	\$147,652
8	Riparian Woodland	9.3	55	\$68,528
9	Hills Herb-rich Woodland	70.8	189	\$177,362
	Total	843 ha	8,428 ha	\$11,377,494

GLENELG HOPKINS SUB-CATCHMENTS

H10 Trawalla Creek

Mount Emu Creek is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from the north and includes tributaries such as Spring Hill, Trawalla and Yam Holes Creeks.

The main township in this sub-catchment is Beaufort with a small population. Small towns include Trawalla, Waterloo and Chute. Regions include Langi Kal Kal, Glenbrae, Nerring, Brewster, Mena Park and Chepstowe. This sub-catchment includes Lake Goldsmith and several State forests: Trawalla, Ben Major, Waterloo, Andrews Block and Mount Lonarch. There is also a large area of privately owned forest around Beaufort.

Native vegetation currently covers 18.5 per cent of the sub-catchment comprising a total of 16 EVC communities. Prior to 1750 EVC communities covered 48,801 ha of this sub-catchment. The dominant remaining EVC is Heathy Dry Forest and the largest intact remnant is 1755.5 ha. This EVC community is characterised by an overstorey of Brown Stringybark and Messmate, sometimes in company with Shining Peppermint, Scentbark and Mountain Grey Gum. Prominent understorey species include Silver Banksia, Heath Tea-tree, Myrtle Wattle, Prickly Tea-tree and heath species.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the seven endangered EVC communities identified in Table H10-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H10-4).

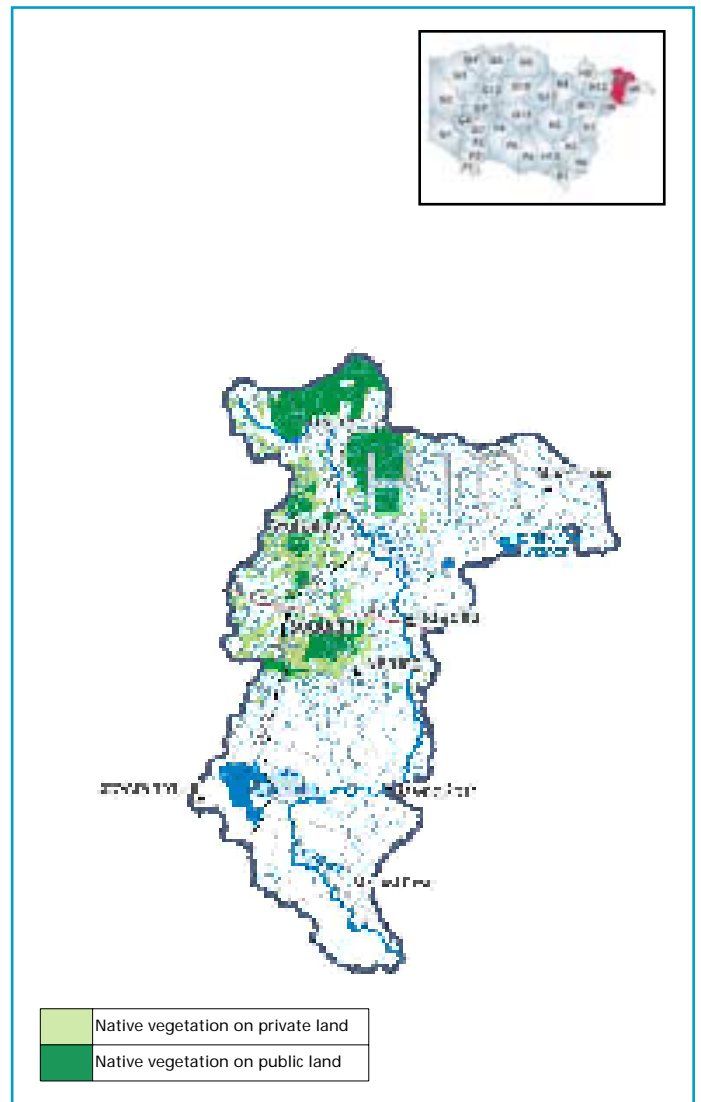


Table H10-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	5431.8	24.9	0.5%
	68	Creeklane Grassy Woodland	1295.6	40.4	3.1%
	71	Hills Herb-rich Woodland	238.1	22.3	9.4%
	175	Grassy Woodland	865.9	1.2	0.1%
	203	Stoney Rises Herb-rich Woodland	945.1	2.3	0.2%
	896	Grassy Woodland/Heathy Dry Forest Complex	6216.2	577.8	9.3%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	17,203.5	42.2	0.2%
Vulnerable or depleted	67	Alluvial Terraces Herb-rich Woodland	1259.8	292.1	23.2%
	47	Valley Grassy Forest	952.9	422.8	44.4%
Other		Other vegetation assets	14,393.0	7,619	52.9%



REGIONAL NATIVE VEGETATION PLAN

Table H10-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Yellow
	Poorly managed grazing	Yellow
	Inappropriate fire regime	Red
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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The Powerful Owl (*Ninox strenua*) will benefit by implementing the native vegetation plan.

Table H10-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Plains-wanderer (<i>Pedionomus torquatus</i>) Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Regent Honeyeater (<i>Xanthomyza phrygia</i>) Victorian vulnerable species - Powerful Owl (<i>Ninox strenua</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species: Ben Major Grevillea (<i>Grevillea floripendula</i>) Australian rare species - Yarra Gum (<i>Eucalyptus yarraensis</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>)</p>
<p>Salinity H10 is not threatened by increasing salinity, however it does have 235 ha of discharge area. The Glenelg Hopkins Salinity Management Plan proposes 18 km of tree belts and 676 ha of tree blocks as part of a strategy to reduce recharge in this sub-catchment.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment. Highly significant wetlands exist in this sub-catchment.</p>



Table H10-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Grassy Woodland	1.2	130	\$193,219
2	Stoney Rises Herb-rich Woodland	2.3	142	\$209,551
3	Plains Grassland/Plains Grassy Woodland Mosaic	42.2	2581	\$3,808,204
4	Plains Grassy Woodland	24.9	815	\$1,185,105
5	Creekline Grassy Woodland	40.4	194	\$230,427
6	Grassy Woodland/Heathy Dry Forest Complex	577.8	932	\$531,365
7	Hills Herb-rich Woodland	22.3	36	\$20,535
	Total	711.1 ha	4,830 ha	\$6,178,405

GLENELG HOPKINS SUB-CATCHMENTS

H11 Lower Fiery and Salt Creek

The Fiery and Salt Creeks are the major waterways of this sub-catchment within the Hopkins Basin. This includes Lake Bolac in the centre of the sub-catchment. Fiery Creek flows into Lake Bolac from the north, and the overflow from Lake Bolac enters Salt Creek and flows south to the Hopkins River. The main drainage area is from the north-east and includes numerous small tributaries and terminal lake systems.

The main township in this sub-catchment is Lake Bolac with a population of approximately 300 people. Other small townships include Streatham, Woorndoo, Westmere and Mininera. Regions include Nerrin Nerrin, Yalla-Y-Poora and Stoneleigh. This sub-catchment has no major reserves, however Mount Hamilton consists of a volcanic cave system. Remnant vegetation exists in the Woorndoo region, volcanic eruption points exist at Kulkurt Hill south of Tatyoon and Mount Weejort south of Yalla-Y-Poora, and also numerous fresh, brackish and saline lake systems exist in this sub-catchment.

Native vegetation currently covers 0.82 per cent of the sub-catchment comprising a total of 22 EVC communities. Prior to 1750 EVC communities covered 83,309 ha of this sub-catchment. The dominant remaining EVC is Plains Grassland/Plains Grassy Woodland Mosaic and the largest intact remnant is 10.8 ha. This EVC community is characterised by an open woodland, shrubland or tussock grassland, dominated by perennial grasses with a wide range of inter-tussock herbs and geophytes.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 19 endangered EVC communities identified in Table H11-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H11-4).

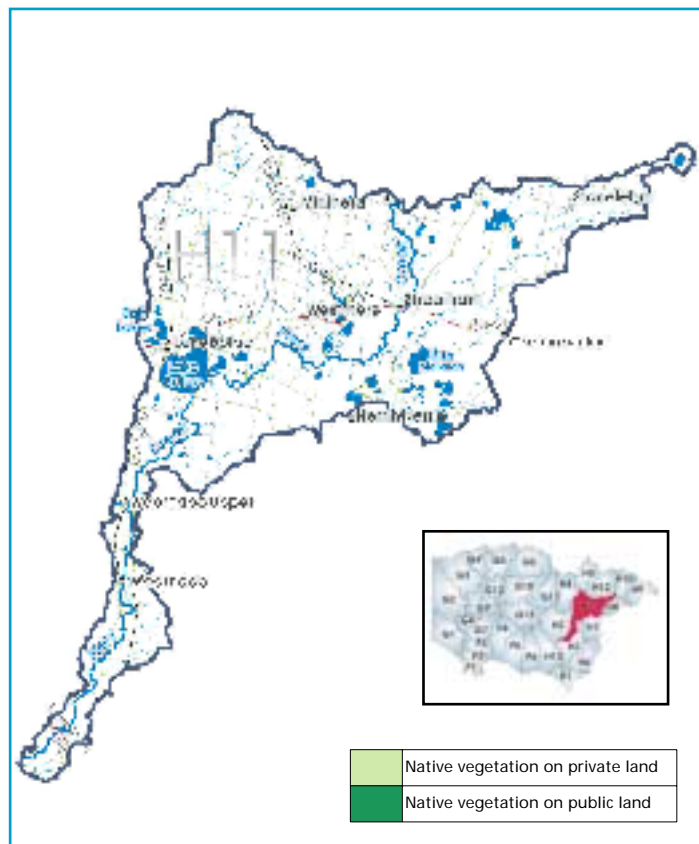


Table H11-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	5383.9	122.1	2.3%
	56	Floodplain Riparian Woodland	532.0	10.2	1.9%
	68	Creekline Grassy Woodland	441.0	4.4	1.0%
	125	Plains Grassy Wetland	4372.4	14.8	0.3%
	132	Plains Grassland	4938.7	22.9	0.5%
	203	Stoney Rises Herb-rich Woodland	4963.8	15.5	0.3%
	641	Riparian Woodland	1070.4	21.2	2.0%
	643	Brackish Drainage Line Herbland/Sedgeland	550.5	1.2	0.2%
	647	Plains Sedgy Wetland	1972.5	7.0	0.4%
	648	Saline Lake Verge Herbland/Sedgeland	1041.5	5.8	0.6%
	654	Creekline Tussock Grassland	140.3	0.3	0.2%
	655	Lignum Cane Grass Swamp	413.6	1.5	0.4%
	656	Brackish Wetland	351.4	3.5	1.0%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1084.4	3.2	0.3%
	715	Plains Grassland / Stoney Knoll Shrubland	322.7	0.5	0.2%
	718	Freshwater Lake Mosaic	226.8	5.3	2.3%
	894	Scoria Cone Woodland	24.4	0.5	2.0%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	55,341.4	447.1	0.8%
		668	Riparian Woodland/Escarpment Shrubland	29	3.7
Other		Other vegetation assets	108 ha	0 ha	0%



REGIONAL NATIVE VEGETATION PLAN

Table H11-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Table H11-3: BENEFITS

<p>Biodiversity - Fauna</p> <p>Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunnii</i>) Swift Parrot (<i>Lathamus discolor</i>) Corangamite Water Skink (<i>Eulamprus tympanum ssp. (Corangamite)</i>) Australian vulnerable and Victorian endangered species - Warty Bell Frog (<i>Litoria raniformis</i>) Striped Legless Lizard (<i>Delma impar</i>) Plains-wanderer (<i>Pedionomus torquatus</i>) Victorian vulnerable species - Cape Barren Goose (<i>Cereopsis novaehollandiae</i>)</p>
<p>Biodiversity - Flora</p> <p>Significant rare flora to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Clover Glycine (<i>Glycine latrobeana</i>) Salt-lake Tussock-grass (<i>Poa sallacustris</i>) Australian vulnerable and Victorian endangered species - Spiny Peppergrass (<i>Lepidium aschersonii</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>) Australian and Victorian endangered species - Hoary Sunray (<i>Leucochrysum albicans ssp. albicans var. tricolor</i>) Small Golden Moths (<i>Diuris sp. aff. lanceolata</i>) (Laverton) Fragrant Leek-orchid (<i>Prasophyllum suaveolens</i>)</p>
<p>Salinity</p> <p>H11 is not a sub-catchment threatened by increasing salinity, however 611 ha of discharge area can be found in this sub-catchment.</p>
<p>River health, wetlands and water quality</p> <p>The Native Vegetation Plan will help improve water quality in the sub-catchment. Highly significant wetlands exist in this sub-catchment.</p>

Table H11-4: WORKS PROGRAM (based on 2005 dollars)



Valley Grassy Forest

Priority	Description	2005 area (ha)	2030 target area (ha)	Total cost @\$1500/ha
1	Plains Grassland / Stoney Knoll Shrubland	0.5	48	\$71,250
2	Brackish Drainage Line Herbland/Sedgeland	1.2	83	\$122,743
3	Creekline Tussock Grassland	0.3	21	\$31,031
4	Aquatic Herbland/Plains Sedgy Wetland Mosaic	3.2	163	\$239,704
5	Stoney Rises Herb-rich Woodland	15.5	745	\$1,094,294
6	Plains Grassy Wetland	14.8	656	\$961,753
7	Plains Sedgy Wetland	7.0	236	\$343,561
8	Lignum Cane Grass Swamp	1.5	62	\$90,751
9	Plains Grassland	22.9	741	\$1,077,110
10	Saline Lake Verge Herbland/Sedgeland	5.8	156	\$225,232
11	Plains Grassland/Plains Grassy Woodland Mosaic	447.1	8301	\$11,780,859
12	Creekline Grassy Woodland	4.4	66	\$92,456
13	Brackish Wetland	3.5	53	\$74,203
14	Floodplain Riparian Woodland	10.2	80	\$104,671
15	Riparian Woodland	21.2	161	\$209,666
16	Scoria Cone Woodland	0.5	4	\$5,250
17	Plains Grassy Woodland	122.1	808	\$1,028,871
18	Freshwater Lake Mosaic	5.3	34	\$43,063
	Total	43.9	2014.0	\$2,954,702

GLENELG HOPKINS SUB-CATCHMENTS

H12 Upper Fiery Creek

The Fiery Creek is the major waterway of this sub-catchment within the Hopkins Basin. This includes the headwaters of the Fiery Creek.

The main drainage area is from the north and includes numerous small tributaries in the upper reaches, then Middle, Charlecombe and Callicum Creeks. This sub-catchment is part of the Rural City of Ararat in the west and the Pyrenees Shire in the east.

Native vegetation currently covers 8.2 per cent of the sub-catchment comprising a total of 25 EVC communities. Prior to 1750 EVC communities covered 87,228 ha of this sub-catchment. The dominant remaining EVC is Grassy Dry Forest and the largest intact remnant is 1520 ha. This EVC community is characterised by eucalypts including Red Stringybark, Long leaved Box, Red Box, Yellow Box, Candle Bark. An understorey is often absent or consists of sparse low shrubs such as Blunt-leaved Bitter Pea and Myrtle Wattlite.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 14 endangered EVC communities identified in Table H12-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H12-4).

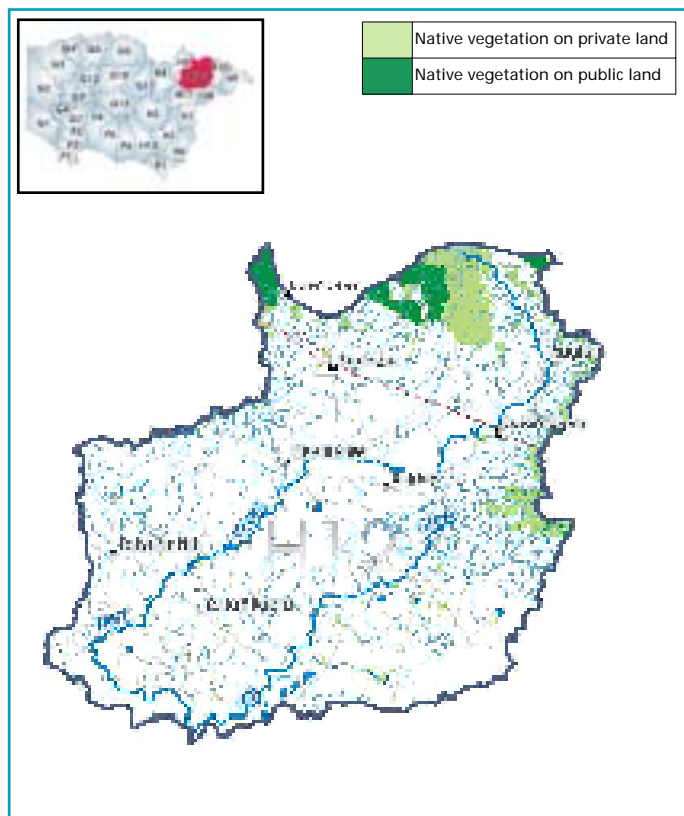


Table H12-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	55	Plains Grassy Woodland	6288.7	80.9	1.3%
	56	Floodplain Riparian Woodland	377.2	14.2	3.8%
	67	Alluvial Terraces Herb-rich Woodland	1369.1	88.2	6.4%
	68	Creepline Grassy Woodland	1487.3	33.2	2.2%
	125	Plains Grassy Wetland	1312.8	12.3	0.9%
	152	Alluvial Terraces Herb-rich Woodland /Plains Grassy Woodland Complex	2224.0	16.9	0.8%
	175	Grassy Woodland	1274.8	1.6	0.1%
	203	Stoney Rises Herb-rich Woodland	7772.4	76.5	1.0%
	283	Plains Sedgy Woodland	259.7	0.2	0.1%
	641	Riparian Woodland	1224.8	17.7	1.4%
	647	Plains Sedgy Wetland	1420.9	13.9	1.0%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	334.5	0.7	0.2%
	896	Grassy Woodland/Heathy Dry Forest Complex	12529.8	315.8	2.5%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	34293.1	145.8	0.4%
Vulnerable or depleted	20	Heathy Dry Forest	6047.7	1470.5	24.3%
	22	Grassy Dry Forest	4988.9	1990.5	39.9%
	71	Hills Herb-rich Woodland	308.9	110.7	35.8%
Other		Other vegetation assets	3713 ha	2748 ha	74.0%

REGIONAL NATIVE VEGETATION PLAN

Table H12-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Yellow
	Firewood collection	Red
	Pest plants	Red
	Pest animals	Red
Significant threat		Red
Medium threat		Yellow
Low threat		Green

Table H12-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan: Australian and Victorian endangered species - Regent Honeyeater (<i>Xanthomyza phrygia</i>) Victorian vulnerable species - Brolga (<i>Grus rubicunda</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan: Australian and Victorian vulnerable species - Ben Major Grevillea (<i>Grevillea floripendula</i>) Langi Ghiran Grevillea (<i>Grevillea montis-cole ssp. brevistyla</i>) Grampians Bitter-pea (<i>Daviesia laevis</i>) Australian vulnerable and Victorian endangered species - Spiny Rice-flower (<i>Pimelea spinescens ssp. spinescens</i>) Australian endangered and Victorian vulnerable species - Adamson's Blown-grass (<i>Agrostis adamsonii</i>) Australian and Victorian endangered species - Hoary Sunray (<i>Leucochrysum albicans ssp. albicans var. tricolor</i>) Button Wrinklewort (<i>Rutidosis leptorhynchoides</i>) Australian rare species - Mount Cole Grevillea (<i>Grevillea montis-cole ssp. montis-cole</i>) Yarra Gum (<i>Eucalyptus yarraensis</i>) Large White Spider-orchid (<i>Caladenia venusta</i>) Mount Cole Grevillea (<i>Grevillea montis-cole</i>) Rising Star Guinea-flower (<i>Hibbertia humifusa</i>)</p>
<p>Salinity H12 is not threatened by increasing salinity however it does have 321 ha of discharge area. The Glenelg Hopkins Salinity Management Plan proposes 10 km of tree belts and 344 ha of tree blocks because of the important role played by native vegetation in salinity recharge control.</p>
<p>River health, wetlands and water quality This Vegetation Plan will help improve water quality in the sub-catchment. Highly significant wetlands exist in this sub-catchment.</p>



Herb-rich Woodland

Table H12-4: WORKS PROGRAM
(based on 2005 dollars)

Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Plains Sedgy Woodland	0.2	39	\$58,125
2	Grassy Woodland	1.6	191	\$284,033
3	Aquatic Herbland/Plains Sedgy Wetland Mosaic	0.7	50	\$73,894
4	Plains Grassland/Plains Grassy Woodland Mosaic	145.8	5144	\$7,497,303
5	Alluvial Terraces Herb-rich Woodland /Plains Grassy Woodland Complex	16.9	334	\$475,627
6	Plains Grassy Wetland	12.3	197	\$277,115
7	Plains Sedgy Wetland	13.9	213	\$298,640
8	Stoney Rises Herb-rich Woodland	76.5	1166	\$1634,190
9	Plains Grassy Woodland	80.9	943	\$1,293,108
10	Riparian Woodland	17.7	184	\$249,482
11	Creepline Grassy Woodland	33.2	223	\$284,634
12	Grassy Woodland/Heathy Dry Forest Complex	315.8	1879	\$2,344,775
13	Floodplain Riparian Woodland	14.2	57	\$64,145
14	Alluvial Terraces Herb-rich Woodland	88.2	205	\$175,260
	Total	818.1 ha	10,825 ha	\$15,010,329

GLENELG HOPKINS SUB-CATCHMENTS

H13 Merri River

The Spring Creek-Merri River system is the major waterway of this sub-catchment within the Hopkins Basin. The main drainage area is from numerous small tributaries in the upper and mid sub-catchment, with more defined waterways present in the lower region. Some of the named and defined tributaries include Tea Tree, Gipsys, Kennedy, Union, Drysdale, Manifold, Russell's and Yangery Creeks. Lake Pertobe in Warrnambool also drains into the Merri River approximately 1 km from the river mouth at Pickering Point.

The main township of the region is Warrnambool with a population of approximately 30 000 people. Other small townships include Woodford, Bushfield, Mailors Flat, Winslow and Woolsthorpe, and the regions of Minjah, Minhamite, Purdeet and Burn Brae. This sub-catchment supports Thunder Point Coastal Reserve which is situated to the east of the mouth of the Merri River, and consists of the coastal sand dunes, Thunder Point, Pickering Point, Merri Island and Middle Island. A notable feature of this sub-catchment is Winslow Gorge, which contains the only remaining remnant vegetation along the Merri River system and is ecologically vegetation classed as endangered. Lake Pertobe is also a significant feature of this sub-catchment, as is Thunder Point Coastal Reserve surrounding the mouth of the Merri River.

Native vegetation currently covers 1.02 per cent of the sub-catchment comprising a total of 26 EVC communities. Prior to 1750 EVC communities covered 100,369 ha of this sub-catchment. The dominant remaining EVC is Plains Grassy Woodland and the largest intact remnant is 184 ha. This EVC community is characterised by an overstorey of Yellow Gum and Yellow Box, and sometimes Grey Box and River Red Gum. The understorey is virtually devoid of low shrubs.

Aim and target:

The aim of this Plan is to achieve a net gain in native vegetation in this sub-catchment by protecting and enhancing the 16 endangered EVC communities identified in Table H13-1. A target of 15 per cent of the original pre-1750 cover is set for the endangered EVC's to be achieved by 2030 (see Table H13-4).

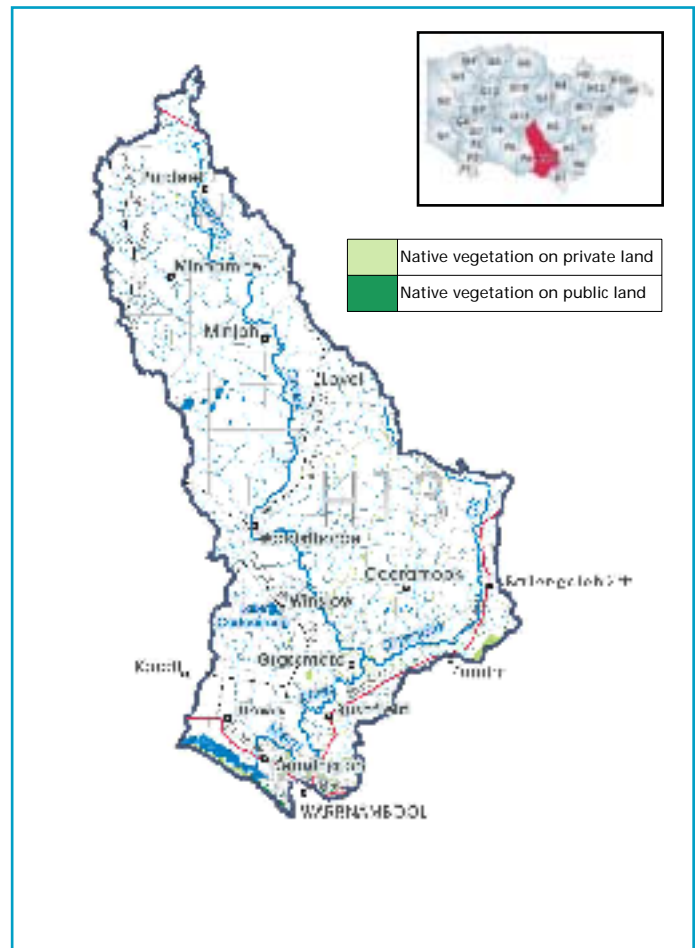


Table H13-1: ASSETS

	EVC No.	Description	Pre-1750 area (ha)	2005 area (ha)	Percentage remaining
Endangered	3	Damp Sands Herb-rich Woodland	2077.2	116.2	5.6%
	10	Estuarine Wetland	37.2	1.7	4.5%
	53	Swamp Scrub	1136.6	30.9	2.7%
	55	Plains Grassy Woodland	53527.5	416.5	0.8%
	68	Creekline Grassy Woodland	3404.1	10.3	0.3%
	125	Plains Grassy Wetland	2136.9	3.3	0.2%
	641	Riparian Woodland	1155.4	2.8	0.2%
	642	Basalt Shrubby Woodland	12172.7	5.2	0.04%
	644	Cinder Cone Woodland	0.8	0.0	0.8%
	647	Plains Sedgy Wetland	174.7	0.3	0.2%
	651	Plains Swampy Woodland	6120.1	11.1	0.2%
	666	Riparian Shrubland / Escarpment Shrubland / Grassy Woodland	2589.1	38.0	1.5%
	691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	38.3	1.0	2.7%
	716	Plains Grassy Woodland / Stoney Knoll Shrubland	596.1	1.0	0.2%
	720	Swamp Scrub / Aquatic Herbland	781.9	25.8	3.3%
	897	Plains Grassland/Plains Grassy Woodland Mosaic	7494.1	13.5	0.2%
Vulnerable or depleted	797	Coastal Landfill / Sand Accretion	5.9	0.9	14.8%
	160	Coastal Dune Scrub	406.7	165.2	40.6%
	71	Hills Herb-rich Woodland	308.9	110.7	35.8%
Other		Other vegetation assets	6514 ha	66 ha	1.0%



REGIONAL NATIVE VEGETATION PLAN

Table H13-2: THREATS

Ecological & societal processes	Clearance and fragmentation	Red
	Salinity	Green
	Land use change	Red
	Waterlogging and drainage	Red
	Poorly managed grazing	Red
	Inappropriate fire regime	Green
	Disease eg Mundulla yellow, Phytophthora	Green
	Firewood collection	Yellow
	Pest plants	Red
	Pest animals	Red

Significant threat	Red	Medium threat	Yellow	Low threat	Green
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Table H13-3: BENEFITS

<p>Biodiversity - Fauna Significant rare fauna to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Warty Bell Frog (<i>Litoria raniformis</i>)</p> <p>Australian and Victorian endangered species - Eastern Barred Bandicoot (<i>Perameles gunni</i>)</p> <p>Australian vulnerable and Victorian endangered species - Spot-tailed Quoll (<i>Dasyurus maculatus</i>) Orange-bellied Parrot (<i>Neophema chrysogaster</i>)</p> <p>Australian endangered and Victorian rare species - Yarra Pigmy Perch (<i>Edelia obscura</i>)</p>
<p>Biodiversity - Flora Significant rare flora to benefit from the Plan:</p> <p>Australian and Victorian vulnerable species - Swamp Fireweed (<i>Senecio psilocarpus</i>)</p> <p>Australian and Victorian endangered species - Basalt Peppergrass (<i>Lepidium hyssopifolium</i>)</p>
<p>Salinity H13 is not threatened by increasing salinity, however it does have discharge areas totalling 360 hectares.</p>
<p>River health, wetlands and water quality The Native Vegetation Plan will help improve water quality in the sub-catchment.</p>

Table H13-4: WORKS PROGRAM (based on 2005 dollars)



Priority	Description	2005 area (ha)	2030 Target area (ha) (15% of original)	Total cost @ \$1,500 per ha
1	Basalt Shrubby Woodland	5.2	1826	\$2,731,126
2	Plains Grassy Wetland	3.3	321	\$476,504
3	Plains Sedgy Wetland	0.3	26	\$38,566
4	Plains Grassy Woodland / Stoney Knoll Shrubland	1.0	89	\$132,000
5	Plains Grassland/Plains Grassy Woodland Mosaic	13.5	1124	\$1,665,735
6	Plains Swampy Woodland	11.1	918	\$1,360,382
7	Riparian Woodland	2.8	173	\$255,336
8	Creepline Grassy Woodland	10.3	511	\$751,095
9	Plains Grassy Woodland	416.5	8029	\$11,418,714
10	Cinder Cone Woodland	0.006	0.1	\$141
11	Riparian Shrubland / Escarpment Shrubland Grassy Woodland	38.0	388	\$524,945
12	Aquatic Herbland/Plains Sedgy Wetland Mosaic	1.0	6	\$7,450
13	Swamp Scrub	30.9	170	\$208,590
14	Swamp Scrub / Aquatic Herbland	25.8	117	\$136,757
15	Estuarine Wetland	1.7	6	\$6,465
16	Damp Sands Herb-rich Woodland	116.2	312	\$293,732
	Total	677.7 ha	14,016.1 ha	\$20,007,536

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Appendix 1: Regional EVC data

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
3	Damp Sands Herb-rich Woodland	V	155078.4	35825.1	23.1	51.1
5	Coastal Sand Heathland		32.7	0	0	0
6	Sand Heathland		11760.0	11107.7	94.5	12
8	Wet Heathland		6285.1	5486.5	87.3	7.4
9	Coastal Saltmarsh		34.8	24.6	70.8	15.3
10	Estuarine Wetland	V	433.5	89.5	20.6	84.8
13	Brackish Sedgeland		131.0	127.9	97.6	91.1
16	Lowland Forest		53624.1	46066.7	85.9	6
17	Riparian Scrub Complex		357.5	357.5	100.0	4.5
18	Riparian Forest		1305.9	842.2	64.5	22.8
19	Riparian Shrubland		75.8	62.3	82.2	51.4
20	Heathy Dry Forest		42482.0	28936.5	68.1	27.9
22	Grassy Dry Forest	V	23388.7	6949.8	29.7	40.7
23	Herb-rich Foothill Forest	V	85552.1	22535.3	26.3	42.2
28	Rocky Outcrop Shrubland		6334.8	6267.4	98.9	3.5
29	Damp Forest		293.8	293.8	98.7	72.7
30	Wet Forest		405.2	399.9	98.7	72.7
37	Montane Grassy Woodland		3.0	3.0	100.0	0
45	Shrubby Foothill Forest		3228.7	3228.7	100.0	11.8
47	Valley Grassy Forest		5297.1	3814.1	72.0	27.5
48	Heathy Woodland		116055.1	100716.2	86.8	15.0
53	Swamp Scrub	E	25237.9	1975.1	7.8	59.7
55	Plains Grassy Woodland	E	721681.2	23201.8	3.2	30.9
56	Floodplain Riparian Woodland	V	23540.9	3087.6	13.1	64.4
61	Box Ironbark Forest		100.1	88.0	87.9	99.7
67	Alluvial Terraces Herb-rich Woodland	D	8616.3	2627.3	30.5	45.4
68	Creepline Grassy Woodland	E	52361.9	1037.2	2.0	73.6
71	Hills Herb-rich Woodland		13263.6	8243.7	62.2	50.7
72	Granitic Hills Woodland	E	2073.5	19.9	1.0	85.7
73	Rocky Outcrop Shrubland/Herbland Mosaic		5630.4	5436.7	96.6	12.0
74	Wetland Formation		281.6	0	0	0
83	Swampy Riparian Woodland	E	2024.9	9.0	0.4	70.3
124	Grey Clay Drainage Line Complex	E	1664.6	2.5	0.2	82.6
125	Plains Grassy Wetland	E	36631.4	133.3	0.4	82.1
132	Plains Grassland	E	53952.6	183.5	0.3	79.9
133	Limestone Pomaderris Shrubland		4.4	4.4	100.0	0
134	Sand Forest	V	607.3	92.9	15.3	47.9
136	Sedge Wetland	D	3817.8	1289.0	33.8	27.8
152	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex	E	4344.6	45.4	1.0	36.0
160	Coastal Dune Scrub		3494.3	2128.1	60.9	13.9
161	Coastal Headland Scrub	D	784.3	390.3	49.8	19.4
162	Coastal Headland Scrub/Headland Coastal Tussock Grassland Mosaic	V	776.4	142.8	18.4	11.6
164	Creepline Herb-rich Woodland		111.6	59.3	53.2	44.4
165	Damp Heath Scrub		1290.6	1250.7	96.9	10.7
174	Grassy Dry Forest/Rocky Outcrop Shrubland/Herbland Mosaic	V	119.0	31.2	26.2	15.8
175	Grassy Woodland	E	20039.1	612.6	3.1	46.8
179	Herb-rich Heathy Woodland	D	32850.5	16408.5	49.9	38.7
184	Montane Wet Heathland		51.4	51.4	100.0	0
191	Riparian Scrub		5225.2	4122.6	78.9	20.1
192	Montane Rocky Shrubland		1201.2	1201.3	100.0	9.9
193	Rocky Outcrop Herbland		5231.9	5231.9	100.0	2.9
195	Seasonally Inundated Shrubby Woodland		6364.9	4034.0	63.4	60.1
198	Sedgy Riparian Woodland		2039.6	1814.8	89.0	5.8
200	Shallow Freshwater Marsh	V	4952.8	1023.5	20.7	21.1
203	Stoney Rises Herb-rich Woodland	V	44562.7	13216.4	29.7	32.5
278	Herb-rich Heathy Forest		64.2	64.2	100.0	0
280	Floodplain Thicket		3353.4	3079.8	91.8	23.4

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
282	Shrubby Woodland		6930.1	5869.7	84.7	22.7
283	Plains Sedgy Woodland		2409.2	1270.7	52.7	34.2
284	Claypan Ephemeral Wetland		2.2	2.2	100.0	0
285	Dry Creekline Woodland		190.2	113.5	59.7	13.7
291	Cane Grass Wetland	E	414.9	30.6	7.4	3.0
292	Red Gum Wetland	E	8647.9	212.6	2.5	34.7
300	Reed Swamp		79.2	52.0	65.7	48.0
320	Grassy Dry Forest/Heathy Dry Forest Complex		2988.5	1731.1	57.9	10.8
382	Lowland Forest/Heathy Dry Forest Complex		603.2	603.2	100.0	30.0
383	Lowland Forest/Valley Grassy Forest Complex		1257.3	1089.3	86.6	11.6
401	Hills Herb-rich Woodland/Heathy Woodland Complex		698.0	698.0	100.0	99.4
481	Heathy Woodland/Heathy Dry Forest Complex		1196.3	1196.3	100.0	77.4
636	Brackish Lake	E	1193.5	2.9	0.2	11.3
641	Riparian Woodland	V	14347.7	1825.3	12.7	56.5
642	Basalt Shrubby Woodland	E	70892.4	78.3	0.1	89.5
643	Brackish Drainage Line Herbland/Sedgeland	E	1313.7	25.9	2.0	45.5
644	Cinder Cone Woodland	D	487.2	220.8	45.3	3.0
645	Wet Heathland / Heathy Woodland		6351.4	4654.4	73.3	11.3
646	Heathy Woodland / Plains Grassy Woodland		1796.8	995.4	55.4	42.4
647	Plains Sedgy Wetland	E	21255.6	156.9	0.7	55.7
648	Saline Lake Verge Herbland/Sedgeland	E	2723.4	40.8	1.5	86.9
649	Stony Knoll Shrubland		175.2	0.0	0.0	0.0
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	22048.9	10619.6	48.2	14.6
651	Plains Swampy Woodland	E	19673.9	80.3	0.4	93.5
652	Lunette Woodland	E	931.8	17.2	1.8	90.3
653	Aquatic Herbland	V	1389.5	217.7	15.7	60.0
654	Creekline Tussock Grassland	E	2589.5	5.6	0.2	100.0
655	Lignum Cane Grass Swamp	E	413.6	1.5	0.4	99.6
656	Brackish Wetland	V	984.9	194.8	19.8	96.8
657	Freshwater Lignum Shrubland	E	506.5	8.0	1.6	30.6
660	Plains Woodland/Plains Grassy Wetland	E	561.0	45.1	8.0	91.6
662	Escarpment Shrubland / Grassy Woodland / Riparian Woodland		65.4	0.0	0.0	0.0
664	Limestone Ridge Woodland		28.7	28.7	100.0	22.4
665	Coastal Mallee Scrub		596.6	302.2	50.7	70.2
666	Riparian Shrubland / Escarpment Shrubland / Grassy Woodland	E	2670.3	62.6	2.3	77.8
668	Riparian Woodland/Escarpment Shrubland	E	562.0	55.8	9.9	76.9
669	Escarpment Shrubland / Damp Sands Herb-rich Woodland / Riparian Woodland		275.2	272.5	99.0	42.2
670	Limestone Woodland		72.2	72.2	100.0	0
672	Damp Sands Herb-rich Woodland / Shrubby Woodland		543.0	364.7	67.2	0.6
674	Sandy Stream Woodland	V	7322.5	792.8	10.8	89.3
675	Escarpment Shrubland / Damp Sands Herb-rich Woodland / Swamp Scrub		155.9	122.4	78.5	0
680	Freshwater Meadow	E	1499.1	136.1	9.1	55.4
681	Deep Freshwater Marsh	D	4737.8	1855.3	39.2	13.2
683	Semi-permanent Saline	E	11.2	1.0	9.2	3.7
684	Permanent Saline	D	521.2	199.0	38.2	4.0
690	Floodplain Riparian Woodland/Billabong Wetland Mosaic	E	2299.0	1.8	0.1	100.0
691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	E	54079.0	337.3	1.4	26.6
697	Grassy Woodland / Alluvial Terraces Herb-rich Woodland		9.3	0	0	0
698	Lowland Forest/Heathy Woodland Mosaic		65.6	65.6	100.0	0
704	Lateritic Woodland	E	4368.1	309.0	7.1	53.2
705	Basalt Creekline Shrubby Woodland	E	3997.6	0.7	0.0	100.0
707	Sedgy Swamp Woodland	V	355.9	48.4	13.6	68.1
710	Damp Heathland		7436.0	5301.0	71.3	12.3
713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	E	84338.8	3282.0	73.5	3.9
714	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	E	58170.6	97.4	0.2	81.2
715	Plains Grassland / Stony Knoll Shrubland	E	852.5	0.5	0.1	50.0
716	Plains Grassy Woodland / Stony Knoll Shrubland	E	1628.2	6.3	0.4	61.3
718	Freshwater Lake Mosaic	E	379.4	13.0	3.4	83.6
719	Grassy Woodland / Damp Sands Herb-rich Woodland	E	43882.6	959.5	2.2	83.4

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
720	Swamp Scrub / Aquatic Herbland	E	2400.4	103.3	4.3	65.1
725	Damp Sands Herb-rich Woodland / Riparian Woodland / Swamp Scrub		416.8	398.6	95.6	1.5
726	Rocky Outcrop Shrubland/Herbland / Heathy Woodland		4.3	4.1	94.1	98.9
730	Plains Grassy Woodland / Shrubby Woodland	D	17.9	7.5	42.0	88.7
732	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	E	8558.3	226.4	2.6	87.7
733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	E	8982.0	71.9	0.8	70.4
734	Damp Heathland / Damp Heathy Woodland / Wet Heathland		994.9	634.9	63.8	6.1
736	Limestone Rise Grassland / Limestone Rise Woodland		98.4	90.3	91.8	13.3
737	Heathy Woodland / Limestone Woodland		3584.8	3255.3	90.8	1.3
738	Damp Sands Herb-rich Woodland / Plains Grassy Woodland / Plains Sedgy Woodland		156.6	144.9	92.5	11.6
739	Plains Grassy Woodland / Plains Swampy Woodland	E	5397.5	139.0	2.6	77.6
740	Damp Sands Herb-rich Woodland / Heathy Woodland / Sand Heathland		1008.4	985.0	97.7	0.6
742	Basalt Shrubby Woodland / Herb-rich Foothill Forest		1236.8	0.0	0.0	0.0
744	Stony Knoll Shrubland / Basalt Shrubby Woodland		222.5	0.0	0.0	0.0
745	Hills Herb-rich Woodland / Plains Grassy Woodland	V	5875.7	890.0	15.1	44.5
746	Damp Heathland / Damp Heathy Woodland	V	21314.1	4379.5	20.5	42.6
750	Shallow Sands Woodland / Plains Sedgy Woodland / Seasonally Inundated	V	6914.9	1481.6	21.4	21.0
751	Seasonally Inundated Shrubby Woodland / Plains Sedgy Woodland	V	2885.2	791.8	27.4	51.5
752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Wood	E	20084.5	830.8	4.1	89.2
753	Rocky Outcrop Shrubland/Herbland / Broombush Mallee		56.6	46.0	81.3	99.4
754	Damp Heathland / Seasonally Inundated Shrubby Woodland		23.5	23.1	98.4	0.0
756	Heathy Woodland / Seasonally Inundated Shrubby Woodland		38.9	38.9	100.0	0.0
757	Damp Sands Herb-rich Woodland / Seasonally Inundated Shrubby Woodland		354.2	216.5	61.1	88.9
758	Rocky Outcrop Shrubland/Herbland / Hills Herb-rich Woodland		24.9	16.4	65.6	98.8
759	Hills Herb-rich Woodland / Valley Grassy Forest		140.8	118.2	84.0	40.8
760	Lateritic Woodland / Heathy Dry Forest		115.5	94.5	81.8	90.8
761	Hills Herb-rich Woodland / Lateritic Woodland Mosaic	E	150.8	1.4	0.9	100.0
762	Damp Heathland / Sand Heathland		821.8	655.1	79.7	1.3
763	Damp Heathland / Damp Heathy Woodland / Seasonally Inundated Shrubby Woodland	E	1481.5	10.4	0.7	89.9
764	Lateritic Woodland / Heathy Woodland		83.0	63.3	76.3	55.9
765	Heathy Dry Forest / Plains Grassy Woodland		40.2	30.2	75.1	96.5
766	Shrubby Woodland / Lateritic Woodland		14.8	12.9	87.7	98.4
768	Wet Heathland / Riparian Scrub		67.0	50.8	75.7	49.5
770	Damp Sands Herb-rich Woodland / Lowland Forest		1835.9	932.5	50.8	17.3
771	Heathy Dry Forest / Sand Heathland Mosaic		5.2	3.2	62.2	49.3
773	Hills Herb-rich Woodland / Shrubby Woodland		46.0	46.0	100.0	21.1
775	Floodplain Thicket / Shrubby Woodland		4.1	3.5	85.4	99.8
776	Plains Swampy Woodland / Swamp Scrub	E	2664.1	76.9	2.9	48.4
781	Damp Sands Herb-rich Woodland / Herb-rich Foothill Forest	V	3119.2	404.8	13.0	46.8
785	Heathy Herb-rich Woodland / Damp Sands Herb-rich Woodland	E	4547.6	248.6	5.5	78.4
786	Heathy Woodland / Heathy Herb-rich Woodland / Damp Heathy Woodland		3466.5	2632.5	75.9	17.1
791	Damp Sands Herb-rich Complex / Plains Grassy Woodlands Complex	E	35059.7	185.1	0.5	87.3
792	Stony Rises Woodland / Stony Knoll Shrubland		3587.2	2016.7	56.2	46.7
793	Damp Heathy Woodland		2608.8	846.7	32.5	22.7
794	Floodplain Riparian Woodland / Plains Grassy Woodland	D	2896.0	59.7	2.1	86.8
795	Lowland Forest/Damp Sands Herb-rich Woodland Mosaic	E	5.6	5.6	100.0	0.0
796	Valley Grassy Forest / Lateritic Woodland		59.3	5.6	9.4	18.5
799	Shrubby Woodland/Riparian Scrub Mosaic		28.8	28.8	100.0	0
803	Plains Woodland	E	7641.6	19.2	0.3	61.6
858	Calcarene Dune Woodland		13519.8	8116.6	60.0	12.7
876	Spray-zone Coastal Shrubland		106.3	83.8	78.8	0
881	Damp Sands Herb-rich Woodland / Heathy Woodland		6000.7	4908.8	81.8	11.4
882	Shallow Sands Woodland	V	12912.3	2407.4	18.6	29.2
885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	E	90627.2	1447.7	1.6	57.5
892	Heathy Woodland/Sand Heath Mosaic	V	2492.5	532.2	21.4	37.6
894	Scoria Cone Woodland	E	6265.7	278.1	4.4	51.9
895	Escarpment Shrubland	V	514.6	116.3	22.6	80.0
896	Grassy Woodland/Heathy Dry Forest Complex	E	24862.8	979.1	3.9	76.0
897	Plains Grassland/Plains Grassy Woodland Mosaic	E	302137.0	1681.0	0.6	81.2

Appendix 2: Bioregional EVC data

BRIDGEWATER BIOREGION						
EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
858	Calcarene Dune Woodland		13418.8	8060.0	60	90
160	Coastal Dune Scrub		1635.1	1572.6	100	100
161	Coastal Headland Scrub	D	148.5	126.1	80	100
9	Coastal Saltmarsh		26.1	23.9	90	90
3	Damp Sands Herb-rich Woodland	V	833.0	251.0	30	60
681	Deep Freshwater Marsh	D	1397.8	1099.1	80	90
10	Estuarine Wetland	V	5	5	100	100
680	Freshwater Meadow	E	11.4	9.8	90	100
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	11.7	0.4	3	
23	Herb-rich Foothill Forest	V	175.9	22.0	13	90
684	Permanent Saline	D	123.6	118.1	100	100
200	Shallow Freshwater Marsh	V	27.8	0.3	1	100
876	Spray-zone Coastal Shrubland		72.6	72.3	100	100
53	Swamp Scrub	E	64.5	50.1	80	40

CENTRAL VICTORIAN UPLANDS BIOREGION						
EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
67	Alluvial Terraces Herb-rich Woodland	D	3229.7	384.8	12	40
152	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex	E	3311.3	18.0	0	0
68	Creepline Grassy Woodland	E	799.9	23.8	0	80
164	Creepline Herb-rich Woodland		91.9	41.9	46	60
3	Damp Sands Herb-rich Woodland	V	353.3	313.9	89	100
56	Floodplain Riparian Woodland	V	30.3	0.1	0	
72	Granitic Hills Woodland	E	941.1	12.4	0	
22	Grassy Dry Forest	V	15126.5	5759.0	38	70
320	Grassy Dry Forest/Heathy Dry Forest Complex		2868.6	1672.0	58	90
175	Grassy Woodland	E	1736.0	20.7	0	0
896	Grassy Woodland/Heathy Dry Forest Complex	E	23798.0	966.4	0	10
20	Heathy Dry Forest		17950.2	8203.9	46	40
48	Heathy Woodland		379.9	162.2	43	70
23	Herb-rich Foothill Forest	V	2590.0	2011.2	78	90
71	Hills Herb-rich Woodland		2875.8	1040.9	36	80
897	Plains Grassland/Plains Grassy Woodland Mosaic	E	1093.0	64.3	6	0
125	Plains Grassy Wetland	E	34.0	0.5	0	
55	Plains Grassy Woodland	E	1880.7	215.5	11	40
647	Plains Sedgy Wetland	E	32.4			
18	Riparian Forest		123.7	69.5	56	80
641	Riparian Woodland	V	87.0	2.4	0	30
28	Rocky Outcrop Shrubland		7.1			
73	Rocky Outcrop Shrubland/Herbland Mosaic		801.6	657.7	82	90
195	Seasonally Inundated Shrubby Woodland		10.5	10.5	100	100
198	Sedgy Riparian Woodland		8.1	7.7	95	100
47	Valley Grassy Forest		1324.6	642.6	49	70

GOLDFIELDS BIOREGION

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
67	Alluvial Terraces Herb-rich Woodland	D	2071.4	930.2	45	90
152	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex	E	0.3			
61	Box Ironbark Forest	E	100.1	88.0	88	100
68	Creekline Grassy Woodland	E	0.0			
56	Floodplain Riparian Woodland	V	162.6	2.7	1.7	
72	Granitic Hills Woodland	E	0.4			
22	Grassy Dry Forest	V	5846.3	1444.0	25	80
175	Grassy Woodland	E	4527.5	516.8	11	70
896	Grassy Woodland/Heathy Dry Forest Complex	E	82.0	2.6		
20	Heathy Dry Forest		2574.7	1136.4	44	80
48	Heathy Woodland		187.5	47.4	25	30
23	Herb-rich Foothill Forest	V	21.5	21.2	100	100
71	Hills Herb-rich Woodland		34.5	34.4	100	100
897	Plains Grassland/Plains Grassy Woodland Mosaic	E	2.8			
125	Plains Grassy Wetland	E	0.0			
55	Plains Grassy Woodland	E	193.7	13.2	7	
28	Rocky Outcrop Shrubland		1.8			
47	Valley Grassy Forest		76.5	76.5	100	100

WIMMERA BIOREGION

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
653	Aquatic Herbland	V	37.0	1.8	5	100
643	Brackish Drainage Line Herbland/Sedgeland	E	100.0	12.6	13	87
636	Brackish Lake	E	79.6			
291	Cane Grass Wetland	E	414.8	30.6	7	97
68	Creekline Grassy Woodland	E	126.0	5.4	4	
710	Damp Heathland		15.3	12.7	83	6
754	Damp Heathland / Seasonally Inundated Shrubby Woodland		41.1	40.1	98	100
3	Damp Sands Herb-rich Woodland	V	642.8	267.6	42	23
732	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	E	1.0			
56	Floodplain Riparian Woodland	V	1.3			
657	Freshwater Lignum Shrubland	E	428.7			
752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Woodland	E	54.1	5.8	11	4
48	Heathy Woodland		3734.3	3243.1	87	67
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	3.5			
756	Heathy Woodland / Seasonally Inundated Shrubby Woodland		38.9	38.9	100	100
179	Herb-rich Heathy Woodland	D	989.8	659.1	66	53
71	Hills Herb-rich Woodland		70.6	3.0	4	
652	Lunette Woodland	E	63.0			
55	Plains Grassy Woodland	E	5240.0	184.9	4	25
647	Plains Sedgy Wetland	E	2.8			
283	Plains Sedgy Woodland		115.3	20.8	18	76
651	Plains Swampy Woodland	E	2.7			
803	Plains Woodland	E	7700.6	19.7	0.3	30
292	Red Gum Wetland	E	400.9	0.4	0.1	
674	Sandy Stream Woodland	V	68.5	13.1	19	26
195	Seasonally Inundated Shrubby Woodland		38.1	21.3	56	89
751	Seasonally Inundated Shrubby Woodland / Plains Sedgy Woodland	V	294.5	230.3	78	72
136	Sedge Wetland	D	63.3	3.2	5	100
882	Shallow Sands Woodland	V	4853.0	372.0	8	28
750	Shallow Sands Woodland / Plains Sedgy Woodland / Seasonally Inundated	V	512.2	10.0	2	78
53	Swamp Scrub	E	13.8	6.1	45	

WARRNAMBOOL PLAIN BIOREGION

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
653	Aquatic Herbland	V	217.7	6.1	2.8	47
691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	E	326.2	1.6	0.5	
705	Basalt Creekline Shrubby Woodland	E	0.7			
642	Basalt Shrubby Woodland	E	272.8	6.7	2.5	
160	Coastal Dune Scrub		3245.7	908.8	28	60
161	Coastal Headland Scrub	D	67.4	11.6	17	20
162	Coastal Headland Scrub/Headland Coastal Tussock Grassland Mosaic	V	1075.0	252.8	24	80
746	Damp Heathland / Damp Heathy Woodland	V	8726.8	236.9	2.7	0
3	Damp Sands Herb-rich Woodland	V	12451.8	515.0	4.1	10
713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	E	55335.8	1269.6	2.3	20
732	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	E	7232.9	165.3	2.3	10
681	Deep Freshwater Marsh	D	848.3	32.4	3.8	10
10	Estuarine Wetland	V	389.7	85.8	22	10
680	Freshwater Meadow	E	394.6	8.3	2.1	
23	Herb-rich Foothill Forest	V	4258.3	3219.6	76	80
16	Lowland Forest		2317.0	576.9	25	0
684	Permanent Saline	D	373.2	61.1	16.4	90
125	Plains Grassy Wetland	E	25.4			
55	Plains Grassy Woodland	E	137.1	2.5	1.8	0
647	Plains Sedgy Wetland	E	92.0			
651	Plains Swampy Woodland	E	3935.3	0.7	0	10
18	Riparian Forest		76.8	19.3	25	20
894	Scoria Cone Woodland	E	12.5			
136	Sedge Wetland	D	13.4			
198	Sedgy Riparian Woodland		38.5			
683	Semi-permanent Saline	E	9.1	1.0	11	80
200	Shallow Freshwater Marsh	V	1314.4	0.2	0	
203	Stoney Rises Herb-rich Woodland	V	261.3	108.4	42	50
714	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	E	475.9			
53	Swamp Scrub	E	6677.8	128.5	1.9	20
720	Swamp Scrub / Aquatic Herbland	E	2302.0	83.0	3.6	40
733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	E	173.6	2.7	1.6	
83	Swampy Riparian Woodland	E	103.5	0.5	0.4	

DUNDAS TABLELANDS BIOREGION						
EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
67	Alluvial Terraces Herb-rich Woodland	D	2026.7	351.3	17	85
152	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex	E	15.2	15.2	100	100
653	Aquatic Herbland	V	41.9	2.0	5	9
691	Aquatic Herbland/Plains Sedgy Wetland Mosaic	E	4933.8	11.3	0.23	59
705	Basalt Creekline Shrubby Woodland	E	0.5			
642	Basalt Shrubby Woodland	E	16.5			
643	Brackish Drainage Line Herbland/Sedgeland	E	641.8	11.7	1.83	8
13	Brackish Sedgeland		3.9	3.9	100	100
9	Coastal Saltmarsh		8.7	0.7	8	20
68	Creekline Grassy Woodland	E	29320.5	799.9	2.73	20
640	Creekline Sedgy Woodland		0.1			
654	Creekline Tussock Grassland	E	58.5	0.3	0.53	
710	Damp Heathland		155.8	117.6	75	47
746	Damp Heathland / Damp Heathy Woodland	V	86.0	29.4	34	66
763	Damp Heathland /Damp Heathy Woodland/Seasonally Inundated Shrubby Woodland	E	29.8			
734	Damp Heathland / Damp Heathy Woodland / Wet Heathland		60.5	54.1	80	39
762	Damp Heathland / Sand Heathland		6.3	5.1	80	0.73
793	Damp Heathy Woodland	D	14.2	13.8	98	0.18
791	Damp Sands Herb-rich Complex / Plains Grassy Woodlands Complex	E	34917	185.1	0.53	5
3	Damp Sands Herb-rich Woodland	V	57186.9	10470.5	18	26
781	Damp Sands Herb-rich Woodland / Herb-rich Foothill Forest	V	558.4	71.8	13	0.12
885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	E	75893.8	1045.6	1.38	28
738	Damp Sands Herb-rich Woodland / Plains Grassy Woodland / Plains Sedgy		17.1	16.8	98	99
757	Damp Sands Herb-rich Woodland / Seasonally Inundated Shrubby Woodland		240.5	105.2	44	1.82
672	Damp Sands Herb-rich Woodland / Shrubby Woodland		2.6	2.6	100	25
285	Dry Creekline Woodland		92.6	36.2	39	89
895	Escarpment Shrubland	V	432.0	77.8	18	19
662	Escarpment Shrubland / Grassy Woodland / Riparian Woodland		15.3			
56	Floodplain Riparian Woodland	V	14743.0	2292.6	16	34
794	Floodplain Riparian Woodland / Plains Grassy Woodland	E	1728.2	22.7	1.32	11
690	Floodplain Riparian Woodland/Billabong Wetland Mosaic	E	447.9	0.8	0.18	
280	Floodplain Thicket		786.9	575.1	73	75
657	Freshwater Lignum Shrubland	E	0.5			
680	Freshwater Meadow	E	1.7	1.6	93	100
175	Grassy Woodland	E	5168.0	23.0	0.45	
697	Grassy Woodland / Alluvial Terraces Herb-rich Woodland		9.3			
719	Grassy Woodland / Damp Sands Herb-rich Woodland	E	42441.9	809	1.91	7
752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Wood	E	19955.8	821.8	4	8
279	Heathland Thicket		7.2	7.2	100	100
20	Heathy Dry Forest		43.4	40.8	94	72
48	Heathy Woodland		13011.4	11870.4	91	87
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	39.6	23.8	60	79
646	Heathy Woodland / Plains Grassy Woodland		1681.7	882.8	53	62
892	Heathy Woodland/Sand Heath Mosaic	V	7.3	6.8	93	93
23	Herb-rich Foothill Forest	V	8.2			
179	Herb-rich Heathy Woodland	D	5457.4	3312.3	61	46
71	Hills Herb-rich Woodland		2374.8	1141.6	48	43
745	Hills Herb-rich Woodland / Plains Grassy Woodland	V	5686.6	882.4	16	53
773	Hills Herb-rich Woodland / Shrubby Woodland		0.1	0.1	100	100
704	Lateritic Woodland	E	3434.5	222.6	6	29
16	Lowland Forest		283.1	138.0	49	60
652	Lunette Woodland	E	20.2	0.2	0.94	2.43
132	Plains Grassland	E	25.5			
897	Plains Grassland/Plains Grassy Woodland Mosaic	E	758.6	8.9	1.18	12
125	Plains Grassy Wetland	E	2542.3	9.0	0.35	64
55	Plains Grassy Woodland	E	301464.1	17649.2	6	83
739	Plains Grassy Woodland / Plains Swampy Woodland	E	9.1			
730	Plains Grassy Woodland / Shrubby Woodland	D	439	2.5	51	2.27
647	Plains Sedgy Wetland	E	2512.5	25.2	1.0	52

DUNDAS TABLELANDS BIOREGION (CONTINUED)

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
283	Plains Sedgy Woodland		1473.2	919.5	62	91
651	Plains Swampy Woodland	E	228.5	3.1	1.36	
776	Plains Swampy Woodland / Swamp Scrub	E	1276.9	1.1	0.09	
803	Plains Woodland	E	88.1	1.6	1.85	
660	Plains Woodland / Plains Grassy Wetland	E	262.1	2.8	1.06	2.2
292	Red Gum Wetland	E	376.5	70.0	19	95
300	Reed Swamp		1.1	1.1	100	100
191	Riparian Scrub		871.0	407.9	47	25
19	Riparian Shrubland		56.8	43.3	76	26
666	Riparian Shrubland / Escarpment Shrubland / Grassy Woodland	E	81.2	24.6	30	48
641	Riparian Woodland	V	4046.6	813.0	20	40
668	Riparian Woodland / Escarpment Shrubland	E	70.0	4.3	6.15	
193	Rocky Outcrop Herbland		20.3	20.3	100	100
28	Rocky Outcrop Shrubland		151.5	107.4	71	94
73	Rocky Outcrop Shrubland / Herbland Mosaic		94.0	75.6	80	59
648	Saline Lake Verge Herbland / Sedgeland	E	377.7	1.8	0.47	65
134	Sand Forest	V	66.8	17.5	26	62
6	Sand Heathland		538.6	462.7	86	93
674	Sandy Stream Woodland	V	7236.7	778.6	11	7
195	Seasonally Inundated Shrubby Woodland		1778.9	1778.9	100	81
751	Seasonally Inundated Shrubby Woodland / Plains Sedgy Woodland	V	458.8	189.4	41	21
136	Sedge Wetland	D	229.4	75.3	33	82
281	Sedge-rich Wetland		223.0	220.8	99	61
198	Sedgy Riparian Woodland		20.0	18.7	93	91
200	Shallow Freshwater Marsh	V	1419.1	356.9	25	83
882	Shallow Sands Woodland	V	6670.5	1418.7	21	82
750	Shallow Sands Woodland / Plains Sedgy Woodland / Seasonally Inundated	V	564.0	108.8	19	79
282	Shrubby Woodland		342.9	278.4	81	79
649	Stony Knoll Shrubland		9.1			
792	Stony Rises Woodland / Stony Knoll Shrubland		2359.8	1969.8	83	63
53	Swamp Scrub	E	3752.2	395.4	11	17
8	Wet Heathland		150.1	89.4	60	80

GLENELG PLAIN BIOREGION						
EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
653	Aquatic Herbland	V	974.5	209.5	20	30
691	Aquatic Herbland / Plains Sedgy Wetland Mosaic	E	4962.3	270.6	10	80
642	Basalt Shrubby Woodland	E	15.3			
155	Bird Colony Succulent Herbland		0.6	0.6	100	100
13	Brackish Sedgeland		127.1	124.0	100	100
656	Brackish Wetland	V	196.1	190.7	100	100
858	Calcarene Dune Woodland		91.3	54.9	60	90
160	Coastal Dune Scrub		0.0	0.0		
161	Coastal Headland Scrub	D	485.8	225.1	50	70
665	Coastal Mallee Scrub		596.6	302.2	50	60
5	Coastal Sand Heathland		32.7			
68	Creekline Grassy Woodland	E	13.4			
164	Creekline Herb-rich Woodland		1.9	1.9	100	100
710	Damp Heathland		7086.3	5125.4	70	90
746	Damp Heathland / Damp Heathy Woodland	V	12448.0	4095.0	30	80
763	Damp Heathland /Damp Heathy Woodland /Seasonally Inundated Shrubby Woodland	E	1450.0	10.4		
734	Damp Heathland / Damp Heathy Woodland / Wet Heathland		934.2	580.7	60	100
762	Damp Heathland / Sand Heathland		812.6	647.7	80	100
793	Damp Heathy Woodland		2526.4	778.5	30	80
791	Damp Sands Herb-rich Complex / Plains Grassy Woodlands Complex	E	37.3			
3	Damp Sands Herb-rich Woodland	V	73091.4	17966.0	20	60
713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	E	27648.9	1895.4	10	20
881	Damp Sands Herb-rich Woodland / Heathy Woodland		5735.5	4734.6	80	90
740	Damp Sands Herb-rich Woodland / Heathy Woodland / Sand Herbland		1008.2	984.8	100	100
781	Damp Sands Herb-rich Woodland / Herb-rich Foothill Forest	V	2526.2	331.0	10	60
770	Damp Sands Herb-rich Woodland / Lowland Forest		1787.5	906.4	50	80
885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	E	1269.0	301.9	20	60
738	Damp Sands Herb-rich Woodland / Plains Grassy Woodland / Plains Sedgy Woodland		139.4	128.0	90	90
732	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	E	1339.3	61.1		10
725	Damp Sands Herb-rich Woodland / Riparian Woodland / Swamp Scrub		416.7	398.5	100	100
757	Damp Sands Herb-rich Woodland / Seasonally Inundated Shrubby Woodland		113.6	111.1	100	90
681	Damp Freshwater Marsh	D	816.6	257.1	30	80
895	Escarpment Shrubland	V	73.2	38.5	50	30
669	Escarpment Shrubland / Damp Sands Herb-rich Woodland / Riparian Woodland		275.1	272.4	100	100
675	Escarpment Shrubland / Damp Sands Herb-rich Woodland / Swamp Scrub		155.5	122.1	80	100
56	Floodplain Riparian Woodland	V	1869.0	630.8	30	60
657	Freshwater Lignum Shrubland	E	51.3	8.0	20	70
680	Freshwater Meadow	E	859.0	95.2	10	40
719	Grassy Woodland / Damp Sands Herb-rich Woodland	E	1026.1	150.1	10	40
752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Wood	E	3.0	3.0	100	100
785	Heathy Herb-rich Woodland / Damp Sands Herb-rich Woodland	E	4531.8	246.4	10	60
48	Heathy Woodland		59742.6	47330.2	80	90
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	21719.4	10390.8	50	80
786	Heathy Woodland / Heathy Herb-rich Woodland / Damp Heathy Woodland		3465.7	2632.0	80	100
737	Heathy Woodland / Limestone Woodland		3579.8	3250.4	90	100
892	Heathy Woodland / Sand Heath Mosaic	V	2298.9	351.9	20	50
23	Herb-rich Foothill Forest	V	4888.7	1501.8	30	60
179	Herb-rich Heathy Woodland	D	26333.7	12437.8	50	80
71	Hills Herb-rich Woodland		144.5	99.3	70	60
704	Lateritic Woodland	E	98.6	98.3	100	100
764	Lateritic Woodland / Heathy Woodland		29.4	27.3	90	90
133	Limestone Pomaderris Shrubland		4.4	4.4	100	100
664	Limestone Ridge Woodland		28.7	28.7	100	80
736	Limestone Rise Grassland / Limestone Rise Woodland		98.3	90.2	90	90
670	Limestone Woodland		71.9	71.9	100	100
16	Lowland Forest		12408.2	10108.0	80	90
652	Lunette Woodland	E	252.3	4.0		20
684	Permanent Saline	D	35.3	34.3	100	100
125	Plains Grassy Wetland	E	69.5	15.9	20	80

GLENELG PLAIN BIOREGION (CONTINUED)

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
55	Plains Grassy Woodland	E	41037.8	924.6		30
739	Plains Grassy Woodland / Plains Swampy Woodland	E	5387.3	139.0		20
647	Plains Sedgy Wetland	E	587.3	44.3	10	70
283	Plains Sedgy Woodland		42.6	15.7	40	100
651	Plains Swampy Woodland	E	662.3	26.1		
776	Plains Swampy Woodland / Swamp Scrub	E	952.3	50.0	10	40
292	Red Gum Wetland	E	7810.1	108.7		50
18	Riparian Forest		616.6	459.7	70	80
191	Riparian Scrub		2469.3	1878.4	80	90
641	Riparian Woodland	V	742.6	590.0	80	80
6	Sand Heathland		1385.8	1129.0	80	100
674	Sandy Stream Woodland	V	15.6	0.9	10	
195	Seasonally Inundated Shrubby Woodland		277.8	84.8	30	50
751	Seasonally Inundated Shrubby Woodland / Plains Sedgy Woodland	V	2144.5	385.5	20	60
136	Sedge Wetland	D	3385.3	1161.0	30	80
198	Sedgy Riparian Woodland		27.6	4.7	20	100
707	Sedgy Swamp Woodland	V	355.8	48.4	10	30
200	Shallow Freshwater Marsh	V	974.5	164.7	20	60
882	Shallow Sands Woodland	V	1338.0	571.3	40	70
750	Shallow Sands Woodland / Plains Sedgy Woodland / Seasonally Inundated	V	5753.1	1370.0	20	80
876	Spray-zone Coastal Shrubland		24.5	3.0	10	100
53	Swamp Scrub	E	3871.9	1046.8	30	50
733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	E	96.5	33.3	30	50
30	Wet Forest		9.7	9.7	100	100
8	Wet Heathland		4587.2	3868.0	80	100
645	Wet Heathland / Heathy Woodland		5299.0	3630.7	70	90

VICTORIAN VOLCANIC PLAIN BIOREGION

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
67	Alluvial Terraces Herb-rich Woodland	D	195.5	3.4		30
152	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex	E	1015.3	7.5		70
653	Aquatic Herbland	V	49.1			
691	Aquatic Herbland / Plains Sedgy Wetland Mosaic	E	13923.1	53.6		20
705	Basalt Creekline Shrubby Woodland	E	3996.8	0.7		
642	Basalt Shrubby Woodland	E	70591.8	71.6		10
742	Basalt Shrubby Woodland / Herb-rich Foothill Forest		1236.9			
643	Brackish Drainage Line Herbland /Sedgeland	E	572.0	1.5		
636	Brackish Lake		1114.0	2.9		80
656	Brackish Wetland	V	789.0	4.0		
644	Cinder Cone Woodland	D	487.4	220.8	50	100
160	Coastal Dune Scrub		0.0			
161	Coastal Headland Scrub	D	17.2			
68	Creekline Grassy Woodland	E	21527.8	138.6		20
654	Creekline Tussock Grassland	E	2532.1	5.3		
165	Damp Heath Scrub		39.9			
710	Damp Heathland		117.5	0.4		
746	Damp Heathland / Damp Heathy Woodland	V	282.9	28.2	10	40
793	Damp Heathy Woodland		67.5	54.2	80	90
791	Damp Sands Herb-rich Complex / Plains Grassy Woodlands Complex	E	98.3			
3	Damp Sands Herb-rich Woodland	V	4496.1	1500.2	30	70
713	Damp Sands Herb-rich Woodland / Damp Heathland / Damp Heathy Woodland	E	1353.9	112.7	10	50
881	Damp Sands Herb-rich Woodland / Heathy Woodland		11.2	4.4	40	10
781	Damp Sands Herb-rich Woodland / Herb-rich Foothill Forest	V	34.2	1.8	10	
770	Damp Sands Herb-rich Woodland / Lowland Forest		48.1	25.9	50	80
885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	E	12932.0	2.6		10
732	Damp Sands Herb-rich Woodland / Plains Swampy Woodland / Aquatic Herbland	E	4.7			
672	Damp Sands Herb-rich Woodland / Shrubby Woodland		0.6	0.6	100	100
681	Damp Freshwater Marsh	D	1684.3	466.5	30	80
895	Escarpment Shrubland	V	9.3			
662	Escarpment Shrubland / Grassy Woodland / Riparian Woodland		50.2			
10	Estuarine Wetland	V	42.2			
56	Floodplain Riparian Woodland	V	6734.2	160.7		20
794	Floodplain Riparian Woodland / Plains Grassy Woodland	D	1168.3	37.0		10
690	Floodplain Riparian Woodland / Billabong Wetland Mosaic	E	1851.5	1.0		
718	Freshwater Lake Mosaic	D	379.6	13.0		20
657	Freshwater Lignum Shrubland	E	25.9			
680	Freshwater Meadow	E	296.0	21.2	10	80
72	Granitic Hills Woodland		1148.6	7.8		
22	Grassy Dry Forest		2816.9	50.9		
320	Grassy Dry Forest / Heathy Dry Forest Complex		4.4			
175	Grassy Woodland		8632.9	52.7		
719	Grassy Woodland / Damp Sands Herb-rich Woodland	E	406.6			40
752	Grassy Woodland / Hills Herb-rich Woodland / Damp Sands Herb-rich Wood	E	70.1	0.2		
896	Grassy Woodland/Heathy Dry Forest Complex	E	966.4	17.9		80
124	Grey Clay Drainage Line Complex	E	1664.9	2.5		10
20	Heathy Dry Forest		2090.3	145.8	10	
48	Heathy Woodland		894.9	783.7	90	90
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	251.0	192.5	80	100
646	Heathy Woodland / Plains Grassy Woodland		4.7	4.7	100	100
23	Herb-rich Foothill Forest	V	73481.6	15550.4	20	50
71	Hills Herb-rich Woodland		221.1	6.4		
655	Lignum Cane Grass Swamp	E	413.9	1.5		
16	Lowland Forest		32783.9	29411.7	90	90
652	Lunette Woodland	E	658.6	13.1		
684	Permanent Saline	D	17.1			
132	Plains Grassland	E	53944.6	183.6		

VICTORIAN VOLCANIC PLAIN BIOREGION (CONTINUED)

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
715	Plains Grassland / Stony Knoll Shrubland	E	853.0	0.5		
897	Plains Grassland/Plains Grassy Woodland Mosaic	E	300080.4	1603.4		
125	Plains Grassy Wetland	E	33983.4	106.2		
55	Plains Grassy Woodland	E	365036.8	2774.2		10
716	Plains Grassy Woodland / Stony Knoll Shrubland	E	1628.7	6.3		20
647	Plains Sedgy Wetland	E	259.8	0.2		
283	Plains Sedgy Woodland		259.8	0.2		
651	Plains Swampy Woodland	E	14847.8	50.4		10
776	Plains Swampy Woodland / Swamp Scrub	E	434.6	25.8	10	40
660	Plains Woodland/Plains Grassy Wetland	E	44.6	5.2	10	20
292	Red Gum Wetland	E	2.6	2.6	100	
300	Reed Swamp		32.3	17.8	60	70
18	Riparian Forest		370.9	175.9	50	60
191	Riparian Scrub		107.1	85.9	80	80
666	Riparian Shrubland / Escarpment Shrubland / Grassy Woodland	E	2589.9	38.0		
641	Riparian Woodland	V	9457.7	413.2		20
668	Riparian Woodland/Escarpment Shrubland	E	492.2	51.5	10	50
73	Rocky Outcrop Shrubland/Herbland Mosaic		14.6			
648	Saline Lake Verge Herbland/Sedgeland	E	2347.1	39.1		10
134	Sand Forest	V	503.2	39.1		10
6	Sand Heathland		23.2	22.4	100	100
894	Scoria Cone Woodland	E	6136.2	270.1		40
195	Seasonally Inundated Shrubby Woodland		448.4	6.6		60
136	Sedge Wetland	D	19.6	18.7	100	100
198	Sedgy Riparian Woodland		521.9	362.1	70	90
200	Shallow Freshwater Marsh	V	761.3	62.4	10	60
203	Stony Rises Herb-rich Woodland	V	45377.0	13106.1	30	70
649	Stony Knoll Shrubland		166.1			
744	Stony Knoll Shrubland / Basalt Shrubby Woodland		222.6			
714	Stony Knoll Shrubland / Plains Grassy Woodland / Plains Grassy Wetland	E	57708.3	97.4		10
792	Stony Rises Woodland / Stony Knoll Shrubland		1227.0	46.7		10
53	Swamp Scrub	E	10857.6	348.0		40
720	Swamp Scrub / Aquatic Herbland	E	133.3	20.3	20	90
733	Swamp Scrub / Plains Sedgy Wetland / Aquatic Herbland	E	8712.2	35.8		20
83	Swampy Riparian Woodland	E	1921.6	8.5		20
47	Valley Grassy Forest		3.0	1.4	50	60
796	Valley Grassy Forest / Lateritic Woodland		8.1	0.8	10	20
8	Wet Heathland		538.3	525.1	100	90
645	Wet Heathland / Heathy Woodland		281.8			

GREATER GRAMPIANS BIOREGION

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
67	Alluvial Terraces Herb-rich Woodland	D	1076.5	941.1	90	90
152	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex	E	4.7	4.7	100	100
653	Aquatic Herbland	V	72.0			
691	Aquatic Herbland / Plains Sedgy Wetland Mosaic	E	4.3			
642	Basalt Shrubby Woodland	E	2.4			
284	Claypan Ephemeral Wetland		2.2	2.2	100	100
68	Creekline Grassy Woodland	E	566.0	65.2	10	20
29	Damp Forest		311.4	311.4	100	100
165	Damp Heath Scrub		1250.1	1250.1	100	100
710	Damp Heathland		44.7	40.5	90	70
762	Damp Heathland / Sand Heathland		2.7	2.1	80	0
3	Damp Sands Herb-rich Woodland	V	6922.5	4602.3	70	80
881	Damp Sands Herb-rich Woodland / Heathy Woodland		246.8	163.1	70	70
885	Damp Sands Herb-rich Woodland / Plains Grassy Woodland	E	509.3	97.4	20	0
672	Damp Sands Herb-rich Woodland / Shrubby Woodland		539.8	361.5	70	100
285	Dry Creekline Woodland		99.7	79.0	80	80
280	Floodplain Thicket		2566.4	2504.6	100	100
775	Floodplain Thicket / Shrubby Woodland		4.1	3.5	90	0
22	Grassy Dry Forest	V	835.0	690.5	80	60
174	Grassy Dry Forest / Rocky Outcrop Shrubland / Herbland Mosaic	V	119.0	31.2	30	80
175	Grassy Woodland	E	0.2	0	10	100
279	Heathland Thicket		706.8	716.3	100	100
20	Heathy Dry Forest		19302.4	19240.9	100	100
765	Heathy Dry Forest		40.2	30.2	80	
771	Heathy Dry Forest / Plains Grassy Woodland		5.2	3.2	60	0
48	Heathy Woodland		38460.8	37487.7	100	90
650	Heathy Woodland / Damp Heathy Woodland / Damp Heathland	D	8.2	8.2	100	100
646	Heathy Woodland / Plains Grassy Woodland	C	110.1	107.7	100	100
481	Heathy Woodland / Heathy Dry Forest Complex		1198.8	1198.8	100	100
892	Heathy Woodland / Sand Heath Mosaic	V	228.4	216.2	90	90
23	Herb-rich Foothill Forest	V	330.7	312.3	90	90
278	Herb-rich Heathy Forest		64.2	64.2	100	100
71	Hills Herb-rich Woodland		7652.4	5918.7	80	70
761	Hills Herb-rich Woodland / Lateritic Woodland Mosaic	E	150.8	1.4	0	
745	Hills Herb-rich Woodland / Plains Grassy Woodland	V	187.9	7.4	0	
773	Hills Herb-rich Woodland / Shrubby Woodland		45.9	45.9	100	90
759	Hills Herb-rich Woodland / Valley Grassy Forest		140.8	118.2	80	60
401	Hills Herb-rich Woodland / Heathy Woodland Complex		698.0	698.0	100	100
704	Lateritic Woodland	E	842.3	9.7	0	
760	Lateritic Woodland / Heathy Dry Forest		115.5	94.5	80	0
764	Lateritic Woodland / Heathy Woodland		53.5	36.0	70	0
16	Lowland Forest		5833.2	5833.2	100	100
795	Lowland Forest / Damp Sands Herb-rich Woodland Mosaic	E	5.6	5.6	100	100
382	Lowland Forest / Heathy Dry Forest Complex		603.2	603.2	100	100
698	Lowland Forest / Heathy Woodland Mosaic		65.6	65.6	100	100
383	Lowland Forest / Valley Grassy Forest Complex		1257.4	1089.4	90	90
37	Montane Grassy Woodland		3.0	3.0	100	100
192	Montane Rocky Shrubland		1392.6	1392.6	100	100
184	Montane Wet Heathland		54.1	54.1	100	100
125	Plains Grassy Wetland	E	18.9			
55	Plains Grassy Woodland	E	9934.9	1478.7	10	
730	Plains Grassy Woodland / Shrubby Woodland	D	12.9	5.0	40	70
647	Plains Sedgy Wetland	E	13.4	2.2	20	0
283	Plains Sedgy Woodland		530.1	324.8	60	40
660	Plains Woodland / Plains Grassy Wetland	E	254.3	37.1	10	
292	Red Gum Wetland	E	28.8	28.8	100	30
300	Reed Swamp		45.8	33.1	70	40

GREATER GRAMPIANS BIOREGION (CONTINUED)

EVC No.	Description	Conservation Status	Pre-1750 area (ha)	Amount left (ha)	Percentage of original left	Percentage left on private land
18	Riparian Forest		118.0	118.0	100	100
191	Riparian Scrub		1775.8	1748.7	100	100
17	Riparian Scrub Complex		357.5	357.5	100	100
19	Riparian Shrubland		19.1	19.1	100	100
641	Riparian Woodland	V	17.4	6.7	40	70
193	Rocky Outcrop Herbland		5202.8	5202.8	100	100
28	Rocky Outcrop Shrubland		6026.8	6012.1	100	100
753	Rocky Outcrop Shrubland / Herbland /Broombush Mallee		56.6	46.0	80	0
726	Rocky Outcrop Shrubland / Herbland /Heathy Woodland		4.3	4.1	90	0
758	Rocky Outcrop Shrubland / Herbland / Hills Herb-rich Woodland		24.9	16.4	70	0
73	Rocky Outcrop Shrubland / Herbland Mosaic		4867.1	4848.0	100	100
134	Sand Forest	V	37.4	37.4	100	100
6	Sand Heathland		9792.3	9473.7	100	100
195	Seasonally Inundated Shrubby Woodland		3825.7	2049.9	50	90
136	Sedge Wetland	D	96.4	29.5	30	70
281	Sedge-rich Wetland		215.2	215.2	100	100
198	Sedgy Riparian Woodland		1412.5	1410.6	100	100
683	Semi-permanent Saline	E	2.1			
200	Shallow Freshwater Marsh	V	515.0	438.9	90	100
882	Shallow Sands Woodland	V	9.8			
750	Shallow Sands Woodland / Plains Sedgy Woodland / Seasonally Inundated	V	6.6	6.0	90	100
45	Shrubby Foothill Forest	V	3556.3	3556.3	100	100
282	Shrubby Woodland		6615.4	5617.1	80	90
766	Shrubby Woodland / Lateritic Woodland		14.8	12.9	90	0
799	Shrubby Woodland / Riparian Scrub Mosaic		28.9	28.9	100	100
203	Stony Rises Herb-rich Woodland	V	0.5			
53	Swamp Scrub	E	5.9			
47	Valley Grassy Forest		3988.3	3149.8	80	70
796	Valley Grassy Forest		29.8	28.0	90	0
30	Wet Forest		138.4	138.4	100	100
8	Wet Heathland		1001.0	1001.0	100	90
768	Wet Heathland / Riparian Scrub		67.0	50.8	80	100