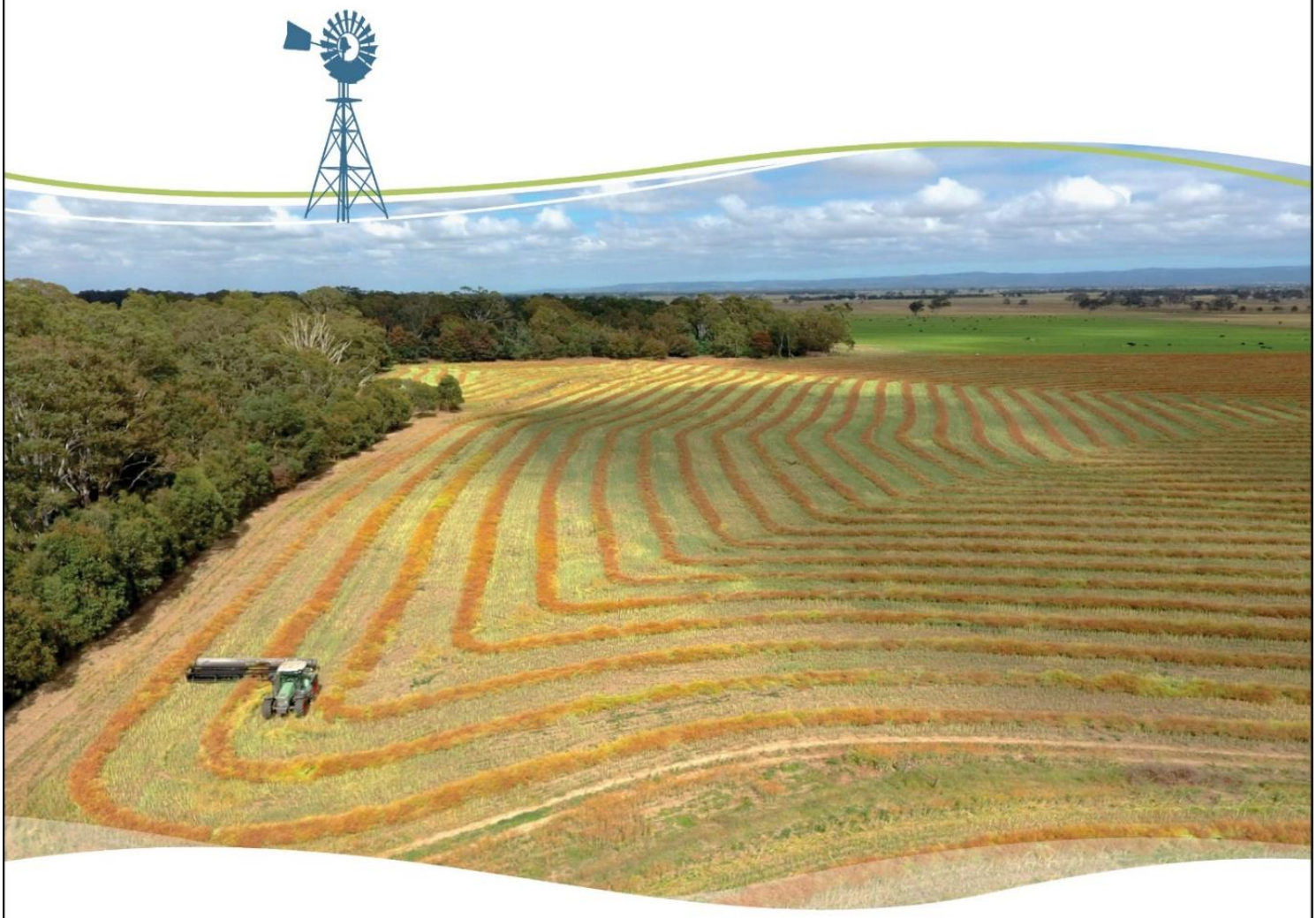
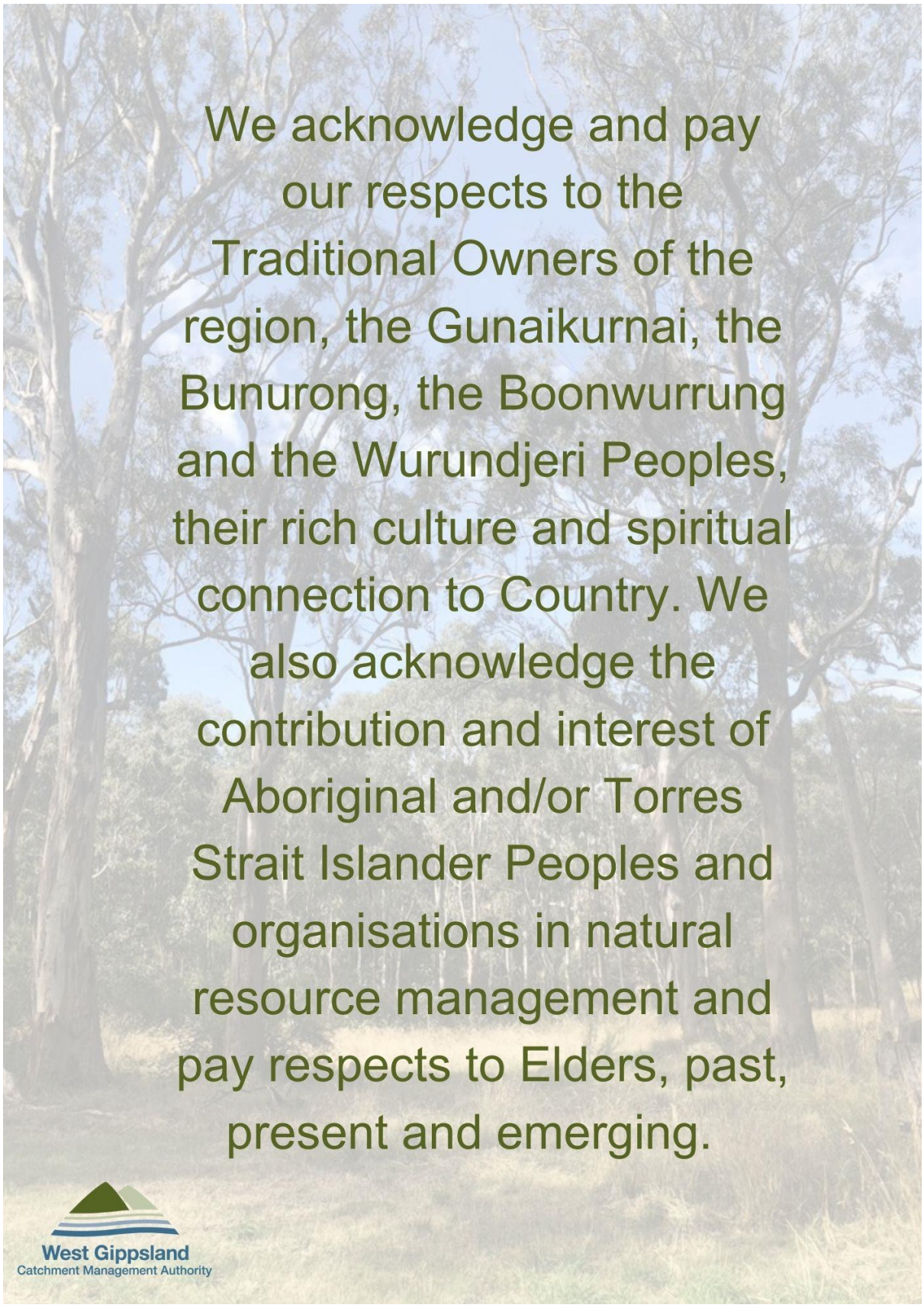
WEST GIPPSLAND CATCHMENT MANAGEMENT AUTHORITY



Regional NRM Plan: Regional Land Partnerships Program

2022

West Gippsland
Catchment Management Authority


We acknowledge and pay our respects to the Traditional Owners of the region, the Gunaikurnai, the Bunurong, the Boonwurrung and the Wurundjeri Peoples, their rich culture and spiritual connection to Country. We also acknowledge the contribution and interest of Aboriginal and/or Torres Strait Islander Peoples and organisations in natural resource management and pay respects to Elders, past, present and emerging.

Contents

1. Introduction

This NRM Plan is an addendum to the West Gippsland Regional Catchment Strategy 2021-27 (RCS) https://westgippsland.rcs.vic.gov.au/. The RCS provides the overarching strategic direction for land, water, and biodiversity assets in the West Gippsland Catchment Management Authority region. The NRM Plan complements the RCS by:

- Describing the regional context and stakeholder aspirations as they relate to the Australian Government's priorities and investment programs.
- Identifying regional priorities aligned to the Regional Land Partnership investment priorities for Ramsar sites, threatened species, threatened ecological communities and sustainable agriculture; and
- Identifying project concepts and actions that will contribute to the 5-year Outcomes and investment priorities of the Australian Government's Regional Land Partnerships Program.

Regional Land Partnerships Program

The Regional Land Partnerships Program (RLP) is the largest component of Phase 2 of the Australian Government's National Landcare Program from July 2017 to June 2023. Projects delivered through RLP contribute to four environment and two sustainable agriculture outcomes (see Table 1 and Appendix 1). The environment outcomes focus on Ramsar wetlands, threatened species, World Heritage, and threatened ecological communities. Sustainable agriculture outcomes focus on improving land management practices and increasing the capacity of farms to adapt to climate change and evolving market demands.

The West Gippsland Catchment Management Authority (WGCMA) is the service provider for the West Gippsland Management Unit. As part of its agreement with the Government, the WGCMA is required to maintain the currency of natural resource management planning and the prioritisation of management actions. This involves ensuring that the NRM Plan is consistent with a set of specific Australian Government requirements.

Regional Context

The West Gippsland Catchment Management Authority (CMA) region extends from Warragul and San Remo in the west to the Gippsland Lakes in the east, the Great Dividing Range in the north to Wilsons Promontory in the south (Figure 1). The region also extends three nautical miles into marine waters, marking the State of Victoria's jurisdictional limit.

The region covers an area of 19,639 square kilometres (including the marine environment) and accounts for almost eight percent of Victoria's total land area. The region has a population of more than 200,000 people. Unlike regions with a single major city, the West Gippsland population is dispersed between several regional centres in the vicinity of the Princes, South Gippsland, Strzelecki, Hyland and Bass highways. The region includes parts of seven municipalities: all of Latrobe City; substantial parts of Wellington, Baw Baw and South Gippsland shires; a well-populated portion of Bass Coast shire; and sparsely populated areas of Mansfield and East Gippsland shires.

The West Gippsland CMA region is expected to experience population growth of approximately 20% by 2036, particularly the western part of the region with its proximity to the peri-urban fringe of Melbourne. The population is also expected to continue to age and decline in most rural areas of the catchment.

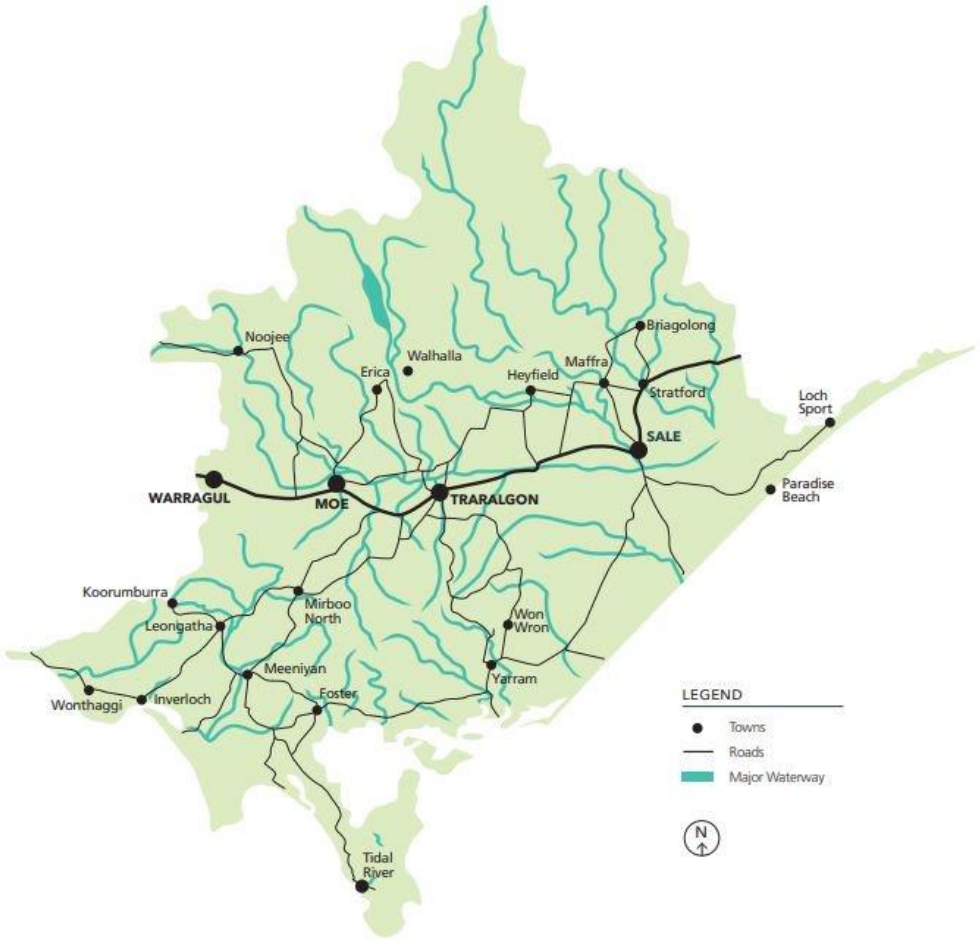


Figure 1. West Gippsland Catchment Management Authority Region Map

The West Gippsland region includes the traditional lands of the Gunaikurnai, Bunurong, Boonwurrung and Wurundjeri Peoples.

Gunaikurnai, Bunurong and Wurundjeri have legislated authority to protect and manage their cultural heritage with Registered Aboriginal Party (RAP) status. Gunaikurnai also hold Native Title and a Traditional Owner Land Management agreement, with legislated authority for the protection and management of their cultural heritage.

There are also some parts of the region where there are multiple interested Traditional Owner groups, including areas where there has not been a determination.

Figure 2 provides an overview of the Recognised Aboriginal Party (RAP) boundaries in West Gippsland.

Gunaikurnai country extends from the coast near Wilsons Promontory, up to Mount Baw Baw and across a large part of East Gippsland. Clans of the Gunaikurnai include the Bratauolung in South Gippsland, the Brabiralung and Braiakaulung in Central Gippsland, and the Tatungalung around the Gippsland Lakes.

Bunurong country extends to parts of the south and west of the region. Parts of the north-west of the region are Wurundjeri country.

Sections 2 and 4 provide further information on Traditional Owners in the West Gippsland region.

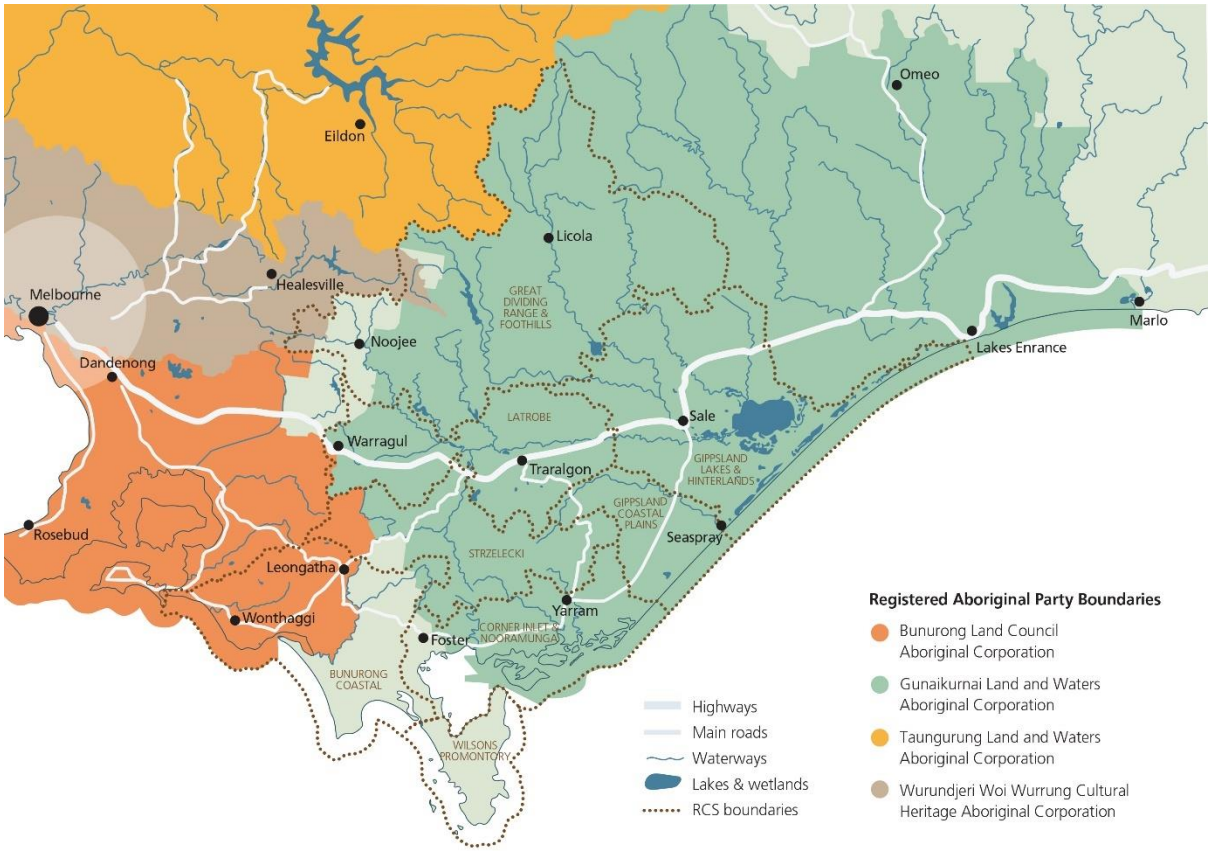


Figure 2. Map of the West Gippsland CMA region with Recognised Aboriginal Party Boundaries (map current as of December 2021)

West Gippsland is rich in natural resources and supplies water, electricity, gas, oil, saw logs, pulpwood, agricultural products, and tourism opportunities to people within and beyond the region's boundaries. The estimated Gross Regional Product for the region is more than $2.5 billion. The Total Regional Output, including production of intermediate goods and services, is estimated at over $9 billion.

Major sectors, as defined by the Australian Bureau of Statistics, include manufacturing, electricity, gas, water, agriculture, forestry, fishing, property and business services. The agriculture, forestry and fishing sectors and the electricity, gas and water sectors are important employers in the region.

Dairying accounts for half of the agriculture production and beef another quarter. Wool, lamb, horticultural produce, and various other enterprises make up the remainder. The region provides over 90% of the state's electricity and gas, 27% of Melbourne's water, and has two-thirds of Australia's total oil production. Private plantation, public forestry and tourism are also significant industries.

A major long-term industry transition is also underway in the Latrobe Valley, with the closure of the Hazelwood mine and power plant and the planned closure of the Yallourn in 2028 and Loy Yang in 2047. This transition is expected to have a significant impact on the local economy affecting local jobs and businesses.

NRM Planning in the West Gippsland Region

Regional NRM plans in Victoria are legislated under the *Catchment and Land Protection Act 1994* (CaLP Act) as Regional Catchment Strategies. The *West Gippsland Regional Catchment Strategy* (RCS) is prepared by the West Gippsland Catchment Management Authority (WGCMA), on behalf of the region. It is the overarching strategy for all involved in land, water and biodiversity management. The RCS provides a framework to coordinate effort, identify strategic management directions, and describe regional outcomes.

Development of the West Gippsland RCS for 2021-27 was a collaborative process undertaken between 2020 and 20221 involving government and non-government organisations, Traditional Owners, industry and the broader community.

The *West Gippsland Regional Catchment Strategy* provides a vision for integrated catchment management in the West Gippsland region. It is a blueprint for catchment health and stewardship, building on the achievements of three previous strategies.

The renewal of the RCS looks forward to the next six years and beyond, considering existing and emerging challenges and opportunities.

The vision for the West Gippsland RCS is

"Catchment Health – Gippsland's Wealth"

The people of Gippsland recognise the importance of our ecosystems, natural resource base, unique natural features and landscapes found within the region.

Our inspired, knowledgeable, capable and resilient communities will ensure these continue to underpin the environmental, social, cultural and economic wealth of the region.

Implementation of the RCS relies on project-based funding and the commitment of multiple agencies and partners. It works exclusively at a strategic level and is completed by more detailed action plans as illustrated in the strategic planning and delivery framework (Figure 3). The framework shows how the RCS links to and guides sub-strategies and action plans and planning by local area forums to deliver projects and activities. These

projects result in environmental outcomes as measured through the RCS outcomes framework and more detailed evaluation processes. Adaptive management and continuous improvement help to ensure partners respond to emerging issues and longer-term changes such as population growth and climate change.

The RCS includes information at the regional scale for the RCS themes: Biodiversity, Coast and Marine, Community, Land, Traditional Owners and Water with an overarching theme of Climate Change. The RCS also describes a set of Local Areas that cover the whole region. The purpose of Local Area content in the RCS is to reflect the local communities' priorities and interests and to show how agencies and communities work together to deliver integrated catchment management at the local scale. The This Strategy section of the RCS provides further detail on themes, local areas and the RCS outcomes.

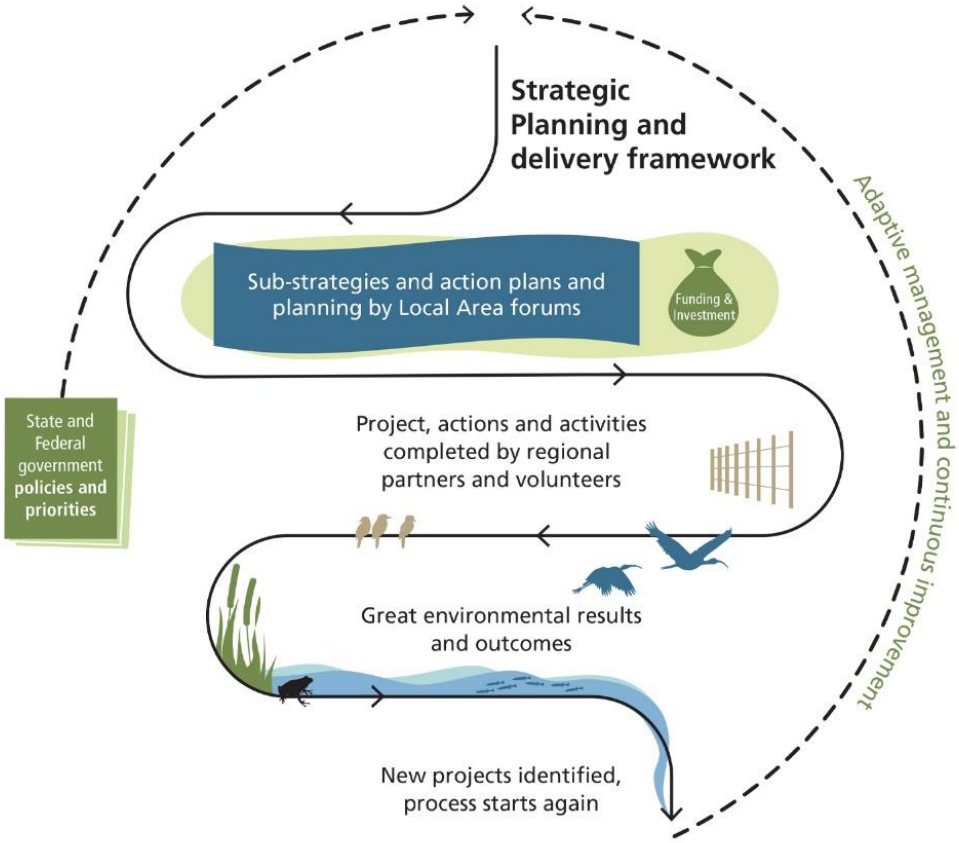


Figure 3. West Gippsland Regional Planning and Delivery Framework

Key sub-strategies and planning documents linked to the RCS include:

- *West Gippsland NRM Plan* (this document)
- *West Gippsland Regional NRM Climate Change Strategy*
- *West Gippsland Waterway Strategy*
- *West Gippsland Floodplain Management Strategy*
- *Lake Wellington Land and Water Management Plan*
- *Gippsland Lakes Ramsar Site Management Plan*
- *Corner Inlet Ramsar Site Management Plan*

- *Local Government Planning Schemes*

There are also a number of supporting strategies under the auspice of partner agencies – further details are provided in the Policy section of the RCS.

The West Gippsland RCS is an online strategy and can be accessed via this link. Additional links to relevant sections of the RCS are provided throughout this NRM Plan.

RLP 5-Year Outcomes and Investment Priorities

The Regional Land Partnerships Program includes six long-term and associated 5-year Outcomes. Five outcomes are relevant to the West Gippsland region, as documented below and in Table 1. Further details on projects funded under RLP for 2018-23 are detailed in Table 2.

Environment Outcomes:

Outcome 1: By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.

Outcome 2: By 2023, the trajectory of species targeted under the Threatened Species Strategy, and other *Environment Protection and Biodiversity Conservation Act* (1999) (the EPBC Act) priority species, is stabilised or improved.

Outcome 4: By 2023, the implementation of priority actions is leading to an improvement in the condition of EPBC Act listed Threatened Ecological Communities.

Agriculture Outcomes

Outcome 5: By 2023, there will be increased awareness and adoption of land management practices that improve and protect the condition of soil, biodiversity and vegetation.

Outcome 6: By 2023, there is an increase in the capacity of agriculture systems to adapt to significant changes in climate and market demands for information on provenance and sustainable production.

Table 1: Regional Land Partnerships Program Outcomes

5-year Outcome		Investment Priorities within Management Unit (Bold text indicates a Primary Outcome for a currently funded project)
1	By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions	Ramsar Sites within Management Unit • **Corner Inlet** • Gippsland Lakes
2	By 2023, the trajectory of species targeted under the Threatened Species Strategy, and other *Environment Protection and Biodiversity Conservation Act 1999* priority species, is stabilised or improved	In total 96 EPBC Act listed threatened species were identified in the Management Unit (listed in full in Appendix 1) including the following 11 priority species under the Australian Government's Threatened Species Strategy 2021-2031 (TSS). • Australasian Bittern (Bird) • Eastern Curlew (Bird) • Giant Gippsland Earthworm (Invertebrate) • Growling Grass Frog (Amphibian) • Hooded Plover (eastern) (Bird) • Leadbeater's Possum (Mammal) • New Holland Mouse (Mammal) • Orange-bellied Parrot (Bird) • Plains-wanderer (Bird) • Regent Honeyeater (Bird) • Swift Parrot (Bird)

5-year Outcome		Investment Priorities within Management Unit (Bold text indicates a Primary Outcome for a currently funded project)
4	By 2023, the implementation of priority actions is leading to an improvement in the condition of EPBC Act listed Threatened Ecological Communities	Threatened Ecological Communities in Management Unit • **Alpine Sphagnum Bogs and Associated Fens** • Gippsland Red Gum (*Eucalyptus tereticornis subsp. mediana*) Grassy Woodland and Associated Native Grassland • Natural Damp Grassland of the Victorian Coastal Plains • Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains • Subtropical and Temperate Coastal Saltmarsh • Giant Kelp Marine Forests of South East Australia
5	By 2023, there is an increase in the awareness and adoption of land management practices that improve and protect the condition of soil, biodiversity and vegetation	High priorities in Management Unit • **Soil acidification** • Soil carbon • Hillslope erosion • Vegetation and biodiversity on farms
6	By 2023, there is an increase in the capacity of agriculture systems to adapt to significant changes in climate and market demands for information on provenance and sustainable production	• Agricultural systems adaptation to significant change

Current RLP projects

The West Gippsland CMA is currently funded to deliver three projects (Table 2):

Corner Inlet Connections (Outcome 1- Ramsar wetlands),

Cross-Regional Victorian Alpine Peatland Protection Program (Outcome 4 – EPBC Act listed Threatened Ecological Communities) and

Sustainable Agriculture in West Gippsland – implementation (Outcome 5 – Land management practices)

Core Services are delivered by the WGCMA and support project implementation. Core services include:

- Maintaining the currency of natural resource management planning and the prioritisation of management actions (this NRM Plan).
- Supporting the community, including Landcare, Indigenous communities, and industry to participate in the delivery of projects.
- Undertaking communications and engagement.
- Coordinating the delivery of projects and monitoring, evaluation, reporting and improvement.
- Delivery of Regional Agriculture Landcare Facilitator services.
- Development of project designs and project proposals; and
- Ensuring a productive, cooperative and ongoing relationship with the Departments.

Table 2. 2018-2023 RLP projects in the West Gippsland Management Unit

Projects:	RLP Primary Outcome	RLP Secondary Outcome	Project Description Summary
Corner Inlet Connections	**Outcome 1**: By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar Sites, through the implementation of priority actions.	**Outcome 2:** By 2023, the trajectory of species targeted under the Threatened Species Strategy, and other EPBC Act priority species, is stabilised or improved. **Outcome 4.** By 2023, the implementation of priority actions is leading to an improvement in the condition of EPBC Act listed Threatened Ecological Communities.	This project addresses the key threatening processes identified in the Corner Inlet Ramsar Site Management Plan. The project will: • Improve conditions for seagrass and inter-tidal habitat by reducing sediment and nutrient in-flows by undertaking catchment remediation work, • Protect and enhance the saltmarsh communities through. – Control of the high threat weed Spartina – Weed control, stock exclusion fencing and surveillance for habitat transforming weeds, preventing their establishment – Negotiating with landholders to identify opportunities to permanently protect Saltmarsh communities • Maintain the fox free status of Box Bank, Clonmel and Dream Islands and manage fox numbers on Snake Island to reduce the threat to shorebirds like the Hooded Plover. • Engage and involve the community, including Traditional Owners, in actions to restore and reduce threats to the ecological character of the Ramsar site.
Cross Regional Victorian Alpine Peatland Protection Program	**Outcome 4**: By 2023, the implementation of priority actions is leading to an improvement in the condition of EPBC Act listed Threatened Ecological Communities.	**Outcome 2.** By 2023, the trajectory of species targeted under the Threatened Species Strategy, and other EPBC Act priority species, is stabilised or improved	This project aims to improve the condition of and reduce threats to the EPBC listed Alpine Sphagnum Bog and Fens Ecological Community across the Victorian Alpine area. The project is delivered in collaboration with two associated projects RLP-MU24-P4 (EGCMA) and RLP-MU29-P2 (NECMA) and Parks Victoria, overseen by the Victorian Alpine Peatland Protection Program Coordinating Committee (VAPPCC). The three projects continue implementation of the Victorian Alpine Peatlands Spatial Action Plan (2015) commenced under NLP1 and has used INFFER to refine priorities for delivery of works from 2019-20 through to 2022-23. This project will implement surveillance and treatment activities to manage the impacts of pest plants (primarily willows, soft rush) and pest animals (deer, horses) on alpine peatlands as well as control inappropriate foot and vehicle access through the installation of barriers, drainage repairs, culvert installation, revegetation, and track closures or re-alignment.

Projects:	RLP Primary Outcome	RLP Secondary Outcome	Project Description Summary
Sustainable Agriculture in West Gippsland – implementation	**Outcome 5**: By 2023, there will be increased awareness and adoption of land management practices that improve and protect the condition of soil, biodiversity and vegetation	**Outcome 5**: By 2023, there will be increased awareness and adoption of land management practices that improve and protect the condition of soil, biodiversity and vegetation	This project addresses soil acidification and provides opportunity for increasing soil organic carbon in the Corner Inlet catchment. The project will engage and support 30 dairy farmers in the Corner Inlet catchment to analyse the nutrient and pH levels in their soils and prepare farm specific effluent management plans. This will guide the provision of incentives to 30 farmers to implement key recommendations, improving farm management practices. A field day/workshop will exhibit examples of best management practice regarding effluent management on farm and will guide farmers through interpreting soil tests and raise awareness of best practice effluent management. A follow up field day/workshop will be coordinated to allow farmers to view the many completed projects to share their learnings and the benefits of being involved in the program. This event will be partnered with Gipps Dairy and will be well promoted and open to all dairy farmers in the region.

2. Stakeholder aspirations

Development of the NRM Plan has drawn on the engagement activities undertaken through the renewal of the West Gippsland RCS. RCS renewal was a collaboration between the WGCMA, Traditional Owners, partner agencies, community groups and individuals. A governance group with representatives from agencies and Traditional Owners oversaw the development of the strategy. Engagement processes included an initial review and planning phase, including a review of RCS3, extensive community and partner consultation at the local area scale, targeted discussions with partners for theme-based planning, and a public consultation phase. Further details on each stage of consultation and engagement are outlined in the Strategy Development section of the RCS, with a summary of the community and Traditional Owner aspirations included below.

Community aspirations

The aspirations of regional stakeholders were identified at the local area scale within the RCS, with analysis to identify cross-cutting topics at the regional scale.

Throughout the consultation, there was strong feedback around the need to continue to address core NRM program areas of waterways, biodiversity and native vegetation, invasive plants and animals, improving agricultural practices and valuing agriculture in the landscape.

The consultation processes also highlighted a range of emerging themes that the RCS has not traditionally addressed including:

- population pressures and urbanisation,
- concerns around renewable energy projects and extractive industries,
- managing/improving recreation facilities and access, and
- valuing Traditional Owner input and incorporating traditional ecological knowledge into NRM programs.

The themes arising from the consultation align well with the RLP 5-year Outcomes; however, it is acknowledged that the investment scope of RLP may not fully support the challenges and opportunities identified by the community. This includes preventing the loss of nutrients to waterways, protection of species listed under Victorian legislation but not the EPBC act and matters that fall within the state's jurisdiction with respect to planning and regulation.

An overarching theme from consultation with the region's stakeholders was the need to continue and strengthen collaboration between agencies and community and explore new partnerships for local projects.

Regional stakeholders expressed significant concern about the impacts of climate change on biodiversity, water resources, agricultural viability and regional communities. There was a sense from some members of the community that it is time to get on with taking action to adapt to a changing climate

Table 3 shows how the aspirations of regional stakeholders align with the RLP 5-year Outcomes. More details on stakeholder aspirations at the Local Area scale can be found in the West Gippsland RCS.

Table 3. Snapshot of regional aspirations for NRM (modified from WGCMA, 2021)

Community aspirations for NRM	Alignment with RLP 5-year Outcomes				
	1. Ramsar sites	2. Threatened species	4.. Threatened Ecological Communities	5.Land management practices	6. Agricultural systems adaptation
Protection of the region's unique biodiversity including threatened species and ecological communities	P	P	P	P	
Protection and rehabilitation of the region's waterways, wetlands and estuaries	P	P		P	
Protecting and establishing vegetation linkages across the landscape		P	P	P	
Addressing invasive plant and animal threats	P	P	P		
Collaboration and support for community and industry participation in NRM	P	P	P	P	P
Recognise and value Traditional Owner input and incorporate traditional ecological knowledge into NRM	P	P	P		
Improved agricultural practices and valuing agriculture				P	P

Traditional Owner aspirations

Traditional Owner groups have a deep obligation to care for and heal Country, and have traditional ecological knowledge and customs built over thousands of years of practice. These practices are critical in helping Traditional Owners to remain connected with Country and be empowered to care for Country.

West Gippsland is a complex region, with a diverse array of high value environments and landscapes, from rare alpine peatland ecosystems to complex coastal wetland and estuarine systems that are internationally recognised for their waterbird habitat values. These natural landscapes hold special significance for the region's Traditional Owners.

Traditional Owners through their corporations will ensure their aspirations will play an increasing role in how these landscapes are managed into the future. This will be facilitated by the modernisation of government legislation and policy toward Traditional Owner inclusion now and in the coming years.

Two of the region's Recognised Aboriginal Parties, GlaWAC and BLCAC have contributed information on their values and aspirations as they relate to the RCS and NRM Plan and this is set out in the Traditional Owners section of the RCS.

In 2020, the Department of Environment, Land, Water and Planning (DELWP) and Parks Victoria funded the development of the Victorian Traditional Owner *Cultural Landscapes Strategy (2021)* to support Traditional Owner rights and interests in managing Country (VTOC, 2021).

The *Cultural Landscapes Strategy* describes Countries as "a mosaic of cultural elements and obligations embedded within a natural context." The *Cultural Landscapes Strategy* also states that "Traditional Owners are at different stages in their journey towards healing, nation building and sovereignty". The aspirations of Traditional Owners for healthy Country have synergies with the priorities expressed through the RLP 5-year outcomes, however, the WGCMA respects the right for Traditional Owners to speak for Country and advocate for the outcomes they seek for Country at a whole of landscape scale. Development of the NRM Plan therefore has considered the general aspirations of Traditional Owners as expressed through the RCS. In addition, where the interests of Traditional Owner groups are understood to align with regional priorities identified for the NRM Plan this has been identified (as identified in Section 5 and 6). Participation by Traditional Owners in the planning and design of projects is a central aspect of the implementation of the NRM Plan and provides the avenue for Traditional Owners to identify their priorities and preferences for participation. Implementation of the RCS and this NRM Plan is based on a set of commitments as outlined below.

Commitments to realising Traditional Owner aspirations

The NRM Plan commitment to self-determination and Aboriginal participation is aligned with the RCS and will be delivered by enabling Traditional Owners to participate, if and how they choose and working collaboratively from the outset to plan and implement strategy and projects.

This commitment is based on mutual trust, respect and understanding in all areas of natural resource management in West Gippsland.

The RCS and NRM Plan support the key principles outlined in the *Cultural Landscapes Strategy* and will continue to work with each Traditional Owner corporation and their communities on implementing their respective objectives for Country, including initiatives from the Traditional Owner Strategic Framework for Managing Country.

Section 5 – Actions and Projects outlines in a preliminary way the specific projects where the WGCMA understands Traditional Owners have an interest in participation. The level of participation and role in these projects (and any others that are of interest) will be determined by the Traditional Owner corporations during the development of funding proposals and planning phase of each project.

3. Approach to the prioritisation of natural resource management actions

There is strong competition for government funding for natural resource management and inevitably not all things can be done in all places. The prioritisation of natural resource management actions for the NRM Plan has considered the aspirations of stakeholders and the RLP investment priorities and used multiple prioritisation approaches, drawing on a range of tools and evidence participation by regional stakeholders, delivery partners and subject matter experts as outlined in Figure 4 and Table 4.

The priorities for Ramsar wetlands (Outcome 1) were identified drawing from recent planning and project design work undertaken for the region's two Ramsar sites.

Two additional prioritisation approaches were undertaken for the remaining outcomes.

- Asset filtering was undertaken to identify priorities for EPBC listed Threatened Species and Ecological Communities (Outcomes 2 and 4).
- As assessment of private and public benefits of proposed land management activities was undertaken to identify priorities for Land management practices and Agricultural systems adaptation (Outcomes 5 and 6).

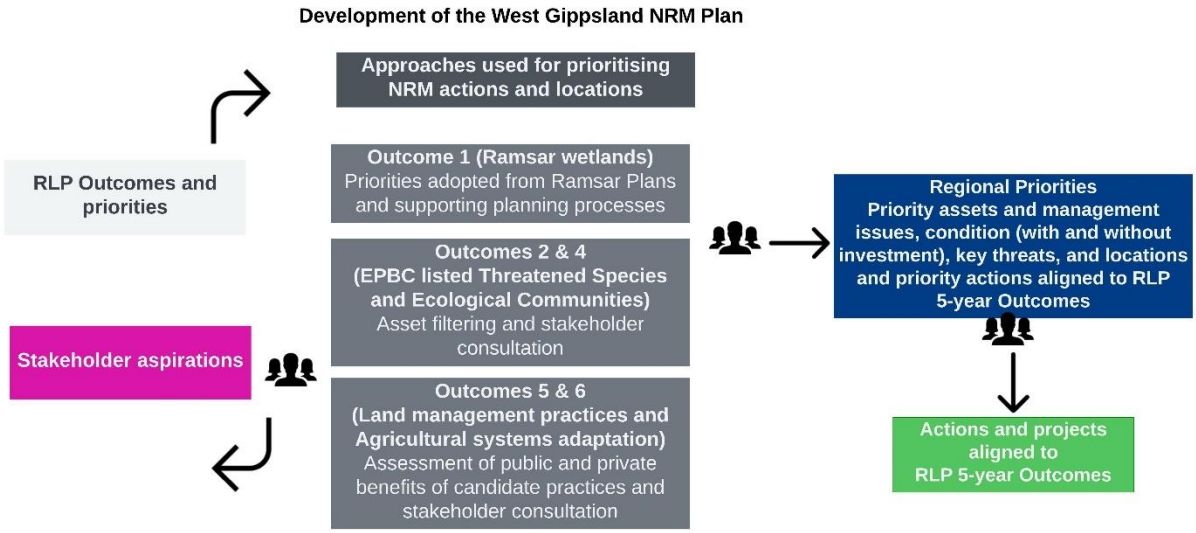


Figure 4. Steps in formulating the actions and projects for the West Gippsland NRM Plan

Table 4. Tools and evidence used in the prioritisation of natural resource management actions

Tools and evidence	Outcome 1 - Ramsar wetlands	Outcome 2 - EPBC listed Threatened Species	Outcome 4 - EPBC listed Threatened Ecological Communities	Outcome 5 - Land management practices	Outcome 6 - Agricultural systems adaptation
Published conservation advice and recovery plans		✓	✓		
Species distribution modeling		✓			
INFFER[1]	✓		✓		
Ramsar Site Management Plans and supporting plans	✓				
Public:Private Benefits Framework[2]				✓	✓
Stakeholder consultation and expert elicitation	✓	✓	✓	✓	✓

[1] Investment Framework for Environmental Resources https://www.inffer.com.au/

[2] Pannell, D. (2008). Public: private benefits framework version 3, INFFER Working Paper 0805. The University of Western Australia.

Ramsar wetlands (Outcome 1)

Corner Inlet Ramsar Site

A prioritisation process was conducted in 2019-20 (using INFFER[3]) for the Corner Inlet Ramsar Site. This process was undertaken to review investment priorities (including RLP funded activities for the period 2018-2023) and provide guidance to ensure that limited funds are spent in the most effective way. The results from prioritisation also informed a review of the *Corner Inlet Ramsar Site Management Plan* (WGCMA, 2020). In summary the process:

- Clarified the location, extent, current condition (based expert advice and assessments of limits of acceptable change) and significance of specific assets within the broader Ramsar. The process considered the tractability of threats to these assets to confirm a shortlist of candidate assets for more detailed assessment.
- Clearly specified and quantified the works and actions required for the candidate assets.
- Assessed the cost-effectiveness of projects to protect these assets through consideration of key factors, including asset significance, effectiveness of works (difference in condition with and without works), time lags, technical feasibility, the likelihood of adoption and socio-political risk.

Full details on the prioritisation process are set out in the INFFER report (Dickson & Park, 2020).

Gippsland Lakes Ramsar Site

Management of the Gippsland Lakes straddles two regions and is complex, with many other management plans and strategies in place to meet specific objectives in parts of the site. The East Gippsland CMA is the nominated Ramsar Site Coordinator and led the development of and implementation of the *Gippsland Lakes Ramsar Site Strategic Management Plan* (2015). The *Ramsar Site Strategic Management Plan* defines the priority strategies to maintain the Ecological Character of the Gippsland Lakes. The *Gippsland Lakes Priorities Plan* brings together these priorities with other priorities to support other values of the Gippsland Lakes.

A review and update of the *Gippsland Lakes Priorities Plan* (GLCC, 2021) has recently been undertaken, led by the East Gippsland CMA in their role as Ramsar Site Coordinator. This process involved a review of the outcomes of the Victorian Government's investment in the Gippsland Lakes and a review of relevant plans and strategies. A total of 18 priority management actions and strategies have been identified as a result of this process, a sub-set of which directly relate to the RLP 5-year Outcome for Ramsar Sites. Once endorsed by the Gippsland Lakes Coordinating Committee, the updated Gippsland Lakes Priorities Plan will guide the design and implementation of projects delivered with Victorian and Australian Government funding. A copy of the *Priorities Plan* priorities plan will be provided as a supporting document to this NRM Plan once the approvals process is complete (likely by June 30 2022).

The *Priorities Plan* describes a set of principles which have been used to guide the development of candidate projects for inclusion in the NRM Plan.

[3] See Park and Dickson, 2019 p4 for further background on how INFFER was applied

Principles for project development:

1. The project directly addresses a priority action – projects need to have a clear link to one or more of the priorities in Table 2 and clearly state the program area(s) that are to be the target for implementation.

2. The project will lead to measurable outcomes for the health of the Gippsland Lakes – priority will be afforded to projects that have a high degree of certainty with respect to improving the condition (health) of the Gippsland Lakes. That is, there is a clear body of evidence based on past experience in the Lakes or elsewhere that the actions to be implemented are likely to result in a measurable improvement in the condition of the Gippsland Lakes compared with current condition and contribute to maintaining or improving ecological character.

3. The project is aligned with the interests of Traditional Owners – all projects need to demonstrate that they are consistent with the principles and objectives of traditional owners as represented by the Whole of Country and Gunaikurnai and Victorian Government Joint Management Plan.

4. The project has a well-defined budget linked to clear deliverables and outcomes – all projects need to document costs and provide a set of measurable and auditable set of outcome targets that will be achieved by the end of the project.

5. The project represents good value with respect to cost and risk – projects need to demonstrate that the costs are commensurate with the expected outcomes and that good value for money is achieved. The project planning needs to also explicitly identify risks from project implementation (to ecological values and human health) and have cost effective mechanisms in place to minimise negative impacts.

6. The opportunities for leveraging from other funds and projects are identified – efforts will be made to ensure that projects are working effectively and collaboratively with the activities of other programs (or within the Gippsland Lakes Program) and that all opportunities to leverage investment from other sources are identified and effected.

7. Collaboration with agencies and partners is fundamental to project design and implementation – the GLCC is committed to adopting a co-design process where agencies and partners are working together through design, implementation and evaluation phases of each project.

8. Adaptative management through implementing MERI principles – monitoring, evaluation, reporting and improvement (MERI) underpins the adaptive management cycle. All projects will demonstrate how evaluation will underpin learning and improvement.

Threatened Species and Ecological Communities (Outcomes 2 & 4)

The prioritisation for Outcomes 2 and 4 was based on an asset filtering approach to short-list species and ecological communities. The process involved a review of recovery plans and conservation advice and consultation with subject matter experts (workshop and follow up discussions), followed by the identification and prioritisation of actions and candidate projects by regional stakeholders and a decision on the final set of priorities by the WGCMA.

Prioritisation considered all EPBC Act listed species that had been recorded in the region between 1980 and 2020 (84 species) (DELWP, 2021), as well as a small number of additional threatened species identified by regional stakeholders. All Ecological Communities identified as potentially occurring in the region in the Protected Matters Search Tool (9) were included in the process (see Appendix 1).

Asset filtering - shortlisting species and ecological communities

A set of criteria and a filtering spreadsheet were developed to assist with shortlisting species and ecological communities and provide guidance for the assessment. Conservation advice and analysis undertaken for DELWPs Biodiversity Response Planning process provided information on the status of species, the location of species, threats and actions. Consultation with relevant local stakeholders and experts refined this information with consideration of current condition, the species biology, knowledge of distribution/range, threats and recent recovery efforts.

A summary of the criteria and guidance is provided below.

Level of importance to the Australian Government (based on EPBC Act status and TSS top 100 species): Very High = TSS Top 100, High = Endangered or Critically endangered, Medium = Vulnerable, Low = Not listed but may be of state importance

Relative importance in the WGCMA region: In relative terms how important is West Gippsland to the taxon? This step considered species distribution and current condition (e.g. from conservation advice, recovery plans and modelled distributions) and local knowledge/expert elicitation (High, Medium, Low) .

Feasibility: How feasible is it for the CMA/partners to deliver a project that will make a serious difference? (High, Medium, Low).

Current level of investment: Significant = >$50K/year over a number of years and/or >$100K one -off investment, Some = between $10K and $50K per year over a number of years, Minor or nil = <10K investment

Future level of investment that is required: (as above for current)

Impact that future investment will have: The difference in the condition with investment and without investment in the species/ecological community. High = Significant difference to conservation outcomes/species viability in the region, M = Moderate difference, L = Small difference.

The prioritisation process resulted in an **overall priority rating** based on an all things considered judgement **(High, Medium, Low).** Species and ecological communities that were rated as Medium or High were retained in the shortlist (see Figure 5 below for extract from this process).

For each species or ecological community included in the shortlist, a set of up to three priority actions were identified. Relationships (e.g. between a threatened species and ecological community) were also noted at this stage.

Scientific Name	Common Name	EPBC status	TSS Top 100 species (YES or Blank if NO)	Level of importance to AG	Relative importance in the WGCMA region	How feasible for the CMA partners to deliver a project that will make a serious difference?	Current level of investment in WGCMA region	Future level of investment that is required	Impact	Overall priority	Overall comment
Dianella amoena	Matted Flax-lily	Endangered		HIGH	MEDIUM	MEDIUM	Minor or nil	Minor or nil	MEDIUM	MEDIUM	Some previous investment in PPA, key threats include habitat fragmentation, urban development, weeds, lack of sites on secure land tenure.
Gymnobelideus leadbeateri	Leadbeater's Possum	Critically Endangered	YES	VERY HIGH	HIGH	MEDIUM	Significant	Significant	MEDIUM	HIGH	Current focus is on improving knowledge and understanding - not really in a position at this stage to detail specific actions. Worth looking at potential for conservation actions on private land (e.g. artificial hollows) near existing populations or to support translocation efforts if they proceed.
Thinornis cucullatus	Hooded Plover	Vulnerable	YES	VERY HIGH	HIGH	HIGH	Significant	Significant	HIGH	HIGH	Human disturbance and predation at key breeding sites and during sensitive period is the key. Widely distributed but declining in suitable habitat along West Gippsland coast
Xerochrysum palustre	Swamp Everlasting	Vulnerable		MEDIUM	MEDIUM	HIGH	Minor or nil	Minor or nil	HIGH	MEDIUM	No current investment, previously weed control. Current level of active threats needs to be assessed to determine appropriate actions (e.g. overgrazing by wallabies/deer), however, these are likely to include weed control, browsing exclusion, shrub encroachment management. Only major population is in Nooramunga

Figure 5. Extract from asset filtering spreadsheet

Identification of actions and candidate projects for shortlisted species and ecological communities

The next step in prioritisation involved further consultation with stakeholders to review the shortlist and priority actions (and locations). Feedback was sought on the impact/benefits of the priority actions, technical feasibility and other risks and initial project concepts were developed. Following this stage each species or community was given a recommendation for inclusion in the final list of priorities.

Final set of priorities and candidate projects

The shortlist was reviewed by the WGCMA and a final list of priorities was then determined by considering the shortlisting recommendation, the investment scope of the RLP program, the extent of other investment to support the species, and the ability to define a project concept sufficiently[4]. The final list of priorities is outlined in Section 4 including the rationale for the those species not recommended for inclusion in the final set of priorities.

[4] This judgement assumes that through the RLP the Australian Government has a preference for projects /actions that in the main will deliver on-ground benefits for a species or ecological community with research and monitoring as a supporting action. The WGCMA may have other views on this.

Sustainable Agriculture (Outcomes 5 & 6)

The prioritisation process for Outcomes 5 and 6 considered and assessed a set of desired practices through a participatory process with regional stakeholders. The approach was based on the fundamental objective that the NRM Plan should aim to maximise the public benefits with the available resources. An initial list of practices/actions was developed through consideration of the RLP 5-Year Outcomes and investment priorities and an assessment based on the Public Private Benefits Framework (Pannell, 2008) (Figure 6).

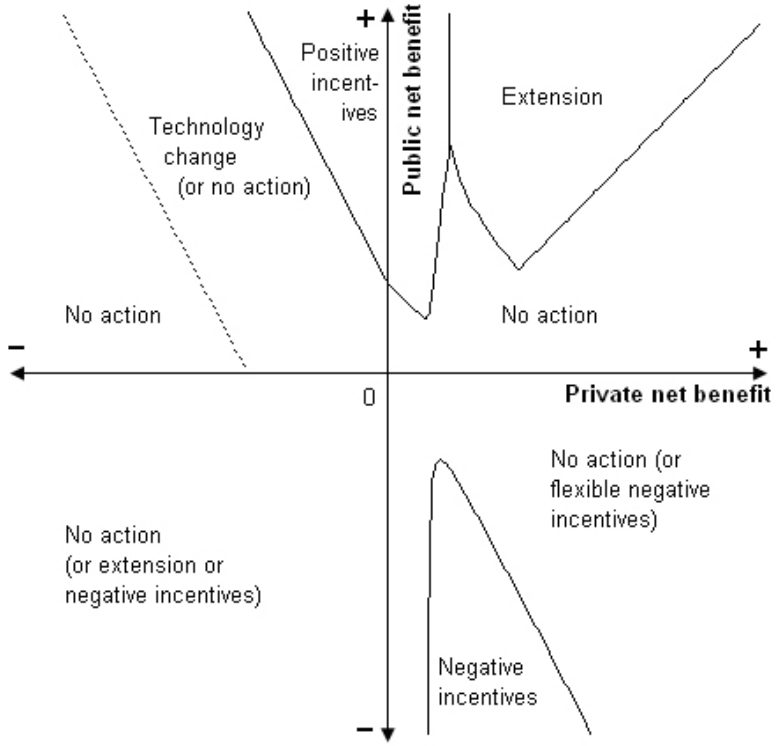


Figure 6. Public private benefits framework (Pannell, 2008)[5]

The assessment was undertaken through an initial workshop held on the 24th of November 2021 and follow up consultation and involved:

1. Discussing the effectiveness of current and past programs and any lessons learned.
2. Defining a list of practices that, if adopted by farmers at a reasonable scale are predicted to generate the most environmental (public) benefits. This required both a description of the practice and the cohort/geographic area where this practice might be relevant.
3. Identifying the geographic area where the issue (e.g. hillslope erosion) is contributing significantly to asset damage.
4. Defining the landholder cohorts according to similarity in enterprise type, orientation (e.g. commercial dairy farmers, lifestyle beef farmers) on the basis that this will influence their adoption behaviour and response to policy tools.

[5] https://www.inffer.com.au/resources/public-private-benefits/

5. Assessing and select the most appropriate policy tools[6] (that could support the adoption of these practices) based on an understanding of both the private net benefits and public net benefits associated with these practices.

[6] Options included no action, extension, research and development, positive incentives, negative incentives based on the public private benefits framework.

A number of practices were not recommended for inclusion in the NRM Plan, these included those assessed as 'no action' under the Public Private Benefits Framework or where a project or action was infeasible or insufficient in terms of its impact.

At a second workshop held on the 24th of January 2022, regional stakeholders reviewed the initial practice assessment results and recommendations (Yes, No, Maybe) for inclusion in the NRM Plan, and participants identified project concepts for those practices identified as Yes or Maybe. The WGCMA decided on the final set of priorities and project concepts considering the effectiveness of past RLP programs, project design, feasibility and adoption issues and the extent of other programs/investment to support the practice adoption. The final set of priorities are outlined in Section 4, with the detailed prioritisation results in Appendix 3.

4. NRM Plan objectives and priorities

This section sets out the NRM Plan objectives and regional priorities as they relate to the RLP 5-year Outcomes.

NRM Plan objectives

The NRM Plan objectives were developed by the WGCMA and partners for the RLP tender 2018-23. The objectives were re-confirmed through the engagement and consultation process undertaken for the RCS.

Through the NRM Plan the West Gippsland region aims to:

- Reduce threats to the Gippsland Lakes and Corner Inlet Ramsar sites.
- Improve the trajectory of nationally listed threatened species.
- Improve the region's nationally listed threatened Ecological Communities condition.
- Promote and support sustainable agriculture throughout the West Gippsland region whilst improving the regions capacity to respond to climate change.
- Build indigenous peoples capacity and participation in natural resource management.
- Build the regions capacity, knowledge, skills and engagement in natural resource management with these themes underpinning all activity.

Traditional Owner priorities

A set of priorities were developed through the *Regional Catchment Strategy* that recognises the role of Gunaikurnai Traditional Owners, Bunurong Traditional Owners and Wurundjeri Traditional Owners in caring for land and sea Country. Further detail on agreed priority directions can be found in the Traditional Owners theme within the RCS.

There is a commitment to collaborating with the region's Traditional Owners across all aspects of planning, strategy and project delivery with an emphasis on two-way knowledge sharing. These arrangements are tailored to each Country and cultural landscape context.

Through implementation of the NRM Plan the WGCMA and its partners are also committed to recognising and fulfilling their legislative and policy obligations to consult and involve the respective Traditional Owners in the delivery of natural resource management programs in their respective RAP areas. Further details on the process to involve Traditional Owners in the design and delivery of NRM Plan projects is outlined in Section 6.

Environment priorities

Ramsar wetlands (Outcome 1)

Corner Inlet and the Gippsland Lakes are wetlands of international importance under the Ramsar convention and are critical habitats for many vulnerable and threatened species, including migratory bird species listed under the Japan-Australia Migratory Bird Agreement (JAMBA), China-Australia Migratory Bird Agreement (CAMBA) and Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Corner Inlet Ramsar Site

The Corner Inlet Ramsar Site is a marine embayment located approximately 200 kilometres southeast of Melbourne. The site is bounded by Wilsons Promontory in the southwest and extends to a portion of the Ninety Mile beach in the east covering approximately 67,000 hectares (Figure 7). The boundary essentially follows that of three marine parks (Corner Inlet Marine and Coastal Park, Corner Inlet Marine National Park and Nooramunga Marine and Coastal Park) with a small, unreserved area of coastal waters between.

The site comprises extensive intertidal mudflats, tidal channels, and sandy barrier islands and includes the marine and estuarine areas of inflowing creeks and small areas of freshwater wetland on islands within the boundary. Corner Inlet has large areas of seagrass, saltmarsh and mangrove vegetation communities, supports significant migratory bird populations, provides important habitat for beach-nesting birds and supports outstanding fish habitat values (WGCMA, 2020).

There are eight components, two processes and two services that are critical to the ecological character of the Ramsar site as identified in the Ecological Character Description (BMT WBM 2011) (Table 5).There are also a range of other values associated with Corner Inlet that are drivers for the broader management of the marine embayment and its catchment.

Under Victorian site management arrangements, the WGCMA is the Ramsar Site Coordinator and responsible for the development and implementation of the *Ramsar Site Management Plan*.

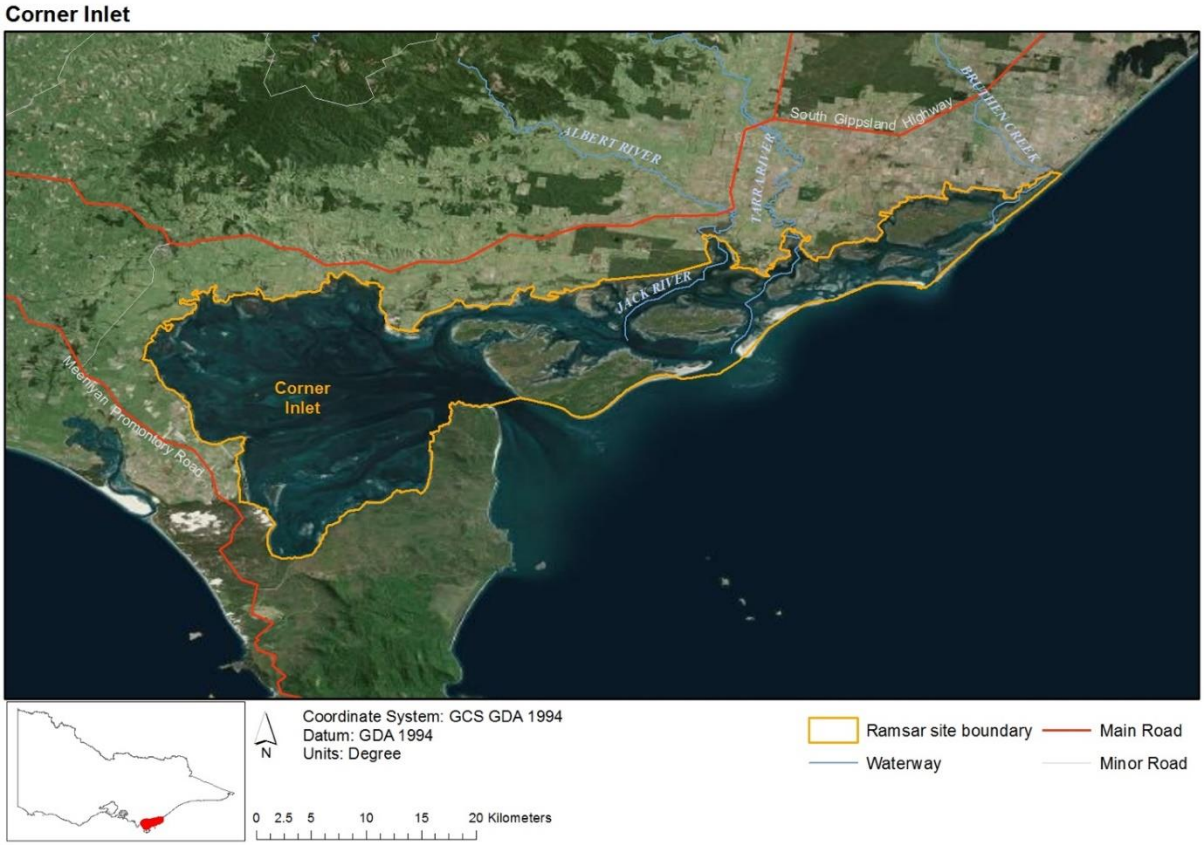


Figure 7. Location of the Corner Inlet Ramsar Site (source: WGCMA, 2020)

Table 5. Summary of critical Components, Processes and Services of the Corner Inlet Ramsar Site.

Critical Component Process and Service	Description
Seagrass	Three species of seagrass cover much of the intertidal and subtidal areas of Corner Inlet: *Posidonia australis, Zostera nigricaulis* and *Z. muelleri,* providing significant habitat for fish.
Intertidal and shallow subtidal sand or mudflats	Intertidal habitats cover a large portion of the Ramsar site (approximately 60 percent) and form extensive feeding grounds for shorebirds.
Mangroves	Cover around 2000 hectares and provide important habitat for fish (when inundated) and feeding and roosting shorebirds.
Saltmarsh	Cover an area of approximately 3700 ha and are important habitats for invertebrates, shorebirds and fish. The Subtropical and Temperate Coastal Saltmarsh Ecological Community is listed under the EPBC Act as vulnerable.
Permanent shallow marine water	The shallow marine waters support microphytobenthos dominated flats with important functions in productivity and nutrient cycling.
Abundance and diversity of waterbirds	The site is known to support over 95 species of waterbird, including 26 international migratory species listed under international agreements (JAMB, CAMBA, ROKAMBA).
Waterbird breeding	Corner Inlet provides critical breeding habitat for a number of beach nesting birds including Pied Oyster Catcher, Caspian Tern, Crested Tern as well as the threatened Fairy Tern and Hooded Plover.
Threatened species	The site supports 9 threatened species including:

Critical Component Process and Service	Description
	• Australian fairy tern – the Ramsar site provides significant breeding and feeding habitat for this species and regularly supports greater than one percent of the population. • Bar-tailed godwit, curlew sandpiper, eastern curlew, great knot, greater sand plover, lesser sand plover and red knot – are international migratory species that spend the non-breeding season in the southern hemisphere. They arrive in late spring, spend the summer feeding on invertebrates in intertidal mudflats and depart for the northern hemisphere in February to March. • Hooded plover – site supports foraging and breeding of this threatened species. • Australian grayling – although not recorded in the site, it is present in the streams of the catchment and the species has an obligatory marine life stage and so must pass through the site to complete its lifecycle.
Fisheries resource value	Corner Inlet provides important habitats, feeding areas, recruitment areas, dispersal and migratory pathways, and spawning sites for numerous fish species of direct and indirect fisheries significance. The site supports a diversity of fish that cover a number of life history strategies: estuarine dependent, marine estuarine opportunists, marine stragglers.

The priority strategies and actions for the Corner Inlet were identified through the INFFER process and risk assessment undertaken for the Interim Corner Inlet Ramsar Site Strategic Management Plan (WGCMA, 2020). The CPS most at risk and therefore of the highest priority for action are:

- Seagrass
- Saltmarsh
- Waterbirds, particularly beach nesting birds.

The priority strategies and actions for the Corner Inlet Ramsar Site are grouped under the following themes:

- Improving habitat
- Managing nutrients and sediments
- Protecting fauna
- Improving our understanding
- Ramsar administration

The relevant actions and 'projects' identified and assessed through the INFFER process are outlined below. These projects have been incorporated into the current design and delivery of the RLP funded Corner Inlet Connections project, the Sustainable Agriculture in West Gippsland – implementation project and the Victorian Government's Environment Contribution Tranche 5 program in Corner Inlet (Dickson & Park, 2020). The actions and projects remain a priority for future funding through RLP. The priorities and actions are outlined below in Table 6.

Table 6. Priorities to maintain ecological character of the Corner Inlet Ramsar Site

Critical Component Process and Service	Threats	Priority actions	Locations
Seagrass	• Elevated inputs of nutrients (especially • Nitrogen) from catchment sources	• Agricultural best management practices • Catchment remediation (waterways and gullies)	Across the Ramsar site however the priority is North-west of Corner Inlet

	• Elevated inputs of suspended sediment from catchment sources • Marine pests -outbreaks of native purple sea-urchins		
Saltmarsh	• Agricultural land use (particularly domestic stock access, and runoff into saltmarsh) • Invasive weeds, especially Spartina	• Fencing and stock exclusion • Permanent protection • Weed control (including Spartina)	Across the Ramsar site
Beach nesting shorebirds and seabirds – including Hooded Plover, Red-capped Plover, Pied Oystercatcher, Crested Tern, Caspian Tern, Fairy Tern	• Predation by foxes and cats • Human disturbance • Erosion, storms, sea level rise • Sea walls (land claim) exacerbating the effects of sea level rise	• Predator control (islands)	Clonmel, Boxbank, Snake and Dream Islands
Intertidal flats	• Invasive weeds – Spartina • Elevated levels of toxicants • Elevated sediment inputs	• Control of invasive Spartina	Intertidal areas across the Ramsar site and estuary mouths

Gippsland Lakes Ramsar Site

The Gippsland Lakes is a large wetland complex located approximately 300 kilometres east Melbourne covering an area of approximately 60 000 hectares (Figure 8). The site is highly valued for its ecological, social, economic, and cultural values. A large portion of the Gippsland Lakes extending from Sale Common in the west to Lake Tyers, is listed as a wetland of international importance under the Ramsar Convention on wetlands, especially as waterfowl habitat (GLCC, 2021). East Gippsland CMA is the nominated Ramsar Site Coordinator and administers the GLCC and the Ramsar Coordinating Committee, WGCMA is a member of both these groups.

The *Gippsland Lakes Ramsar Site Management Plan* (EGCMA, 2015) provides the following description of the site. The Gippsland Lakes Ramsar site comprises a series of coastal lagoons formed behind a barrier dune system; however, the ocean beaches and dunes of the Gippsland Coast are outside the site boundary. The Gippsland Lakes have been connected to the Southern Ocean (Bass Strait) by an artificially maintained channel at Lakes Entrance since 1889 and receive freshwater inflows from seven major river systems. Prior to 1889 the Gippsland Lakes was periodically connected to the Southern Ocean and active commercial shipping was in place. The major waterbodies comprising the Gippsland Lakes are Lake Wellington, Lake Victoria and Lake King, which are all large and shallow and occur along a salinity gradient. Lake Reeve is a narrow, shallow water body lying along the coastal dune barrier and has an area of 50 square kilometres. It is usually dry, except for times of high rainfall (Webster et al. 2001) and salinity is generally classified as hypersaline (Tilleard et al. 2009). A number of wetlands that fringe the main lakes are within the site boundary and these range from fresh (Sale Common and Macleod Morass), through brackish to hypersaline. A number of the wetlands are partially inside the Ramsar Wetland and similarly some of the estuarine reaches are bisected by the boundary.

There are three broad categories, with six finer scale mega-habitats within the Gippsland Lakes Ramsar Site.

Main Lakes

- Deep Lakes – permanent deep waterbodies, Lakes King and Victoria
- Shallow Lakes – shallow permanent waterbodies, Jones Bay and Lake Wellington

Fringing wetlands

- Freshwater wetlands – two fringing wetlands that have freshwater, Sale Common and Macleod Morass;
- Variably saline wetlands – intermittent wetlands that fluctuate between fresh or brackish and saline, such as Heart Morass, Clydebank Morass and Dowd Morass; and
- Hypersaline wetlands – wetlands with salinity generally greater than seawater, such as Lake Reeve and Victoria Lagoon.

There are eight components, two processes and two services that are critical to the ecological character of the Ramsar site as identified in the Ecological Character Description (Table 7). There are also a range of other values associated with the Gippsland lakes that are drivers for the broader management of the Lakes system.

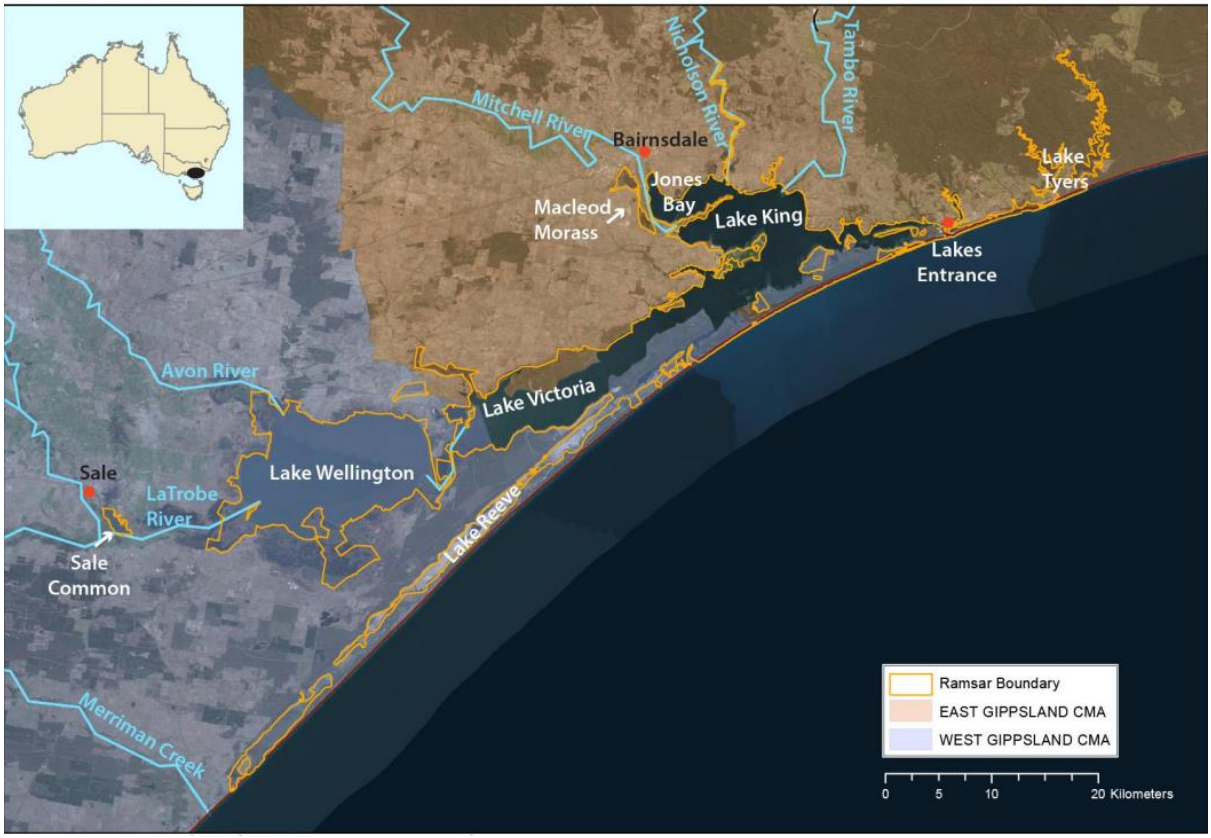


Figure 8. Location of the Gippsland Lakes Ramsar Site (source: EGCMA, 2015)

Table 7. Summary of critical Components, Processes and Services of the Gippsland Lakes Ramsar Site (Source: EGCMA, 2015)

Critical Component Process and Service	Description
Marine subtidal aquatic beds (seagrass)	Seagrass covers an area of approximately 4000-5000 hectares within the Gippsland Lakes Ramsar Site, although there is a high degree of variability over time.
Coastal brackish or saline lagoons	Algal food webs are an important part of the Gippsland Lakes and the large lagoons that are dominated by phytoplankton drive the energy dynamics of the system.
Freshwater wetlands	Limited to Sale Common (West Gippsland) and MacLeod Morass (East Gippsland) at the time of listing (approx. 400ha)
Brackish wetlands	Fringing the open water areas of Lake Wellington including Dowd, Heart, Clydebank Morasses, Lake Coleman and Tucker Swamp (West Gippsland)
Saltmarsh	The dominant vegetation community associated with Lake Reeve and some other fringing wetlands. The Subtropical and Temperate Coastal Saltmarsh Ecological Community is listed under the EPBC Act as vulnerable and is important habitat for fish and shorebirds.
Abundance and diversity of waterbirds	The site is known to support over 86 species of waterbird with periodic counts exceeding 20,000 individuals. The margins and fringing wetlands provide the majority of the significant habitat. Saltmarsh and saltflats such as those found at Lake Reeve are important feeding grounds for waders, including migratory species. Lake Tyers and islands of the Gippsland Lakes supports breeding of significant numbers of little tern and fairy tern, which then move to other areas in the site such as Jones Bay and Victoria lagoon to feed (all East Gippsland except Victoria Lagoon). The freshwater and brackish habitats support significant numbers of waterfowl including black swan (*Cygnus atratus*), chestnut teal (*Anas castanea*) and musk. duck (*Biziura lobata*) and larger resident wading bird species. The large expanses of open water in Lakes Wellington (West Gippsland), King and Victoria are considered less important as bird habitat, although may be important foraging areas
Threatened species	The site supports a number of threated species including: • Green and golden bell frog and growling grass frog recorded in Sale Common, Dutson Downs, Dowd Morass, Heart Morass, Clydebank Morass, Macleod Morass. • Australian grayling –lives in the rivers of the Gippsland Lakes catchment and migrates to the ocean for part of its lifecycle. • Fairy tern and little tern nest at a number of locations in the Ramsar site, including Lake Tyers (East Gippsland). • Australasian bittern – inhabits dense reed beds of the fringing wetlands. • Three species of wetland plant: dwarf kerrawang, swamp everlasting and metallic sun-orchid located on the fringes of Lake Victoria in Blond Bay Wildlife Reserve (East Gippsland).
Waterbird breeding	The Gippsland Lakes Ramsar Site supports breeding of a number of waterbird species across a variety of habitats. This includes: • Australian pelican at Lake Coleman, Tucker Swamp and Crescent Island. • Little tern and fairy tern at mud islands and Lake Tyers; and • Black swan, Australian white ibis, straw-necked ibis and little black cormorant at Macleod Morass, Sale Common and Dowd Morass. In addition, Royal Spoonbills have been recorded nesting at Dowd Morass
Fisheries resource value	The Gippsland Lakes Ramsar Site is an important commercial and recreational fishery as well as providing nursery habitat for a range of fish that form part of the Bass Strait commercial fishery. Over 170 species of fish have been recorded within

Critical Component Process and Service	Description
	the site boundary, the vast majority estuarine or marine species, with a number of species that move between fresh, estuarine and marine environments.

Through the development of the Gippsland Lakes Ramsar Site Management plan a rigorous risk assessment process was undertaken to identify key threats to the ecological character of the Ramsar site. The table below outlines the priority threats identified for the various mega-habitats within the Gippsland Lakes Ramsar site.

Table 8. Threats to the Gippsland Lakes Ramsar Site mega habitats

Threat	Mega-habitats					
	Deep lakes	Shallow lakes	Freshwater wetlands	Variably saline wetlands	Hypersaline wetlands	Estuarine reaches
Nutrient inflows from agricultural activities in the catchment	■	■				■
Development on the shores affecting visual amenity	■	■				■
Foxes and cats predating on waterbirds	■	■	■	■	■	
Climate change (storms and sea level rise) affects silt jetties, exposed islands and sandy spits	■	■				■
Climate change (storms and sea level rise) impacts vegetation	■	■			■	
Artificial opening of the entrance at Lake Tyers affects biota (including nesting terns)	■					
Non-native invasive species (sea spurge) affects terns nesting	■					
Non-native invasive plant species affects native flora and habitat			■			■
Native invasive species (e.g. Typha) affects flora diversity and habitat			■	■		
Introduced marine pests (European shore crab) affects native species	■	■			■	
Introduced marine pests – potential introduction on new species	■	■			■	
Invasive species (carp and gambusia) affect native fish and habitat		■	■	■		■
Decreased freshwater inflows – impacts on breeding triggers for estuarine fish						■
Decreased freshwater inflows – altered water regimes impacts flora and fauna			■	■		■
Decreased freshwater inflows – increased salinity impacts flora and fauna		■	■	■		■
Exposure of acid sulphate soils (ASS)			■	■		■
Disturbance of migratory shorebirds and / or nesting birds by recreational activities	■	■	■	■	■	
Vessels affecting the behaviour and condition of dolphins	■	■				

Threat	Mega-habitats					
	Deep lakes	Shallow lakes	Freshwater wetlands	Variably saline wetlands	Hypersaline wetlands	Estuarine reaches
Recreational vehicles causing physical damage to vegetation and habitat			■	■	■	■
Grazing and trampling on riparian/coastal habitats from deer pigs, goats and rabbits			■	■		■

The priority strategies and actions identified through the renewal of the *Gippsland Lakes Priorities Plan* are set out below (Table 9). Strategies and actions in the Priorities Plan have been grouped into four program areas; two of which directly contribute to the RLP 5-year Outcome for Ramsar Sites in the West Gippsland Region as indicated in bold below:

1. Improving the wetlands of Jones Bay and Lake King (East Gippsland CMA / Management Unit)
2. **Improving the condition and connectivity of Lake Wellington and its wetlands**
3. Protecting Traditional Owner country of the Gippsland Lakes outer barrier
4. **Understanding and improving aquatic habitats and ecosystems**

The projects included in West Gippsland NRM Plan are focussed on program area 2 with actions from programs 3 and 4 included where they contribute to Ramsar Site Plan priorities within the West Gippsland region. The WGCMA are committed to undertaking a more detailed process to refine these projects including a program logic and implementation plan for any Gippsland Lakes related actions funded by RLP including consideration of value for money, feasibility, and risk.

Table 9. Priority strategies and actions for the Gippsland Lakes 2021-2024 (GLCC, 2021)

Priority action / strategy	Relevant program areas				Contributes to Ramsar Site Plan priorities
	1	2	3	4	
Implement mitigation and adaptation strategies and actions to address the identified risks to ecological character from climate change.	✓	✓	✓	✓	Yes
Implement the priority identified options for improving the ecological condition of the fringing wetlands of Lake Wellington.		✓			Yes
Increase areas under permanent protection and implement actions to maintain and improve habitat corridors.	✓	✓	✓		Yes
Protect and where necessary, enhance, shorebird and beach nesting bird habitat in priority locations, including those predicted to be impacted by sea level rise and other climate change effects.	✓		✓	✓	Yes
Implement the Gippsland Lakes pest plant and animal strategy. Review the pest plant and animal strategy to insure alignment with Biodiversity Response Plan for the Gippsland Lakes.	✓	✓	✓		Yes
Monitor and where possible, control, off-road vehicle use at priority locations within the Ramsar site.	✓	✓	✓		No
Implement predator control at priority locations for waterbird breeding and migratory wader refuges within the Ramsar site.	✓	✓	✓		Yes
Continue to implement a public awareness campaign to reduce harassment and boating injuries to Burrunan dolphins.				✓	Yes*
Implement the priority actions within the Gippsland Lakes Recreational Fishery Plan. Improve structural fish habitat in estuaries and lakes.				✓	Yes
Undertake a risk assessment, then implement priority actions to address the risks from introduced marine pests.				✓	Yes
Continue to reduce nutrient and sediment loads to the Gippsland Lakes through riparian, in-stream and catchment works to improve water quality of river flows to the Gippsland Lakes.	✓	✓			Yes

Priority action / strategy	Relevant program areas				Contributes to Ramsar Site Plan priorities
	1	2	3	4	
Investigate the impact of high nutrient and sediment loads to the Gippsland Lakes following bushfires.				✓	Yes
Maintain and where necessary improve hydrological connectivity and freshwater inflows to the Gippsland Lakes for fish migration and breeding.	✓	✓			Yes
Implement actions that facilitate Traditional Owner joint management, self-determination and involvement in decision making.	✓	✓	✓	✓	No
Implement actions that address risks to cultural heritage from sea level rise and shoreline erosion on the outer barrier.	✓	✓	✓		No
Identify and implement priority actions to protect culturally significant species (e.g., Australian pelican, musk duck, freshwater eels)	✓	✓	✓	✓	No
Continue to monitor seagrass recovery from disturbance events to evaluate the effectiveness of restoration efforts.				✓	Yes
Continue to monitor the persistence of freshwater dependent threatened species in the Gippsland Lakes. Where necessary identify and implement mitigation actions to assist in climate adaptation of these species.	✓	✓			No

Threatened Species and Ecological Communities (Outcomes 2 and 4)

The West Gippsland region includes large areas of high biodiversity value, many of which are located within parks and conservation reserves on public land. The region has a diverse range of ecosystems, including native forests, coastal and wetland environments, and extensive riparian zones that provide important habitats and corridors for flora and fauna species (RMCG, 2020).

While the region is home to diverse terrestrial, marine and aquatic flora and fauna species and ecological communities, many of these are threatened. The Victorian Biodiversity Atlas (VBA) contains records of 96 fauna and flora species listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)[7] and over 600 of Victoria's threatened species formally listed under the Flora and Fauna Guarantee Act 1988 (FFG Act) (DELWP, 2021). The Australian Government's Protected Matters Search Tool indicates there are up to nine threatened ecological communities potentially occurring in the region (DAWE, 2021), however, only six were confirmed through the consultation process with regional stakeholders.

There is also a high representation of endangered, rare and vulnerable ecological vegetation classes (EVCs) across the region. Historic wide-scale clearing that opened up the area for settlement, agriculture and industry has resulted in a considerable loss of native vegetation throughout the landscape. Across the West Gippsland region, only approximately 48% of pre-1750 native vegetation cover remains, much of which is degraded. Most remaining native vegetation is located within six National Parks, three State Parks and surrounding areas of public land (RMCG, 2020)

The prioritisation process (see Section 3) identified 13 EPBC listed Threatened Species and five EPBC listed Threatened Ecological Communities for inclusion in the NRM Plan. An additional five species not currently listed under EPBC were also identified as priorities. Further details on the locations, threats and priority actions for the priorities are outlined in Table 10 -Table 12

Regional priorities

Priority EPBC listed animals

Hooded Plover (*Thinornis cucullatus*)

Leadbeater's Possum (*Gymnobelideus leadbeateri)*

New Holland Mouse (*Pseudomys novaehollandiae)*

Southern Greater Glider (*Petauroides Volans*)

Giant Gippsland Earthworm (*Megascolides australis)*

Priority EPBC listed plants

Eastern Spider-orchid *(Caladenia orientalis)*

Maroon Leek-orchid *(Prasophyllum frenchii)*

Metallic Sun-orchid *(Thelymitra epipactoides)*

Dwarf Kerrawang *(Commersonia prostrata)*

Matted Flax-lily *(Dianella amoena)*

Wellington Mint-bush *(Prostanthera galbraithiae)*

Swamp Everlasting *(Xerochrysum palustre)*

Strzelecki Gum *(Eucalyptus strzeleckii)*

Additional regional priority species

Koala *(Phascolarctos cinereus)*

'Morwell' Galaxias *(Galaxias n.sp.)*

Shaw Galaxias *(Galaxias gunaikurnai)*

West Gippsland Galaxias *(Galaxias longifundus)*

Tapered Galaxias *(Galaxias lanceolatus)*

Priority Threatened Ecological Communities

Alpine Sphagnum Bogs and Associated Fens

Gippsland Red Gum Grassy Woodland an Associated Native Grass land

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains

[7] VBA search for EPBC Act and FFG Act listed species in the West Gippsland region, records for all time included in this result.

Natural Damp Grassland of the Victorian Coastal Plains

Subtropical and Temperate Coastal Saltmarsh

Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community

Table 10. Priority EPBC listed animals

Species	Common Name	EPBC Act and Threatened Species Strategy status	Location and threats	Priority Actions
Thinornis cucullatus	Hooded Plover	Vulnerable TSS Top 100	Resident along the Gippsland Coast, key areas for this species include Kilcunda, Cape Liptrap, along the Bunurong Coast, Wilsons Promontory and Corner Inlet. Threats include predation (foxes, cats, ravens), human and dog disturbance and storm surge and tides *(DSE, 2003)*.	• Manage/restrict access to breeding sites • Integrated predator control programs (foxes and cats) • Awareness raising and community education
Gymnobelideus leadbeateri	Leadbeater's Possum	Critically Endangered TSS Top 100	Populations in West Gippsland are on the Baw Baw and Toorongo Plateaus. Threats include fire, timber harvesting, decline in habitat quality and population fragmentation (DEPI, 2014).	• Investigate and provide additional nesting resources in areas of hollow bearing tree decline and undertake follow up monitoring • Investigate long term persistence within timber harvesting areas to inform policy decisions
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable TSS Top 100	Small populations at Providence Ponds, Wilsons Promontory and between Dutson Downs and Loch Sport which has the largest population (DELWP, 2021b). Threats include habitat fragmentation, genetic isolation of fragmented populations, inappropriate fire regimes and habitat management, die-back of vegetation, introduced predators and competition with non-native species (DSE, 2003; Zoos Victoria, 2022).	• Planned burning (Loch Sport) with associated camera trap monitoring • Dietary/scat analysis • Habitat surveys to improve understanding of habitat complexity and occupancy
Petauroides volans	Southern Greater Glider	Vulnerable	Species is widely distributed from central Victoria eastwards across Central Highlands and Gippsland including the southern fall of the Great Dividing Range and the Strzelecki Ranges. Threats include elevated mortality due to fire, drought, timber harvesting and predation pressure, risks associated with small populations/genetic decline and loss of hollow bearing trees (DELWP, 2019; DELWP, 2021b).	• Retention of large old trees and tree hollows on private land • Installation of artificial hollows on suitable sites on private land – (Strzeleckis). • Awareness raising and community education

Species	Common Name	EPBC Act and Threatened Species Strategy status	Location and threats	Priority Actions
Megascolides australis	Giant Gippsland Earthworm	Vulnerable TSS Top 100	Restricted to a small area of South and West Gippsland between Warragul, Loch and Korumburra. Occupancy of sites can be very small. Threats include alteration to the water table and hydrology, destruction of soil habitat, chemical soil disturbance (Van Praagh, 2010).	• Engagement / awareness raising about the habitat requirements • Habitat protection (buffers, address hydrological impacts, minimise disturbance) • Survey to identify/locate colonies within range

Table 11. Priority EPBC listed plants

Species	Common Name	EPBC Act status	Location and threats	Priority actions
Caladenia orientalis	Eastern Spider-orchid	Endangered	Small total population known from only a few sites. In West Gippsland found in coastal heathlands and heathy woodlands between Grantville and Yarram, mainly in South Gippsland between Wonthaggi & Yarram. Sites include Cape Liptrap, Wilsons Prom, Won Wron and Wonthaggi. Taxon apparently extinct at some sites where previously known. Threats include shrub-encroachment and overbrowsing, inappropriate fire regime (Todd, 2000; DELWP, 2021b)	• Ecological burning / physical control of shrubs • Protect individuals from browsing pressure
Prasophyllum frenchii	Maroon Leek-orchid	Endangered	Located in southern Victoria in <7 disjunct populations. In West Gippsland, known from near Golden Beach, Dutson Downs, Yarram and previously Wilsons Promontory. The Yarram population is the second largest and is located on private land *(Duncan, 2010)*. Total Gippsland numbers are unknown. Threats include inappropriate fire regime, herbicide spraying, heavy vehicle movement and weed/pasture invasion (DELWP, 2021b).	• Permanent protection of population on private land • Propagate and establish ex-situ population
Thelymitra epipactoides	Metallic Sun-orchid	Endangered	Located in coastal areas and near coastal areas within coastal heathlands, grasslands and woodlands. Sites in West Gippsland include Golden Beach (Gippsland Lakes Coastal Park) and reintroduced to Dutson Downs. Threats include browsing by introduced and native animals and inappropriate fire regime (DSE, 2003; DELWP, 2021b).	• Propagate and establish ex-situ population • Monitor and maintain at Dutson Downs

Species	Common Name	EPBC Act status	Location and threats	Priority actions
Commersonia prostrata	Dwarf Kerrawang	Endangered	Located on the central Gippsland Plains. There are two broad locations with multiple sites: Providence Ponds and Perry River and around Holey Plains State Park. Threats include timber harvesting, inappropriate fire regime, introduced and native browsing, weed invasion, altered hydrology (Carter & Walsh, 2010; DELWP, 2021b).	• Permanent protection of populations on private land • Ecological burning / physical removal of shrubs • Fencing to exclude/reduce browsing pressure
Dianella amoena	Matted Flax-lily	Endangered	Located in grassland as small, scattered communities around Traralgon, Morwell, Heyfield. Threats include weed invasion, habitat destruction and population fragmentation (Carter, 2010)	• Control invasive weeds and introduced herbivores. • Manage vehicle access (exclusion fencing • Establish new populations
Prostanthera galbraithiae	Wellington Mint-bush	Vulnerable	Restricted to the Holey Plains State Park and Dutson Downs. The entire population at Holey Plains was burnt in 2019. Threats include browsing by introduced and native animals and inappropriate fire regime (DSE, 2008; DELWP, 2021b).	• Manage shrub encroachment • Refine control burning / ecological burning prescriptions • Revegetation on private property with long-term conservation as a primary focus (covenanted sites desirable)
Xerochrysum palustre	Swamp Everlasting	Vulnerable	Distributed across south-east Australia. In West Gippsland located west of Bengworden, Nooramunga Marine and Coastal Park and the South Gippsland Highway. Key threats include altered hydrology, browsing by introduced herbivores, vehicle damage,nd weed invasion (Carter & Walsh, 2011; DELWP, 2021b).	• Control invasive weeds • Exclusion fencing to manage grazing pressure • Ecological burning / shrub encroachment management • Survey and threat assessment
Eucalyptus strzeleckii	Strzelecki Gum	Vulnerable	Occurs across the western section of the Strzelecki Ranges around Korumburra through to Traralgon. Mostly restricted to small stands on farm paddocks and roadside verges. Key threats include incremental clearing, lack of recruitment, grazing pressure, and weed invasion (DSE, 2008).	• Exclusion fencing of existing populations on private land • Permanent protection on private land • Weed control • Incorporate as key species in revegetation projects

Table 12. Priority EPBC listed Ecological Communities

Name	EPBC Act status	Location and threats	Associated EPBC listed species	Priority actions
Alpine Sphagnum Bogs and Associated Fens	Endangered	Found in small pockets across alpine, subalpine and some montane areas. In Victoria the ecological community is found in five geographic areas, two which are located in West Gippsland (Baw Baw and Moroka-Wonnangatta). Threats include climate change, fire, invasive species (weeds and deer), infrastructure and recreation (DoE, 2015).	*Lobelia gelida* *Philoria frosti*	• Control invasive weeds • Control introduced herbivores (deer) • Address human / vehicle access
Gippsland Red Gum Grassy Woodland an Associated Native Grass land	Critically Endangered	Limited to the central Gippsland Plain between Morwell and Swan Reach. The ecological community mostly occurs as small, fragmented patches, with good quality remanent found on public land and to a lesser extent in informal and formal conservation reserves. Threats include vegetation fragmentation, clearance and management, weed invasion and dieback (DEWHA, 2010)	*Dianella amoena,* *Xerochrysum palustre,* *Commersonia prostrata,* *Thelymitra matthewsii,* *Prasophyllum frenchii* *Litoria raniformis*	• Permanent protection on private land • Address grazing pressure (fencing) • Control of rabbits • Manage shrub encroachment • Control invasive weeds • Supplementary planting
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Distribution is reported across the lowland plains of South Eastern Australia, however the location or likelihood of a wetland being a Seasonal Herbaceous Wetland is known in only a small part of this area *(Papas, et al., 2016)*. The Ecological Community known to occur around the Gippsland Lakes and 'Red Gum Plains' but further survey work is required in West Gippsland. The main threats to Seasonal Herbaceous Wetlands include clearing native wetland vegetation; altered hydrology of wetlands, altered water quality, increased fragmentation and landscape disconnection; weed invasion; and inappropriate grazing regimes (DSEWPaC, 2012).	*Dianella amoena,* *Xerochrysum palustre,* *Commersonia prostrata,* *Thelymitra matthewsii,* *Prasophyllum frenchii* *Litoria raniformis*	• Address/manage grazing pressure (fencing) • Permanent protection on private land • Establish vegetated buffers • Address hydrological impacts (drains, levees etc.) • Planning scheme measures (e.g. overlays)

Name	EPBC Act status	Location and threats	Associated EPBC listed species	Priority actions
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Located in disjunct occurrences between Seaspray and Welshpool, including the Darriman Bushland Reserve and Alberton cemetery and also around Westernport (Clyde and Tooradin). Its distribution in the area between these occurrences is not well known. Threats include weed invasion from introduced pasture, overgrazing, inappropriate fuel and fire management (slashing, burning), and inappropriate roadside management (DSE, 2014; DoE, 2015)	*Dianella amoena,* *Prasophyllum frenchii* *Litoria raniformis*	• Survey and mapping • Permanent protection on private land • Control invasive weeds • Improve slashing / burning regime
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Located along the West Gippsland coastline in coastal sectors including Kilcunda-Powlett, Anderson Inlet, Shallow Inlet, Wilsons Promontory, Corner Inlet, Nooramunga coast and islands, Jack Smith Lake and the Gippsland Lakes (Lake Reeve, Lake Wellington). The intensity of threats varies by sector and includes land-claim, landfill and spoil, grazing by domestic stock, vehicle access and weed invasion (Boon, et al., 2015).		• Fence and provide buffers for migration • Control invasive weeds • Address hydrological impacts (culverts, drains etc)
Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community	Endangered	Four dynamic salt-wedge estuary systems are listed in West Gippsland, including the Powlett River, Darby River, Tidal River and Growler Creek. The latter three are all located within the Wilsons Promontory National Park. Threats include climate change, land use and water quality decline, modification of flow regime and invasive species (DoEE, 2018).		• Address the need for artificial mouth opening (Powlett) • Fencing/creation of buffers (Powlett) • Address water quality in the catchment (Powlett) • Control invasive species (e.g., Northern Pacific Sea star at Tidal River)

Other regional priorities

The prioritisation process identified several other species of regional importance (see Table 13). These species do not currently align with the RLP 5-year Outcomes and investment priorities but remain an important focus for protecting iconic and threatened species in the region.

Table 13. Other priority species in the West Gippsland region

Species	Common Name	Location and threats	Priority actions
Phascolarctos cinereus	Koala	Koala are not currently listed under threatened species legislation in Victoria but have recently been listed as Endangered under the EPBC Act in Queensland, NSW and the Act. Recent modelling (Heard & Ramsey, 2020) suggests that the broader Gippsland area supports one of the largest populations of Koala in Victoria. Koala density across Gippsland is predicted to be relatively low, however, there is uncertainty about the density of populations in some areas, including the foothills of Gippsland (Heard & Ramsey, 2020). South Gippsland supports an endemic and genetically diverse population of Koala. The higher levels of diversity in this population may mean it has a greater ability to adapt to future pressures, and conservation of this population is a high priority in Victoria (DELWP, 2022). Threats include low levels of genetic diversity, overabundant populations, disease, ongoing incremental habitat loss.	• Protection of core habitat and restoration of habitat. • Survey and modelling to improve knowledge of populations
Galaxias n.sp.	'Morwell' Galaxias	Small native fishes, four of eleven species are found in small remote mountain streams of West Gippsland. Three species (*Galaxias gunaikurnai, Galaxias longifundus, Galaxias lanceolatus)* are listed as Critically Endangered under FGG and all are currently being assessed for EPBC listing. 'Morwell 'Galaxias' is newly discovered, currently being described, and is restricted to headwaters of the Morwell River. Threats include predation by introduced trout, reduced water flow (due to drought, climate change), sedimentation (DELWP, 2020; DELWP, 2021b)	• Trout removal and barriers. • Sediment controls • Relocation and stocking
Galaxias gunaikurnai	Shaw Galaxias		
Galaxias longifundus	West Gippsland Galaxias		
Galaxias lanceolatus	Tapered Galaxias		

Sustainable Agriculture priorities

The diverse landscape, rainfall, and soil types across the West Gippsland Management Unit result in a complex mix of different agricultural industries, all with unique challenges and opportunities. Although agriculture in West Gippsland is continually evolving, it remains dominated by pasture-based dairy, meat and livestock enterprises, both irrigated and dryland. Some cropping occurs within grazing enterprises, and there is an emerging horticulture industry. Agriculture is an important contributor to the regional economy. In 2018-19 the gross value of agriculture in the West Gippsland region was over $1.62 billion, representing approximately 10% of the state's agricultural income. Dairy is the dominant commodity in the region ($799M), followed by beef ($494M) and vegetables ($135M). Based on gross value, West Gippsland produces 29% of Victoria's milk, 20% of beef and 5% of fruit and vegetables (ABS, 2021).

The region is also a significant contributor to the Australian economy through power generation in the Latrobe Valley, forestry and commercial fishing. These industries are undergoing a significant transition, which has flow-on impacts on the broader socio-economic values of the region (RMCG, 2020). Pressures on profitability, changing population, climate variability, water security and evolving consumer preferences are other important factors influencing the future of agriculture in West Gippsland (WGCMA, 2018).

The regional sustainable agriculture priorities are to address nutrient management, soil health (soil carbon and erosion), on-farm biodiversity protection and adapting to market demands and climate change (Table 14). Five of the six priorities are aligned to the sustainable agriculture RLP 5-year outcomes. Nutrient management does not directly align with the RLP investment priorities under this stream, despite it being an important issue for agricultural productivity.

Addressing the loss of nutrients from agricultural land is also a priority under the environment stream. Actions to improve catchment water quality have been identified as priorities for the Gippsland Lakes and Corner Inlet Ramsar sites (Outcome 1), and the EPBC listed Open-coast estuaries ecological community associated with the Powlett River estuary (Outcome 4).

Table 14. Regional priorities for Sustainable Agriculture

RLP 5-year Outcome	Investment priority	Priority land management practices
By 2023, there is an increase in the awareness and adoption of land management practices that improve and protect the condition of soil, biodiversity and vegetation	Hillslope Erosion	Fence off vulnerable areas to exclude/manage grazing pressure (dryland grazing, dairy, lifestyle).
		Irrigation upgrades: Conversion to lateral sprays (e.g. centre pivot) (horticulture)
By 2023, there is an increase in the capacity of agriculture systems to adapt to significant changes in climate and market demands for information on provenance and sustainable production	Soil Carbon	Monitoring carbon levels through soil testing. Additional practices if required to increase soil carbon (dryland grazing, dairy, horticulture)
	Native Vegetation and Biodiversity	Fencing, enhancement planting, weed control of remnants and wetlands (dryland grazing and dairy). Revegetation along interface areas, enhancement of remnant vegetation, management along waterways, using them as buffer zones. Control of weeds in non-productive areas (horticulture).
	Agricultural Systems Adaptation	Irrigation upgrades: Conversion to lateral sprays, soil moisture monitoring and automation (irrigated dairy and horticulture) Shade establishment – shelterbelts and native vegetation on farms (dryland grazing and dairy)
	Nutrient management	Various practices across dairy, dryland grazing and horticulture.

Land management practices (Outcome 5)

Hillslope Erosion

Loss of soil through water (including hillslope, sheet, rill and gully) is a major form of erosion across West Gippsland. Hillslope erosion contributes to the loss of productivity, is linked to other erosion processes (e.g. stream bank) and contributes to the delivery of nutrients and sediments to waterways (Bui, Hancock, & Wilkinson, 2011). The priority locations for addressing hillslope erosion in West Gippsland are described in the *West Gippsland Soil Erosion Management Plan* (WGCMA, 2008). They include the Tarwin and Powlett River catchments, Corner Inlet catchment, Latrobe River tributaries and the upper Latrobe catchment (WGCMA, 2008). Land management practices that address hillslope erosion will also provide benefits to Outcomes 1 (Gippsland Lakes and Corner Inlet Ramsar Sites) and 4 (Open Coast Estuaries Ecological Community (Powlett River)) in the Environment stream.

The priorities to address hillslope erosion are to support landholders to manage grazing pressure (including fencing) on dryland agriculture, lifestyle and dairy enterprises in priority sub-catchments, and encourage irrigation upgrades on horticultural properties in the Thorpdale area. Further details are provided in Table 15.

Table 15. Priority land management practices to address hillslope erosion

Current practice	Desired practice	Location and farming cohort	Recommended policy tool
Uncontrolled stock access to vulnerable hillslope areas.	Fence off vulnerable areas to exclude/manage grazing pressure.	**Dairy and dryland grazing including lifestyle properties** in steep hill country	Positive incentives
Hard-hose gun irrigator (travelling irrigator), delivering large droplets and high volume causing excessive run-off and soil disturbance upon impact.	Conversion to lateral sprays (e.g. centre pivot)	**Horticulture** (Thorpdale) through a very targeted approach.	Technology change (R & D) or No action

Soil Carbon

Organic carbon is an important soil property and is a measure of the carbon contained within soil organic matter. It is an indicator of many ecosystem processes (e.g. nutrient and waste cycling, water storage, biodiversity). Land management practices can influence the amount of organic matter in soil. Land use and management practices that generate more organic matter and retain it on-site have higher soil organic carbon levels. While increasing soil carbon is highly desirable, it is also easily lost, so maintaining soil carbon is important (Agriculture Victoria, 2021).

In West Gippsland, the priority is to provide consistent science-based communication and extension about the practices that maintain or increase soil carbon while increasing productivity, water holding capacity and nutrient cycling. While much the region has good organic carbon levels, there are parts of the region where maintaining soil carbon can be problematic that require further attention (Table 16).

Table 16. Priority land management practices to maintain or improve soil carbon

Current practice	Desired practice	Location and farming cohort	Recommended policy tool
Conventional pasture management and minimal monitoring of carbon through soil testing.[8] Single species pasture	Monitoring carbon levels through soil testing. Additional practices if required to increase soil carbon including: Optimising grazing regime to maintain ground cover. Use of multi-species pasture	**Focus on areas where maintaining soil carbon can be problematic including -** Woodside, Giffard, east of the Avon River and coastal areas. Lighter soils can be very localised e.g. at paddock scale on individual farms in MID (dairy and dryland grazing)	Extension
Conventional tillage, winter green manure cover crop turned into soil, non-retention of stubble. (bare ground)	Monitoring carbon levels through soil testing. Cover crop is mulched, and stubble is retained.	**Horticulture** (e.g. beans, snow peas) MID and through the Strzeleckis.	Extension and potentially trials

[8] Context from WGCMA staff - the region has a combination of good soils, high rainfall and dairy as dominant agricultural land use and high soil carbon pre-European settlement – soil carbon levels are generally adequate. Majority of producers have high appreciation of the value of soil carbon. Agricultural land in lower rainfall areas with lighter soils have the most opportunity to improve soil carbon (S. Haywood pers. comm).

Native Vegetation and Biodiversity

Conversion of private land for agriculture and the associated fragmentation of remnant vegetation has contributed to a loss of biodiversity in West Gippsland. The losses from clearing private land are thought to exceed the gains from revegetation and regeneration. While a large amount of revegetation and remnant protection work is occurring throughout the region, fragmentation remains a significant threat to the overall condition of biodiversity (RMCG, 2020). Managing native vegetation and protecting wetlands on-farm can help support biodiversity outcomes, and there is increasing awareness of the role of private land in biodiversity protection. The priority in West Gippsland is to provide support through extension and incentives to support farmers and growers to protect remnant vegetation and wetlands in targeted locations (Table 17).

Regional stakeholders have indicated increasing consumer expectations for farmers to demonstrate environmental stewardship as a form of 'social license'. Therefore, the land management practices identified in this priority also contribute to Outcome 6 by supporting farmers to adapt to growing market preferences for products with demonstratable sustainability.

Table 17. Priority land management practices to protect and enhance native vegetation and biodiversity

Current practice	Desired practice	Location and farming cohort	Recommended policy tool
Uncontrolled stock access to remnants	Fencing, enhancement planting, weed control.	**Dairy and dryland grazing** Align with priorities for other programs e.g. remnants on waterways or threatened ecological communities.	Positive incentives or no action (depends on value of native vegetation/landscape context)
Uncontrolled stock access to wetlands	Fencing, enhancement planting, weed control	**Dairy and dryland grazing** Floodplain wetlands – Thomson, Macalister, Latrobe, Tarra, Jack, Albert, Tarwin	Positive incentive or no action
Very minimal revegetation / additional enhancement of native vegetation. Limited control of weeds at interface with productive areas,	Revegetation along interface areas, enhancement of remnant vegetation, management along waterways, using them as buffer zones. Control of weeds in non-productive areas.	**Horticulture** – established and expanding horticultural properties in the MID	Extension or positive incentive

Agricultural systems adaptation (Outcome 6)

Agricultural Systems Adaptation

Maintaining the viability of the agricultural sector whilst also protecting and enhancing biodiversity also remains a key challenge for agricultural land managers in West Gippsland. The West Gippsland region has experienced variable climatic conditions over recent years, with periods of drought, fires and floods. Whilst the region is better placed than others, a drier and warmer climate is expected to impact the region's land resources in several ways, largely through changes to soil health and agricultural productivity (RMCG, 2020). Regional stakeholders identified improved irrigation efficiency and shade establishment as two priority areas of focus for agricultural systems adaptation (Table 18).

The Victorian Government's *Sustainable Irrigation Program* has supported irrigation planning and upgrades primarily focussed on the Macalister Irrigation District. There is also a trend of increasing intensification of agriculture and landuse change to horticulture in places throughout the catchment, and there remains a need to support irrigators to manage water more effectively. The priority for the NRM Plan is to support improved irrigation practices in non-MID areas.

The provision of shelter can reduce production losses and support animal welfare. Typically shelter belts involve the establishment of single line or narrow belt of trees. The priority for the NRM plan is to develop regionally specific guidelines and support landholders to integrate shelterbelts and native vegetation into the overall farm infrastructure in a way that maximises biodiversity benefits and integrates with farm infrastructure. The proposed project may also contribute to Outcome 5 by supporting farmers to adopt practices to improve the management of native vegetation and biodiversity.

Table 18. Priority land management practices to support agricultural systems adaptation

Current practice	Desired practice	Location and farming cohort	Recommended policy tool
Inefficient irrigation systems	Conversion to lateral sprays, soil moisture monitoring and automation.	**Dairy** outside of MID e.g. Yarram (pasture irrigation and fodder crops) **Horticulture:** Outside of MID e.g. Thorpdale, Leongatha / Korumburra through to Thorpdale (Strzelecki's)	Technology change (R & D)
Minimal shade for grazing animals	Shade establishment – shelterbelts and native vegetation on farms	**Dairy and beef** grazing systems across the region	Extension

Nutrient management

Nutrients such as phosphorus and nitrogen are important drivers of productivity but can also lead to nutrient losses from runoff events. Nutrient intensive farming creates a nutrient-rich landscape. Nutrient losses in dairy farms are mainly from phosphorus-rich soils, urine patches and dairy effluent. Nutrient losses from vegetable-growing operations are from highly fertilised soils and bare ground areas exposed during intense rainfall and associated overland flow events. Given the cost-price pressures facing agricultural producers, farmers and growers must maximise the effectiveness of their investments in fertiliser and use other sources of nutrients (purchased feed, dairy effluent, cover crops) to best effect (WGCMA, 2018). Practices focused on improving the management of nutrients have productivity benefits and benefit the environment, water supply, recreation and food production.

The priority areas are the catchments of the Gippsland Lakes and Corner Inlet Ramsar sites and the Powlett River estuary (Open-coast estuary Ecological Community), where priority actions and best management practices have been identified to reduce nutrient (and sediment) losses from dairy, beef and horticulture.

In West Gippsland, the agricultural industry also recognises that improved water quality is essential for the health of the waterways and downstream environments such as the Ramsar listed Gippsland Lakes and Corner Inlet and the Open Coast Estuaries Ecological Community (Powlett River). Actions taken to retain nutrients on farm also provide benefits for recreational users, drinking water supplies and food producers.

Under the current RLP structure it is difficult to directly link nutrient management activities and projects to the sustainable agriculture RLP 5-year Outcomes, despite the issue being a key focus of regional strategies and plans. Actions and projects have been identified under the environment stream (Outcomes 1 and 4).

In the context of the sustainable agriculture stream, the region strongly advocates for the inclusion of nutrient management as an investment priority in future funding rounds. The West Gippsland region has identified cost-effective actions and projects through existing planning processes and has well-developed partnerships to address nutrient management in water quality hotspots. Further details on the priorities and actions can be found in the *Corner Inlet Water Quality Improvement Plan (2014)* and the *Lake Wellington Land and Water Management* Plan (2018).

5. Actions and projects

This section sets out the proposed actions and projects aligned to the RLP 5 year Outcomes and Investment Priorities. Figure 9 provides an overview of the projects, with further details on each project provided in the sections below. Importantly, the projects will require further refinement with partners and the WGCMA recognise the need to undertake this planning prior to any future funding opportunity.

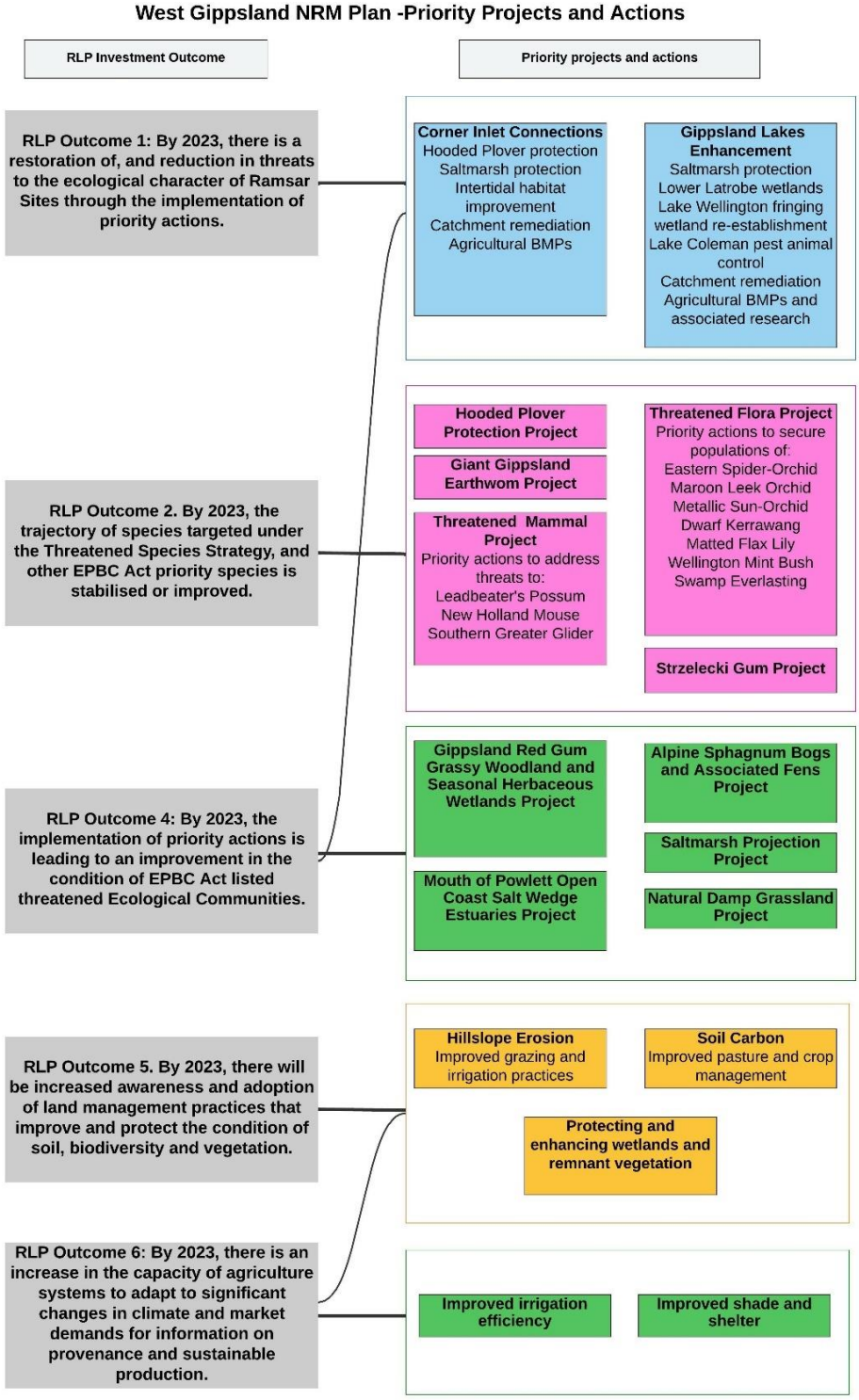


Figure 9. West Gippsland NRM Plan – proposed projects and their contribution to the RLP 5-year Outcomes

Outcome 1 - Ramsar wetlands

Corner Inlet Connections

This project aims to continue to address the priority threats to the Ecological Character of the Corner Inlet Ramsar Site. The proposed project structure is consistent with the currently funded RLP project, and the final project design will be informed by the end of project evaluation due in 2023. Further details on the proposed actions and delivery partners are outlined in Table 19.

Table 19. Candidate projects and actions for the Corner Inlet Ramsar Site

Project focus	Proposed actions	Delivery partners	Link to CPS
Hooded plover and associated sea and shore bird protection (On ground works and monitoring)	This sub-project aims to reduce the impact of predation and disturbance by foxes on breeding populations of seabirds and shorebirds on the barrier islands of Corner Inlet. Fox control activities will be informed by an integrated annual planning- monitoring, delivery and improvement process. Monitoring will involve tracking the effectiveness of baiting and shooting programs (in terms of fox activity, level of bait-take and animals taken down through shooting), and monitoring of bird populations (population counts, habitat utilisation, breeding success and threat assessment) using field-based methods and remote cameras.	Parks Victoria BirdLife Australia GLaWAC Bird Life	Waterbird breeding
Saltmarsh protection (On ground works and monitoring)	This sub-project aims to reduce threats to Coastal saltmarsh across the Corner Inlet Ramsar Site. This project has two streams of work. The first involves the establishment of permanent protection of saltmarsh on private land with a focus of establishing covenants at new project sites that RLP or its predecessors have not previously funded. Consideration will also be given to those sites where it may be possible to provide 'room to move' and provide for migration of saltmarsh in the future. The second stream of this project will involve the protection of saltmarsh through fencing, establishing a 10-year management agreement and control of high-threat weeds. The project will also provide for the maintenance of weeds on previous project sites. Monitoring will include mapping on-ground works, vegetation quality assessments, and transect/quadrat monitoring to ascertain the change in saltmarsh species' cover, abundance, and health (pre-works and end of the project).	Trust for Nature GLaWAC Private landholders	Saltmarsh
Coastal saltmarsh and intertidal habitat improvement - Spartina control (On ground works and monitoring)	This sub-project aims to reduce the threat from Spartina, a highly invasive weed, on the nationally threatened Subtropical and Temperate Saltmarsh communities and intertidal flats across the Corner Inlet Ramsar Site. A combination of aerial and ground-based methods will be used to map infestations and subsequently undertake targeted control through herbicide application. It is expected that the current investment will substantially reduce Spartina infestations by 2023 with future iterations of the project focussed on moving from containment to near eradication of Spartina (Dickson, 2018). Monitoring will include aerial mapping of infestations, mapping of Spartina treatment and transect monitoring of treated areas to ascertain the effectiveness of herbicide application and response (in terms of extent and quality) of saltmarsh communities.	Parks Victoria	Saltmarsh Intertidal and shallow subtidal sand or mudflats

Project focus	Proposed actions	Delivery partners	Link to CPS
Catchment remediation (On ground works)	This sub-project aims to address water quality risks to seagrass in the Corner Inlet Ramsar Site by excluding stock and rehabilitating priority tributaries and gullies in the catchment of the Corner Inlet Ramsar site. The 2013 Corner Inlet WQIP (Dickson, Park, & Roberts, 2013) sets targets for nitrogen, phosphorus and sediment load reduction, however meeting these targets will require significantly increased levels of investment to be sustained over the long-term. To date, investment from both the Victorian and Australian Government's has progressed the implementation of priorities. Currently, Victorian Government funding is directed towards completing waterway remediation in the Agnes River catchment. This sub-project will continue to progress waterway remediation in the Franklin River catchment as guided by the INFFER assessment.	Private landholders GLaWAC	Seagrass
Agricultural best management practices (On ground works)	This sub-project aims to address water quality risks to seagrass in the Corner Inlet Ramsar Site by improving effluent containment and distribution and improved on-farm nutrient management. The sub-project builds on current RLP investment through the Sustainable Agriculture stream which is focussed on the Agnes River catchment. The next iteration of the project will be informed by an evaluation of the current investment and a needs assessment.	GippsDairy Private agronomists Dairy farmers	Seagrass

Gippsland Lakes Enhancement

The Gippsland Lakes enhancement program includes a set of proposed actions and sub-projects to address the threats to the Ecological Character of the Gippsland Lakes Ramsar Site. The proposed projects are aligned to the *Gippsland Lakes Priorities Plan* and have been identified through a consultative process with the Gippsland Lakes Delivery Managers forum coordinated by the East Gippsland Catchment Management Authority. The final project design and structure may be refined in response to funding decisions made by the Gippsland Lakes Coordinating Committee. Further details on the proposed actions and delivery partners are outlined in Table 20.

Table 20. Candidate projects and actions for the Gippsland Lakes Ramsar Site

Project focus	Proposed actions	Delivery Partners	Link to CPS
Lower Latrobe Wetlands (On-ground works and monitoring)	This project will deliver an integrated package of works to address threats to the lower Latrobe wetlands. Proposed actions include the construction of watering infrastructure, pest plant and animal control (in accordance with the *Gippsland Lakes Invasive Species Strategy*) and monitoring activities as detailed below: • *Dowd Morass and Sale Common* - Construction of a new water regulating structure at the western end of Dowd Morass and upgrade of an existing water regulating structure at Sale Common. • *Sale Common* – control of invasive weeds (willows, blackberry and other priority weeds). • *Sale Common* – control of foxes to support waterbird breeding • *Clydebank Morass* – control of weeds to support revegetation activities Expansion of Ramsar bird monitoring project to include wetlands just outside the Ramsar boundary, will be undertaken. Sites include Heart Morass (x3), Dowd Morass (x2), Lake Coleman (x2), lower Latrobe (x4). Flora surveys will be undertaken to develop an up-to-date record of vegetation types and distributions for the Lower Latrobe Wetlands. This will contribute to the calibration of the remote sensing vegetation surveys.	GLaWAC Parks Victoria	Freshwater wetlands Brackish wetlands Hydrological regime
Lake Reeve Saltmarsh protection (planning)	The project will develop a Strategic Directions Statement for Lake Reeve. Lake Reeve is one of only two near-natural state waterbodies within the Ramsar site under the Ramsar criteria. It contains specific, and contributes to site-based, critical CPS (saltmarsh extent). Comprised of Crown and freehold land parcels, these ecological values are at risk due to land use practices, illegal green waste dumping, and recreational uses.	Parks Victoria GLaWAC TFN	Saltmarsh
Lake Wellington fringing vegetation re-establishment **(On ground works and monitoring)**	This project will undertake a trial using wave protection structures and planting of indigenous salt-tolerant species to re-establish a vegetated shoreline that is resistant to further degradation. Salinisation and wave actions have caused the loss of large Phragmites reedbeds, resulting in eroding shorelines, liberation of sediments and nutrients, and continual loss of submerged vegetation. Re-establishment of emergent shoreline vegetation will reduce further liberation of sediments into the lakes, bind-up nutrient rich sediments into reedbeds, and provide habitat for recreational and other native fish species. The project is based off similar trials within Lake Wellington and other systems that have demonstrated levels of success.	TFN Greening Australia	Coastal brackish or saline lagoons (open water phytoplankton dominated habitats)

Project focus	Proposed actions	Delivery partners	Link to CPS
Lake Coleman pest animal control (On ground works and monitoring)	This project will deliver feral goat monitoring, trapping and control at lake Coleman. The project will re-establish camera monitoring sites at Lake Coleman, investigate opportunities for trapping of feral goats (if appropriate), undertake ground shooting activity to control feral goat population, with a view to eradication of the Lake Coleman population.	Parks Victoria	Saltmarsh
Core 4 – effluent best management practices (On ground works and research)	This project will deliver a combined best management practice and associated paddock-scale monitoring program to improve knowledge about the impact of implementing best practice for effluent management on dairy farms. This project will fund the development of four Effluent Management Plans by appropriately qualified agronomists on four separate dairy farms and then provide subsidies for farmers to implement the key recommendation/s identified in the Effluent Management Plans. Crucial baseline data will be collected on farm prior to implementing best management activities and then monitoring will continue for another 2 – 3-year period after works have occurred, providing valuable data for input to the model that researchers will develop. All associated costs with monitoring and the research team have been secured.	GippsDairy SRW Agriculture Victoria	Coastal brackish or saline lagoons (open water phytoplankton dominated habitats)
Dirty Rivers – riparian and instream restoration (On ground works)	This project will undertake in-stream and riparian works in priority reaches (as identified in the *Water Quality Hotspots* investigation) to reduce the risk of in-channel sediment and nutrient delivery to the Gippsland Lakes. The liberation and transportation of instream sediment-bound nutrients to the Gippsland Lakes are major contributors to algal blooms in the lakes. Works include bed and bank stabilisation, riparian protection and enhancement.	Private landholders GlaWAC	Coastal brackish or saline lagoons (open water phytoplankton dominated habitats)

Outcome 2 – EPBC listed Threatened Species

Hooded Plover Protection Project

This project will address key threats to the populations of Hooded Plover in South Gippsland from fox predation, human and domestic dog activity. The project will deliver a targeted package of works targeted to breeding locations along the coast (Table 21). This project will complement predator control activities at the Corner Inlet Ramsar site and Powlett River estuary and awareness, research and site protection activities delivered by BirdLife Australia.

Table 21. Proposed actions to support Hooded Plover

Type of project	Proposed actions	Delivery partners	Associated shortlisted threatened Ecological Community
On ground works and research	This project will deliver an integrated program of Hooded Plover protection activities including targeted fox control, nesting site protection (fencing, signage) and associated awareness-raising. The program will be undertaken in priority locations along the South Gippsland coast (between San Remo and Wilsons Promontory) where the population has been identified as under pressure by BirdLife. Fox control activities will involve a trial of audio and scent cues (existing ethics/permits in place), whilst site protection and awareness-raising will be focussed on associated areas with high human use. The project will complement fox control activities delivered on the Barrier Islands of the Corner Inlet Ramsar Site (Outcome 1).	BirdLife Parks Victoria BLCAC Threatened Species Action Group	Subtropical and Temperate Coastal Saltmarsh Open-coast salt-wedge estuaries

Threatened Mammal Protection Project

This project includes a package of sub-projects and actions to address threats to key populations of high priority threatened mammal species in the West Gippsland region (Table 22).

Table 22. Proposed actions to support Leadbeater's Possum, New Holland Mouse and Southern Greater Glider

Target species (type of project)	Proposed actions	Delivery partners
Leadbeater's Possum (On ground works and research)	This project will identify and address the loss of hollow-bearing trees in areas within the core range of Leadbeater's Possum where hollow-bearing tree densities are declining such that existing colonies may no longer be viable. The project will be undertaken on the Toorongo Plateau and involve survey and hollow-bearing tree density assessments and camera trapping to identify target locations for hollow supplementation. Works will include the installation of artificial nesting resources in the form of chainsaw hollows or nest boxes where they are required to support a viable population. This will be followed up with monitoring to ascertain occupancy and evaluate effectiveness.	DELWP Parks Victoria Melbourne Water
New Holland Mouse (On ground works and research)	Proposed actions include planned burning to improve habitat for the population at Loch Sport (Gippsland Lakes Coastal Park) with pre and post camera trap monitoring and associated habitat surveys to understand occupancy and use and dietary scat analysis research.	Zoos Victoria DELWP Parks Victoria GLaWAC Gippsland Water
Southern Greater Glider (On ground works, research and awareness raising	Proposed actions include works to improve habitat in the Strzelecki Ranges on private land. Works will consist of protecting old large tree hollows (e.g. through exclusion fencing) and installing artificial hollows with extension and awareness-raising activities building on existing interest and support within the Landcare community.	DELWP South Gippsland Landcare Network Trust for Nature

Giant Gippsland Earthworm Habitat Project.

This project aims to protect colonies of the Giant Gippsland Earthworm and their associated habitat in south-west Gippsland (Table 23).

Table 23. Proposed actions to support Giant Gippsland Earthworm

Type of project	Proposed actions	Delivery partners
On ground works and research	This project will deliver activities to identify and protect Giant Gippsland Earthworm colonies and their associated habitat within their known range in South and West Gippsland. The project will involve a site survey, development of management plans and implementation of associated actions to prevent disturbance of colonies. Works will include fencing where appropriate to manage grazing pressure, control of weeds and addressing local scale changes to hydrology.	Threatened Species Action Group DELWP South Gippsland Landcare Network Bass Coast Landcare Network

Threatened Flora Project

This project includes a package of sub-projects and actions to address threats to key populations of high priority threatened plant species in the West Gippsland region (Table 24Table 26). Activities undertaken through the five Ecological Communities projects (Outcome 4) may also contribute to the conservation of EPBC Act listed species, as noted in their project descriptions.

Table 24. Proposed actions to support eight priority threatened plant species

Target species (Type of project)	Proposed actions	Delivery partners	Associated shortlisted threatened Ecological Community
Eastern Spider-orchid (On ground works)	Caging individual plants to protect against grazing (native & introduced herbivores) on Parks Victoria managed reserves (Wonthaggi Heathland, Cape Liptrap Coastal Park). Implement ecological burning trial and management of shrub encroachment.	Parks Victoria DELWP	
Maroon Leek-orchid (Seed collection and ex-situ conservation on ground works)	Proposed actions include: Fencing to restrict access / prevent damage from 4WD, hunters and motorbikes. Propagation of collected seed for a future translocation project (e.g., candidate sites at Dutson Downs).	DELWP Gippsland Water Royal Botanic Gardens	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Natural Damp Grassland of the Victorian Coastal Plains (Yarram Site)
Metallic Sun-orchid (Ex-situ conservation)	Proposed actions are to Increase the numbers of plants at Royal Botanic Gardens and establish a second translocation site for future translocation project. Reintroduction to the Golden Beach population or another site at Dutson Downs are options.	DELWP Royal Botanic Gardens Gippsland Water Parks Victoria	
Dwarf Kerrawang (On ground works and research)	Conduct ecological burn with pre- and post-fire monitoring and evaluate results Suitable sites at Dutson Downs Reduce/control Burgan encroachment around wetlands with *C. prostrata* at Trust for Nature (TfN) Reserves (~5ha Bush Family Reserve; ~2ha Frair Reserve; ~2ha Billabong West Reserve). Reduce grassy biomass and competition with *C. prostrata* at TfN Reserves (~1ha Bush Family Reserve; ~0.5ha Frair Reserve; ~0.5ha Billabong West Reserve). Biomass reduction could be through ecological / cultural burning.	DELWP Gippsland Water Trust for Nature	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Seasonal Herbaceous Wetlands
Matted Flax-lily (On ground works)	Undertake rabbit and weed control Gippsland Plains Rail Trail, Dawson Flora Reserve, Darriman Grassland Reserve, TfN properties, roadside and Rail reserves and Eric Lubecke Yarra Gum Reserve. Control of noxious weeds (primarily Blackberry and Watsonia) and removal of woody weeds between Flynn and the Rail-freeway underpass at Morwell. Establish new populations of *D. amoena in* secure high-quality remnant areas managed for conservation purposes (e.g. TfN properties, The Knob Reserve etc). Include TfN covenants with suitable habitat	DELWP GLaWAC Parks Victoria Trust for Nature Gippsland Plains Rail Trail Committee of Management Vic Track	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Natural Damp Grassland of the Victorian Coastal Plains

Target species (Type of project)	Proposed actions	Delivery partners	Associated shortlisted threatened Ecological Community
Wellington Mint-bush (Research and translocation, on ground works)	Undertake genetic research to support the translocation (introductions) between Dutson and Holey Plains State Parks. Manage shrub encroachment in existing fenced populations in Holey Plains State Park – this will involve maintaining Burgan (*Kunzea ericoides*) cover to EVC benchmark levels.	DELWP Gippsland Water Parks Victoria	
Swamp Everlasting (On ground works, seed collection and propagation)	Undertake seasonal weed control as required at Gelliondale. Seed collection and propagation for translocation (introduction) into secure site(s) as well as conservation of remaining populations. Reintroduction will be focussed on secure sites under permanent and active conservation with suitable habitat present at Dutson Downs.	Parks Victoria Gippsland Water DELWP Trust for Nature	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Seasonal Herbaceous Wetlands Open-coast salt-wedge estuaries

Strzelecki Gum Project

This project aims to protect existing Strzelecki Gum populations and increase the population across its range. See Table 25 for details.

Table 25. Proposed actions to support Strzelecki Gum

Type of project	Proposed actions	Delivery partners
On ground works	This project will involve a collaborative partnership between the WGCMA, Landcare, Local Government and private landholders to protect existing populations of Strzelecki gum on private and public and increase the population through revegetation. The project will include extension to raise awareness of the values of mature trees and the need to increase the population and incentives to support on-ground works. The project will be delivered in suitable habitat within the footprint of the Strzelecki-Alpine Biolink. On-ground works will include fencing to address grazing pressure and weed control. Revegetation activities will focus on -re-establishing *E. strzeleckii as* a tree component of Herb-rich Foothill Forest, Gippsland Grassy Woodland and its associated riparian and forest vegetation communities of the Strzelecki Ranges.	Latrobe City Council Baw Baw Shire Council South Gippsland Shire Council Latrobe Catchment Landcare Network South Gippsland Landcare Network WGCMA Trust for Nature

Outcome 4 – EPBC listed Ecological Communities

A set of five projects have been developed to address threats to six priority Threatened Ecological Communities in the West Gippsland region (Table 26). Activities delivered through the project will also contribute to the conservation of associated EPBC listed flora species where they occur within the footprint of each project (Outcome 2) as part of a collaborative and integrated landscape approach to managing species and communities.

Table 26. Proposed actions to support priority EPBC listed Ecological Communities

Ecological Community	Proposed actions	Delivery partners	Associated Threatened Species
Alpine Sphagnum Bogs and Associated Fens	This project will continue the program of work to improve the condition of and reduce threats to EPBC listed Alpine Sphagnum Bog and Fens ecological community in the West Gippsland Management Unit. The final project design will be informed by the evaluation of the currently funded project. Activities will include surveillance and treatment activities to manage the impacts of pest plants (primarily willows, soft rush) as well as control inappropriate foot and vehicle access through the installation of barriers, drainage repairs, culvert installation, revegetation, and track closures or re-alignment. The inclusion of deer control activities will be subject to a review of the current program. The project will continue to be overseen by the Victorian Alpine Peatland Protection Program Coordinating Committee (VAPPCC) with the potential for continued collaboration with East Gippsland and North East CMAs.	Parks Victoria DELWP NECMA EGCMA GLaWAC	*Xerochrysum palustre, Lobelia gelida, Philoria frosti*
Gippsland Red Gum (*Eucalyptus tereticornis s ubsp. mediana*) Grassy Woodland and Associated Native Grassland	This project will deliver an integrated project to improve the condition of and reduce threats to, medium and high conservation value remnants of the Gippsland Red Gum Grassy Woodland Ecological Community and Seasonal Herbaceous Wetlands of the Temperate Lowland Plains. This will include the provision of extension, planning and incentives for fencing/grazing management, rabbit control & transformer weed/shrub control, establishing buffers, and addressing hydrological impacts such as drains and levees. Works will be targeted to locations where conservation is a primary objective for the land manager and where edge effects can be reduced. Works will be secured through 10-year management agreements and/or an on-title covenant through the Trust for Nature. The project will include additional survey and condition assessments in areas likely to support the Seasonal Herbaceous Wetlands Ecological Community to inform targeted engagement with landholders and the design of on-ground works.	TfN DELWP Landcare GLaWAC Private botanists and ecologists	*Dianella amoena, Xerochrysum palustre, Commersonia prostrata, Thelymitra matthewsii, Prasophyllum frenchii Litoria raniformis*
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains			*Commersonia prostrata Litoria raniformis*
Natural Damp Grassland of the Victorian Coastal Plains	This project will include mapping and survey work to identify the extent and condition of the community across its range, a detailed project design phase and targeted weed control and associated works to reduce threats to the extant population.	DELWP Parks Victoria Local Government West Gippsland Threatened Species Action Group	*Dianella amoena, Prasophyllum frenchii Litoria raniformis*

Ecological Community	Proposed actions	Delivery partners	Associated Threatened Species
Subtropical and Temperate Coastal Saltmarsh	The project will deliver a saltmarsh protection program across the West Gippsland coastline. The project will complement projects proposed under Outcome 1 for the Corner Inlet and Gippsland Lakes Ramsar Sites. Actions include fencing and provision of buffers for migration, weed control and addressing hydrological impacts. Year 1 of the project will include a scoping assessment to determine the level of interest and feasibility of establishing on-title covenants through the Trust for Nature.	Private Landholders Trust for Nature GLaWAC BLCAC	*Litoria aurea, Neophema chrysogaster,* Migratory shorebirds (e.g., Eastern Curlew), *Thinornis cucullatus*
Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community	This project will implement management arrangements to alleviate the need to artificially open the Mouth of the Powlett River in response to impacts on private and public infrastructure. Artificial openings are a key threat to the assemblages of species associated with the Powlett estuary and are currently managed through a risk-based process. The project will complement existing processes pursuing land purchase and seek to establish permanent agreements and/or 10-year management agreements to allow the flooding of private land during estuary closure. This will be complemented by on-ground works including fencing and addressing drainage and hydrological impacts to maximise the benefits of natural flooding.	DELWP Parks Victoria BLCAC Private landholders Trust for Nature Bass Coast Shire Council	*Pterostylis tenuissima, Thinornis cucullatus, Antechinus minimus maritimus, Prototroctes maraena, Galaxiella pusilla*

Outcome 5 – Land management practices

A set of six projects have been developed to support the adoption of improved land management practices associated with hillslope erosion, soil carbon and native vegetation and biodiversity (see Table 27 -Table 29).

Hillslope Erosion

Table 27. Proposed actions to address hillslope erosion

Project focus	Location and farming cohort	Proposed actions	Delivery partners
Improved grazing practices.	**Dairy and dryland grazing including lifestyle properties** in steep hill country e.g., Corner Inlet, other parts of the Strzeleckis, Upper Latrobe catchments and linked to nutrient management priorities.	This project will deliver an incentive program for fencing of areas at risk of erosion, along with extension to support improved grazing management and preparation of a property-based erosion management plan. The project will be implemented in targeted set of sub-catchments guided by the West Gippsland Soil Erosion Management Plan (2008) and aligned with priorities under the Outcomes 1 & 4 for Ramsar sites and EPBC listed Ecological Communities. There is an opportunity to build on an align extension related to this practice to existing pasture and nutrient management extension activities undertaken by AgVic and GippsDairy.	WGCMA Agriculture Victoria Gipps Dairy
Improved irrigation practices	**Horticulture –** Thorpdale – through a very targeted approach.	This project will undertake initial engagement and trial/pilot package of irrigation farm planning, extension and incentives for irrigation upgrades targeted to 'engaged growers' in hotspot area of the Thorpdale potato growing area. The purpose of the pilot is to help inform the need and design of any subsequent programs. The project will involve partnerships with relevant water authorities in hotspot areas and identifying opportunities for leveraging funds. The proposed project also contributes to RLP Outcome 6 Agricultural systems adaptation.	WGCMA Agriculture Victoria AusVeg Agriculture Victoria Gippsland Water Southern Rural Water Potato Growers Association

Soil Carbon

Table 28. Proposed actions to maintain and improve soil carbon

Project focus	Location and farming cohort	Proposed actions	Delivery partners
Improved pasture and grazing management	**Focus on areas where maintaining soil carbon can be problematic including -** Woodside, Giffard, East of the Avon River and coastal areas. Lighter soils can be very localised e.g., at paddock scale on individual farms in MID (dairy and dryland agriculture)	The project is focussed on the provision of a high-quality coordinated extension program to provide consistent messages (drawn from credible science) around recommended practices and the benefits of maintaining and improving soil carbon and organic matter. The project will include communications and the development of 3-5 case studies demonstrating soil carbon trends and outcomes drawing on long-term existing datasets. The project will be carefully designed to fill a gap identified by industry partners and avoid duplication with trial work being undertaken by various partners.	WGCMA Agriculture Victoria GippsDairy Meat and Livestock Australia Private Agronomists

Project focus	Location and farming cohort	Proposed actions	Delivery partners
Improved cultivation systems	**Horticulture** (e.g. beans, snow peas) MID and through the Strzeleckis.	This project concept involves the provision of extension and potentially trials to encourage adoption of practices to maintain and improve soil carbon on horticultural properties. Desired practices include soil carbon monitoring, use of cover crops, retention of stubble and minimal tillage. At this stage further engagement is required with growers in the target industries and catchments before the project details can be confirmed. Agriculture Victoria and AusVeg are currently commencing an engagement process with growers in the Strzelecki ranges, however at this stage they are not in a position to develop the project further.	Agriculture Victoria AusVeg WGCMA

Native Vegetation and Biodiversity

Table 29. Proposed actions to protect and enhance native vegetation and biodiversity

Project focus	Location and farming cohort	Proposed actions	Delivery partners
Protection and enhancement of remnant vegetation	**Dairy and dryland grazing** Align with priorities for other programs e.g. remnants on waterways or threatened ecological communities	The project will deliver a pilot program aimed at improving biodiversity protection and enhancement practices in the dairy and dryland grazing industries. The project will involve landscape-scale planning, extension and incentive program to undertake on-ground works (fencing, weed control, supplementary planting) to protect remnants and wetlands, improve their condition and create buffers. The focus will be working in a defined landscape area to undertake cross-property planning with a group of larger landholders. There is also potential to build in or align the elements of the shelterbelt project and contribute to Outcome 6 - Agricultural systems adaptation.	WGCMA GippsDairy Meat and Livestock Australia Landcare Networks
Protection and enhancement of wetlands	**Dairy and dryland grazing** Floodplain wetlands – Thomson, Macalister, Latrobe, Tarra, Jack, Albert, Tarwin		
Protection and enhancement of remnant vegetation	**Established and expanding horticultural properties -** Macalister Irrigation District	This project will deliver extension and incentives for biodiversity protection and enhancement on horticulture properties. The project will support the protection of existing vegetation and revegetation with biodiverse plantings. The project will partner with AusVeg to identify 'engaged and willing growers' with projects, including those participating in EnviroVeg. The project will also engage with growers who are expanding their operations, with the opportunity to build biodiversity protection into the farm design. The project recognises that horticulture is a growing industry in the region, and there is an opportunity to improve current practices to better protect biodiversity. This project also contributes to Outcome 6 - Agricultural systems adaptation as it addresses increased consumer demand for products with a lower environmental impact.	AusVeg Agriculture Victoria Private irrigation farm planners WGCMA

Outcome 6 – Agricultural systems adaptation

A set of two projects have been developed to support the farmers and growers in adapting to a changing climate (Table 30).

Table 30. Proposed actions to support agricultural systems adaptation

Project focus	Location and farming cohort	Proposed actions	Delivery partners
Improving irrigation efficiency	**Dairy** outside of MID e.g. Yarram (pasture irrigation and fodder crops) **Horticulture:** Outside of MID e.g. Thorpdale, Leongatha / Korumburra through to Thorpdale (Strzeleckis)	This project will deliver a package of support for irrigators outside of the MID to adopt more efficient irrigation practices. The project will involve extension, irrigation farm planning and engagement and will be delivered via industry partners and private farm consultants. The project will focus on areas that the Sustainable Irrigation Program has not been able to target. The focus will be engaging in areas where there are existing inefficient irrigation systems as well as new developments.	Agriculture Victoria GippsDairy AusVeg Private agronomists
Improved shade and shelter	**Dairy and dryland grazing** systems across the region (however the project will take a targeted approach)	This project will deliver a pilot program to encourage farmers to increase the shade on their farms and address the impacts from increased temperatures and extreme heat on animal health. The project will engage with landholders about the animal welfare impacts from heat stress and benefits of increased shade. A review of literature and evidence will inform the planning and design of shelterbelts to establish what is an optimal shelter belt design in the Gippsland context (that delivers benefits for shade, shelter and biodiversity). The project will be delivered in defined landscape area and involve, extension and planning of whole of landscape shelter belt program with incentives for on-ground works. The project will include an evaluation phase to determine the effectiveness and appropriateness of the model. This project may also contribute to Outcome 5 (native vegetation and biodiversity).	GippsDairy Meat and Livestock Australia Agriculture Victoria WGCMA

6. Implementation and delivery partners

The WGCMA will coordinate the implementation of the NRM Plan, and consistent with the RCS, it will be delivered through partnerships with Traditional Owners, government and non-government agencies, private land managers, environmental groups and the broader community.

Community participation

Local area forums will provide one of the main processes for community participation. Local area forums will seek to enhance and build on existing forums and engagement arrangements. Local area forums will consider the outcomes and priorities identified at a regional and local area scale when refining and prioritising actions and projects. Unfunded priorities from the RCS and NRM Plan will be identified, and project opportunities will be explored and developed to inform funding opportunities through RLP. A set of principles have been developed to guide the establishment of local area forums as outlined below.

Principles for local area forums

Coordinate, collaborate and support partner organisations to implement key priority actions for land, water, and biodiversity

Develop flexible participation arrangements that respect the capacity and resourcing constraints of Traditional Owner groups, small organisations and community groups

Share information to support organisations to achieve their outcomes

Support monitoring of the implementation of key strategies and align with regional outcomes

Work collaboratively to identify opportunities for funding and implementation of key priorities for land, water and biodiversity in the local area.

Traditional Owner participation

There are four Traditional Owner groups in the West Gippsland region - Gunaikurnai Land and Waters Aboriginal Cooperation (GLaWAC), Boon Wurrung Foundation, Bunurong Land Council Aboriginal Corporation (BLCAC), and Wurundjeri Tribal Council. The WGCMA work differently with each organisation based on the priorities and capacity of the TO group. The WGCMA works primarily with GLaWAC and BLCAC as they are the RAPs covering most of the West Gippsland region.

Actions taken by the WGCMA to support Traditional Owner participation include:

- Maintenance of Memorandums of Understanding (MoUs) with GLaWAC and BLCAC.
- GLaWAC – Whole of Country Plan is used as a reference document for the development of proposals with all actions/ alignment confirmed and discussed with GLaWAC. WGCMA financially supported the development of the Plan via NLP Indigenous Partnerships and Participation Program.
- Meetings are held every 6 months with BLCAC and GLaWAC to develop and plan projects as well as monitor their implementation.
- A specific RLP planning meeting is held to plan and develop all RLP projects and proposals.
- Individual Service Level Agreements may be developed between WGCMA and GLaWAC/ BLCAC for individual projects as required.
- Formal arrangements are in place where GLaWAC staff have office space and access at the Traralgon WGCMA office and continued support to GLaWAC for a presence in the western part of the RAP area.

These activities are supported through out policies and procedures:

- *An Aboriginal Partnership Policy* – this policy provides a framework for WGCMA staff to understand and address Aboriginal interests in relation to all activities that they undertake.
- The *Aboriginal Partnership Procedure and Native Title and Cultural Heritage Procedure*, was updated in 2020 in conjunction with Traditional Owner groups and guides all statutory planning processes.
- A protocol exists that provides guidance to the WGCMA on how to access the Victorian Aboriginal Heritage Register (the Register), via the Aboriginal Cultural Heritage Register and Information System (ACHRIS). A number of commitments and requirements are contained within this protocol designed to manage the use of the Register/ACHRIS by the WGCMA and ensure that Registered Aboriginal Parties (RAPs) and Traditional Owners are properly involved in the management of their heritage.
- WGCMA Statutory Planning Team refer Works on Waterways (WOW) approval applications to DELWP Native Title Services prior to granting permits, if they are likely to have Native Title implications. A copy of the front page of Aboriginal Cultural Heritage (ACH) assessment is kept with the WOW permit information.

Project delivery

Delivery of funded projects under the auspice of the NRM Plan will involve:

- Overall coordination by an experienced WGCMA project manager.
- Further developing priority actions and projects to form project proposals.
- Implement funded projects, including a more detailed project design phase and consideration of cost-effectiveness.
- Establishing collaborative governance arrangements for funded projects with links to Local Area forums where relevant.
- Establishing Service Level Agreements with delivery partners for funded projects.
- Monitoring project delivery and outcomes against a tailored MERI plan.

Healthy partnerships are vital to the WGCMA in achieving success in the management of land, water and biodiversity in West Gippsland. The WGCMA values its partnerships with its delivery partners and see them as a crucial component of the regional NRM Plan.

Key delivery partners for the implementation of the NRM Plan are identified in each of the proposed projects (section 6) and include:

- Traditional Owners (GLaWAC and BLCAC)
- Government agencies
- Landcare
- Community environmental organisations
- Industry organisations
- Private sector organisations

7. Monitoring Evaluation, Reporting and Improvement

The WGCMA has a strong commitment to evaluation and continuous improvement. Measurement and evaluation are essential, standard features of all the WGCMAs work as it drives learning and improvement. The *WGCMA Strategic Plan* identifies monitoring and evaluation as one of the core areas of focus for the organisation. Under the *Strategic Plan,* the following objectives apply to all strategies, plans and projects:

- Embed monitoring, evaluation, adaptive management, improvement and communication of the work we do across all parts of the organisation
- Initiate and support quantitative research through collaboration with academic bodies

A Project Management Framework guides the development and implementation of all management actions delivered by the WGCMA. The framework requires the preparation of a Monitoring, Evaluation, Reporting and improvement (MERI) plan to support the collection of data and evidence and guide evaluation processes. In the context of the NRM Plan and RLP projects, further guidance is also provided by the RLP evaluation framework (RMCG, 2018)

There are two types of monitoring and evaluation required for the NRM Plan; monitoring and reporting on the implementation of the NRM Plan and assessing the effectiveness of management actions (associated with funded projects). Further details on the monitoring and reporting structures and processes at a project scale are provided below.

Monitoring and reporting on the implementation of the NRM Plan

Implementation of the NRM Plan will be tracked annually and reported through the WGCMA's annual report to the Australian Government. This will include:

- Activities undertaken to secure funding for projects
- The status of actions and projects
- Emerging issues

Assessing the effectiveness of management actions

Evaluation of management effectiveness aims to understand how well a management action is progressing towards or has achieved its objectives (usually focussed on outputs and outcomes (e.g. short-term and medium-term outcomes). This may be complemented by other evaluation domains and questions (e.g. appropriateness, efficiency and legacy).

In the context of the NRM Plan, the evaluation of management effectiveness will be constrained to funded RLP projects. The core elements include preparing a program logic (for each project), identifying key evaluation questions (KEQs), and associated indicators and data collection methods.

Program Logic

The program logic describes how project activities are expected to lead to short term outcomes (1-3 years) and medium-term outcomes (3-5 years) and how those link to the RLP 5-year Outcomes. The program logic is supported by a set of assumptions about the relationships between activities, outputs

and outcomes and any external factors that may influence the delivery and results of a project.

KEQs

Each MERI plan includes a set of key evaluation questions and sub-questions linked to evaluation domains (e.g., effectiveness, impact, efficiency, appropriateness and legacy). The development of KEQs is tailored to the purpose, and use of the evaluation and in the case of RLP projects, meets formal requirements for end-of-project evaluations.

Monitoring and data collection

Monitoring and data collection, including the selection of indicators, is guided by the KEQs and will be informed by the RLP evaluation framework and consideration of what is practical and feasible given available resources.

It is expected that short-term outcomes may be measured through activities and deliverables. In contrast, the evaluation of medium-term outcomes will examine the effectiveness of project activities through a combination of suitable monitoring design, expert elicitation, and literature review. Where resources and time permit, the WGCMA also undertakes a more in-depth evaluation of management effectiveness, testing assumptions and continuous improvement.

Reporting

RLP projects are reported on every six months through the Monitoring, Evaluation, Reporting and Improvement Tool (MERI). Formal evaluation is undertaken at the end of the project, guided by their respective MERI plans.

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Appendix 1. EPBC listed species and communities considered in prioritisation

Table 31. Threatened species considered in the prioritisation process for the NRM Plan (DELWP, 2021; DELWP, 2021a)

Species	Common Name	Group	EPBC Status
Litoria aurea	Green and Golden Bell Frog	Fauna - amphibian	Vulnerable
Litoria raniformis	Growling Grass Frog	Fauna - amphibian	Vulnerable
Litoria spenceri	Spotted Tree Frog	Fauna - amphibian	Critically Endangered
Litoria verreauxii alpina	Alpine Tree Frog	Fauna - amphibian	Critically Endangered
Philoria frosti	Baw Baw Frog	Fauna - amphibian	Endangered
Anthochaera phrygia	Regent Honeyeater	Fauna - bird	Critically Endangered
Botaurus poiciloptilus	Australasian Bittern	Fauna - bird	Critically Endangered
Calidris canutus	Red Knot	Fauna - bird	Endangered
Calidris ferruginea	Curlew Sandpiper	Fauna - bird	Critically Endangered
Calidris tenuirostris	Great Knot	Fauna - bird	Critically Endangered
Calyptorhynchus banksii graptogyne	Red-tailed Black-Cockatoo (south-eastern)	Fauna - bird	Endangered
Charadrius leschenaultii	Greater Sand Plover	Fauna - bird	Vulnerable
Charadrius mongolus	Lesser Sand Plover	Fauna - bird	Endangered
Grantiella picta	Painted Honeyeater	Fauna - bird	Vulnerable
Halobaena caerulea	Blue Petrel	Fauna - bird	Vulnerable
Hirundapus caudacutus	White-throated Needletail	Fauna - bird	Vulnerable
Lathamus discolor	Swift Parrot	Fauna - bird	Critically Endangered
Limosa lapponica	Bar-tailed Godwit	Fauna - bird	Vulnerable
Macronectes giganteus	Southern Giant-Petrel	Fauna - bird	Endangered
Macronectes halli	Northern Giant-Petrel	Fauna - bird	Endangered
Neophema chrysogaster	Orange-bellied Parrot	Fauna - bird	Critically Endangered
Numenius madagascariensis	Eastern Curlew	Fauna - bird	Critically Endangered
Pedionomus torquatus	Plains-wanderer	Fauna - bird	Critically Endangered
Phoebetria fusca	Sooty Albatross	Fauna - bird	Critically Endangered
Pterodroma leucoptera	Gould's Petrel	Fauna - bird	Endangered
Rostratula australis	Australian Painted-snipe	Fauna - bird	Critically Endangered
Sternula nereis	Fairy Tern	Fauna - bird	Critically Endangered
Thalassarche carteri	Indian Yellow-nosed Albatross	Fauna - bird	Endangered
Thalassarche cauta	Shy Albatross	Fauna - bird	Endangered
Thalassarche chrysostoma	Grey-headed Albatross	Fauna - bird	Endangered
Thalassarche melanophris	Black-browed Albatross	Fauna - bird	
Thinornis cucullatus	Hooded Plover	Fauna - bird	Vulnerable
Galaxiella pusilla	Dwarf Galaxias	Fauna - fish	Endangered
Maccullochella macquariensis	Trout Cod	Fauna - fish	Endangered
Maccullochella peelii	Murray Cod	Fauna - fish	Endangered
Macquaria australasica	Macquarie Perch	Fauna - fish	Endangered
Prototroctes maraena	Australian Grayling	Fauna - fish	Endangered
Euastacus bispinosus	Glenelg Spiny Crayfish	Fauna - invert.	Endangered
Megascolides australis	Giant Gippsland Earthworm	Fauna - invert.	Vulnerable
Antechinus minimus maritimus	Swamp Antechinus	Fauna - mammal	Vulnerable
Arctophoca tropicalis	Subantarctic Fur Seal	Fauna - mammal	Endangered
Dasyurus maculatus maculatus	Spot-tailed Quoll	Fauna - mammal	Endangered
Eubalaena australis	Southern Right Whale	Fauna - mammal	Endangered
Gymnobelideus leadbeateri	Leadbeater's Possum	Fauna - mammal	Critically Endangered
Isoodon obesulus obesulus	Southern Brown Bandicoot	Fauna - mammal	Endangered
Mastacomys fuscus mordicus	Broad-toothed Rat	Fauna - mammal	Vulnerable
Megaptera novaeangliae australis	Southern Humpback Whale	Fauna - mammal	Critically Endangered
Mirounga leonina	Southern Elephant Seal	Fauna - mammal	Vulnerable
Petauroides volans	Southern Greater Glider	Fauna - mammal	Vulnerable

Species	Common Name	Group	EPBC Status
Potorous tridactylus trisulcatus	Long-nosed Potoroo	Fauna - mammal	Vulnerable
Pseudomys fumeus	Smoky Mouse	Fauna - mammal	Endangered
Pseudomys novaehollandiae	New Holland Mouse	Fauna - mammal	Vulnerable
Pteropus poliocephalus	Grey-headed Flying-fox	Fauna - mammal	Vulnerable
Caretta caretta	Loggerhead Turtle	Fauna - reptile	Endangered
Cyclodomorphus praealtus	Alpine She-oak Skink	Fauna - reptile	Critically Endangered
Dermochelys coriacea	Leathery Turtle	Fauna - reptile	Critically Endangered
Eretmochelys imbricata	Hawksbill Turtle	Fauna - reptile	Vulnerable
Amphibromus fluitans	River Swamp Wallaby-grass	Flora	
Asplenium hookerianum	Maidenhair Spleenwort	Flora	Critically Endangered
Astelia australiana	Tall Astelia	Flora	Endangered
Boronia galbraithiae	Aniseed Boronia	Flora	Critically Endangered
Caladenia orientalis	Eastern Spider-orchid	Flora	Endangered
Caladenia tessellata	Thick-lip Spider-orchid	Flora	Vulnerable
Callitris oblonga subsp. oblonga	Dwarf Cypress-pine	Flora	Endangered
Commersonia prostrata	Dwarf Kerrawang	Flora	Endangered
Dianella amoena	Matted Flax-lily	Flora	Critically Endangered
Dodonaea procumbens	Trailing Hop-bush	Flora	Vulnerable
Eucalyptus crenulata	Buxton Gum	Flora	Endangered
Eucalyptus strzeleckii	Strzelecki Gum	Flora	Vulnerable
Glycine latrobeana	Clover Glycine	Flora	Vulnerable
Lobelia gelida	Snow Pratia	Flora	Endangered
Pomaderris vacciniifolia	Round-leaf Pomaderris	Flora	Critically Endangered
Prasophyllum correctum	Gaping Leek-orchid	Flora	Critically Endangered
Prasophyllum frenchii	Maroon Leek-orchid	Flora	Endangered
Prasophyllum spicatum	Dense Leek-orchid	Flora	Critically Endangered
Prostanthera galbraithiae	Wellington Mint-bush	Flora	Endangered
Pseudocephalozia paludicola	Alpine Leafy Liverwort	Flora	Critically Endangered
Pterostylis chlorogramma	Green-striped Greenhood	Flora	Endangered
Pterostylis cucullata	Leafy Greenhood	Flora	Vulnerable
Pterostylis tenuissima	Swamp Greenhood	Flora	Vulnerable
Syzygium paniculatum	Magenta Cherry	Flora	Vulnerable
Thelymitra epipactoides	Metallic Sun-orchid	Flora	Endangered
Xerochrysum palustre	Swamp Everlasting	Flora	Critically Endangered
Additional species considered (nominations from regional stakeholders)			
Colobanthus curtisiae	Snowy Colonbath	Flora	Vulnerable
Epilobium brunnescens subsp. beaugleholei	Bog Willow Herb	Flora	Vulnerable
Nematolepis squamea subsp. retusa	Harsh Nematolepis	Flora	Vulnerable
Diuris Ochroma	Pale Golden Moths	Flora	Vulnerable
Caladenia concolor	Crimson Spider Orchid	Flora	Vulnerable
Heleioporus australiacus	Giant Burrowing Frog	Fauna - amphibian	Vulnerable
Pseudophryne semimarmorata	Southern Toadlet	Fauna - amphibian	Not EPBC listed FFG listed as Endangered
(Phascolarctos cinereus	Koala	Fauna – mammal	Not EPBC listed in Victoria
Galaxias n.sp *Galaxias gunaikurnai* *Galaxias longifungus* *Galaxias lanceolatus*	Morwell Galaxias Shaw Galaxias* West Gippsland Galaxias* Tapered Galaxias*	Fauna – fish	*Undergoing EPBC nomination # FFG listed as Critical Endangered
Engaeus australis *Engaeus curvisuturus* *Engaeus karnanga* *Engaeus phyllocercus* *Engaeus rostrogaleatus*	Lilly Pilly Burrowing Crayfish# Curve-tail Burrowing Crayfish South Gippsland Burrowing Crayfish Narracan Burrowing Crayfish Strzelecki Burrowing Crayfish	Fauna - invertebrates	Not EPBC listed, FFG listed: # Critically Endangered, all other species noted are Endangered

Species	Common Name	Group	EPBC Status
Engaeus sternalis *Euastacus crassus c* *Euastacus neodiversus*	Warragul Burrowing Crayfish # Alpine Spiny Crayfish c South Gippsland Spiny Crayfish		

Table 32. Threatened Ecological Communities identified as potentially occurring in the West Gippsland region and considered in prioritisation (DAWE, 2021)

Threatened Ecological Community	EPBC Status
Alpine Sphagnum Bogs and Associated Fens	Endangered
Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland	Critically Endangered
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered
Subtropical and Temperate Coastal Saltmarsh	Vulnerable
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered
Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community	Endangered
Giant Kelp Marine Forests of South East Australia	Endangered
River Flat Eucalypt Forest on coastal floodplains of southern NSW & Eastern Victoria	Critically Endangered

Appendix 2. Prioritisation results for EPBC species and communities

This Appendix sets out the shortlisted and priority threatened species and ecological communities for inclusion in the West Gippsland NRM Plan. Below is the shortlist of medium and high priority species and ecological communities and their recommendation for inclusion in the NRM Plan.

1. Species and communities' updated shortlist

Flora (8 species)

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan
Caladenia orientalis	Eastern Spider-orchid	Endangered	HIGH	On ground works	Yes
Commersonia prostrata	Dwarf Kerrawang	Endangered	MEDIUM	On ground works and research	Yes
Dianella amoena	Matted Flax-lily	Endangered	MEDIUM	On ground works	Yes
Eucalyptus strzeleckii	Strzelecki Gum	Vulnerable	MEDIUM	On ground works	Yes
Prasophyllum frenchii	Maroon Leek-orchid	Endangered	HIGH	Seed collection and ex-situ conservation On ground works	Yes
Prostanthera galbraithiae	Wellington Mint-bush	Vulnerable	MEDIUM	Research and translocation On ground works	Yes
Thelymitra epipactoides	Metallic Sun-orchid	Endangered	HIGH	Ex-situ conservation	Yes
Xerochrysum palustre	Swamp Everlasting	Vulnerable	MEDIUM	On ground works	Yes

Ecological Communities (5 ecological communities)

Threatened Ecological Community	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan
Alpine Sphagnum Bogs and Associated Fens	Endangered	HIGH	On ground works	Yes
Gippsland Red Gum (*Eucalyptus tereticornis subsp. mediana*) Grassy Woodland and Associated Native Grassland	Critically Endangered	HIGH	On ground works	Yes
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	HIGH	On ground works and research	Yes
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	HIGH	On ground works and research	Yes
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	HIGH	On ground works	Yes
Open coast estuaryes				

Birds (1 species)

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan
Thinornis cucullatus	Hooded Plover	Vulnerable	HIGH	On ground works and research	Yes

Mammals (3 species)

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan
Gymnobelideus leadbeateri	Leadbeater's Possum	Critically Endangered	HIGH	On ground works and research	Yes
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable	HIGH	On ground works and research	Yes
Petauroides volans	Southern Greater Glider	Vulnerable[9]	MEDIUM	On ground works, research and awareness raising	Yes

Note following workshop 2, the potential to include Koala *(Phascolarctos cinereus)* in the NRM Plan given the recent upgrade to its listing status to Endangered under the EPBC Act in NSW, QLD and the ACT. The Australian Government also recently announced funding of $50 M for recovery of this species in the states that it is listed as well as national monitoring[10].

In Victoria, Koala are not listed as threatened under either the FFG Act or the EPBC Act and are noted to be widespread across Victoria[11]. In Victoria, there are regional differences in population status and their management is complicated by their presence in eucalypt plantations subject to harvesting. Recent modelling (Heard and Ramsey, 2020) suggests that the population may be larger than previous estimates. The largest population of Koala are predicted to occur in the Barwon South West, Gippsland and Hume regions. Koala density across Gippsland is predicted to be relatively low, however there is uncertainty about the density of populations in some areas including the foothills of Gippsland. Modelling suggests 6.11% of the Gippsland population in native forest and woodland and 0.93% of the population in eucalypt plantations were affected by the 2019-20 wildfires (noting this incorporates both the West and East Gippsland CMA regions)[12]. DELWP are currently updating their Koala Management Strategy however it is unclear what the timeframes are for this. Given the status of Koala in Victoria under both sets of threatened species' legislation and the Australian Government's focus on investment in NSW, QLD and the ACT we do not recommend the species be included in the shortlist, however the importance of the region for supporting Koala populations could be highlighted in the case that Australian Government investment priorities change into the future.

[9] The species is currently listed as Vulnerable and previously incorporated both the Greater Glider (northern) (*P. minor*) and southern Greater Glider (*P. Volans*). In 2021 *P.volans* was nominated for listing as Endangered.

[10] Australian Government (2022) Koala conservation. https://www.awe.gov.au/environment/biodiversity/bushfire-recovery/funding-support/koala-conservation

[11] DELWP (2022). Koalas in Victoria. https://www.wildlife.vic.gov.au/our-wildlife/koalas

[12] Heard, G. W. and Ramsey, D.S.L (2020). Modelling Koala abundance across Victoria. Unpublished Client Report for Biodiversity Division, Department of Environment, Land, Water and Planning. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.

Amphibians, fish, reptiles and invertebrates (2 species)

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan
Megascolides australis	Giant Gippsland Earthworm	Vulnerable	HIGH	On ground works, research and awareness raising	Yes
Litoria aurea	Green and Golden Bell Frog	Vulnerable	MEDIUM	On ground works	Yes

Note following workshop 2, the potential to include multiple crayfish species[13] in the NRM plan was raised. These species are currently listed under the FFG Act. Four of these species have action statements and have been the focus of recent work by DELWP, however it doesn't appear that any of the species are currently going through the assessment process for listing under the EPBC Act. There was a decision not to include these species in the priorities as a specific project could not be defined and the species are not EPBC Act listed.

[13] Alpine Burrowing Crayfish, Curve-tail Burrowing Crayfish, Gippsland Burrowing Crayfish, Lily Pilly Burrowing Crayfish, Narracan Burrowing Crayfish, South Gippsland Spiny Crayfish, Strzelecki Burrowing Crayfish, Warragul Burrowing Crayfish

2. Shortlisting details for Medium and High priorities

Flora and Ecological Communities

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Is this species associated shortlisted Threatened Ecological Community?
Caladenia orientalis	Eastern Spider-orchid	Endangered	HIGH	On ground works	Yes	Caging individual plants to protect against grazing (native & introduced herbivores) on PV land e.g Wonthaggi Heathland, Walkerville. Other actions include ecological burning and control of shrubs.	
Prasophyllum frenchii	Maroon Leek-orchid	Endangered	HIGH	Seed collection and ex-situ conservation On ground works	Yes	Potential for a fencing project to keep out 4WD, hunters and motorbikes. Fund propagation of collected seed at RBG for a future translocation project (plenty of candidate sites at Dutson Downs). Species is not secure at Yarram aerodrome site.	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Natural Damp Grassland of the Victorian Coastal Plains
Thelymitra epipactoides	Metallic Sun-orchid	Endangered	HIGH	Ex-situ conservation	Yes	Increase numbers of plants at RBG and establish second translocation site for future translocation project. Site could be reintroduction to Golden Beach population or another site at Dutson Downs.	

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Is this species associated shortlisted Threatened Ecological Community?
Commersonia prostrata	Dwarf Kerrawang	Endangered	MEDIUM	On ground works Research	Yes	Various locations Fire appears to be essential for this species' lifecycle. Conduct ecological burn with pre- and post-fire monitoring and publish results. Suitable sites at Dutson Downs (SD) Reduce/control Burgan encroachment around wetlands with *C. prostrata* at TfN Reserves (~5ha Bush Family Reserve; ~2ha Frair Reserve; ~2ha Billabong West Reserve). Reduce grassy biomass and competition with *C. prostrata* at TfN Reserves (~1ha Bush Family Reserve; ~0.5ha Frair Reserve; ~0.5ha Billabong West Reserve). Biomass reduction could be through ecological / cultural burning	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Seasonal Herbaceous Wetlands
Dianella amoena	Matted Flax-lily	Endangered	MEDIUM	On ground works	Yes	Undertake rabbit and weed control Gippsland Plains Rail Trail, Dawson Flora Reserve, Darriman Grassland Reserve, TfN properties, roadside and Rail reserves and Eric Lubecke Yarra Gum Reserve. Control of noxious weeds (primarily Blackberry and Watsonia) and removal of woody weeds between Flynn and the Rail-freeway underpass at Morwell. Establish new populations of *D.amoena in* secure high quality remnant areas managed for conservation purposes (ie: TfN properties, The Knob Reserve etc). Include TfN covenants with suitable habitat	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Natural Damp Grassland of the Victorian Coastal Plains

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Is this species associated shortlisted Threatened Ecological Community?
Prostanthera galbraithiae	Wellington Mint-bush	Vulnerable	MEDIUM	Research and translocation On ground works	Yes	Genetic research - translocation (introductions) between Dutson and Holey Plains populations likely to yield significant benefits, but small amount of research could determine these. Small amount of funding and multi-agency support (GW, PV, DELWP, WGCMA & DAWE) for the molecular work could be crucial to project proceeding. Shrub encroachment management in existing fenced populations in Holey Plains SP - maintaining Burgan cover to EVC benchmark levels.	
Xerochrysum palustre	Swamp Everlasting	Vulnerable	MEDIUM	On ground works	Yes	Undertake seasonal weed control as required at Gelliondale. Seed collection and propagation for translocation (introduction) into secure site(s) as well as conservation of remaining populations should be a priority. Secure sites under permanent and active conservation with suitable habitat present at Dutson Downs. Parks Vic are able to identify and provide managed locations.	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Seasonal Herbaceous Wetlands Open-coast salt-wedge estuaries Alpine Sphagnum Bogs and Associated Fens [unclear if this is the case in West Gippsland]
Eucalyptus strzeleckii	Strzelecki Gum	Vulnerable	MEDIUM	On ground works	Yes	Protection of mature 'paddock trees', buffering and revegetation. Focus for the Alpine-Strzelecki biolink project.	

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Is this species associated shortlisted Threatened Ecological Community?
Pomaderris vacciniifolia	Round-leaf Pomaderris	Critically Endangered	HIGH	Research	Maybe	Demographic monitoring will facilitate our understanding of fire interval required to manage the species. Discussions with DELWP Latrobe District, to modify the burn unit boundaries and burn schedule will be essential prior to 2023. Extending the search area for the species, significant amount (hundreds of hectares) of modelled habitat for this species on GW land in Moondarra catchment. Some funding for targeted searches on our land could identify new populations.	No
Pseudocephalozia paludicola	Alpine Leafy Liverwort	Vulnerable	HIGH	Requires further investigation	No, a feasible project was not identified.	Parks Vic to investigate if 'inappropriate access' issues are within the Parks estate. If so a discrete project could be developed to address this issue.	Note conservation advice indicates the distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological communities.
Lobelia gelida	Snow Pratia	Vulnerable	HIGH	On ground works	No, however actions for the Alpine Peatlands may benefit this species	None suggested however general actions from Alpine Peatlands RLP project likely to benefit this species e.g., managing inappropriate access, deer control, weed control (Wonnangatta Moroka unit)	Not specifically noted as part of the Alpine Sphagnum Bogs and Associated Fens EC however the VSAP identifies it.
Prasophyllum correctum	Gaping Leek-orchid	Endangered	HIGH	Seed collection and ex-situ conservation	No, a feasible project was not identified	Parks Vic are able to identify and provide managed locations – actions identified include propagate and establish ex-situ population ecological burning and management of grazing pressure.	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands
Prasophyllum spicatum	Dense Leek-orchid	Vulnerable	MEDIUM	Seed collection and ex-situ conservation	No, a feasible project was not identified	None specifically suggested however actions include seed and mycorrhiza collection and establishment of ex-situ population (e.g Cape Paterson)	

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Is this species associated shortlisted Threatened Ecological Community?
Caladenia tessellata	Thick-lip Spider-orchid	Vulnerable	MEDIUM	Research and survey	No, a feasible project was not identified	Species also present at Dutson Downs in permanent conservation area. Difficult species to survey for, but targeted surveys to better understand distribution and ecological preferences would be beneficial.	
Thelymitra matthewsii	Spiral sun orchid	Vulnerable		Insufficient information to proceed	No, insufficient information	Suggest this species is not taken further.	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands
Pterostylis tenuissima	Swamp Greenhood	Vulnerable	MEDIUM	Unclear what the actions would be	No, insufficient information		Open-coast salt-wedge estuaries
Astelia australiana	Tall Astelia	Vulnerable	HIGH	Unclear what the actions would be	No, insufficient information	Suggest this species is not taken further.	

Threatened Ecological Community	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Associated EPBC species that may benefit from such a project.
Alpine Sphagnum Bogs and Associated Fens	Endangered	HIGH	On ground works	Yes	Based on existing project and INFFER assessment: Surveillance and treatment of pest plants (primarily willows, soft rush) Control inappropriate foot and vehicle access Inclusion of deer control activities will be subject to the review of the current program	*Xerochrysum palustre, Lobelia gelida, Philoria frosti*
Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland	Critically Endangered	HIGH	On ground works – hierarchy of actions proposed[14]	Yes	Combined fencing / grazing management, rabbit control & transformer weed / shrub control, in locations where conservation is a primary objective for the land manager, and where edge effects can be reduced (protecting the best) – site selection may require more specific consideration.	*Dianella amoena, Xerochrysum palustre, Commersonia prostrata, Thelymitra matthewsii, Prasophyllum frenchii Litoria raniformis*
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	HIGH	On ground works and research	Yes	Weed control in extant community areas in Bass Coast region. Bass Highway and adjoining roads and Rail Trail between Wonthaggi and Anderson. Mapping and survey work to identify extent of community across its range.	*Dianella amoena, Prasophyllum frenchii Litoria raniformis*
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	HIGH	On ground works and research	Yes	Scoping of private properties within mapped extent of community to identify locations, enable landholder engagement, and assessment of condition of existing SH Wetlands. Past assessments of SHW distribution and condition by ARI/Damian Cook could inform this. Establish agreements (and permanent protection) with private landholders to guide and incentivise improved management of SHW.	*Commersonia prostrata Litoria raniformis*
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	HIGH	On ground works	Yes	Part of the current RLP investment program in Corner Inlet. Propose to extend further - actions include fencing and provision of buffers for migration, permanent protection, weed control and addressing hydrological impacts.	*Litoria aurea, Neophema chrysogaster,* Migratory shorebirds (e.g. Eastern Curlew)
Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community	Endangered	HIGH	Could be on ground works or research	Yes	Restoring the natural hydrology of aquatic systems, where possible, would allow for migration of species uphill as sea levels rise. Alternative land management to alleviate the need for artificial estuary openings.	*Pterostylis tenuissima, Thinornis cucullatus, Antechinus minimus maritimus Prototroctes maraena, Galaxiella pusilla*

[14] Hierarchy of actions: Permanent protection, address grazing pressure (fencing), control of rabbits, address shrub encroachment, weed control

Birds

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Associated shortlisted Threatened Ecological Community
Thinornis cucullatus	Hooded Plover	Vulnerable	HIGH	On ground works and research	Yes	Targeted fox control (assess existing BirdLife database), trialling audio and scent cues (existing ethics/permits in place to do so, $ required for consumables, audio devices and logistical support), Targeted intervention in areas with high human use for (signage, fencing) and summer pop up (scope on beach) events at these sites to educate beach users Parks Vic support to protect the coastal strip Bass coast and including 90m beach. Increase profile and funding of Landcare's support to controlling pest predators on adjoining coastal private land. Increase profile by adopting a Coastal Ark style approach. Re- initiate fox drives as a control mechanism at Jacks Smith beach.	Subtropical and Temperate Coastal Saltmarsh Open-coast salt-wedge estuaries
Botaurus poiciloptilus	Australasian Bittern	Endangered	HIGH	Research	No, suggested actions primarily monitoring and research		Natural Damp Grassland of the Victorian Coastal Plains Subtropical and Temperate Coastal Saltmarsh Open-coast salt-wedge estuaries Note: these are secondary habitat rather than primary breeding and feeding habitat

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Associated shortlisted Threatened Ecological Community
Sternula nereis	Fairy Tern	Vulnerable	HIGH	Not clear	No, although are a focus in Gippsland Lakes (East Gippsland Management Unit)	No project suggested – actions included managing access to breeding sites, integrated predator control and sand renourishment	Subtropical and Temperate Coastal Saltmarsh Open-coast salt-wedge estuaries
Neophema chrysogaster	Orange-bellied Parrot	Critically Endangered	MEDIUM	Research although will benefit from saltmarsh protection / enhancement activities.	No, suggested actions primarily monitoring and research.	Powlett River – saltmarsh protection, allow flooding regime to be reintroduced Additional survey to understand if OBP are visiting the region	Subtropical and Temperate Coastal Saltmarsh Open-coast salt-wedge estuaries
Numenius madagascariensis	Eastern Curlew	Critically Endangered	HIGH	Research	No, suggested actions primarily monitoring and research.	Targeted monitoring at roost and foraging sites during peak season to map fine scale temporal and spatial use. Include threat mapping and identification of key user groups using sites to develop targeted education (dogs breakfast events, fishing/boating events). Explore feasibility of including identification of sensitive sites in maps in permanent signage at boat ramps, and accompanying conservation messaging about behaviours desired around sensitive sites. Parks Vic - Sea level raise modelling to identify future roost sites. Project for cross authority group to manage. See Predicative modelling project identified for estuaries EC.	Subtropical and Temperate Coastal Saltmarsh
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	HIGH	As above	As above		Subtropical and Temperate Coastal Saltmarsh

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Associated shortlisted Threatened Ecological Community
Calidris tenuirostris	Great Knot	Critically Endangered	HIGH	As above	As above		Subtropical and Temperate Coastal Saltmarsh
Charadrius mongolus	Lesser Sand Plover	Endangered	HIGH	As above	As above		Subtropical and Temperate Coastal Saltmarsh
Calidris canutus	Red Knot	Endangered	HIGH	As above	As above		Subtropical and Temperate Coastal Saltmarsh
Limosa lapponica	Bar-tailed Godwit	Vulnerable	MEDIUM	As above	As above		Subtropical and Temperate Coastal Saltmarsh
Charadrius leschenaultii	Greater Sand Plover	Vulnerable	MEDIUM	As above	As above		Subtropical and Temperate Coastal Saltmarsh

Mammals

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Associated shortlisted Threatened Ecological Community
Gymnobelideus leadbeateri	Leadbeater's Possum	Critically Endangered	HIGH	On ground works and research	Yes	Identify areas within the core of the species range (e.g Tooroongo) where hollow-bearing tree densities are declining such that existing colonies may no longer be viable, and provide additional nesting resources in the form of chainsaw hollows or nest boxes. Undertake hollow-bearing tree density assessments and camera trapping to identify target locations for hollow supplementation, and then monitor the artificial hollows for subsequent occupancy	
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable	HIGH	On ground works and research	Yes	Habitat surveys and planned burning at Loch Sport with dietary scat analysis research	
Petauroides volans	Southern Greater Glider	Vulnerable	MEDIUM	On ground works, research and awareness raising	Yes	None suggested but actions include protection of old large tree hollows and installation of artificial hollows in Strzelecki's plus awareness raising.	
Pseudomys fumeus	Smoky Mouse	Endangered	HIGH	Research	No, suggested actions primarily monitoring and research.	Research and survey to better understand species requirements	
Antechinus minimus maritimus	Swamp Antechinus	Vulnerable	MEDIUM	On ground works	No, difficult to demonstrate effectiveness of integrated pest control activities at landscape scale within funding timeframes	see Coastal Ark project idea for Southern Brown Bandicoot	Open-coast salt-wedge estuaries

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	Project suggestions from stakeholders	Associated shortlisted Threatened Ecological Community
Isoodon obesulus obesulus	Southern Brown Bandicoot	N/A	MEDIUM	On ground works (Wonthaggi Heathlands and buffer areas)	No, difficult to demonstrate effectiveness of integrated pest control activities at landscape scale within funding timeframes	Parks funding for SBB predator control due to stop 2024. Locations at Wonthaggi heathlands and Adams Creek. Funding stream is required beyond this time to continue works. Scope to grow project (expand into PPW area)	Natural Damp Grassland of the Victorian Coastal Plains
Mastacomys fuscus mordicus	Broad-toothed Rat	Vulnerable	MEDIUM	On ground works	No, a feasible project was not identified	None identified – advice that Reduce grazing impacts from horse and deer in alpine/sub-alpine areas current program is 3 years into a 4 year program	
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	MEDIUM	Emergency measures – not aligned with investors guidelines.	No, emergency measures not in scope for RLP investment	Emergency measures during extreme heat events. Engagement activities.	
Potorous tridactylus trisulcatus	Long-nosed Potoroo	Vulnerable	MEDIUM	Covered through Prom Safe havens project	No, investment in Wilsons Prom Safe Havens project addresses this species		

Amphibians, fish, reptiles and invertebrates

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	What would a feasible project involve? (3-4 sentences)	Associated shortlisted Threatened Ecological Community
Litoria aurea	Green and Golden Bell Frog	Vulnerable	MEDIUM	On ground works	Yes	Fencing and habitat restoration in farm dams where species is known. Project could include installing alternative watering sources for cattle, fencing and regeneration/revegetation of dams.	Seasonal Herbaceous Wetlands Subtropical and Temperate Coastal Saltmarsh
Megascolides australis	Giant Gippsland Earthworm	Vulnerable	HIGH	On ground works and research	Yes	Awareness raising, habitat protection and survey etc.	
Litoria raniformis	Growling Grass Frog	Vulnerable	MEDIUM	On ground works Planning	No, species is the focus of projects associated with Gippsland Lakes.	Actions include creating habitat linkages and planning provisions	Gippsland Red Gum Grassy Woodlands and Associated Native Grasslands Natural Damp Grassland of the Victorian Coastal Plains Seasonal Herbaceous Wetlands Open-coast salt-wedge estuaries
Litoria spenceri	Spotted Tree Frog	Critically Endangered	HIGH	Research Forestry management other actions outside of West Gippsland	No, forestry management not in scope of RLP. Survey only actions not in line with RLP investment.	Survey of species to improve knowledge about distribution	
Philoria frosti	Baw Baw Frog	Critically Endangered	HIGH	Unclear what the NRM Plan can feasibly do for this species	No, a feasible project was not identified.		Alpine Sphagnum Bogs and Associated Fens

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	What would a feasible project involve? (3-4 sentences)	Associated shortlisted Threatened Ecological Community
Prototroctes maraena	Australian Grayling	Vulnerable	HIGH	On ground works	No, this species is the focus of waterway management and environmental programs	Addressing fish barriers e.g Merriman Creek however may be considered part of waterway health program	Open-coast salt-wedge estuaries
Galaxiella pusilla	Dwarf Galaxias	Vulnerable	MEDIUM	Some important populations in central Gippsland but would need to investigate actions further	No, to be considered in waterway management programs.	No projects proposed but could involve protection/restoration of habitat at known sites e.g Flooding Creek, Merriman Creek and Wades Creek meta-populations	Open-coast salt-wedge estuaries
Galaxias n.sp.	Morwell Galaxias	Submitted for assessment		Not currently listed but haven been nominated.	Highlight for consideration once nominations process is complete	No projects proposed but DELWP currently funded to undertake trout removal and relocation/stocking and addressing barriers	
Galaxias gunaikurnai	Shaw Galaxias	Submitted for assessment (FFG – Critically Endangered)		As above	As above	As above	
Galaxias lanceolatus	Tapered Galaxias	Submitted for assessment (FFG – Critically Endangered)		As above	As above	As above	
Galaxias longifundus	West Gippsland Galaxias	Submitted for assessment (FFG – Critically Endangered)		As above	As above	As above	

Scientific Name	Common Name	EPBC status	Overall priority	Type of project	Take through to NRM Action Plan	What would a feasible project involve? (3-4 sentences)	Associated shortlisted Threatened Ecological Community
Cyclodomorphus praealtus	Alpine She-oak Skink	Endangered	MEDIUM	Unclear what the actions would be	Maybe		
Litoria verreauxii alpina	Alpine Tree Frog	Vulnerable	MEDIUM	Not clear that there are any populations in West Gippsland	No, not clear that there are any populations in West Gippsland	Suggest this species is not taken any further	Alpine Sphagnum Bogs and Associated Fens

Appendix 3. Prioritisation results for sustainable agriculture practices

This section lists the proposed land management practices considered during prioritisation and their recommendation for inclusion in the West Gippsland NRM Plan. The initial list of candidate practices for Outcomes 5 and 6 was developed through consultation with stakeholders, consideration of the Australian Government investment priorities and an assessment based on the Public-Private Benefits Framework. This process resulted in a set of recommendations (Yes, No, Maybe) for consideration by the WGCMA. Practices that were initially classified as a 'Maybe' for inclusion in the NRM Plan were then reviewed by the WGCMA. This involved further discussion about the project design, feasibility and adoption issues prior to a final decision on their inclusion in the NRM Plan.

1. Prioritisation results

Table 1. Prioritisation results

Current Practice	Desired Practice	Geographic area/cohort	Include in NRM Action Plan?
Hillslope Erosion			
Uncontrolled stock access to vulnerable hillslope areas (variable).[15]	Fence off vulnerable areas to exclude/manage grazing pressure.	**Dairy and dryland grazing including lifestyle properties** in steep hill country, esp. Corner Inlet, Strzeleckis, Upper Latrobe	**Yes**
Set stocking with <70% ground cover in autumn in at least some years	Stocking rate adjusted to maintain >70% ground cover at all times	**Dryland grazing and lifestyle properties** – as above	**No**
Limited use of cover crops as part of the cultivation system	Multi species and extended duration of cover crops as part of system.	**Horticulture –** Thorpdale, Strzeleckis	**No**
Single lateral spray guns (travelling irrigator), delivering large droplets and high volume causing excessive run-off and soil disturbance upon impact.	Conversion to lateral sprays	**Horticulture –** Thorpdale, Strzeleckis	**Yes**
Soil Carbon			
Maintenance of soil carbon is achieved through measures that optimise pasture production including: • nutrient budgets and implementation, • optimising grazing regime to maintain ground cover, • soil ameliorants (e.g. lime and gypsum)	Current measures plus multi species pasture	**Dairy – very localised** (governed by soil type)	**No**

[15] For dairy current practice includes managing grazing pressure through rotation as it is part of feed management.

Current Practice	Desired Practice	Geographic area/cohort	Include in NRM Action Plan?
Conventional pasture management and minimal monitoring of carbon through soil testing.[16] Single species pasture	Monitoring carbon levels through soil testing. Additional practices if required to increase soil carbon include: Optimising grazing regime to maintain ground cover Use of Multi species pasture	**Dryland grazing -** Woodside, Giffard, East of the Avon River and coastal areas. Lighter soils can be very localised e.g. at paddock scale on individual farms in MID.	Yes
Conventional tillage, winter green manure cover crop turned into soil, non-retention of stubble. (bare ground)	Monitoring carbon levels through soil testing. Cover crop is mulched, and stubble is retained.	**Horticulture** (e.g. beans, snow peas) MID and through the Strzeleckis.	Yes
Soil Acidification			
Monitoring through soil testing + application of lime and other ameliorants where required.	Current practice, plus nutrient budget and implementation (e.g. targeted application of ameliorants and adjusting application of nutrients).	**Dairy and dryland grazing -** Soil acidity is not a big problem, some acid root mat problems – Bass Coast and the Gippsland Coastal plain. Where it occurs acidification is typically already being dealt with or soil pH is being maintained (e.g maintenance of past practice) Advice on individual farms is highly localised.	No
Regular testing of soil pH and applications of lime and/or dolomite.	Current practice is appropriate for managing soil acidification.	**Horticulture**	No
Native vegetation and biodiversity			
Uncontrolled stock access to remnants	Fencing, enhancement planting, weed control.	**Dairy and dryland grazing** Align with priorities for other programs e.g. remnants on waterways or threatened ecological communities.	Yes
Uncontrolled stock access to wetlands	Fencing, enhancement planting, weed control	**Dairy and dryland grazing** Floodplain wetlands – Thomson, Macalister, Latrobe, Tarra, Jack, Albert, Tarwin	Yes
(Development) Retain native vegetation in productive areas, removal under permit where it impedes development of land.	(Development) Protecting native vegetation (not clearing or removing understorey), controlling weeds and revegetation.	**Horticulture** MID and snow pea growers through the Strzelecki's.	~~TBC –~~ Revised to No at second workshop

[16] Context from WGCMA staff - the region has a combination of good soils, high rainfall and dairy as dominant agricultural land use and high soil carbon pre-European settlement – soil carbon levels are generally adequate. Majority of producers have high appreciation of the value of soil carbon. Agricultural land in lower rainfall areas with lighter soils have the most opportunity to improve soil carbon (S. Haywood pers. comm).

Current Practice	Desired Practice	Geographic area/cohort	Include in NRM Action Plan?
(Established) Very minimal revegetation / additional enhancement of native vegetation. Limited control of weeds at interface with productive areas,	(Established) Revegetation along interface areas, enhancement of remnant vegetation, management along waterways, using them as buffer zones. Control of weeds in non-productive areas.		Maybe (established) revised to Yes
Agricultural Systems Adaptation			
Inefficient irrigation systems	Conversion to lateral sprays, soil moisture monitoring and automation.	**Dairy** outside of MID e.g. Yarram (pasture irrigation and fodder crops) **Horticulture:** Outside of MID e.g. Thorpdale, Leongatha / Korumburra through to Thorpdale (Strzelecki's)	Yes
Limited water supply and storage infrastructure on farm	Installation of troughs, header tanks, reticulation systems, solar pumps and protection of farm dams (e.g. fencing) to provide for improved security of supply when there is low water availability	**Dairy and beef** grazing systems throughout the region Some areas the issue is more acute than others (Yarram – drop in watertables)	~~Maybe –~~ revised to No at second workshop
Nutrition strategies for dairy and beef cattle	Red Asparagoposis[17] supplements with potential to reduce methane emissions by up to 80%	**Dairy and beef feedlots** across the region	~~Yes –~~ revised to No at second workshop
Minimal shade for grazing animals	Shade establishment – shelterbelts and native vegetation on farms	**Dairy and beef** grazing systems across the region	Yes

[17] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247820

2.Practice assessment results

Table 2. Summary results West Gippsland RLP Practice Assessment

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Hillslope Erosion						
Uncontrolled stock access to vulnerable hillslope areas (variable).[18]	Fence off vulnerable areas to exclude/manage grazing pressure.	**Dairy and dryland grazing including lifestyle properties** in steep hill country, esp. Corner Inlet, Strzeleckis, Upper Latrobe	Positive incentives	**Yes**	Incentive program with supporting extension. For dairy could be added to existing pasture management and nutrient extension activities. Incentive for fencing could be delivered through WGCMA processes (as per previous land programs)	Locations to be further refined by WGCMA and linked with broader water quality priorities.
Set stocking with <70% ground cover in autumn in at least some years	Stocking rate adjusted to maintain >70% ground cover at all times	**Dryland grazing and lifestyle properties** – as above	No action	**No**		No action based on PPBF assessment

[18] For dairy current practice includes managing grazing pressure through rotation as it is part of feed management.

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Limited use of cover crops as part of the cultivation system	Multi species and extended duration of cover crops as part of system.	**Horticulture –** Thorpdale, Strzeleckis	No action (if public benefit is low) or Extension (if public benefit is moderate) – practice adoption is growing without intervention.	**Maybe**	Extension targeted to smaller growers.	Links to soil carbon practice. Some of larger growers already adopting this practice. Need to keep in mind longer term trend for increase in horticulture across the region. Snow peas seen as the crop causing the greatest risk as they tend to be located on steep slopes, on leased land (not permanent part of system) with high levels of tillage and limited use of cover crops. Question about how to engage with these growers, requires further consultation before this project concept could be further developed.
Single lateral spray guns (travelling irrigator), delivering large droplets and high volume causing excessive run-off and soil disturbance upon impact.	Conversion to lateral sprays	**Horticulture –** Thorpdale, Strzeleckis	Technology change (R & D) or no action	**Yes**	Initial engagement and trial with 'engaged growers' to help inform the need and design of a subsequent program. This would include engaging with relevant water authorities in hotspot areas.	Interest from Gippsland Water in the Thorpdale area. Practice probably applies to other areas given the shift to horticulture and increase in summer crops by dairy farms. This practice also has benefits for soil carbon.

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Soil Carbon						
Maintenance of soil carbon is achieved through measures that optimise pasture production including: • nutrient budgets and implementation, • optimising grazing regime to maintain ground cover, • soil ameliorants (e.g. lime and gypsum)	Current measures plus multi species pasture	**Dairy – very localised** (governed by soil type)	No action	**No (except through targeted extension)**	See below	No incentive action through PPBF

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Conventional pasture management and minimal monitoring of carbon through soil testing.[19] Single species pasture	Monitoring carbon levels through soil testing. Additional practices if required to increase soil carbon include: Optimising grazing regime to maintain ground cover Use of Multi species pasture	**Dryland grazing -** Woodside, Giffard, East of the Avon River and coastal areas. Lighter soils can be very localised e.g. at paddock scale on individual farms in MID.	TBC based on better understanding of public and private benefits	**Yes**	Extension – coordination to provide consistent messages (drawn from credible science) around carbon and organic matter and desired practices. Note there is a lot of work happening through other investment so it will be important not to duplicate.	There are genuine private benefits in improving soil carbon, there is also a carbon market that is starting to operate and for farmers to participate in if they desire (current level of participation is very low). There may be some benefit in splitting the messaging about soil organic matter and soil carbon. Soil organic matter improves productivity on farm. A shift to more horticulture in the region and greater use of summer crops in dairy could see an overall decrease[20] in soil carbon in the region. General agreement that no role for the NRM action plan in terms of incentives. Concern that not all of the messages being promoted by groups are founded in credible science.

[19] Context from WGCMA staff - the region has a combination of good soils, high rainfall and dairy as dominant agricultural land use and high soil carbon pre-European settlement – soil carbon levels are generally adequate. Majority of producers have high appreciation of the value of soil carbon. Agricultural land in lower rainfall areas with lighter soils have the most opportunity to improve soil carbon (S. Haywood pers. comm).

[20] Transitions from grazing to cropping will be driven by potential profitability advantages, which are likely to significantly outweigh any soil carbon payments, at least in the short term

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Conventional tillage, winter green manure cover crop turned into soil, non-retention of stubble. (bare ground)	Monitoring carbon levels through soil testing. Cover crop is mulched, and stubble is retained.	**Horticulture** (e.g. beans, snow peas) MID and through the Strzeleckis.	No action or extension	**Yes**	Extension and potentially trials – however further engagement is required before a project could be designed.	Note that snow pea growers can be difficult to engage. Further engagement required before a project could be designed.
Soil Acidification						
Monitoring through soil testing + application of lime and other ameliorants where required.	Current practice, plus nutrient budget and implementation (e.g. targeted application of ameliorants and adjusting application of nutrients).	**Dairy and dryland grazing -** Soil acidity is not a big problem, some acid root mat problems – Bass Coast and the Gippsland Coastal plain. Where it occurs acidification is typically already being dealt with or soil pH is being maintained (e.g maintenance of past practice) Advice on individual farms is highly localised.	No action[21]	**No**	**N/A**	There were no alternative positions posed – no further action on this practice.
Regular testing of soil pH and applications of lime and/or dolomite.	Current practice is appropriate for managing soil acidification.	**Horticulture**	**No action**	**No**	**N/A**	No further action at this stage, no action recommended under PPBF
Native vegetation and biodiversity						

[21] Expect that soil testing is probably not occurring 'across the board' in the localised areas where soil acidity occurs. Two scenarios one where there is no soil testing and one where current practice does involve soil testing and lime/ ameliorants. Could consider extension in localised areas to promote soil testing.

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Uncontrolled stock access to remnants	Fencing, enhancement planting, weed control.	**Dairy and dryland grazing** Align with priorities for other programs e.g. remnants on waterways or threatened ecological communities.	Positive incentives or no action (depends on value of native vegetation/landscape context)	**Yes**	R&D/Trial (valuing / accounting for biodiversity) Extension advice (around valuing biodiversity and benefits) Incentives to protect remnants and create buffers / improve structure and diversity – potentially linked to priorities emerging from the Environment Stream investment priorities.	Market looking to see better environmental stewardship from farmers. Requires engagement / promotion of biodiversity with the ag. sector. Two perspectives – social licence but also being able to verify benefits (e.g Accounting for Nature[22] approach) – important not to reinvent the wheel. Note: DairySAT has recently been updated to incorporate biodiversity. Public benefit will be increased with supplementary planting and landscape scale approach.
Uncontrolled stock access to wetlands	Fencing, enhancement planting, weed control	**Dairy and dryland grazing** Floodplain wetlands – Thomson, Macalister, Latrobe, Tarra, Jack, Albert, Tarwin	Positive incentive or no action	**Yes**		

[22] https://www.accountingfornature.org/

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
(Development) Retain native vegetation in productive areas, removal under permit where it impedes development of land.	(Development) Protecting native vegetation (not clearing or removing understorey), controlling weeds and revegetation.	**Horticulture** MID and snow pea growers through the Strzelecki's.	TBC	**TBC – revised to No at workshop for development)**		Current regulatory processes are sufficient to address development impacts. For example irrigation development guidelines require a farm plan that identifies how native vegetation will be retained/protected.

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
(Established) Very minimal revegetation / additional enhancement of native vegetation. Limited control of weeds at interface with productive areas,	(Established) Revegetation along interface areas, enhancement of remnant vegetation, management along waterways, using them as buffer zones. Control of weeds in non-productive areas.		Extension / Positive incentive	**Maybe (established) revised to yes at workshop**	Extension advice (around valuing biodiversity and benefits) Extension and incentive potentially focussed on smaller properties / lower minimum requirement for vegetation protection and revegetation with biodiverse plantings	Similar story to grazing industries regarding growing consumer demand for improved biodiversity (e.g social licence). For established growers there are funding programs for protecting and expanding native vegetation, however there are minimum area requirements (e.g 10ha). Potential link to IPA benefits / reduced chemical use (some trials underway)
Agricultural Systems Adaptation						
Inefficient irrigation systems	Conversion to lateral sprays, soil moisture monitoring and automation.	**Dairy** outside of MID e.g. Yarram (pasture irrigation and fodder crops) **Horticulture:** Outside of MID e.g. Thorpdale, Leongatha / Korumburra through to Thorpdale (Strzelecki's)	Technology change (R & D)	**Yes**	Informed by the learnings from the Sustainable Irrigation Program and Lake Wellington Land and Water Management Plan.	

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Limited water supply and storage infrastructure on farm	Installation of troughs, header tanks, reticulation systems, solar pumps and protection of farm dams (e.g. fencing) to provide for improved security of supply when there is low water availability	**Dairy and beef** grazing systems throughout the region Some areas the issue is more acute than others (Yarram – drop in watertables)	No action or R & D	**Maybe – revised to No at workshop**		Largely private benefit
Nutrition strategies for dairy and beef cattle	Red Asparagoposis[23] supplements with potential to reduce methane emissions by up to 80%	**Dairy and beef feedlots** across the region	Extension	**Yes – revised to No at workshop**		Desired practice is too specific in its current form, should encompass a broader range of breeding and feeding strategies. Role for industry and a lot of already happening in this space.

[23] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247820

Current Practice	Desired Practice	Geographic area/cohort	Recommended Policy Tool	Include in NRM Action Plan?	Project concept	Notes
Minimal shade for grazing animals	Shade establishment – shelterbelts and native vegetation on farms	**Dairy and beef** grazing systems across the region	Extension	**Yes**	Pilot program in targeted sub-catchment, extension and planning of whole of landscape shelter belt program with incentives. Include evaluation to determine if appropriate to roll out further. The idea would be to work with a willing group of co-operators to increase overall tree cover/shade at the farm scale in a way that improves biodiversity outcomes (greater connectivity between remnants, riparian protection etc) and supports animal production/animal health benefits.	Likely to require significant incentives to get uptake. Barriers to moving from a single row of trees to biodiverse plantings 20 -30m wide. Private net benefits reduce as shelter belt width increases but public net benefits increase. The challenge is also getting the design optimised to have a biodiversity benefit (links to the native vegetation and biodiversity investment priority). Lack of awareness about the range at which heat stress kicks in for dairy (e.g. >25C not the mid-30s). Note: further review is required to establish what is an optimal shelter belt design in the Gippsland context (that delivers biodiversity benefits as well as shade).

Appendix 4. Candidate Project matrix

Table 1. Matrix showing the alignment between projects and RLP Outcomes and the relevant RCS Local Area

Project	Primary RLP Outcome	Secondary RLP Outcome	Bunurong Coastal	Corner Inlet and Nooramunga	Gippsland Coastal Plains	Gippsland Lakes and Hinterland	Great Dividing Range and Foothills	Latrobe	Strzelecki	Wilsons Promontory
Corner Inlet Connections	1. Ramsar wetlands	2. EPBC listed Threatened Species 4. EPBC listed Ecological Communities		P					P	
Gippsland Lakes Enhancement						P	P	P		
Hooded Plover Protection	2. EPBC listed Threatened Species		P							
Threatened Mammal Protection						P	P	P	P	
Giant Gippsland Earthworm			P					P	P	
Threatened Flora			P	P	P	P		P		
Strzelecki Gum			P					P	P	
Alpine Sphagnum Bogs and Associated Fens	4. EPBC listed Ecological Communities	2. EPBC listed Threatened Species					P			
Gippsland Red Gum (*Eucalyptus tereticornis subsp. mediana*) Grassy Woodland and Associated Native Grassland and Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains					P	P		P		
Natural Damp Grassland of the Victorian Coastal Plains			P	P	P	P				
Subtropical and Temperate Coastal Saltmarsh			P		P					
Hillslope erosion – dryland grazing and dairy	5. Land management practices	1. Ramsar wetlands 4. EPBC listed Ecological Communities	P	P			P	P	P	
Hillslope erosion – horticulture	5. Land management practices	6. Agricultural systems adaptation 1. Ramsar wetlands						P	P	
Soil carbon – dryland grazing	5. Land management practices				P	P		P		

Project	Primary RLP Outcome	Secondary RLP Outcome	Bunurong Coastal	Corner Inlet and Nooramunga	Gippsland Coastal Plains	Gippsland Lakes and Hinterland	Great Dividing Range and Foothills	Latrobe	Strzelecki	Wilsons Promontory
Soil carbon – hillslope erosion	5. Land management practices		P					P	P	
Native vegetation and biodiversity – dryland grazing and dairy	5. Land management practices	6. Agricultural systems adaptation	P	P	P	P		P	P	
Native vegetation and biodiversity – horticulture	5. Land management practices		P			P			P	
Agricultural systems adaptation – shade and shelter	6. Agricultural systems adaptation	5. Land management practices	P	P	P	P	P	P	P	
Agricultural systems adaptation – irrigation upgrades	6. Agricultural systems adaptation			P	P		P	P	P	