CORANGAMITE REGIONAL LAND PARTNERSHIPS

Natural Resource Management Plan

2022-2027

CORANGAMITE CMA

Corangamite CMA Vision:

Healthy and productive lands and waters cared for and enjoyed by thriving communities

ACKNOWLEDGEMENTS

Aboriginal peoples have lived in the area now known as the Corangamite region for thousands of generations. The two Traditional Owners of the lands within the Corangamite region are the Wadawurrung and Eastern Maar. We acknowledge their Ancestors and Elders, past, present and emerging.

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01. Introduction

1.1 NATURAL RESOURCE MANAGEMENT (NRM) PLANNING REVIEW

The National Landcare Program (NLP), Regional Land Partnerships (RLP) Core Service Agreement requires the Corangamite Catchment Management Authority (CMA), as the service provider for the Corangamite Management Unit, to "Maintain the currency of natural resource management planning and prioritisation of management actions". *Table 1* provides the relevant identification information under the Core Services Agreement.

The purpose of this document is to demonstrate how the Corangamite CMA's renewed NRM Plan for the RLP Program (this document) aligns with the criteria under Clause 3.2 (c) of the current Core Services Agreement *(Appendix 6)* and provides the basis for prioritisation for any ongoing or future investment.

While there are six priority outcomes for targeted funding through the RLP program by the Department of Climate Change, Energy, the Environment and Water and the Department of Agriculture, Fisheries and Forestry (referred to collectively as Australian Government), only five of these apply within the Corangamite Management Unit. There are no World Heritage properties in the region.

The outcomes relevant to the Management Unit are:

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 (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

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.

1.2 CORANGAMITE MANAGEMENT UNIT

The Corangamite Management Unit *(Figure 1)* is located in South Western Victoria, within a geographic area stretching from Geelong to Ballarat and along the Surf Coast to Peterborough. The Corangamite region is bordered by the coast and includes a large portion of the Victorian Volcanic Plain bioregion through its centre and the Central Highlands to the north.

Aboriginal peoples have lived in the area now known as the Corangamite region for thousands of generations. The Recognised Aboriginal Parties for this region are the Eastern Maar and Wadawurrung peoples.

The region covers:

- 1.3 million hectares of land, with 78% in private ownership
- 175 kilometres of coast
- four catchment basins – Barwon, Lake Corangamite, Otway Coast and Moorabool.

It includes all or part of the cities of Ballarat and Greater Geelong, the Borough of Queenscliffe, and the Shires of Colac-Otway, Corangamite, Golden Plains, Moorabool, Moyne and Surf Coast.

The Corangamite region has rich and diverse landscapes reflecting its geological, climatic, and human history. The natural resources of the region are critical to sustaining the lifestyle of its residents and visitors, as well as providing important habitat for flora and fauna. The region's widespread, diverse and productive landscapes support forests, cropping, grazing, horticulture, viticulture and dairy enterprises. The economy of the region reflects its mix of agricultural and other primary industries along with tourism, manufacturing and a variety of service industries.

The significance of agriculture production to the region is evident in the 2019-20 Australian Bureau of Statistics Agricultural Commodities, Australia report that ranked the value of agricultural commodities *(see Table 2)*. Of note, the Corangamite region ranked second highest for whole milk and eighth overall.

Notable features of the region include Lake Corangamite, the largest permanent saline lake in Australia and the largest natural lake in Victoria, which is a Ramsar listed wetland and a haven for migratory and non-migratory birds. The Western District Lakes Ramsar site covers approximately 33,000 hectares and comprises nine separate lakes, which lie to the west, north and east of Colac.

FIGURE 1: The Corangamite Management Unit showing all nine Landscape Systems developed as part of the renewal of the Corangamite Regional Catchment Strategy 2021-2027

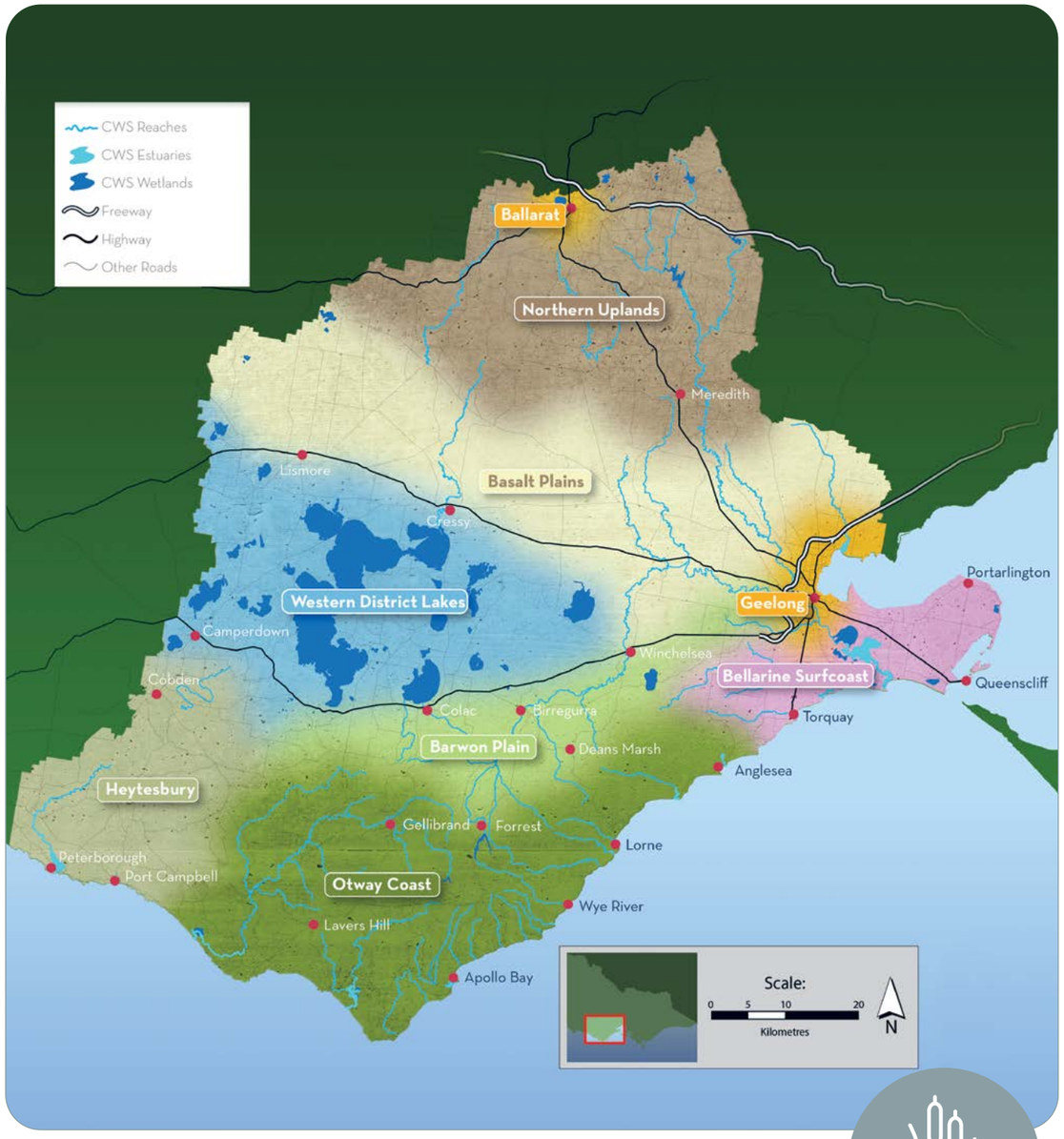


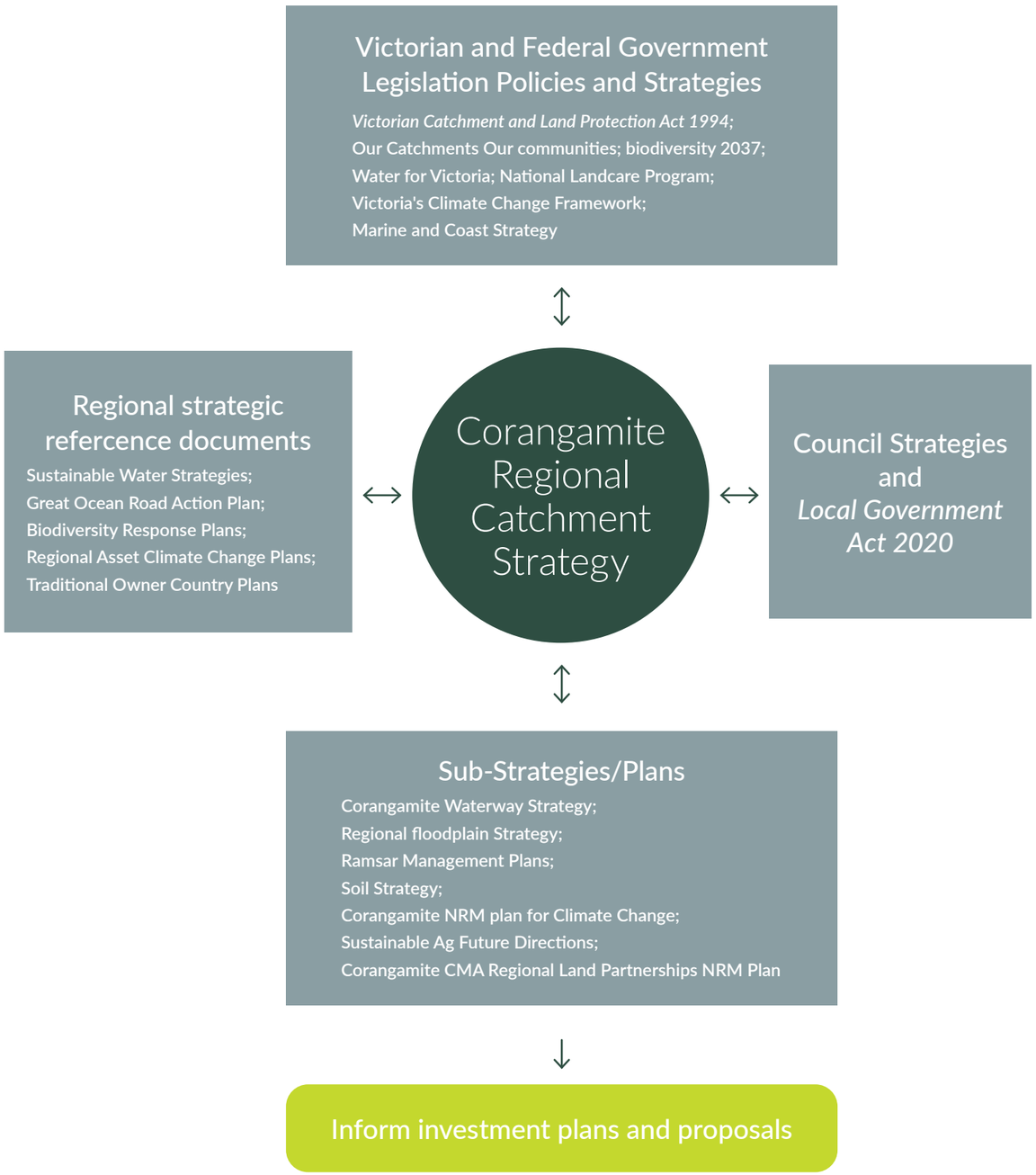
TABLE 1: Identification of Management Unit under National Landcare Program – Regional Land Partnerships

Management Unit	Corangamite
Service Provider	Corangamite Catchment Management Authority (CMA)
Contract Identification	3600002039

TABLE 2: Ranking of agricultural commodities *(as of 2019-2020 Australian Bureau of Statistics)*

NRM Region	Broadacre crops	Horticulture and viticulture	Cattle and calves	Sheep, lambs and wool	Other livestock	Whole milk	Agriculture – total
Corangamite (out of 55 regions)	16	24	15	11	7	2	8

FIGURE 2: Policy context for the Corangamite Regional Catchment Strategy



1.3 CORANGAMITE REGIONAL CATCHMENT STRATEGY (RCS) 2021-2027

This NRM Plan, as a requirement under the services agreement between the Corangamite CMA and the Australian Government, sits as a sub-strategy to the Regional Catchment Strategy and supports delivery of the RCS as well as contributing to the relevant outcomes required by the Australian Government through the Regional Land Partnerships program.

Regional natural resource management (NRM) plans in Victoria are legislated for under the *Catchment and Land Protection Act (CaLP Act) 1994* as Regional Catchment Strategies (RCS). The strategies are prepared by Catchment Management Authorities (CMAs) in consultation with regional communities, Traditional Owners and delivery partners and are approved by the Minister(s) responsible for administering the *CaLP Act* (Sch.2 (3)(2)).

Each RCS is an overarching, succinct and high-level strategy, with reference to more comprehensive, targeted and detailed supporting information, including regional sub-strategies and implementation plans *(as depicted in Figure 2)*. A lot of the information sourced to inform the RCS has also informed this NRM Plan. The RCS can be found at: https://corangamite.rcs.vic.gov.au/ (Corangamite Catchment Management Authority, 2022).

1.4 REGIONAL LAND PARTNERSHIP (RLP) NRM PLANS

This Natural Resource Management Plan (NRM Plan) replaces the former Regional Catchment Strategy 2012-2019 as the agreed natural resource management plan for the region as required by the Australian Government. It has been developed concurrently with the renewal of the Regional Catchment Strategy 2021-2027 (RCS). It covers all current RLP programs, identifies future opportunities for the program and is consistent with the current Core Services Agreement for the Corangamite Management Unit to June 2023. Refer to *Appendix 2* for a list of the Core Services Criteria for an NRM Plan.

The community consultation and engagement process undertaken over 2020-2021 addressed both documents (the RCS and this NRM Plan) that were due for renewal. Both plans are designed to sit coherently, with overlapping projects and actions that meet both the Regional Land Partnerships (RLP) Outcomes and the RCS 6-year and 20-year Regional Outcomes and Priority Directions.

While the RCS provides a high-level guiding framework for natural resource management, the NRM Plan provides a more detailed process for prioritising and targeting investments in relation to RLP outcomes relevant to the Management Unit. The logic for the Regional Land Partnerships Program is shown in *Figure 3*. Jointly, this plan and the RCS will inform the development of integrated projects that will lead to the protection and improvement of the region's natural assets.

FIGURE 3: Regional Land Partnerships Program Logic

Australian Government | National Landcare Program

Regional Land Partnerships Program Logic

	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6
LONG-TERM OUTCOMES	The ecological character of Ramsar sites is maintained or improved.	The trajectory of species targeted under the Threatened Species Strategy, and other *EPBC Act* priority species, is improved.	The natural heritage Outstanding Universal Value of World Heritage properties is maintained or improved.	The condition of *EPBC Act* listed Threatened Ecological Communities is improved.	The conditions of soil, biodiversity and vegetation are improved.	Agriculture systems have adapted to significant changes in climate and market demands.
	Assumption: The achievement of the 5-year outcomes will contribute to the achievement of the long-term outcomes.					
5-YEAR OUTCOMES	By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.	By 2023, the trajectory of species targeted under the Threatened Species Strategy, and other *EPBC Act* priority species, is stabilised or improved.	By 2023, invasive species management has reduced threats to the natural heritage Outstanding Universal Value of World Heritage properties through the implementation of priority actions.	By 2023, the implementation of priority actions is leading to an improvement in the condition of *EPBC Act* listed Threatened Ecological Communities.	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.	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.
	Assumption: The implementation of the identified actions will contribute to the achievement of the 5-year outcomes.					
RELEVANT PLANS, STRATEGIES, REPORTS AND ADVICE	Priority actions in Ramsar management plans, management arrangements or other relevant plans and strategies.	Priority actions in the Threatened Species Strategy key action areas and *EPBC Act* species conservation advices and recovery plans.	Priority actions in World Heritage management plans, management arrangements or other relevant plans and strategies.	Priority Actions of *EPBC Act* Listed Threatened Ecological Community conservation advices and recovery plans.	Industry sustainability plans and scientific reports that identify priorities and management solutions for improving soil, native vegetation and biodiversity conditions on-farm.	Relevant industry strategies and independent research and advice from experts, such as the National Landcare Advisory Committee on resilience in agriculture.
	Requirement: Services must be relevant to the priority actions identified in appropriate plans, strategies, reports and advices.					

ASSUMPTIONS

- Delivery against outcomes is based on Regional Land Partnerships investments only.
- Regional Land Partnerships outcomes will contribute to the broader suite of actions, programs and strategies targeting Ramsar sites, Threatened Species Strategy priority species and EPBC listed priority species, World Heritage Properties and Threatened Ecological Communities.
- Regional Land Partnerships outcomes and projects will contribute to Australia meeting its relevant international obligations and/or national priorities.
- The cumulative impact of services will result in measurable progress and achievement of the Regional Land Partnerships Outcomes.
- Projects will be *Fit for purpose* (tailored to the design, purpose and objectives of the National Landcare Program), *Credible* (guided by best availiable science), *Transparent* (clearly demonstrate how public money has been spent and the resulting outputs and outcomes) and *Cost effective* (provides value for money and where possible, builds on achievements of previous natural resource management programs).
- Projects will deliver services that will contribute to delivering Regional Land Partnerships 5-Year Outcomes and Long-term Outcomes.
- The community, including Indigenous people and farmers, are able to participate in the planning and delivery of projects.
- Regional Land Partnerships will deliver on the Australian Government's commitment to Closing the Gap on Indigenous Disadvantage (Closing the Gap) by providing opportunities for stronger Indigenous participation in the planning and delivery of investment and outcomes.
- There is an increase in the amount of investment leveraged from other funding sources as a part of the delivery of projects.
- Projects will be delivered using collaborative partnerships where this makes sense to do so.
- Investments that are on private owned/managed land are expected to generate public benefits.

02. Outcomes and investment priorities relevant to the Corangamite Management Unit

2.1 INVESTMENT PRIORITIES IN THE CORANGAMITE REGION

The RLP Program identifies six long-term outcomes, each related to a five-year outcome that will contribute to their long-term achievement. The RLP Program Logic *(see Figure 3)* provides an overview of how the RLP-funded projects delivered at a local scale will contribute to delivery on the Australian Government's five-year outcomes. *Outcomes 1*, *2*, *4*, *5* and *6* are relevant to the Corangamite Management Unit, and these are further described for the Management Unit below. It should be noted that *Outcome 3* is not relevant to the Corangamite Management Unit as there are no World Heritage properties within the region.

As a matter of course, other investment sources will also contribute to delivery of RLP outcomes relevant to the Corangamite CMA region. This is consistent with the Corangamite CMA's investment principles of collaboration, leveraging opportunities and integrated catchment management. *Table 3* shows the RLP outcomes and investment priorities.

This section identifies the Investment Priorities relevant to the Management Unit and how they relate to the RLP 5-year outcomes. Descriptions on the outcomes relevant to the management unit can be found in other sections of this plan.

In defining assets for this section of the plan, the focus has been placed on investment priorities under the RLP guidelines. It is important to note, however, that the Corangamite CMA acknowledges other assets under State Legislation, and assets of importance to community and Traditional Owners. The Corangamite CMA also acknowledges that other State, Federal, private and philanthropic funding is received for the management of assets that are not necessarily described here. In Sections 3 and 4 the Traditional Owner and community aspirations relevant to the RLP outcomes have been captured. For more information on alternate funding and investment priorities that are a focus in the region, please refer to the Regional Catchment Strategy, and its implementation process here: https://corangamite.rcs.vic.gov.au.

The list of investment priorities in *Table 3* includes species that have conservation advice and/or recovery plans provided for them, as well as those without. The list is taken from the Australian Government's Protected Matters Search Tool, an interactive web database. The list includes flora and fauna species listed as Conservation Dependent, Critically Endangered, Endangered, or Vulnerable under the *EPBC Act*. It should be noted that marine fish and marine mammals have been excluded from the table below, as their habitat is outside the jurisdiction of the Management Unit. Species on the Threatened Species Strategy 100 Priority Species list that are found in the Corangamite Management Unit's region have also been captured.

TABLE 3: Regional Land Partnerships program outcomes and investment priorities relevant to the Corangamite region

RLP 5-year Outcome	Investment Priorities	
1. By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.	Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site Western District Lakes Ramsar Site	
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.	**Fauna** Antipodean Albatross *(Diomedea antipodensis)* Australasian Bittern *(Botaurus poiciloptilus)** Australian Fairy Tern *(Sternula nereis nereis)* Australian Painted Snipe *(Rostratula australis)* Australian Grayling *(Prototroctes maraena)* Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit, Nunivak *(Limosa lapponica baueri)* Black-browed Albatross *(Thalassarche melanophris)* Blue Petrel *(Halobaena caerulea)* Broad-toothed Rat (mainland), Tooarrana *(Mastacomys fuscus mordicus)* Buller's Albatross, Pacific Albatross **(***Thalassarche bulleri)* Campbell Albatross, Campbell Black-browed Albatross *(Thalassarche impavida)* Corangamite Water Skink, Dreeite Water Skink *(Eulamprus tympanum marnieae)*	**Flora** Adamson's Blown-grass *(Lachnagrostis adamsonii)** Anglesea Grevillea *(Grevillea infecunda)* Basalt Greenhood *(Pterostylis basaltica)* Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed *(Lepidium hyssopifolium)* Black Gum *(Eucalyptus aggregate)* Button Wrinklewort *(Rutidosis leptorhynchoides)* Clover Glycine, Purple Clover *(Glycine latrobeana)* Dense Leek-orchid **(***Prasophyllum spicatum)* Dwarf Spider-orchid *(Caladenia pumila)* Enfield Grevillea *(Grevillea bedggoodiana)* Fragrant Leek-orchid *(Prasophyllum suaveolens)*

TABLE 3: Regional Land Partnerships program outcomes and investment priorities relevant to the Corangamite region *(continued)*

RLP 5-year Outcome	Investment Priorities	
2. (CONTINUED).	**Fauna (CONTINUED)** Curlew Sandpiper *(Calidris ferruginea)* Eastern Curlew, Far Eastern Curlew *(Numenius madagascariensis)** Eastern Dwarf Galaxias, Dwarf Galaxias *(Galaxiella pusilla)* Eastern Hooded Plover *(Thinornis cucullatus cucullatus)** Fairy Prion (southern) *(Pachyptila turtur subantarctica)* Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow *(Galaxias rostratus)* Golden Sun Moth *(Synemon plana)* Gould's Petrel, Australian Gould's Petrel *(Pterodroma leucoptera leucoptera)* Grassland Earless Dragon *(Tympanocryptis pinguicolla)* Great Knot *(Calidris tenuirostris)* Greater Glider *(Petauroides Volans)* Greater Sand Plover, Large Sand Plover *(Charadrius leschenaultia)* Grey Falcon *(Falco hypoleucos)* Grey-headed Albatross *(Thalassarche chrysostoma)* Grey-headed Flying-fox *(Pteropus poliocephalus)* Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog *(Litoria raniformis)** Indian Yellow-nosed Albatross *(Thalassarche carteri)* Lesser Sand Plover, Mongolian Plover **(***Charadrius mongolus)* Long-nosed Potoroo (SE Mainland) *(Potorous tridactylus tridactylus)* Macquarie Perch *(Macquaria australasica)* Murray Cod *(Maccullochella peelii)* New Holland Mouse Pookila **(***Pseudomys novaehollandiae)** Northern Buller's Albatross, Pacific Albatross *(Thalassarche bulleri platei)* Northern Giant Petrel *(Macronectes halli)* Northern Royal Albatross *(Diomedea sanfordi)* Orange-bellied Parrot *(Neophema chrysogaster)** Painted Honeyeater *(Grantiella picta)* Pink-tailed Worm-lizard, Pink-tailed Legless Lizard *(Aprasia parapulchella)* Plains-Wanderer *(Pedionomus torquatus)* Red Knot, Knot *(Calidris canutus)* Regent Honeyeater *(Anthochaera phrygia)** Salvin's Albatross *(Thalassarche salvini)* Shy Albatross *(Thalassarche cauta)* Smoky Mouse, Konoom *(Pseudomys fumeus)* Soft-plumaged Petrel *(Pterodroma mollis)* Sooty Albatross *(Phoebetria fusca)*	**Flora (CONTINUED)** Green-striped Greenhood *(Pterostylis chlorogramma)* Hoary Sunray, Grassland Paper-daisy *(Leucochrysum albicans subsp. Tricolor)* Large-fruit Fireweed, Large-fruit Groundsel *(Senecio macrocarpus)* Leafy Greenhood *(Pterostylis cucullata)* Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid **(***Prasophyllum frenchii)* Matted Flax-lily *(Dianella amoena)* Metallic Sun-orchid *(Thelymitra epipactoides)* Ornate Pink Fingers *(Caladenia ornata)* Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea *(Pimelea spinescens subsp. Spinescens)* River Swamp Wallaby-grass, Floating Swamp Wallaby-grass **(***Amphibromus fluitans)* Salt-lake Tussock-grass **(***Poa sallacustris)* Sand Ixodia, Ixodia *(Ixodia achillaeoides subsp. Arenicola)* Small Golden Moths Orchid, Early Golden Moths *(Diuris basaltica)* Spiny Pepper-cress *(Lepidium aschersonii)* Spiral Sun-orchid *(Thelymitra matthewsii)* Strzelecki Gum *(Eucalyptus strzeleckii)* Study Leek-orchid, Mount Remarkable Leek-Orchid *(Prasophyllum validum)* Sunshine Diuris, Fragrant Doubletail, White Duiuris *(Diuris fragrantissima)* Swamp Everlasting, Swamp Paper Daisy **(***Xerochrysum palustre)* Swamp Fireweed, Smooth-fruited Groundsel *(Senecio psilocarpus)* Swamp Greenhood, Dainty Swamp Orchid *(Pterostylis tenuissima)* Tall Astelia *(Astelia australiana)* Trailing Hop-bush *(Dodonaea procumbens)* Wingless Raspwort, Square Raspwort *(Haloragis exalata subsp. Exalata)* Wrinkled Buttons *(Leiocarpa gatesii)*

TABLE 3: Regional Land Partnerships program outcomes and investment priorities relevant to the Corangamite region *(continued)*

RLP 5-year Outcome	Investment Priorities	
2. (CONTINUED).	**Fauna (CONTINUED)** Southern Bent-wing Bat *(Miniopterus orianae bassanii)* Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) *(Isoodon obesulus obesulus)* Southern Giant-Petrel *(Macronectes giganteus)* Southern Royal Albatross *(Diomedea epomophora)* Southern Pygmy Perch (Murray-Darling Basin lineage) *(Nannoperca australis)* Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) *(Dasyurus maculatus maculatus)* Striped Legless Lizard, Striped Snake-lizard *(Delma impar)* Swamp Antechinus (mainland) *(Antechinus minimus maritimus)* Swift Parrot *(Lathamus discolor)** Trout Cod **(***Maccullochella macquariensis)* Wandering Albatross **(***Diomedea exulans)* White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) *(Fregetta grallaria grallaria)* White-capped Albatross *(Thalassarche steadi)* White-throated Needletail *(Hirundapus caudacutus)* Yarra Pygmy Perch *(Nannoperca obscura)*	
4. By 2023, the implementation of priority actions is leading to an improvement in the condition of *EPBC Act* listed Threatened Ecological Communities.	Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains Grassy Eucalypt Woodland of the Victorian Volcanic Plain Natural Temperate Grassland of the Victorian Volcanic Plain Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Sub-Tropical and Temperate Coastal Saltmarsh Natural Damp Grassland of the Victorian Coastal Plain Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community 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.	Hillslope erosion Acidification Wind erosion Soil carbon 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 climate change Agricultural systems improved resilience to extreme events and a low water future Improved sustainability of farming practices Increased engagement of farming community with the knowledge and leadership of Traditional Owners/First Nations people in management of natural resources Knowledge, skills and awareness of farmers in climate adaptation Broadening the understanding of risk management solutions in agriculture	

**Asterix indicates the species is listed on the 100 priority plants and animals selected for focus under the Australian Government's Threatened Species Strategy's Action Plan 2021-2026.*

2.2 RELATIONSHIP BETWEEN RCS AND RLP OUTCOMES

In the development of the Corangamite Regional Catchment Strategy (RCS), consideration has also been given at a regional and local level as to how RLP Outcomes will also be met through the delivery of actions under RCS 6-year and 20-year Regional Outcomes and Priority Directions. This relationship is provided in *Table 4*. The RCS Outcomes have been developed in collaboration with the Catchment Partnership Forum, the community and Traditional Owner groups.

TABLE 4: Relationship between RCS and RLP Outcomes

RLP Outcome	RCS 20-year Regional Outcome	RCS 6-year Regional Outcome	RCS 6-year Priority Direction
1. By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.	Not Applicable – Ramsar sites are not addressed at a Regional outcome level; they are located in only two RCS Landscape System areas.	By 2027, the condition of Ramsar listed wetlands and other priority wetlands identified in the Corangamite Waterway Strategy will be maintained and improved. By 2027, maintain or improve the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar complex. By 2027, maintain or improve the ecological character of the Western District Lakes Ramsar site.	Implement the Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar Site Management Plan. Implement the Western District Lakes Ramsar Site Interim Management Plan.
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.	By 2042, a regional net improvement across all native species – with a priority on threatened species and ecological communities – is achieved (as measured by Change in Suitable Habitat).	By 2027, there is an overall net gain of habitat for all flora and fauna species within the region. By 2027, threats to biodiversity from pest species are recognised and appropriately controlled in priority locations across all land tenures. By 2027, 120,000 hectares in priority locations are under sustained herbivore control. By 2027, 20,000 hectares in priority locations are under sustained predator control. By 2027, 20,000 hectares in priority locations are under sustained weed control. By 2027, 4,500 hectares of revegetation in priority locations for habitat connectivity is established. By 2027, 4,500 hectares of new permanently protected area on private land is established.	Develop baseline data for indicator and focal species that enable the effective measurement of overall net gain of habitat extent, connectivity and quality by 2027. Within the region, develop actions to deliver an overall net gain of 'Suitable Habitat' for focal and indicator species by 2027. Introduce collaborative biodiversity planning for landholders that enables an additional 4,500 hectares of biodiverse revegetation in priority locations within the region for habitat connectivity. Collaborate with Traditional Owners to develop methods based on traditional knowledge that enable improved and sustained management of problem herbivores in priority locations. Implement an additional 20,000 hectares of sustained predator control (not year by year cumulative total) in priority locations as defined by Biodiversity Response Plans and other regional plans. Implement an additional 20,000 hectares of sustained weed control (not year by year cumulative total) in priority locations within the region as defined by Biodiversity Response Plans and other regional plans. Implement an additional 120,000 hectares of sustained herbivore control (not year by year cumulative) in priority locations within the region as defined by Biodiversity Response Plans and other regional plans.

TABLE 4: Relationship between RCS and RLP outcomes *(continued)*

RLP Outcome	RCS 20-year Regional Outcome	RCS 6-year Regional Outcome	RCS 6-year Priority Direction
4. By 2023, the implementation of priority actions is leading to an improvement in the condition of *EPBC Act* listed Threatened Ecological Communities.	By 2042, a regional net improvement across all native species – with a priority on threatened species and ecological communities – is achieved (as measured by Change in Suitable Habitat).	By 2027, an additional 4,500 hectares of high priority Ecological Vegetation Classes (EVCs) are within a Comprehensive Adequate and Representative (CAR) system and 4,500 hectares of high priority habitat connectivity is established. By 2027, 120,000 hectares in priority locations are under sustained herbivore control.	Develop an incentives toolkit for landholders that enables an additional 4,500 hectares of high priority Ecological Vegetation Classes (EVCs) within the region to be within a Comprehensive Adequate and Representative (CAR) system. Introduce collaborative biodiversity planning for landholders that enables an additional 4,500 hectares of biodiverse revegetation in priority locations within the region for habitat connectivity. Collaborate with Traditional Owners to develop methods based on traditional knowledge that enable improved and sustained management of problem herbivores in priority locations. Implement an additional 20,000 hectares of sustained weed control (not year by year cumulative total) in priority locations within the region as defined by Biodiversity Response Plans and other regional plans. Implement an additional 120,000 hectares of sustained herbivore control (not year by year cumulative) in priority locations within the region as defined by Biodiversity Response Plans and other regional plans.
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.	By 2042, communities are empowered to collaborate, connect and protect the region's natural assets.	By 2027, there is a 20% increase (compared to 2022 levels) in private agricultural landholders engaging in sustainable land management practices. By 2027, communities have the knowledge, skills and capacity to actively participate in and contribute to management of the region in a range of ways.	Best land management practice approaches are implemented across farmers, agencies, developers and the catchment community. Support farmers with information and tools to build resilience.
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.	By 2042, the region's land is managed within its capacity as climate change impacts increase.	By 2027, land manager capacity in effective management practices is increased to address the range of threats and market changes.	Support agriculture to manage climate risk.

By 2027,
communities have the
knowledge,
skills and capacity to
actively participate
in and contribute to
management of the region
in a range of ways.

03. Indigenous People's aspirations

The two Traditional Owner groups within the region have been engaged with throughout the renewal of the Regional Catchment Strategy and development of the RLP NRM Plan process.

The Wadawurrung Traditional Owners Aboriginal Corporation (referred to as WTOAC) is a more established organisation being a Registered Aboriginal Party since 2009. The Wadawurrung Heathy Country Plan 2020-2030 (Wadawurrung Traditional Owner Aboriginal Corporation, 2020) articulates their aspirations for country and where relevant these have been reflected through the Corangamite CMA's key strategic documents including this RLP NRM Plan.

There have been a number of RLP projects already managed in partnership with the Wadawurrung or with their input, including cultural burning within the Protecting the Victorian Volcanic Plain project and Cultural Heritage surveys of Lake Connewarre as part of Protecting Threatened Species of the Corangamite Coast.

The Eastern Maar Aboriginal Corporation (referred to as EMAC) were only declared a Registered Aboriginal Party (RAP) in early 2020 and have been included throughout the engagement process. Their Country Plan (Eastern Maar, 2015) outcomes are currently at a higher level of detail.

As EMAC further develops their resources within the organisation, the CCMA will endeavour to further build its relationship and support along with the opportunity to deliver projects in partnership. The CCMA is currently working with EMAC on other Australian Government-funded projects outside of NLP.

Figure 4 shows the two recognised RAPs within the Corangamite Management Unit.

FIGURE 4: Traditional Owner group boundaries within the Corangamite region (map produced by Corangamite CMA)

Table 5 highlights how each of the Traditional Owners' current aspirations within the Corangamite Management Unit's region relate to the RLP 5-year outcomes.

TABLE 5: Relationship between RLP outcomes and Traditional Owner Group aspirations (as expressed in their Country plans)

RLP Outcome Number	RLP 5-year Outcome	Wadawurrung Country Plan	Eastern Maar Country Plan
1	**By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.**	**Goal:** By 2030, there is enough water in the waterways of our main river systems, Barwon/Moorabool, and Leigh rivers, that it flows through the system, without barriers and is clean enough to drink. **Indicators:** - Water Quality - Amount of water - Cultural flows - % of economic access to water - Number of artificial barriers in waterway. **Goal:** By 2029, native vegetation extent remains or increases, and cultural places are protected. **Indicators:** - Extent of moonah, ironbark and heathlands - % of cultural sites assessed by Wadawurrung - Condition of coastal cultural sites - Increased breeding of shorebirds.	**Goal:** Our Country is healthy and our natural resources are managed and used sustainably.
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.**	**Goal:** By 2030, no more of our native animals have become threatened. **Goal:** By 2035, at least one threatened species is no longer threatened. **Indicators:** - Numbers of different types of native animals - Numbers of threatened species: Striped Legless Lizard, Golden Sun Moth, Growling Grass Frog - Number of Wadawurrung people who know and are looking after their totemic animals.	**Goal:** Our Country is healthy and our natural resources are managed and used sustainably.
4	**By 2023, the implementation of priority actions is leading to an improvement in the condition of EPBC Act listed Threatened Ecological Communities.**	**Goal:** By 2030, the current extent of volcanic grasslands and woodlands is increased by 5%. **Indicators**: - Extent of volcanic grassland - Age classes of woodlands - % of grasslands with cultural burning - % of cultural foods in grasslands.	**Goal:** Our Country is healthy and our natural resources are managed and used sustainably.
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.**	**Goal:** By 2029, native vegetation extent remains or increases, and cultural places are protected. **Indicators:** - Extent of moonah, ironbark and heathlands - % of cultural sites assessed by Wadawurrung - Condition of coastal cultural sites - Increased breeding of shorebirds. By 2028, Wadawurrung priority diseases, pest weeds and animals are reduced in our important cultural places and landscapes. By 2024, our caring for Country team is contracted to manage priority diseases, pest weeds and animals across our cultural landscapes. By 2025, cultural burning practices are integrated into all levels of burn plans and 50% of burns are led by Wadawurrung Traditional Owners with DELWP, Parks Victoria and CFA collaboration.	**Goal:** Our Country is healthy and our natural resources are managed and used sustainably. - Cultural knowledge is re-instilled into the way our Country is managed. - We have responsibility for managing all public land on Eastern Maar Country.
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.**	By 2027, Wadawurrung aquaculture, cultural services and tourism, wind farms and seaweed farming are generating income and employment for our people.	

Both Traditional Owner Groups have approved the RCS and are keen to be involved in its delivery. This NRM Plan will build from their Country plans and any existing and additional contributions either of the two RAPs provide, and it will also outline principles under which we operate with our RAPs.

Traditional Owners have had a strong voice in determining biodiversity priorities through Department of Environment, Land, Water and Planning's (DELWP's) Biodiversity Response Planning process. Similarly, both Traditional Owner groups are recognised as having a strong voice in how water is managed. Opportunities for management and use of water by Wadawurrung and Eastern Maar people for cultural, economic, tourism and business opportunities will be explored by various stakeholders during the implementation of future projects and management actions that arise from this NRM Plan and the RCS.

Developing enduring partnerships with the Wadawurrung and Eastern Maar people will help to ensure their voice is not only heard but involved in developing and implementing jointly agreed goals for priorities in the region. Both Traditional Owner groups are members of our Corangamite Catchment Partnership Agreement forum, which is a significant body that will inform implementation planning.

A significant part of ensuring an enduring partnership with our two Traditional Owner groups is that we will be guided by how they prioritise which projects, events and forums they can participate in, and how they would like to participate.

04. Stakeholder aspirations

4.1 THE COMMUNITY AND STAKEHOLDER CONSULTATION PROCESS

Prior consultation as part of National Landcare Program 2 (2019-2023)

The Corangamite CMA consulted with a broad range of stakeholders and community members at the commencement of the current Regional Land Partnerships (RLP). This included an initial roundtable discussion to identify priorities. From this discussion, project designs were developed in consultation with key stakeholders. Each project was designed using a collaborative design process, involving key representatives from the community and other organisations relevant to that project, to target investment towards the best value-for-money actions.

Agreement to this approach was demonstrated through 36 formal letters of partnership and support from across various sectors, agencies, industries and community organisations. Formal letters of support were received from: Corangamite Shire, Golden Plains Shire, Borough of Queenscliffe, City of Greater Geelong, Colac Otway Shire, Moyne Shire, Surf Coast Shire, Bellarine Catchment Network, Barongarook Landcare Group, Geelong Landcare Network, Heytesbury District Landcare Network, Leigh Catchment Group, Moorabool Landcare Network, Upper Barwon Landcare Network Inc, Woady Yaloak Catchment Group, Great Ocean Road Coast Committee Inc, Department of Environment, Land, Water and Planning, Wadawurrung Aboriginal Corporation, Eastern Maar Aboriginal Corporation, Federation University Australia, RMIT University, Greening Australia, Agriculture Victoria, Barwon Water, Wannon Water, Parks Victoria, Trust for Nature, Otway Agroforestry Network, Otway Coast Regenerative Farmers, Birdlife Australia, ANGAIR, Geelong Field Naturalist Club, Southern Farming Systems, Surfing Victoria and WestVic Dairy Australia.

Throughout implementation of existing current RLP projects, the Corangamite CMA and other delivery partners have listened to feedback and desires from key partners and stakeholders regarding further opportunities. The Corangamite CMA has built on this initial and specific consultation through the RCS renewal engagement as described opposite.

Recent consultation as part of the Regional Strategy Catchment (RCS) renewal

Stakeholder aspirations for natural resource management in the Management Unit have been captured through a range of engagement processes as part of the renewal of the Corangamite Regional Catchment Strategy.

Initially, relevant agencies, local government and other delivery partners who are members of the Corangamite Catchment Partnership Agreement (CPA) forum held a workshop to draft regional level outcomes that would deliver on relevant State and National legislation, policies and strategies.

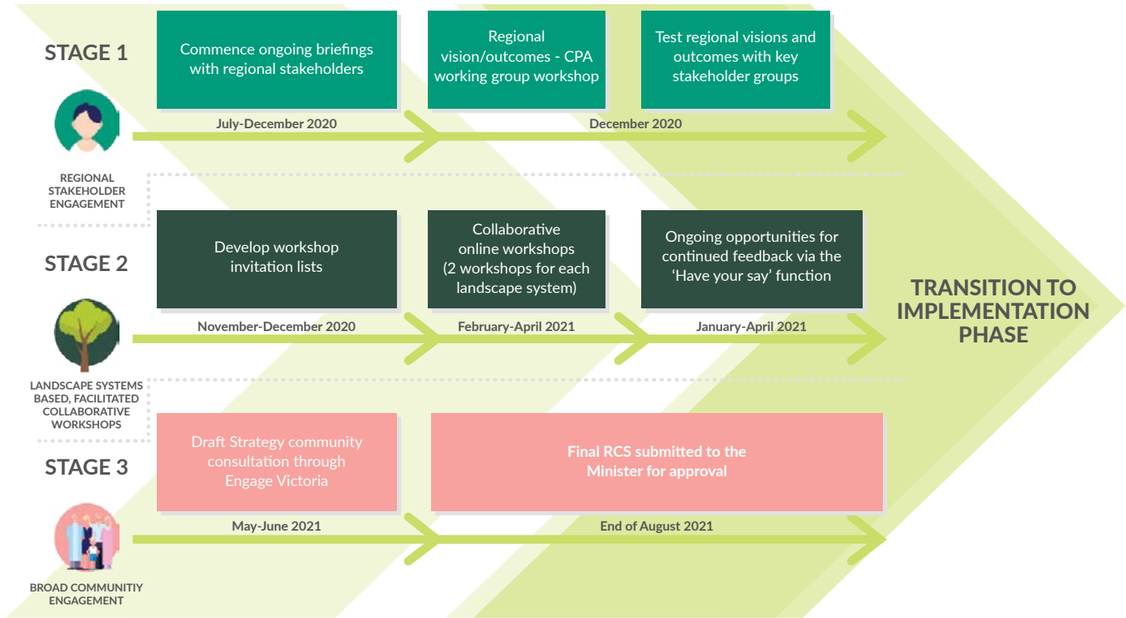
Engagement with community organisations (for example, Landcare and other not for profits), members of the CPA and individuals then commenced as part of the three-stage community consultation process for the renewal of the RCS *(refer to Figure 5)*.

The most substantive stage was the facilitation of 18 community consultation workshops, two workshops for each of the nine Landscape Systems forming the sub-regions within the Corangamite Management Unit *(see Figure 1)*. Participants were able to put forward their aspirations in relation to water, biodiversity, land, coast and marine ,and communities themes. The total number of attendees at these workshops (excluding Corangamite CMA staff and Board members) was 136 individuals. Individual briefings to regional stakeholders were also provided to outline the process and ensure that they had the opportunity to be involved. The region's Landcare networks were involved in the formal consultation process but also received a number of separate briefings from the Corangamite CMA. Industry bodies including the Victorian Farmers Federation, Southern Farming Systems and WestVic Dairy participated in the consultation process as well as briefed individually.

The Draft Regional Catchment Strategy was then made available to the community through the Engage Victoria platform. Community members had the opportunity over the month of May 2021 to provide comments regarding their aspirations relating to Ramsar Wetlands, Threatened species, ecological communities and sustainable agricultural practices through this channel.

As well as the three stages of formal community consultation for the RCS, stakeholder aspirations for RLP projects are captured through feedback provided on the delivery of current projects.

FIGURE 5: Regional Catchment Strategy renewal engagement approach



4.2 STAKEHOLDER ASPIRATIONS RELATED TO RLP INVESTMENT PRIORITIES

Stakeholder aspirations in relation to the RLP Outcomes were captured mostly as part of the RCS renewal process commencing in 2020, but have also drawn on other specific consultation relevant to RLP such as:

- the consultation for the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Management Plan (2017-2018)
- RLP regional roundtable planning with diverse community organisation representatives and project partners (late 2017)
- from current RLP project partners and stakeholders over the life of project engagement.

Traditional Owners were engaged in a tailored process in collaboration with Glenelg Hopkins and Port Phillip and Western Port CMAs. Traditional Owner aspirations are expressed in Section 3.

A summary of stakeholder aspirations for each RLP outcome is provided in *Table 6*.

TABLE 6: Stakeholder aspirations for each RLP outcome

RLP 5-year Outcome	Stakeholder Aspirations
1. By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.	A greater focus on Ramsar wetlands, as they value both Ramsar listed sites in the Corangamite region. Ecological characteristic of Ramsar wetlands is maintained or improved. Explore Integrated Water Management (IWM) opportunities to substitute alternative water sources for current potable water and farmer uses (for example, more desalination, recycled stormwater, and wastewater) with clear roles and responsibilities given the collaborative nature of IWM. This relates to reduction of threats on Ramsar wetlands. Government authorities to address feral animals and weeds in waterways and Ramsar wetlands. A need to regulate farm dams to reduce the impact on downstream wetlands. This relates to reduction of threats on Ramsar wetlands. Concerns over landowner water use/efficiency regarding raised bed cropping and movement of water on private land, and how this impacts Ramsar wetlands. This was especially the case within the Western District Lakes Landscape System. A need to investigate whether it would be beneficial to monitor groundwater and bores to reduce impacts on groundwater dependent ecosystems such as wetlands. Integration between the RCS outcomes and priority directions and DELWP's Corangamite Lakes and Plains plan, which incorporates part of the Ramsar listed Western District Lakes wetland site. There was an interest in incorporating the funding and planning from this action plan into the delivery of the RCS. Concern about wetlands and estuaries on the Bellarine Peninsula (including the Port Phillip and Western Port Ramsar Site) being impacted by new developments through their drainage schemes and encroachment. Bellarine Peninsula community are concerned about the salination of groundwater and an increase in freshwater runoff from housing developments and the potential impacts of this on wetlands including the Port Phillip and Western Port Ramsar Site. They expressed a desire that this is monitored and managed appropriately.
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.	Government authorities to address feral animals and weeds in our waterways as a threat to native fish species. Increased platypus promotion/platypus surveys to increase awareness of using water more sustainably – using threatened species to get community support (in all river systems within the landscape system). In the Basalt Plains landscape, interest in the brolga as an icon species. Interest in bio links to connect fragmented habitat, for example, Grasslands on the Victorian Volcanic Plain, for threatened species habitat restoration and conservation. Interest in focusing on critical insects in VVP grasslands. Actions targeting Brush-tailed Phascogale (listed as vulnerable under the *Victorian Flora and Fauna Guarantee Act*) and other species on the plains as well. Environmental flows specifically for threatened aquatic species in Moorabool and Leigh rivers. The need to target a balance in species composition, not only individual species. Actions to exclude/reduce pest plants and animals as a threat to some native species. Habitat opportunities for threatened bird species (migratory and non-migratory) on man-made lakes in housing developments in the Geelong/Bellarine/Surf Coast landscapes. Greater opportunities for Traditional Owner management related to biodiversity, especially related to conservation of culturally significant species. In the Barwon Plain landscape system, actions for local fish species including River Blackfish and Australian Grayling (EPBC Listed).

TABLE 6: Stakeholder aspirations for each RLP outcome *(continued)*

RLP 5-year Outcome	Stakeholder Aspirations
4. By 2023, the implementation of priority actions is leading to an improvement in the condition of *EPBC Act* listed Threatened Ecological Communities.	Actions to mitigate the pressures on Threatened Ecological Vegetation Classes (EVCs) due to urbanisation and housing developments. In the Basalt Plains landscape system, more cultural burning every 2-4 years on the Victorian Volcanic Plain (VVP). Community believes to enhance grasslands of the VVP, concurrent weed control and burning needed. Actions around working with landholders to improve grasslands of the VVP. In the Basalt Plains landscape, interest in bio links to connect fragmented habitat, for example, existing grassland pockets. Desire for a tourism trail of the volcanic plains, to create awareness of the unique biodiversity and conservation reserves. Increased awareness and appreciation of what native grassland looks like and how to identify grassland species. In the Northern Uplands landscape system, greater collaboration with bio links alliances, for example, Central Victoria bio links alliance, Bunanyung Landscape Alliance. Actions to exclude/reduce pest plants and animals from threatened EVCs. Priority habitat areas are protected from development and disturbance, and buffers are established. Targeted outcomes around establishing vegetation links and tying in with climate resilience through species composition mix. Increased opportunities for Traditional Owner management of land and biodiversity. Landscape approach to revegetation, including targeted revegetation, seed supply, seed provenance, climate change adaptation. Actions surrounding offsetting burning on crown land, potentially through revegetation on private land.
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.	Actions to address the pressures on land due to urbanisation and housing developments, urban encroachment on natural environments. Community in the Bellarine landscape were concerned about the encroachment of urbanisation from housing developments on to significant EVCs including those found at Ramsar sites. Concerns over landowner water use/efficiency regarding raised bed cropping and movement of water on private land, including drainage to reduce waterlogging and how this impacts soil. This has been identified as a potential threatening process to Ramsar wetlands. This was especially the case within the Western District Lakes Landscape System. Community wanted concurrent weed control and burning on public land. Community wanted actions around working with farmers to understand soil conditions and fertilizer load, to decrease poor land management practises and runoff from fertiliser misuse. Actions around linking land management practices that improve natural capital with sustainably sourced food labelling. Locate farms that want to improve soil carbon and create a prospectus for investment. Encourage farmers to establish vegetation links, tying in with climate resilience. Create opportunities for increased Traditional Owner land and biodiversity management. Promote actions around regenerative farming – improving biodiversity outcomes through improved natural capital. Need more actions surrounding offsetting burning on Crown land, potentially through revegetation on private land.
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.	Actions to link land management practices that improve natural capital with sustainably sourced food labelling. Locate farms that want to improve soil carbon and create a prospectus for investment. Community wanted targeted outcomes to plant vegetation belts with a mix of native, climate resilient species (that is, species suited to future climates). Community wanted climate resilience stated explicitly in goals and objectives for the future, especially in relation to agriculture. Flood protection/prevention of erosion through planting vegetation (regarding land management and climate change). Action around planting to provide habitat for species that will move due to changing climate. Promotion of regenerative farming to increase and improve natural capital, meeting market demand for carbon capture and storage, and sustainable farming practices. Adaptation pathway especially for slow-growing species. Landscape approach to revegetation, including targeted revegetation, seed supply, seed provenance, climate change adaptation.

Along with individual members of the community and landholders, key collaborators who have informed the RLP consultation through the RCS renewal process are listed in *Table 7*.

TABLE 7: Key collaborators involved in contributing their aspirations for the NRM Plan and Corangamite RCS

Members of the Corangamite Catchment Partnership Agreement		Community Networks	Industry Contributors
DELWP Barwon South West	Eastern Maar Aboriginal Corporation	Geelong Landcare Network	Southern Farming Systems
DELWP Grampians	Wadawurrung Traditional Owners Aboriginal Corporation	Bellarine Catchment Network	WestVic Dairy
Great Ocean Road Coast and Parks Authority	City of Greater Geelong	Corangamite Lakes Landcare Network	Victorian Farmers Federation – Policy Branch
Agriculture Victoria	Golden Plains Shire	Heytesbury District Landcare Network	Centre for eResearch and Digital Innovation (CeRDI)
Regional Development Victoria	Moorabool Shire Council	Moorabool Landcare Network	
Parks Victoria	City of Ballarat	Southern Otway Landcare Network	
Barwon Water	Corangamite Shire	Upper Barwon Landcare Network	
Central Highlands Water	Colac Otway Shire	Surf Coast and Inland Plains Network	
Southern Rural Water	Surf Coast Shire	Leigh Catchment Group	
Wannon Water	Borough of Queenscliffe	Central Otway Landcare Network	
Environment Protection Authority Victoria – South West	Trust for Nature	People for a Living Moorabool	
		Geelong Field Naturalists	

05. Processes used to identify and prioritise NRM actions

The Corangamite CMA has multiple scales on which it prioritises actions for investment. The first is a multi-criteria analysis applied at an investment priority scale. The second is applied at a management action scale, to ensure management actions are cost-effective and will contribute to priorities and RLP outcomes. This approach is supported by investment principles applied by the Corangamite CMA.

Decision support tools are used to determine investment at the more localised or site scale. These decision support tools vary depending on the nature of the project. Each of these are discussed below.

5.1 INVESTMENT PRINCIPLES

As with the RCS, future actions under this plan will also draw on the following principles applied by the Corangamite CMA to guide investment decisions:

- An integrated catchment management (ICM) approach.
- Regional ownership – embracing the regional delivery model, including co-delivery from committed partners.
- Blending of a systems approach with an asset-based approach that enables management at a local scale through the use of systems, while assessing assets and their management contribution to policy and strategies at a regional scale.
- Built on strong community engagement and stakeholder partnerships.
- Regard for Aboriginal cultural values and Traditional Ecological Knowledge.
- Quadruple bottom line approach considering social, cultural, economic and environmental factors.
- Evidence-based, supported by best available information via science and defendable data sources as well as application of relevant planning, implementation and delivery systems.
- Accountability – can clearly demonstrate management systems, governance models and ethical practices.
- Adaptive management – systems in place to adapt an intervention based on evidence-based feedback loops relevant to the adaptation cycle. This also supports innovation in NRM by ensuring processes that manage investment risk and encourage learnings.

5.2 APPLICATION OF A MULTI-CRITERIA ANALYSIS FOR THREATENED FLORA, FAUNA AND ECOLOGICAL COMMUNITIES

A multi-criteria analysis (MCA) has been developed to enable the prioritisation of investment priorities (threatened flora, fauna and ecological communities) and provides an understanding of the reasoning for investment to deliver particular outcomes. The MCA uses a hierarchical process to enable the consideration of various factors when deciding where to invest and in what order depending on priority and available resources.

The MCA developed for this plan focuses on three key areas. The first is in relation to National and State Priorities. The next tier is focused at a regionally important scale in the Management Unit. This is quantified in terms of importance to people, significant regional distribution (DELWP Habitat Distribution Modelling), and whether management actions for the species under DELWP's Strategic Management Prospects (SMP) have a broader, landscape scale benefit. The third tier is capacity/value for money. This has criteria associated with ability to deliver the actions (in terms of feasibility and cost-effectiveness), multiple benefits of addressing a particular species/ecological community, and opportunities to leverage off other projects or seek other funding.

Weightings have been applied to the MCA (for example, higher relative scores for legislated threatened status) to emphasise the various levels of importance. *Table 8* outlines the various assessment categories and the scores given for the MCA.

Decision support tools are used to determine investment at the more localised or site scale.

TABLE 8: Multi-criteria analysis including weighting/score used to evaluate and rank investment priorities

Significance	Description	Score
Federal significance – Conservation status under EPBC Act	Critically Endangered	2.5
	Endangered	2
	Vulnerable	1.5
	Conservation Dependent	1
State significance – Flora and Fauna Guarantee Act	Critically Endangered	2
	Endangered	1.5
	Vulnerable	1
	Not listed	0
Federal Threatened Species Strategy Top 100 Priority listing	Listed	1
	Not listed	0
Regional Focus		
Overall distribution	Percentage of DELWP's Habitat Distribution Model for each species within the Corangamite region, expressed as a decimal	0-1
DELWP Strategic Management Prospect (SMP) benefit percentile	Measure of the level of benefit a species receives from actions in SMP (that is, how well a species responds to landscape scale actions in SMP) – Above 20%	1
	Bottom 5%, 10%, 20% – species that fall in the bottom 20%, 10% and 5% can be assumed to not be receiving large benefits from the actions included in SMP and may require alternative actions for conservation	0
Importance to People and Traditional Owners	Yes – occurs in Traditional Owner Country plans, or mentioned in consultation workshops, or specific project forums, or existing networks	1
	Yes – broadly reflected, for example, People mentioned Ramsar sites, wetlands, or VVP in workshops, particular species were inferred	0.5
	No – not mentioned	0
Capacity/Value for Money		
Multiple benefits	Yes – actions to improve trajectory also improve other threatened species, Ecological Community trajectory, Ramsar sites	1
	No – species recovery does not have multiple benefits	0
Feasibility/effectiveness	Yes – capacity in the region to lead/deliver, feasible and cost-effective	0.5
	Yes – feasible, but not greatly cost-effective	0.25
	No – limited capacity in the region to lead/deliver, not feasible/ cost-effective	0
Leverage (partnerships, resources, past or current projects, $)	Yes – multiple current leverage opportunities exist	0.5
	Yes – Potential opportunities	0.25
	No – leverage opportunities don't exist	0

The Corangamite CMA then ran a process where a panel of expert staff working across biodiversity program areas worked as a collective to rank species objectively, according to the criteria. These were peer-reviewed by state government agency biodiversity experts. The results of this ranking against the MCA are presented in Section 7 (threatened species) and Section 8 (threatened ecological communities).

For the entire list of species and scores, please see *Appendix 3*.

Feasibility is factored into this analysis, with weightings being applied around these factors that consider whether a project is viable and achievable. This process also considers and enables integration with other programs by identifying opportunities for leverage and co-investment. An additional consideration that the MCA also factors in is community aspirations for various species and the ecological communities within which they exist.

Through the MCA process, the expert panel identified that there was little or no knowledge of the current distribution in the region for some species and communities that were listed for the Corangamite Management Unit. These are listed within *Appendix 4* of this document and were identified as a gap in our current knowledge that should be addressed with future investment. Some of these species are known to occur in adjoining Management Units and could be considered for reintroduction if suitable conditions allowed and appropriate investment was available.

The priority ranked threatened species have also been grouped into landscape systems, to aid future project development, community engagement, alignment with the RCS, and ability to contribute to greater NRM outcomes within the system due to an integrated catchment management approach. This is presented in Section 7.

5.3 DECISION SUPPORT TOOLS

At a project level or site scale, different decision support tools are applied to determine the most cost-effective on-ground actions, depending on the natural resource category. The decision support tools applied for waterways, wetlands, biodiversity and sustainable agricultural land management projects are described below.

Ramsar Site Management Plans

For both Ramsar sites, detailed Site Management Plans are developed based on risk to maintaining the Limits of Acceptable Change (LAC), drawing on best available information and using a panel approach that also draws from the site-specific knowledge of delivery partners. Site management planning for the Western District Lakes and Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar sites incorporates a site Monitoring, Evaluation, Reporting and Improvement (MERI) plan, and an Annual Action Plan. These Action Plans comprise a prioritised list of actions (both on-ground and monitoring) for the site. These plans are updated annually with a Coordinating Committee made up of site managers and key stakeholders. The prioritisation process for the Site Management Plans for both Ramsar sites has involved:

- undertaking an ecological risk assessment as part of development of the management plan involving assessment of the risks of all known threats to the values of the site, based on the best available evidence at the time and expert knowledge
- using the risk assessment to prioritise values and subsequent threats for management – completed with input from the Ramsar Site Coordinating Committee
- using the risk assessment and prioritisation of values and threats to develop a series of high-level, prioritised management strategies for the site.

Annual Action Plans are developed by the Ramsar Site Coordinating Committees to develop and prioritise actions for implementation each year.

Biodiversity Response Planning (BRP) and Strategic Management Prospects (SMPs)

Biodiversity Response Planning (BRP) is a long-term area-based planning approach to biodiversity conservation in Victoria. It is designed to strengthen alignment, engagement and participation between government, Traditional Owners, non-government agencies and the community. The development of BRP fact sheets was led by the Department of Environment, Land, Water and Planning (DELWP) with strong input from respective Traditional Owner (TO) groups as well as input from regional organisations. For the Corangamite Management Unit, Biodiversity Response Planning (BRP) fact sheets were provided by DELWP Grampians region for Focal Landscapes on Wadawurrung Country, and DELWP Barwon South-West for Focal Landscapes on Eastern Maar Country.

Strategic Management Prospects (SMP) models biodiversity values such as species habitat distribution and landscape-scale threats, and highlights the most cost-effective actions for specific locations. They are a move away from single species protection. The SMP threat control actions align with Protecting Victoria's Environment – Biodiversity 2037 targets, and include action types such as:

- rabbit control
- weed control
- permanent protection
- feral pig control
- domestic grazing control, and so on.

The RLP priority investments for the Orange Bellied Parrot (OBP) and Victorian Volcanic Plain (VVP) projects align with DELWP's Focal Landscapes; there are fact sheets for Ramsar sites and the VVP available on DELWP's webpage here: https://www.environment.vic.gov.au/biodiversity/working-together-for-biodiversity.

Information from these fact sheets, including endangered Ecological Vegetation Classes (EVCs) and species with more than 5% of their Victorian range in the landscape are considered. SMP also models other biodiversity values (such as landscape-scale threats) and highlights the most cost-effective actions for specific locations. SMP priority actions which rank among the top 10% for cost-effectiveness (such as permanent protection, controlling weeds, cats, pigs, deer, rabbits, and so on) are considered for threat abatement in DELWP's focal landscapes.

INFFER

INFFER (Investment Framework for Environmental Resources) is a tool that the CMA has applied at a landscape or catchment scale. It is being applied at a catchment scale with delivery partners for waterway health projects and has been applied at a landscape or management action scale more recently for specific biodiversity projects – the Protecting Threatened Species of the Corangamite Coast project *(Outcome 2)* and Protecting the Victorian Volcanic Plain project *(Outcome 4)*.

INFFER is a participatory and collaborative process, involving technical and scientific specialists, NRM Managers and people with local knowledge and experience. The INFFER process draws together readily available information, from a desktop review of publications and reports, and consultation with the community and with relevant experts.

An INFFER report for the Orange Bellied Parrot project was produced in 2019. Six priority sites were selected for consideration in the INFFER analysis. Threats to OBP were identified for each of the sites, and potential on-ground works and supporting actions were quantified. From this information, four scenarios were assessed in terms of cost-benefit using INFFER, and recommendations were made.

For the VVP project, the INFFER process was informed by an independent evaluation of past Plains Tender programs in the Corangamite Management Unit, undertaken by RMCG for the Corangamite CMA. Natural Decisions was then contracted to undertake the INFFER analysis in 2019. The INFFER report describes the proposed metric to assess and rank project proposals. After expression of interests (EOIs), site assessments and a formal assessment process, fixed price offers are made based on the benefits/costs as outlined in the INFFER assessment metric, which enables projects to be ranked.

More information on the INFFER process can be found at https://www.inffer.com.au/

Ensym

At a site scale, Ensym has been used to rank sites and determine the most appropriate investment in on-ground works by comparing whether one site's project will deliver more cost-effective outcomes than another within a management action. Ensym is a tool that the Corangamite CMA uses to develop site level management plans and to apply a landscape context score as part of the site assessment process.

This uses site details captured from assessments and the models within Ensym to work out the importance of the local site in the regional landscape. Corangamite CMA is currently scoping a replacement for Ensym based on future system components, functionality and integration and is consulting with other NRM regions across Australia to understand opportunities for collaboration or learning.

A partnership and engagement approach

A collaborative co-design and implementation process involving key partner organisations, technical experts and community representatives is used to prioritise, develop, implement and review projects. This is underpinned by strong governance arrangements. Existing projects are overseen by established project steering committees, stakeholder working groups, expert-based reference groups and/or site coordinating committees, as relevant to the project outcomes and landscape. These are outlined in the project concepts tables in Sections 6 to 10.

To demonstrate the project-level prioritisation process for sustainable agriculture and land management projects, the current RLP funded program under *Outcome 5* is used. The 'Improving on-farm soil, vegetation and biodiversity for larger agricultural enterprises in the Corangamite management unit' project has six sub-projects. The primary investment priorities for this project are soil carbon and native vegetation and biodiversity on-farm. The secondary investment priorities are soil acidification and climate change adaptation.

The six sub-projects were initially developed through a partnership and engagement approach with key external partners within the Corangamite Management Unit, drawing upon their knowledge and expertise within the region. Rather than using INFFER, or a similar decision-making tool that prioritises projects on a cost-benefit basis, the six sub-projects were chosen using a process that considers each practice, and describes farmers' current motivation, attitude, knowledge, ability and the availability of appropriate technology.

This has since been further supported by two reports commissioned by the Corangamite CMA in 2019:

- 'Social Benchmarking Report for Natural Resource Management in the Corangamite Region' (Curtis, 2019). This was conducted to better inform engagement with rural property owners, describe the social and farming structure for the region, gather data to assess progress of the RCS, and inform understanding of best-practice NRM implementation.
- 'Sustainable Agriculture Future Directions Paper (RM Consulting Group, 2019) was developed to inform planning for future investment in sustainable agriculture in the Corangamite CMA region. It provides strategic guidance on sustainable agriculture as well as outlining the key agriculture and land use characteristics in the Corangamite region.

The above work will help inform future project development, along with the partnership and engagement approach that will continue to be used to co-design and evaluate projects. Future projects will also support the National Soils Strategy goals and objectives to prioritise soil health, empower soil innovation and stewards, and strengthen soil knowledge and capability.

Adaptation pathways

The Corangamite CMA needs to plan for complex natural systems, often with conflicting views and with the added complexity of climate change. Planning for climate change requires a shift from traditional planning for individual outcomes to a planning process that considers multiple possible outcomes as well as addressing the uncertainty of climate change. The Corangamite CMA facilitated the development of the Corangamite Natural Resource Management Plan for Climate Change to support the incorporation of climate change mitigation and adaption into NRM planning (Corangamite Catchment Management Authority, ND).

Adaptation Pathways is a planning process that allows multiple possible outcomes and allows for investigating the robustness and flexibility of various options. Further information on the adaptation pathways approach can be found at Adaptation Pathways (swclimatechange.com.au).

Corangamite CMA has successfully applied the adaptation pathways process to the Ramsar listed Western District Lakes (Bosomworth, et al., 2018) and is aiming to apply the process to develop long-term actions for the region's nationally listed threatened species. Species will be targeted in consultation with the Australian Government.

Application of spatial mapping tools

Several tools are used by the Corangamite CMA to design suitable management actions and determine spatial location and extent of projects, as well monitoring and reporting outputs against projects. *Table 9* outlines some of the most common mapping tools applied by the Corangamite CMA.

TABLE 9: Spatial mapping tools applied by the Corangamite CMA

Spatial mapping tools available	Description of spatial tool
ArcGIS	The Corangamite CMA use ArcGIS as a tool to capture and interpret spatial information, including data collection in the field. ArcGIS is also used for reporting outputs to funding partners as part of project monitoring, evaluating and reporting.
NRM Planning Portal	The NRM portal brings state, regional and local NRM information directly to property owners, community groups and NRM planners, through innovative online technology. Explore NRM information at a property, catchment and region level. https://www.ccmaknowledgebase.vic.gov.au/nrmpp/
The Soil Health Knowledge Base	Search and access over 3,589 soil health resources including reports, fact sheets, journal articles, spatial layers and more. https://www.ccmaknowledgebase.vic.gov.au/soilhealth/
The South West Climate Change Portal	The South West Climate Change portal provides regionally specific information to support NRM planners, land managers and community groups adapt to a changing climate. http://www.swclimatechange.com.au/
Victorian Land Use Information System (VLUIS)	The Victorian Land Use Information System (VLUIS) describes the land tenure, land use and land cover for each cadastral parcel across the state. The land cover data is created annually whilst the land tenure and land use data is available bi-annually. It contains data from 2010–2017. http://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/vluis
DELWP's NatureKit and Strategic Management Prospects (SMPs)	NatureKit shows biodiversity values including species Habitat Distribution Models, and Habitat Importance Models, and threats that help inform effective management actions and investment. https://www.environment.vic.gov.au/biodiversity/naturekit

Methodologies for assessing the effectiveness of management actions

Any investment within the Corangamite CMA, including through RLP, requires the need for detailed Monitoring, Evaluation, Reporting and Improvement (MERI) plans and their implementation. RLP projects have detailed MERI plans, consistent with the program requirements, which outline the methods used to determine effectiveness of these projects in delivering their respective outcomes. The determination of effectiveness is consistent with the RLP MERI framework (refer to National Landcare Program - Regional Land Partnerships MERI framework (nrm.gov.au)).

MERIT (Monitoring, Evaluation, Reporting and Improvement Tool) is the Australian Government tool that is used to collect and store planning (for example, key evaluation questions), monitoring and reporting data associated with the RLP projects. The evidence to support effectiveness across the various management actions employed will be project specific and identified within MERIT.

The process for determining the efficacy of management actions occurs at several phases in the lifecycle of a project:

- Project conceptualisation and design – using the relevant collaborative knowledge of those involved in the project, past experience, evaluations and relevant decision support tools will inform the most appropriate suite of management actions and best way to deliver. Conceptual logic models are used to explore and test the theory of change between project activities, desired outcomes and linkages to the outcome logic for RLP.
- Annual review of activities – will help inform whether the project is progressing and enables any adaptive management to be applied to delivery.
- Mid-term evaluation and final evaluation – enables judgements to be made on progress towards contribution to project outcome.

Further information can be found in Section 13: MER Processes.

The following Sections (6 to 10 inclusive), present a description for each of the relevant RLP outcomes in the Management Unit regarding location, condition, threats, priorities and management approaches.

06. Outcome 1 – Ramsar Wetlands within the Corangamite Management Unit

The Ramsar Convention encourages the designation of sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity to the List of Wetlands of International Importance (Ramsar List).

These sites are commonly known as Ramsar sites. The implementation of the Ramsar Convention in Australia is supported by the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. Ramsar sites are required to be managed to maintain the ecological character of each site, and in doing so retain those essential ecological and hydrological functions that ultimately provide the site's benefits and services.

6.1 OUTCOME STATEMENT

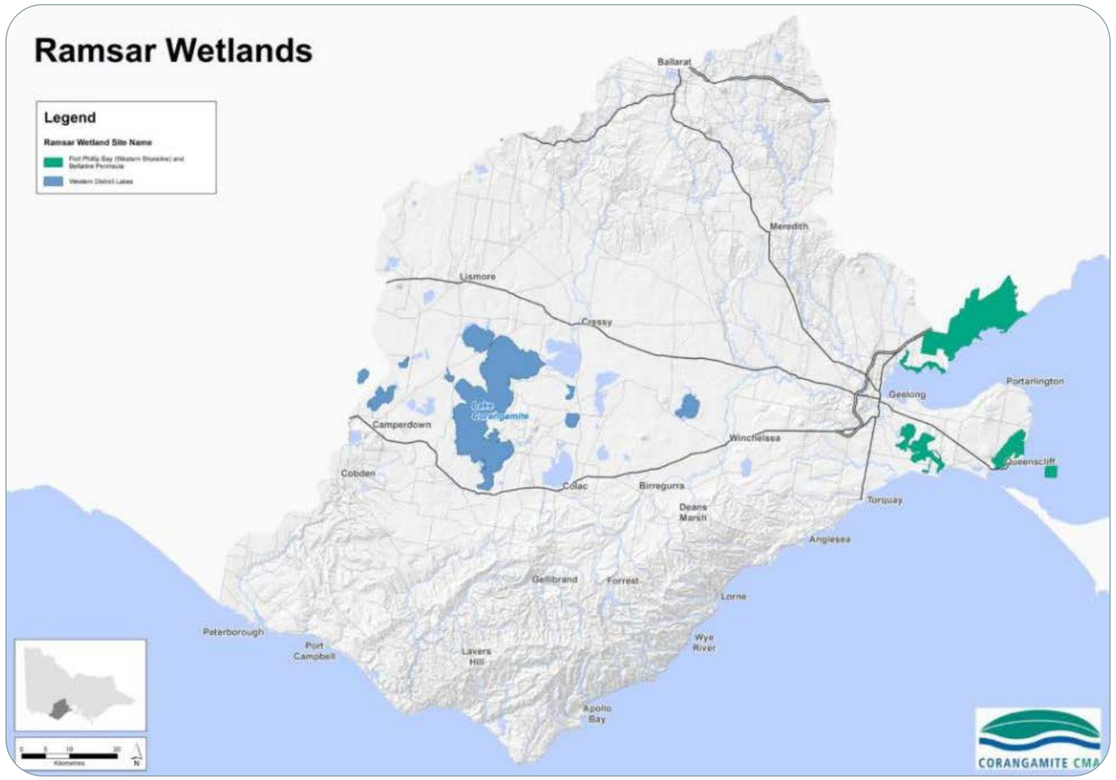
By 2023, there is restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.

There are two investment priorities:

- Western District Lakes Ramsar site, and
- Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.

Figure 6 highlights spatially where the two primary investment priorities are located within the region.

FIGURE 6: Ramsar wetlands in the Corangamite region



6.2 WESTERN DISTRICT LAKES RAMSAR SITE

Location, condition and threats

This complex was listed as a Ramsar site in 1982 and consists of nine lakes on the Victorian Volcanic Plain between Winchelsea and Camperdown

The complex includes Lake Corangamite, Lake Beeac, Lake Bookar, Lake Colongulac, Lake Cundare, Lake Gnarpurt, Lake Murdeduke, Lake Terangpom and Milangil Lake *(refer to Figure 7)*.

The Lakes are a mixture of fresh and saline and rainfall/runoff and groundwater fed systems that are either permanent or intermittent. The critical environmental services and benefits provided by the lakes include:

- a diversity of wetland types
- physical habitat for waterbird feeding, breeding and moulting
- support for two nationally threatened species (Salt Lake Tussock grass and Spiny peppercress).

The critical components for the Western District Lakes Ramsar site have been defined in *Table 10*.

FIGURE 7: Western District Lakes Ramsar site (Hale & Butcher, Ecological Character Description for the Western District Lakes Ramsar Site, 2011)

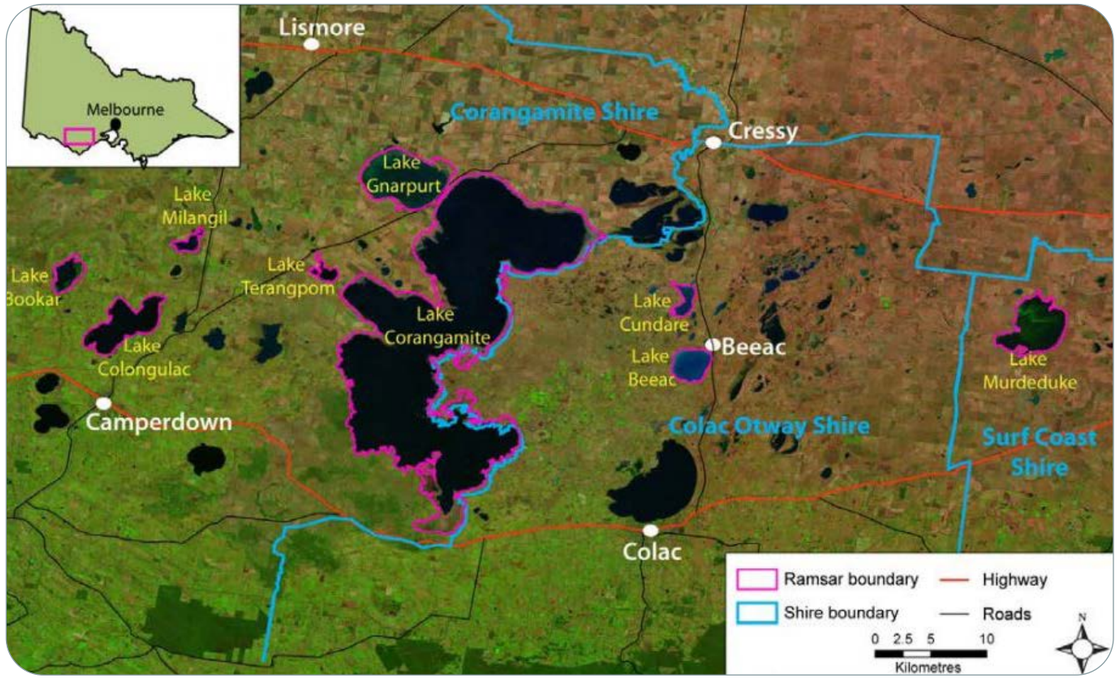


TABLE 10: Critical components and condition for Western District Lakes

Critical component	Processes	Condition
Hydrology	• At the time of listing, six of the lakes were considered permanent (not drying in the past 100 years), one (Lake Colongulac) was near permanent (drying on occasion in the last 100 years) and two were seasonal or intermittent • All lakes are connected to saline, surficial groundwater • The major water source is direct rainfall and most water is lost via evaporation • All lakes except Beeac and Cundare are groundwater flow-through lakes, discharging to groundwater down-gradient • Lakes vary in water level on seasonal cycles	Lakes Bookar, Gnarpurt, Milangil and Terangpom have all dried completely on a number of occasions in the past decade. They are no longer permanent.
Salinity	• Salinity of the lakes is variable seasonally and with longer-term climate patterns • Lakes Bookar, Colongulac, Gnarpurt, Milangil and Murdeduke are considered mesosaline • Lake Corangamite is saline • Lakes Beeac and Cundare are hypersaline • Lake Terangpom is freshwater/brackish	Salinity has increased to greater than 50 parts per thousand at Lakes Bookar, Colongulac, Corangamite, Gnarpurt, Milangil and Murdeduke, and greater than three parts per thousand at Lake Terangpom.
Vegetation	• Supports two nationally threatened plant species: spiny peppercress and salt-lake tussock grass	Spiny peppercress and salt-lake tussock grass remain within the Ramsar site.
Waterbirds	• Seventy species of waterbird including 20 international migratory species have been recorded in the site • Abundances are high, with greater than 20,000 waterbirds having been recorded annually • The site regularly supports greater than 1% of the population of four species of waterbird • Breeding has been recorded for 11 species	Total summer waterbird numbers were less than 28,000 during the millennium drought. The 1% population thresholds for waterfowl were not reached in five consecutive years (2007 to 2011) during millennium drought and the 1% threshold for Australian shelduck was reached on only one occasion in this time, in 2011 at the end of the drought.

There are a number of threats that could significantly impact on the ecological character of the Ramsar site but the most significant of these is climate change. The remaining threats are considered minor in relation. A description of each of the threats is provided in *Table 11*.

TABLE 11: Summary of threats for the Western District Lakes

Threatening activity	Description	Location
Climate change	Reduced rainfall, runoff and recharge lowers water levels and leads to increased salinity as well as impacting on conditions for birds	All
Water resource development	Reduced water levels leading to increased salinity levels through evaporation and concentration effects	Lakes Corangamite, Gnarpurt and Murdeduke
Pollution	Runoff leads to eutrophication	All
Agricultural land use impacts	Grazing impacts on habitat and salinity impacts due to land use practices	All
Invasive species	Increased competition and loss of diversity or threats to threatened flora. Of note: Tall wheatgrass, Gorse, Boxthorn and Blackberry foxes, rabbits and wild pigs	All
Resource utilisation	Fishing and duck hunting leading to disturbance of habitat and waterbirds	Fishing – Lakes Colongulac, Gnarpurt and Murdeduke. Duck hunting – Lakes Bookar, Colongulac, Corangamite, Gnarpurt, and Murdeduke.

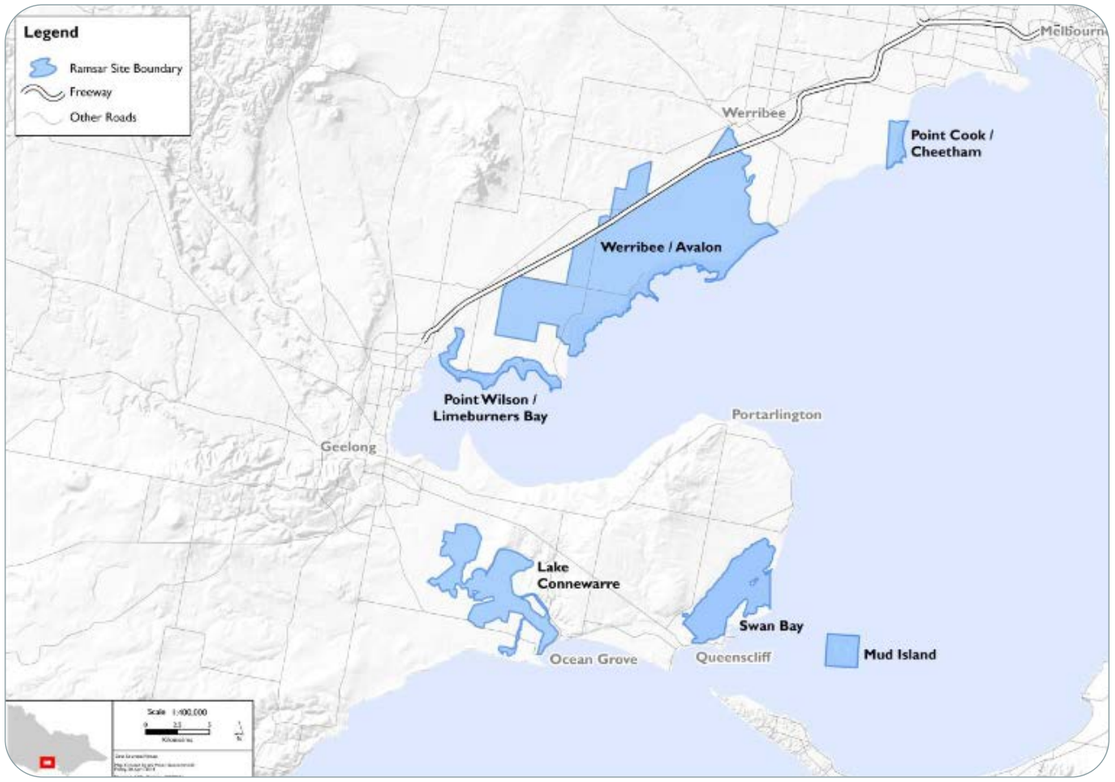
6.3 PORT PHILLIP BAY (WESTERN SHORELINE) AND BELLARINE PENINSULA RAMSAR SITE (PPBBP)

Location, condition and threats

Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site is located on the western shoreline of Port Phillip Bay between the major cities of Melbourne and Geelong, and on the Bellarine Peninsula. The site covers 22,650 hectares and comprises six distinct areas that include Point Cooke/Cheetham, Werribee/Avalon, Point Wilson/Limeburners Bay, Swan Bay, Mud Islands and the Lake Connewarre complex *(Figure 8)*.

The site includes freshwater wetlands, estuaries, intertidal shorelines, sub-tidal beds, inland saline wetlands and a wastewater treatment facility. Extensive areas of coastal saltmarsh and seagrass occur within the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site, with smaller areas of freshwater vegetation within the Lake Connewarre complex. It is one of Victoria's most important Ramsar sites providing a feeding ground for migratory bird species. Below is a summary of location, condition and threats with more detail available within the Ramsar Site Management Plan (Department of Environment, Land, Water and Planning, 2018) and the Ecological Character Description (Hale, 2020)

FIGURE 8: Map of Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (Ramsar Site Management Plan, DELWP, 2018)



It is one of Victoria's most important Ramsar sites providing a feeding ground for migratory bird species.

The site supports the following ecological community and 12 fauna species listed under the EPBC Act and/or IUCN Red List. All of these are Australian Government RLP Investment Priorities as they are listed on the EPBC Act, and their distribution ranges are either completely or at least partly within the Corangamite Management Unit.

- Subtropical and temperate coastal saltmarsh – threatened ecological community *(EPBC Act)*
- Australasian Bittern *(Botaurus poiciloptilus)* – endangered *(EPBC Act* and IUCN)
- Australian Fairy Tern *(Sternula nereis nereis)* – vulnerable *(EPBC Act)*
- Bar-tailed Godwit *(Limosa lapponica baueri)* – vulnerable *(EPBC Act)* and near threatened (IUCN)
- Curlew Sandpiper *(Calidris ferruginea)* – critically endangered *(EPBC Act)* and near threatened (IUCN)
- Eastern Curlew *(Numenius madagascariensis)* – critically endangered *(EPBC Act)* and endangered (IUCN)
- Great Knot *(Calidris tenuirostris)* – critically endangered *(EPBC Act)* and endangered (IUCN)
- Hooded Plover *(Thinornis rubricollis rubricollis)* – vulnerable *(EPBC Act)*
- Lesser Sand Plover *(Charadrius mongolus)* – vulnerable *(EPBC Act)*
- Red Knot *(Calidris canutus)* – endangered *(EPBC Act)* and near threatened (IUCN)
- Orange-bellied Parrot *(Neophema chrysogaster)* – critically endangered (*EPBC Act* and IUCN)
- Australian Grayling *(Prototroctes maraena)* – vulnerable *(EPBC Act)* and near threatened (IUCN)
- Growling Grass Frog *(Litoria raniformis)* – vulnerable *(EPBC Act)* and endangered (IUCN).

Additionally, the Australasian Bittern *(Botaurus poiciloptilus)*, Eastern Curlew *(Numenius madagascariensis)*, Hooded Plover (Eastern) *(Thinornis cucullatus cucullatus)*, Orange-bellied Parrot *(Neophema chysogaster)* and Growling Grass Frog *(Litoria raniformis)* are listed in the Australian Government's Threatened Species Strategy Action Plan Top 100 Priority Species.

These species are reflected in *Table 12 below*, which describes the condition of each critical component or process of the Ramsar site.

TABLE 12: Critical components and condition for Western District Lakes

Critical component	Processes	Condition
Hydrology	Two aspects of hydrology are considered critical to the ecological character: • Interaction between freshwater inflows and tidal exchange in the Lake Connewarre Complex • Artificial water regimes that maintain the highly productive lagoons of Cheetham Wetlands and the Western Treatment. Plant.	Reedy Lake had a wet-dry seasonal cycle in 2005-06 and 2006-07, inundated continuously for 9 years from 2001-08 to 2015-16, then successful wet-dry cycles in 2016-17 and 2017-18. Wetlands at the Western Treatment Plant and Cheetham Wetlands have remained inundated and managed according to management plans.
Vegetation	**Seagrass** – Seagrass is present at three locations: Mud Islands, Swan Bay and the coastal areas adjacent to Point Wilson/Limeburners Bay. It is dominated by two species of Zostera, with smaller areas of Halophilla ovalis. Extent and density are highly variable. **Saltmarsh** – Seven community types are present, dominated largely by succulent shrubs of the genera Tecticornia and Sarcocornia. **Mangroves** – There are small areas of mangroves in the Barwon Estuary. **Freshwater wetland vegetation** – Tall marsh dominated by common reed occurs at Reedy Lake. An unusual salt tolerant lignum shrubland also occurs at this location. A variety of common emergent, submerged and floating aquatic species occur in parts of the Western Treatment Plant.	**Seagrass:** Mapping from 2000 indicates a total of 2,900 hectares of seagrass within the Ramsar site boundary in 2000. A recent assessment indicated that seagrass cover in Swan Bay had changed little from 2008 to 2012. **Saltmarsh:** The most recent assessment of saltmarsh extent in the Ramsar site *(Boon et al. 2011)* indicates 1,225 hectares. There is no evidence of a significant decline in saltmarsh extent. **Mangroves:** The most recent assessment of mangrove extent in the Ramsar site indicates 52 hectares which is above the LAC[1]. **Freshwater Vegetation:** Assessments of vegetation in 2014 indicated 63% emergent vegetation (sedges and reeds), 21% open water, 12% lignum shrubland and 4% other communities (Ecological Associates 2014). More recent assessments (that did not include mapping) indicate that the habitat mosaic remains and there have been improvements in some vegetation communities.
Native fish	The site supports a diversity of fish with different life histories. Freshwater fish are supported in the Little River, Western Treatment Plant and Lake Connewarre Complex. The site also supports a number of diadromous fish (that is, those that regularly migrate between fresh and saltwater). The nationally vulnerable Australian grayling has been recorded in the Lake Connewarre Complex. Large number of marine and estuarine fish occur in the subtidal and intertidal habitats. Swan Bay supports a high diversity of species and is an important nursery for King George whiting. Mud Islands habitats support marine species including a number of sharks and rays.	There are insufficient assessments of fish from Swan Bay to make an assessment. The connectivity between the Barwon River and Ocean has not been impeded at specific times through the operation of fishways.

TABLE 12: Critical components and condition for Western District Lakes *(continued)*

Critical component	Processes	Condition
Waterbird diversity and abundance	The site supports more than 120 species of wetland dependent bird, including 22 species of migratory shorebirds that are regularly recorded within the site. At the time of listing annual maximum abundance was around 180,000 birds. Large numbers of waterfowl use the Western Treatment Plant and fish-eating species such as gulls and terns are supported by Mud Islands.	Data from BirdLife Australia (shorebirds) and DELWP (non-shorebirds) indicates the following average annual maximum counts (2015-2019): Total waterbirds – 228,000 Migratory waders – 22,800 Australasian waders – 6,900 Ducks – 132,000 Fish eating species – 9,400 Herbivores – 26,000 Double-banded Plover – 2.8% Red-necked Stint – 1.7% Sharp-tailed Sandpiper – 4.9% Data from Birdife Australia (shorebirds) and DELWP (non-shorebirds) indicates the following annual average number of species (2015-2019): Total waterbirds – 105 Migratory waders – 23 Australasian waders – 12 Ducks – 17 Fish eating species – 19 Herbivores – 7 Gulls – 2 Large bodied waders – 15 Other – 5
Waterbird breeding	Breeding has been recorded for at least 49 species of wetland dependent birds. Beach nesting species (Red-capped Plover, Australian Pied Oyster Catchers) breed at Cheetham Wetlands and on Mud Islands. A number of waterfowl and an established colonial nesting colony dominated by pied cormorants are supported at the Western Treatment Plant. Mud Islands also supports very large numbers of colonial nesting species with combined totals of >100,000 nests.	There has been no dedicated or comprehensive survey of breeding waterbirds at Mud Islands since 2009. Records from the Atlas of Living Australia indicate significant breeding at Mud Islands in 2016 with the following individuals recorded (although numbers of nests are unknown): Pied Cormorant – 250 Straw-necked Ibis –50,000 Australian White Ibis – 5,000 Crested Tern 2,500 Silver Gull –30,000 Nesting Pied Cormorants increased at the Western Treatment Plant to approximately 1,000 nests in 2010-2012 *(Loyn et al. 2014).*
Threatened species	The area will continue to support threatened shorebirds, Orange-bellied Parrot, Australian Grayling and Growling Grass Frog.	**Shorebirds:** Data from 2015–2019 indicates presence of the seven species (BirdLife Australia; DELWP, Atlas of Living Australia): Australasian Bittern – five years Bar-tailed Godwit – five years Eastern Curlew – five years Great Knot – four years Hooded Plover – five years Lesser Sand Plover – zero years Red Knot – five years. Average annual maximum abundance (2015 to 2019): Australian Fairy Tern – 11% (171 individuals) Curlew Sandpiper – 3% (2864 individuals) **Orange-bellied Parrot (OBP):** Although saltmarsh met the LAC the 2016 assessment for OBP indicated a decline (see also OBP case study). **Australian Grayling:** Australian Grayling continues to be recorded in the Barwon River System annually up to 2019. **Growling Grass Frog:** While there were < 200 Growling Grass Frogs recorded at the Western Treatment Plant in 2011-12 and 2014-15; there have been well in excess of 200 individuals recorded each year from 2015-16 to 2018-19. This includes > 1,000 frogs in 2015-16 (Melbourne Water unpublished). There are records of Growling Grass Frogs from the Lake Connewarre Complex in 2016, 2017, 2018 and 2019 (Atlas of Living Australia).

[1]LAC = Limits of Acceptable Change

The threats to the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site are summarised in *Table 13*:

TABLE 13: Threats to Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site

Threatening activity	Description	Location
Climate change	Sea level rise impacting on intertidal vegetation and waterbird habitat	All
	Increased temperature increases the frequency and severity of avian disease	Cheetham, Werribee, Mud Islands
	Increased intensity of storms resulting in erosion of shoreline habitats	Cheetham, Werribee, Swan Bay, Mud Islands
Changed operations at the Western Treatment Plant	Decreasing nutrients and carbon	Cheetham, Werribee, Point Wilson
Toxicants	From catchment inflows and stormwater	Cheetham, Werribee, Point Wilson, Swan Bay, Lake Connewarre
Contaminants	Emerging contaminates of concern from the Western Treatment Plant	Cheetham, Werribee, Point Wilson
Stormwater	Stormwater results in decreased salinity and altered water regimes	Lake Connewarre
Urban development	Urbanisation leads to direct habitat removal and loss of buffer	Cheetham, Werribee, Point Wilson, Swan Bay, Lake Connewarre
Litter pollution	Litter (including micro-plastics) effects biota	Cheetham, Werribee, Point Wilson, Mud Islands
Invasive species	Foxes and cats predating on waterbirds	Werribee, Point Wilson, Lake Connewarre
	Salt tolerant weeds impacting saltmarsh and waterbird habitat	All
	Non-native grazing animals (rabbits and deer) impacting vegetation and habitat	Werribee, Point Wilson, Lake Connewarre
	Silver gulls and ibis impacting breeding of other bird species (terns and petrels)	Mud Islands
Recreation	Boats, jets skis, kite surfers disturbing waterbird feeding, breeding and roosting	All
	Walkers, horse-riding disturbing waterbird feeding, breeding and roosting	All
	Vehicles damaging saltmarsh	Point Wilson, Lake Connewarre
Duck hunting	Hunting impacts to non-target species	All

6.4 MANAGEMENT ACTIONS, KEY COLLABORATORS AND CONTRIBUTION TO OUTCOMES

Detailed management actions are determined by Ramsar Site Management Plans and Annual Action Plans, overseen by the respective Ramsar Site Coordinating Committee. Management actions can be summarised as including:

Engagement and capacity building:

- Wetland information and education
- Citizen science photopoint monitoring

On ground works:

- Access management
- Pest plant and animal control
- Stock exclusion

Research and monitoring:

- Hydrological modelling
- Effectiveness monitoring
- Monitoring of critical components, processes and services (CPS), for hydrology, water quality, terrestrial and aquatic flora and fauna and water level.
- Reducing knowledge gaps through investigation.

Table 14 summarises project concepts that will contribute to RLP Outcome 1. It should be noted that other project concepts described within threatened species and ecological community outcomes will also contribute to the Ramsar outcome.

TABLE 14: Outcome 1 Project concepts

Project concept name	Primary RLP Outcome	Secondary RLP Outcome(s)	Descriptor of concept and how it contributes to 5-year Outcomes	Alignment with stakeholder aspirations	Prospective partners and collaborators
Ramsar program	1	2 and 4	Ramsar Site Management Plans exist for both sites and are overseen by a Coordinating Committee convened by Corangamite CMA. This program will support delivery of the actions prioritised by the Coordinating Committee in the Annual Action Plans, which are developed to support implementation of the Site Management and MERI Plans. This includes coordination, monitoring and management. This project will contribute to 5-year outcomes through the implementation of priority actions that are designed to restore and reduce threats to the ecological character identified in the site plans. It will also benefit *EPBC Act*-listed threatened flora and fauna, including Australasian Bittern, Easter Curlew, Australian Painted Snipe, Great Knot, Corangamite Water Skink, Spiny Peppercress, Salt-lake Tussock Grass and Natural Temperate Grasslands, Sub-tropical and Temperate Coastal Saltmarsh.	A greater focus on Ramsar wetlands, value both Ramsar sites in the Corangamite region. Ecological characteristic of Ramsar wetlands is maintained or improved. Government authorities to address feral animals and weeds in waterways and Ramsar wetlands. Habitat opportunities for threatened bird species (migratory and non-migratory) Monitor groundwater and bores to reduce impacts on groundwater dependent ecosystems such as wetlands.	DELWP, Committees of Management, Parks Victoria, Birdlife Australia, Greening Australia, Local Government Authorities, Arthur Rylah Institute, Melbourne Water, Traditional Owner Groups, Citizen Science Groups.

A greater focus on Ramsar wetlands, value both Ramsar sites in the Corangamite region.

07. Outcome 2 – Threatened species within the Corangamite Management Unit – location, condition and threats

7.1 OUTCOME STATEMENT

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

The full list of threatened species within the Corangamite region is listed in Table 3. The focus of this section is on the priorities identified through the application of a multi-criteria analysis (MCA) described in Section 5.

7.2 PRIORITY THREATENED SPECIES WITHIN THE MANAGEMENT UNIT – LOCATION, CONDITION AND THREATS

Priority threatened flora species

The MCA was applied to identify priority threatened species. *Table 15* shows the results for the highest priority ranking for flora at the time the MCA was applied, and the condition of these species based on EPBC listing status. The following descriptions are based on these rankings.

Appendix 3 provides the full rankings.

TABLE 15: Ranking and scores of the flora species in the Corangamite Management Unit

Rank	Common and Scientific Name	Ranking Score	EPBC listing / species condition
1	Hoary Sunray, Grassland Paper-daisy *(Leucochrysum albicans subsp. Tricolor)*	7.81	Endangered
2	Button Wrinklewort *(Rutidosis leptorhynchoides)*	7.79	Endangered
4	Fragrant Leek-orchid *(Prasophyllum suaveolens)*	7.62	Endangered
5	Large-fruit Fireweed, Large-fruit Groundsel *(Senecio macrocarpus)*	7.27	Vulnerable
6	Metallic Sun-orchid *(Thelymitra epipactoides)*	7.27	Endangered
7	Dwarf Spider-orchid *(Caladenia pumila)*	7.25	Critically Endangered
8	Spiral Sun-orchid *(Thelymitra matthewsii)*	7.22	Vulnerable
9	Spiny Pepper-cress *(Lepidium aschersonii)*	7.17	Vulnerable
10	Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed *(Lepidium hyssopifolium)*	6.85	Endangered
11	Adamson's Blown-grass *(Lachnagrostis adamsonii)**	6.74	Endangered
12	Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea *(Pimelea spinescens subsp. Spinescens)*	6.67	Critically Endangered
13	Clover Glycine, Purple Clover *(Glycine latrobeana)*	6.64	Vulnerable
14	Wrinkled Buttons *(Leiocarpa gatesii)*	5.75	Vulnerable
15	Salt-lake Tussock-grass *(Poa sallacustris)*	5.7	Vulnerable
16	Enfield Grevillea *(Grevillea bedggoodiana)*	5.59	Vulnerable
17	Green-striped Greenhood *(Pterostylis chlorogramma)*	5.58	Vulnerable
18	Anglesea Grevillea *(Grevillea infecunda)*	5.25	Vulnerable
19	Leafy Greenhood *(Pterostylis cucullata)*	5.09	Vulnerable
20	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass *(Amphibromus fluitans)*	5.07	Vulnerable
21	Sturdy Leek-orchid, Mount Remarkable Leek-Orchid *(Prasophyllum validum)*	5	Vulnerable
22	Tall Astelia *(Astelia australiana)*	4.96	Vulnerable
23	Trailing Hop-bush *(Dodonaea procumbens)*	4.88	Vulnerable

Table 16 indicates where in the management unit the priority threatened flora species are located based on the RCS landscape system (a map of these systems can be found at *Figure 1*). The species were grouped into landscape systems to aid future project development and community engagement, as well as alignment with the RCS. This is based on the best available information for the region, drawing on Corangamite CMA spatial data, NatureKit and the Protected Matters Search Tool.

TABLE 16: Priority flora species locations

Rank	Common and Scientific Name	Bellarine and Surf Coast	Basalt Plains	Otway Coast	Western District Lakes	Northern Uplands
1	Hoary Sunray, Grassland Paper-daisy *(Leucochrysum albicans subsp. Tricolor)*					
2	Button Wrinklewort *(Rutidosis leptorhynchoides)*					
3	Fragrant Leek-orchid *(Prasophyllum suaveolens)*					
4	Matted Flax-lily *(Dianella amoena)*					
5	Large-fruit Fireweed, Large-fruit Groundsel *(Senecio macrocarpus)*					
6	Metallic Sun-orchid *(Thelymitra epipactoides)*					
7	Dwarf Spider-orchid *(Caladenia pumila)*					
8	Spiral Sun-orchid *(Thelymitra matthewsii)*					
9	Spiny Pepper-cress *(Lepidium aschersonii)*					
10	Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed *(Lepidium hyssopifolium)*					
11	Adamson's Blown-grass *(Lachnagrostis adamsonii)**					
12	Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea *(Pimelea spinescens subsp. Spinescens)*					
13	Clover Glycine, Purple Clover *(Glycine latrobeana)*					
14	Wrinkled Buttons *(Leiocarpa gatesii)*					
15	Salt-lake Tussock-grass *(Poa sallacustris)*					
16	Enfield Grevillea *(Grevillea bedggoodiana)*					
17	Green-striped Greenhood *(Pterostylis chlorogramma)*					
18	Anglesea Grevillea *(Grevillea infecunda)*					
19	Leafy Greenhood *(Pterostylis cucullata)*					
20	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass *(Amphibromus fluitans)*					
21	Tall Astelia *(Astelia australiana)*					
22	Trailing Hop-bush *(Dodonaea procumbens)*					
23	Sturdy Leek-orchid, Mount Remarkable Leek-Orchid *(Prasophyllum validum)*					

Priority threatened flora species

The MCA was applied to identify priority threatened species. *Table 17* shows the results for the highest priority ranking for fauna at the time the MCA was applied and the condition of these species based on EPBC listing status.

Appendix 3 provides the full rankings.

TABLE 17: Ranking and scores of the fauna species in the Corangamite Management Unit

Rank	Common and Scientific Name	Ranking Score	EPBC listing / species condition
1	Orange-bellied Parrot *(Neophema chrysogaster)**	8.83	Critically Endangered
2	Eastern Curlew, Far Eastern Curlew *(Numenius madagascariensis)**	8.18	Critically Endangered
3	Swift Parrot *(Lathamus discolor)**	8.01	Critically Endangered
4	Australasian Bittern *(Botaurus poiciloptilus)**	7.59	Endangered
5	Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog *(Litoria raniformis)**	7.59	Vulnerable
6	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) *(Isoodon obesulus obesulus)*	7.57	Endangered
7	Curlew Sandpiper *(Calidris ferruginea)*	7.21	Critically Endangered
8	Striped Legless Lizard, Striped Snake-lizard *(Delma impar)*	7.11	Vulnerable
9	Corangamite Water Skink, Dreeite Water Skink *(Eulamprus tympanum marnieae)*	7.05	Endangered
10	Great Knot *(Calidris tenuirostris)*	6.84	Critically Endangered
11	New Holland Mouse Pookila *(Pseudomys novaehollandiae)**	6.78	Vulnerable
12	Plains-Wanderer *(Pedionomus torquatus)*	6.75	Critically Endangered
13	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) *(Dasyurus maculatus maculatus)*	6.75	Vulnerable
14	Long-nosed Potoroo (SE Mainland) *(Potorous tridactylus tridactylus)*	6.63	Vulnerable
15	Eastern Hooded Plover *(Thinornis cucullatus cucullatus)**	6.62	Vulnerable
16	Smoky Mouse, Konoom *(Pseudomys fumeus)*	6.28	Endangered
17	Southern Bent-wing Bat *(Miniopterus orianae bassanii)*	6.26	Critically Endangered
18	Australian Grayling *(Prototroctes maraena)*	6.1	Vulnerable
19	Australian Fairy Tern *(Sternula nereis nereis)*	6.01	Vulnerable
20	Golden Sun Moth *(Synemon plana)*	5.83	Vulnerable
21	Australian Painted Snipe *(Rostratula australis)*	5.82	Endangered
22	Yarra Pygmy Perch *(Nannoperca obscura)*	5.75	Vulnerable
23	Swamp Antechinus (mainland) *(Antechinus minimus maritimus)*	5.66	Vulnerable
24	Eastern Dwarf Galaxias, Dwarf Galaxias *(Galaxiella pusilla)*	5.15	Endangered
25	Broad-toothed Rat (mainland), Tooarrana *(Mastacomys fuscus mordicus)*	5	Vulnerable

Table 18 lists the fauna priorities and shows where in the management unit they are located based on the RCS landscape system (a map of these systems can be found at *Figure 1*). The species were grouped into landscape systems to aid future project development and community engagement, as well as alignment with the RCS.

TABLE 18: Priority fauna species locations

Rank	Common and Scientific Name	Location (RCS Landscape System)				
		Bellarine and Surf Coast	Basalt Plains	Otway Coast	Western District Lakes	Northern Uplands
1	Orange-bellied Parrot *(Neophema chrysogaster)**					
2	Eastern Curlew, Far Eastern Curlew *(Numenius madagascariensis)**					
3	Swift Parrot *(Lathamus discolor)**					
4	Australasian Bittern *(Botaurus poiciloptilus)**					
5	Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog *(Litoria raniformis)**					
6	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) *(Isoodon obesulus obesulus)*					
7	Curlew Sandpiper *(Calidris ferruginea)*					
8	Striped Legless Lizard, Striped Snake-lizard *(Delma impar)*					
9	Corangamite Water Skink, Dreeite Water Skink *(Eulamprus tympanum marnieae)*					
10	Great Knot *(Calidris tenuirostris)*					
11	New Holland Mouse Pookila *(Pseudomys novaehollandiae)**					
12	Plains-Wanderer *(Pedionomus torquatus)*					
13	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) *(Dasyurus maculatus maculatus)*					
14	Long-nosed Potoroo (SE Mainland) *(Potorous tridactylus tridactylus)*					
15	Eastern Hooded Plover *(Thinornis cucullatus cucullatus)**					
16	Smoky Mouse, Konoom *(Pseudomys fumeus)*					
17	Southern Bent-wing Bat *(Miniopterus orianae bassanii)*					
18	Australian Grayling *(Prototroctes maraena)*					
19	Australian Fairy Tern *(Sternula nereis nereis)*					
20	Golden Sun Moth *(Synemon plana)*					
21	Australian Painted Snipe *(Rostratula australis)*					
22	Yarra Pygmy Perch *(Nannoperca obscura)*					
23	Swamp Antechinus (mainland) *(Antechinus minimus maritimus)*					
24	Eastern Dwarf Galaxias, Dwarf Galaxias *(Galaxiella pusilla)*					
25	Broad-toothed Rat (mainland), Tooarrana *(Mastacomys fuscus mordicus)*					

The threats can be broadly described in terms of habitat degradation, climate change impacts, knowledge gaps for the region and predation. *Table 19* and *Table 20* provide more specific information on threats for each of the priorities.

7.3 MANAGEMENT ACTIONS, KEY COLLABORATORS AND CONTRIBUTION TO OUTCOMES

Table 19 and *Table 20* respectively outline the relevant management actions to the Corangamite Management Unit for the highest ranked threatened flora and fauna species identified in the multi-criteria analysis. These investment priorities have been grouped by Landscape System or Threatened Ecological Community, as management actions within a landscape/community will benefit multiple species. Some flora species have extremely limited distributions and specific management actions for these locations. While grouped below, specific species requirements may need to be considered in further detail as landscape scale projects are developed. A detailed list of locations, threats and management actions for each flora species, as identified in National Recovery Plans or other equivalent sources, was compiled to inform the threats and management actions below but is not included with this plan. Existing projects relating to both Outcomes 2 and 4 are underway for many of the below investments, which will inform the most cost-effective management actions going forwards. When developing new projects, these management actions will be prioritised and refined to specific target locations based on the most recent information and expert advice.

TABLE 19: Investment priorities – flora

Primary investment priority (and associated ranking in the multi-criteria analysis)	Threats	Management Actions
Victorian Volcanic Plain secondary investment priorities: Hoary Sunray (rank 1) Button Wrinklewort (rank 2) Fragrant Leek-orchid (rank 3) Matted Flax-lily (rank 4) Large-fruit Groundsel (rank 5) Dwarf Spider-orchid (rank 7) Spiny Pepper-cress (rank 9) Basalt Pepper-cress (rank 10) Adamson's Blown-grass (rank 11) Spiny Rice-flower (rank 12) Clover Glycine (rank 13) Salt-lake Tussock-grass (rank 15). **Other species within Northern Uplands, Basalt Plains and Western District Lakes Landscape Systems:** Enfield Grevillea (rank 16) River Swamp Wallaby-grass, Floating Swamp Wallaby-grass (rank 20) Trailing Hop-bush (rank 23) Sturdy Leek-orchid (rank 21). *Note – total known population of Enfield Grevillea occurs within the Corangamite Management Unit.*	The Victorian Volcanic Plain Threatened Ecological Communities cross the Basalt Plains, Northern Uplands and Western District Lakes Landscape Systems within the Corangamite Management Unit. Most species within these communities share common threats, as outlined in Section 8. These species would be addressed as Secondary Investment Priorities for RLP Outcome 4 (Section 8) and Spiny Peppercress and Salt-lake Tussock Grass would be addressed as Secondary Investment priorities for RLP Outcome 1 (Section 6). Key threats include: – Habitat destruction and clearing – Weed invasion – Poor reservation status – Inappropriate fire or grazing regimes – Grazing by livestock or other animals – Small population sizes – Climate change and hydrological changes – Disturbances from vehicles, trampling or other activities – *Phytophthora cinnamomi* (for Enfield Grevillea)	See RLP Outcome 4 (Section 8) Secondary Investment Priorities and RLP Outcome 1 (Section 6) Secondary Investment Priorities for Spiny Peppercress and Salt-lake Tussock Grass. Management actions include: – Determine distribution, abundance and population structure – Determine habitat requirements – Ensure that key populations and their habitat are protected, monitored and managed appropriately – Undertake ecological burning as needed – Manage threats to populations including weed and rabbit control, fire, awareness and access – Identify key biological characteristics – Determine growth rates and viability of populations – Seed collection, propagation and other ex-situ recovery action – Build community support for conservation – Hygiene awareness, training and management (for Enfield Grevillea)
Metallic Sun-orchid (rank 6) Spiral Sun Orchid (rank 8) Wrinkled Buttons (Rank 14) Green-striped Greenhood (rank 17) Anglesea Grevillea (Rank 18) Leafy Greenhood (rank 19) Tall Astelia (rank 22). *Note – total known distributions of Anglesea Grevillea and Wrinkled Buttons occur within the Corangamite Management Unit.*	*Phytophthora cinnamomi* Inappropriate fire regime Weed invasion Changes to soil and water regimes Vegetation clearing and other land management practices Inappropriate grazing by stock, introduced herbivores and slugs Disturbances from vehicles, horses, camping, trail bikes and walkers Lack of knowledge and awareness Reduced genetic fitness	Hygiene training and management – awareness Surveys to acquire baseline population data and current or potential habitat information Identify and, as required, control threats (feral herbivore grazing and disturbance) Evaluate current reproductive/regenerative status and determine seed germination requirements Determine the growth rates and viability of populations Genetic risk assessment and Specific Needs Analysis Build community support for conservation

TABLE 20: Investment priorities – flora

Primary investment priority (and associated ranking in the multi-criteria analysis)	Threats	Management Actions
Orange-bellied Parrot (rank 1)	Small population – allee effects, genetic impacts, disease risk Habitat degradation due to inappropriate grazing or browsing of stock, deer, rabbits or kangaroos, reducing structural and floristic diversity of saltmarsh Changes in catchment hydrology and inflows from urban development Predation from cats and foxes Climate change impacts of sea level rise on coastal saltmarsh Lack of knowledge of diet, biology, movement and survival of Orange-bellied parrots	Mainland release of captive-bred birds Management of environmental flows Stormwater harvesting/diversion Replanting of wet saltmarsh or lignum Levee removal Private land stewardship – grazing management Weed control Rabbit control Deer control Fox and cat control Establish buffers for saltmarsh to colonise Research and monitoring, including tracking of birds and effectiveness monitoring
Eastern Curlew (rank 2) Curlew Sandpiper (rank 7) Great Knot (rank 10) Australian Painted Snipe (rank 20) Lesser Sand Plover (rank 26)	*See Section 6 (Outcome 1) Secondary Investment Priorities*	*See Section 6 (Outcome 1) Secondary Investment Priorities*
Swift Parrot (rank 3) Plains Wanderer (rank 12)	Habitat degradation Absence of Plains Wanderer records in the Corangamite Management Unit where it previously occurred	Feasibility study to determine efficacy and appetite for reintroduction of Plains Wanderer into the Corangamite region Scoping study to identify and prioritise potential interventions needed within the Corangamite Management Unit to support the national recovery of the Swift Parrot, including identifying management and protection works to improve supporting habitat of the Swift Parrot.
Australasian Bittern (rank 4)	Habitat loss and degradation of reed beds Drought and fire regimes Predation from foxes Changes in catchment hydrology and inflows *Also see RLP Outcome 1 Secondary Investment Priorities*	Understanding baseline population data, movements and population dynamics of bittern through surveying/tracking of birds Predator control around critical habitat at critical times Improving hydrology and water quality at known Bittern habitat sites Protection of wetlands through stock removal and management, pest plant and animal control *Also see RLP Outcome 1 Secondary Investment Priorities*
Growling Grass Frog (rank 5) Striped Legless Lizard (rank 8) Corangamite Water Skink (rank 9) Golden Sun Moth (rank 20)	*See RLP Outcome 4 Secondary Investment Priorities*	*See RLP Outcome 4 Secondary Investment Priorities*

TABLE 20: Investment priorities – flora (continued)

Primary investment priority (and associated ranking in the multi-criteria analysis)	Threats	Management Actions
Southern Brown Bandicoot (rank 6) New Holland Mouse (rank 11) Long-nosed Potoroo (rank 14) Swamp Antechinus (rank 23) Broad-toothed Rat (rank 25) Spot-tailed Quoll (rank 13) Smoky Mouse (rank 16)	Disturbances due to drought, habitat fragmentation or fire regimes Herbivore impacts on vegetation Vegetation dieback from *Phytophthora cinnamomi* and lack of awareness and training of key management personnel and community groups in controlling and preventing spread Knowledge gaps in the location and management of critical refuge habitats Delay in information transfer to land managers resulting in delayed management response Fox and cat predation, particularly post-fire or other disturbance Coastal erosion – coastal refugia of Swamp Antechinus, Southern Brown Bandicoot	Feral pig monitoring and control coordinated across public and private land Sambar deer monitoring and control coordinated across public and private land Public and private land manager engagement and training in pig and deer identification and management, and *phytophthora cinnamomi* management Commercial harvest of feral deer Fox and cat monitoring and control in priority landscapes integrated with fuel reduction/ planned burning to protect small mammal refugia Coordination of management across land tenure Monitoring of threatened species within priority locations to determine species trajectory and assess management effectiveness in supporting species recovery Implement Otways Threat Abatement Plan, including targeted management of *Phytophthora cinnamomi* in identified Priority Protection Areas Dunecare coastal management to protect small mammal refuges, including weed and pest animal control and erosion control Development of Adaptation Pathways for prioritisation of works to support vulnerable coastal dunes susceptible to coastal erosion and priority locations that support threatened species and cultural values Coordination of management across land tenure Education and capacity building for Dune landscapes to protect small mammal refuges Revegetation, weed control and feral animal control on private and public land through community and land manager grants program for both dunes and other key Otway refuges for small mammals
Eastern Hooded Plover (rank 15) Australian Fairy Tern (rank 19)	People and dogs trespassing on dunes and impacting nesting bird habitat Fox and cat predation Lack of knowledge of species distribution and management effectiveness	People control at nesting sites Predator control at nesting sites Information sharing Education and capacity building Research and Monitoring

TABLE 20: Investment priorities – flora (continued)

Primary investment priority (and associated ranking in the multi-criteria analysis)	Threats	Management Actions
Australian Grayling (rank 18) Yarra Pigmy Perch (rank 22) Eastern Dwarf Galaxia (rank 24)	Loss of in-stream woody habitat Loss of riparian vegetation extent and function Input of agricultural run-off resulting in decreased water quality Invasive weeds impacting on establishment and ecological function of riparian zone and in-stream habitat Rubbish entering waterways and impacting fish habitat and water quality Vegetation clearing and other land management practices Loss of refugia as a result of drought and impacts of fire Alteration to flow regime Introduced aquatic species In-stream barriers to migration River regulation	Installation of in-stream woody habitat, hydraulic diversity and fish hotels Revegetation of habitat corridors and exclusion of domestic stock through fencing Weed control Rubbish removal works Domestic stock exclusion Invasive aquatic species management Revegetation Nutrient management and whole farm planning extension program to landholders Investigation of current refuge and translocation sites for Dwarf Galaxias in the Upper Barwon catchment as per Recovery Plan 2010 *(Recovery Objective 9 – Saddlier et al 2010).* Current refuge status of Yarra Pygmy Perch in the lower Barwon – Waurn Ponds Creek and Western District Lakes sub catchments, Gnarkeet Chain Of Ponds, Woady Yaloak River and tributaries, translocation sites and community awareness *(Recovery Plan Objectives 5,9 and 10 – Saddlier and Hammer, 2010).* Removal of barriers to in-stream migration in coastal drainages (based on state-wide and Corangamite CMA barriers investigations/ prioritisation. *(Recovery Objectives 2 and 4 – Backhouse and O'Connor, 2008).*
Southern Bent-wing Bat (rank 17)	Knowledge gaps in understanding main causes of decline Cave management Human disturbance Foraging habitat loss Loss of prey species due to agricultural pesticides Drought and climate change impacts Disease risk from White-nose Syndrome Predation from cats, foxes and black rats Wind-farm developments	Determine the main cause/s of the recent decline in numbers of Southern Bentwing Bats, and develop targeted, rapid management responses Protect key roosting sites Protect and enhance foraging habitat around key sites Clarify the taxonomic status, distribution and population structure of the Southern Bent-wing Bat Compile and maintain databases to aid in the management of the subspecies Establish a long-term monitoring program for the Southern Bent-wing Bat Facilitate and promote community interest, understanding and participation. Provide direction and guidance to the recovery of the Southern Bent-wing Bat and review the success of this Recovery Plan

Table 21 summarises project concepts that will contribute to this RLP outcome. It should be noted that concepts have been designed to contribute to other outcome priorities also. As shown in *Table 19* and *Table 20*, many of the ranked flora and fauna species occur within a Ramsar site *(Outcome 1)* or across the Victorian Volcanic Plains *(Outcome 4)* and the management actions for these outcomes will have multiple benefits for these species when managing at a landscape scale. Therefore, project concepts relevant to these species are listed in Section 6 *(Outcome 1)* and Section 8 *(Outcome 4)* rather than proposing projects specific to each species. Lack of knowledge and awareness has been listed as a threat for some species, so there is merit in a project that addresses key knowledge gaps for priority species.

The list of project concepts addresses species that exist within the Corangamite Management Unit. The feasibility of translocating other threatened species into the region will also be considered in future project development, consistent with actions within National Recovery Plans.

Increased opportunities for Traditional Owner management of land and biodiversity

TABLE 21: Project concepts for Outcome 2

Project concept name	Primary RLP Outcome	Secondary RLP Outcome(s)	Descriptor of concept and how it contributes to 5-year Outcomes	Alignment with stakeholder aspirations	Prospective partners and collaborators
Orange-bellied Parrot Recovery Project	2	4 and 1	Implementation will build on the currently funded RLP program with recent knowledge and expertise gained by the National Recovery Team and Technical Reference Group for the existing project and will sustain the recovery trajectory of the critically endangered Orange-bellied Parrot. In addition, investment in Orange-bellied Parrot project will have benefits for both Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site as it is addressing one of the priority actions in the Ramsar site management plan for the ecological character of the site *(contributing to Outcome 1)*.	Actions to exclude/reduce pest plants and animals as a threat to some native species. Habitat opportunities for threatened bird species (migratory and non-migratory).	**Existing partners:** Zoos Victoria, Landcare, Trust for Nature, Birdlife Australia, DELWP (National Recovery Team Coordinator), Parks Victoria, Wadawurrung Traditional Owners Aboriginal Corporation, Deakin University, Geelong Field Naturalists Club.
Australasian Bittern Project	2	1	Deliver on activities in the Draft National Recovery Plan that are relevant to the Corangamite region, with a particular focus on improving knowledge and management of potential breeding sites (Reedy Lake, Elingamite, Aire), bittern ecology and habitats in Corangamite, and reinstating habitat through private wetland enhancement. Knowledge to inform re-instatement of habitat and management will support stabilisation or improvement in this priority species.	Habitat opportunities for threatened bird species (migratory and non-migratory) in the Geelong/Bellarine Surf Coast landscapes. A greater focus on Ramsar wetlands, value both Ramsar sites in the Corangamite region. Ecological characteristic of Ramsar wetlands is maintained or improved.	Parks Victoria, Melbourne Museum, Birdlife Australia, Glenelg Hopkins CMA, DELWP, Private Landholders, Landcare Networks, Geelong Field Naturalists Club.
Stewards of the dunes and protecting beach nesting birds	2	2	Dunecare Coastal Management: This sub-project would expand on the Coastal Management Grants Program undertaken to address high threat weeds, invasive animals and coastal erosion under the 2020-2023 Bellarine and Great Ocean Road Dunecare Program. Recent research in the eastern Otways shows that coastal dune and headland scrub habitat provide key refugia for threatened small mammals including Swamp Antechinus, Southern Brown Bandicoot and White-footed Dunnart. This project would continue the important work started to protect, restore and manage these important habitat refuges. It will build on the established partnerships with coastal public land managers and coastal experts, currently coordinated through a Stakeholder Working Group and Expert-based Reference Group. Recovery program for beach nesting birds: This sub-project will support the broader recovery program being delivered across the state for beach nesting birds, focusing particularly on Hooded Plovers and Fairy Terns. It will include monitoring, knowledge improvement and on-ground works to understand and continue to protect these species in the Corangamite region. Knowledge to inform re-instatement of habitat and management will support stabilisation or improvement in this priority species.	Community in the Bellarine landscape were concerned about the encroachment of urbanisation from housing developments on to significant EVCs including those found at Ramsar sites. Actions to address the pressures on land due to urbanisation and housing developments, urban encroachment on natural environments. Actions to exclude/reduce pest plants and animals from threatened EVCs. Priority habitat areas are protected from development and disturbance, and buffers are established.	**Current**: Parks Victoria, DELWP, Wadawurrung Traditional Owners Aboriginal Corporation, Birdlife, coastal committees of management, coastal shire councils of the Corangamite CMA region, University of Melbourne. **Potential:** Eastern Maar Aboriginal Corporation, Conservation Ecology Centre, Barbara Wilson Pty Ltd, The University of Melbourne, Deakin University.
Wild Otways Initiative 2.0	2	1	This project contributes to the recovery of Southern Brown Bandicoot, Long-nosed Potoroo, White-footed Dunnart, Swamp Antechinus, Broad-toothed Rat and *EPBC Act* listed flora species (Tall Astelia, Leafy Greenhood, Spiral Sun-orchid, Metallic Sun-orchid, Green-striped Greenhood, Anglesea Grevillea, Wrinkled Buttons) within this landscape through targeted feral pig, deer, fox and cat control, small mammal monitoring, flora distribution mapping, weed and fire management and management of specific 'Priority Protection Areas' identified under the 'Otways Threat Abatement Plan (OTAP) for Management of *Phytophthora cinnamomi*'. One of the Priority Protection Areas includes the only known site of Tall Astelia in the region. This project will build on the strong governance structure that is established, with an expert-based Project Steering Committee, Technical Reference Group and cross-agency Project Team, to enable effective co-design and project delivery. Importantly, the established partnerships between Corangamite CMA, public land managers, researchers, community groups and private landholders enables effective and efficient delivery of cross-tenure, long-term outcomes. Managing threats will support stabilisation or improvement of these priority species.	Actions to exclude/reduce pest plants and animals as a threat to some native species. Increased opportunities for Traditional Owner management of land and biodiversity.	Parks Victoria, DELWP, Wadawurrung Traditional Owners Aboriginal Corporation, Eastern Maar Aboriginal Corporation, Conservation Ecology Centre, Barbara Wilson Pty. Ltd., The University of Melbourne, Deakin University, Federation University, Landcare Networks (including Upper Barwon Landcare Network, Central Otways Landcare Network, Southern Otways Landcare Network).
Addressing key knowledge gaps for priority threatened species and ecological communities	2	4 and 5	This project will undertake feasibility studies and seek to fill key knowledge gaps to determine the distribution, population viability and appropriate management actions required to protect priority species and ecological communities, including Swift Parrot, Plains Wanderer, and *Assemblages of the species associated with open-coast salt-wedge estuaries of the western and central Victoria ecological communities* within the region. Where feasible, a regional management plan will be developed and implemented. For the Plains Wanderer, it would involve a feasibility study to determine the potential for reintroduction into the Corangamite Management Unit, as no recent records are known in this region. Addressing key knowledge gaps will ensure any future investment in services are directed and appropriate to support these priority species.	Habitat opportunities for threatened bird species (migratory and non-migratory) in the Geelong/Bellarine Surf Coast landscapes. Actions around working with landholders to improve grasslands of the Victorian Volcanic Plain for threatened species.	Parks Victoria, DELWP (Natural Environment Program), Private landholders, Victorian Volcanic Plain Conservation Management Network, CFA, Birdlife Australia, Landcare, Zoos Victoria, City of Greater Geelong, Friends of Ocean Grove Nature Reserve, Geelong Field Naturalists Club.
Recovery Program for Threatened Aquatic Species in the Corangamite Region	2	4 and 5	This project will support the recovery of Yarra Pigmy Perch, Dwarf Galaxias and Australian Grayling, three *EBPC Act* listed threatened species. It would involve a feasibility study to determine efficacy and appetite for translocation of threatened obligate aquatic species, a cost-prioritisation assessment for barrier removal and a climate risk assessment and management plan to ensure timely intervention to enable species recovery. This project would build on existing fish habitat restoration work, Memorandums of Understanding and partnerships with industry, government and community organisations, and engagement work with community to enable effective and efficient co-design and delivery.	Government authorities to address feral animals and weeds in our waterways as a threat to native fish species. Environmental flows specifically for threatened aquatic species in Moorabool and Leigh rivers. Greater opportunities for Traditional Owner management related to biodiversity, especially related to conservation of culturally significant species. In the Barwon Plain landscape system, actions for local fish species including River Blackfish and Australian Grayling (EPBC listed).	DELWP (Natural Environment Program), DELWP Research (ARI), Museum Victoria, Native Fish Australia, Landcare, Parks Victoria, Barwon Water, Wannon Water, Central Highlands Water.

08. Outcome 4 – Threatened ecological communities within the Corangamite Management Unit

8.1 OUTCOME STATEMENT

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

The full list of investment priorities is provided in *Table 3*, and discussed further in Section 8.2.

8.2 LOCATION, CONDITION AND THREATS

The quality and extent of native vegetation affects its ability to carry out important environmental functions and provide other values such as nature-based tourism. Approximately 22% of the Corangamite region is covered by public land, which is broadly classified as national parks, state forests, conservation reserves, plantations, and other public land reserves (*see Figure 11*). Most of the land in the region is in private ownership.

FIGURE 9: Public land in the Corangamite region (data source: DELWP, map produced by Corangamite CMA)

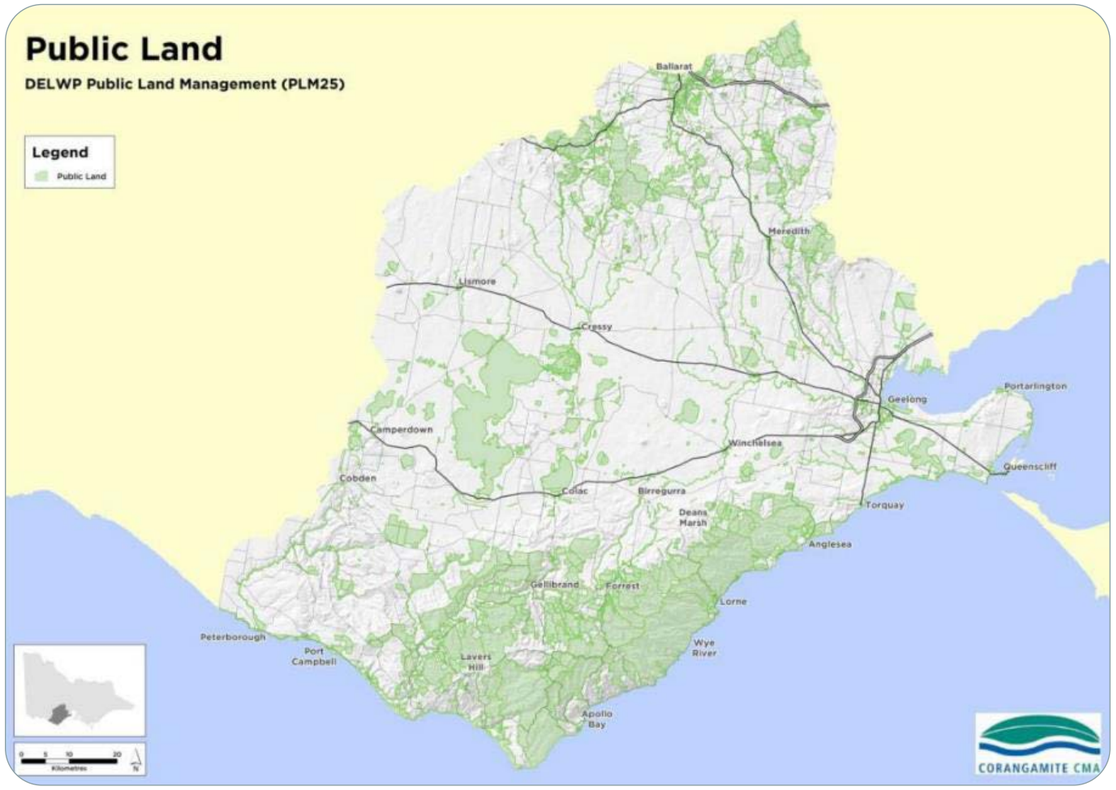
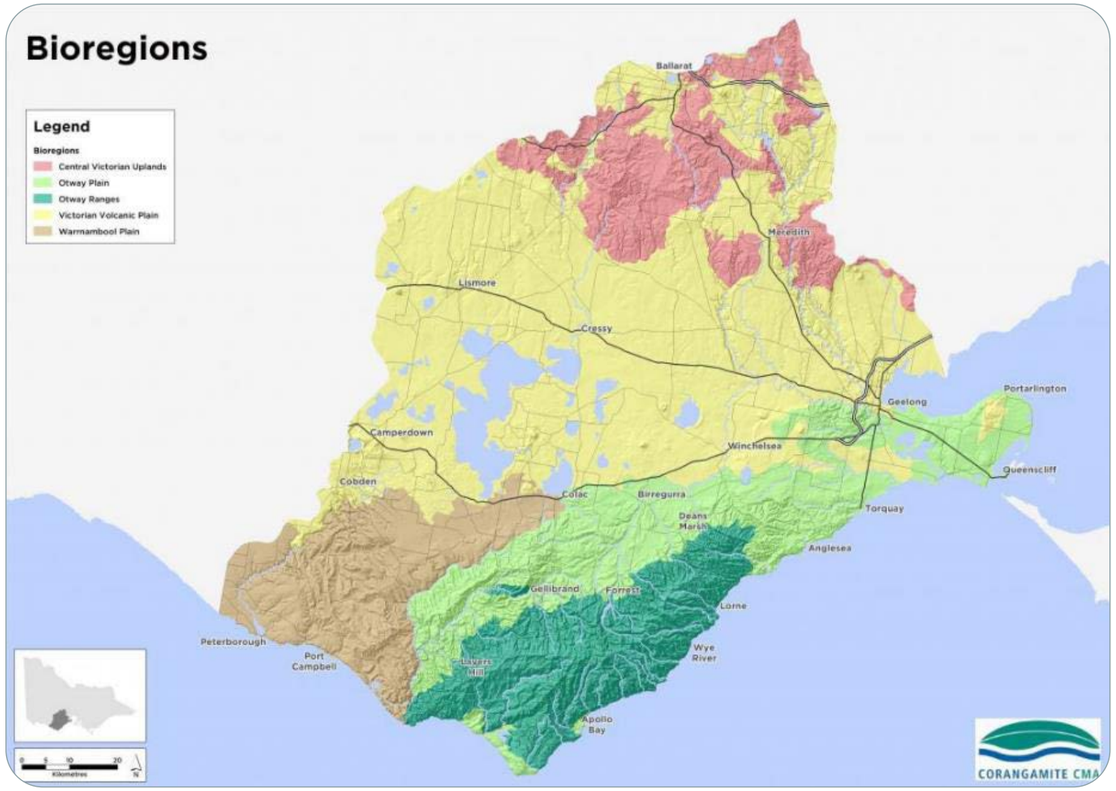


FIGURE 10: Bioregions of the Corangamite region (data source: NatureKit (DELWP), map produced by Corangamite CMA)



Bioregions are a landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. This results in areas that are characterised by similar natural features and environmental processes that influence the functions of entire ecosystems.

Bioregions located within the Corangamite Management Unit are *(Figure 12)*:

- Central Victorian Uplands
- Otway Plain
- Otway Ranges
- Victorian Volcanic Plain
- Warrnambool Plain.

Of the five bioregions within the Corangamite region, the Victorian Volcanic Plain, Warrnambool Plain and Otway Plain bioregions are amongst the most cleared in the State. The Central Victorian Uplands bioregion is moderately cleared, and the Otway Ranges bioregion is amongst the least cleared in the State.

The following listed ecological communities occur in the Corangamite region:

- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains *(Figure 11)*
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain *(Figure 12)*
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia *(Figure 13)*
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland *(Figure 14)*
- Giant Kelp Marine Forests of South East Australia *(Figure 15)*
- Sub-Tropical and Temperate Coastal Saltmarsh *(Figure 16)*
- Natural Damp Grassland of the Victorian Coastal Plain *(Figure 17)*
- Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community *(Figure 18)*

These maps contain data from the Australian Government and are used internally by Corangamite CMA staff as a useful resource as part of project prioritisation and scoping, and onground management actions targeting remediation of these Ecological Communities.

FIGURE 11: Seasonal Herbaceous Wetlands (Freshwater of the Temperate Lowland Plains

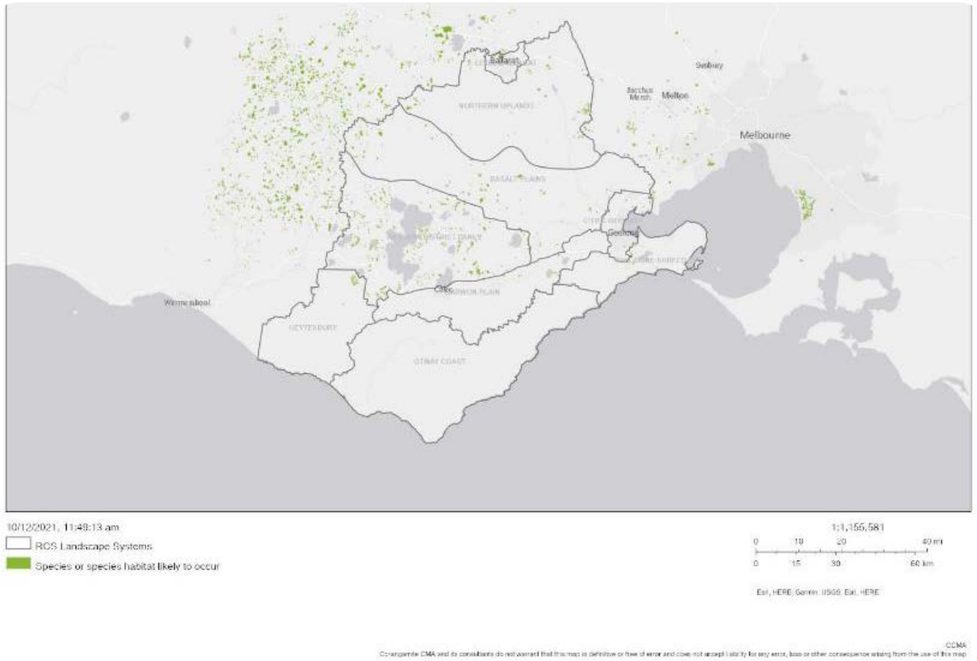


FIGURE 12: Grassy Eucalypt Woodlands of the Victorian Volcanic Plain

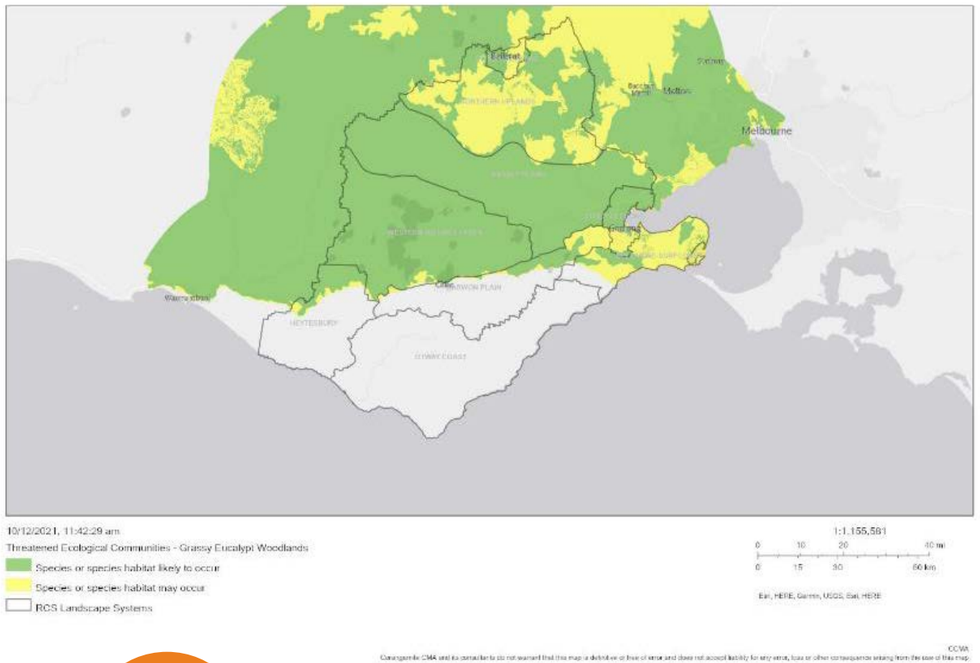


FIGURE 13: Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia

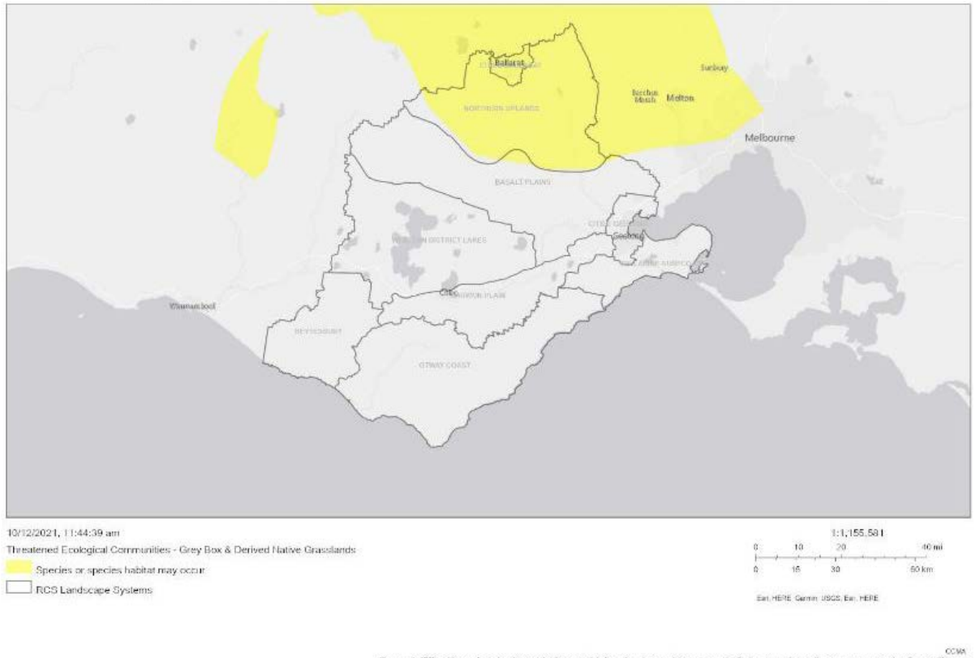


FIGURE 14: White Box-Yellow Box-Blakey's Red Gum Woodland and Derived Native Grassland

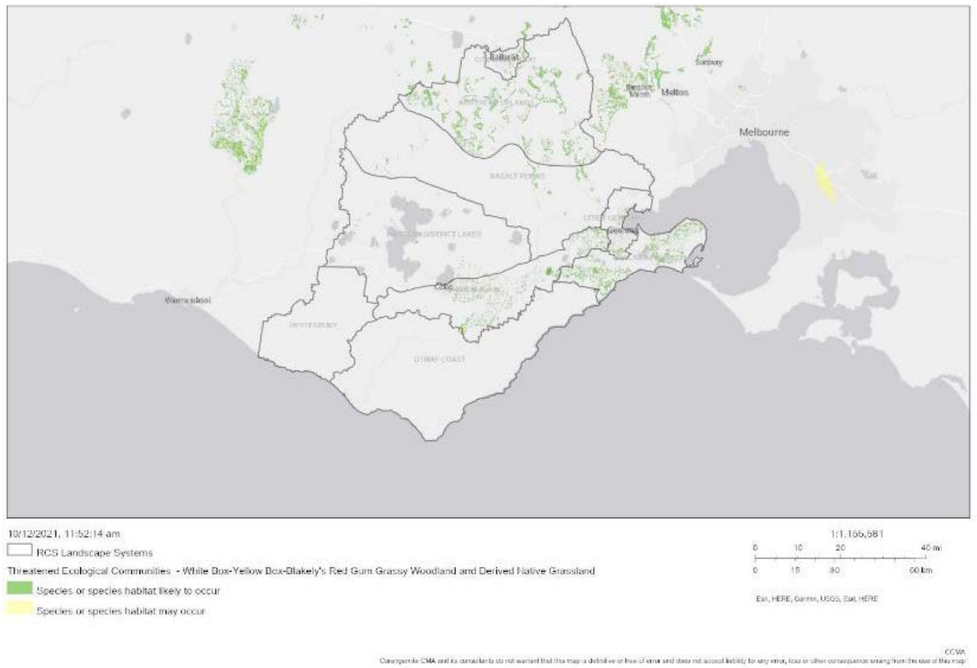


FIGURE 15: Giant Kelp Marine Forests of South East Australia

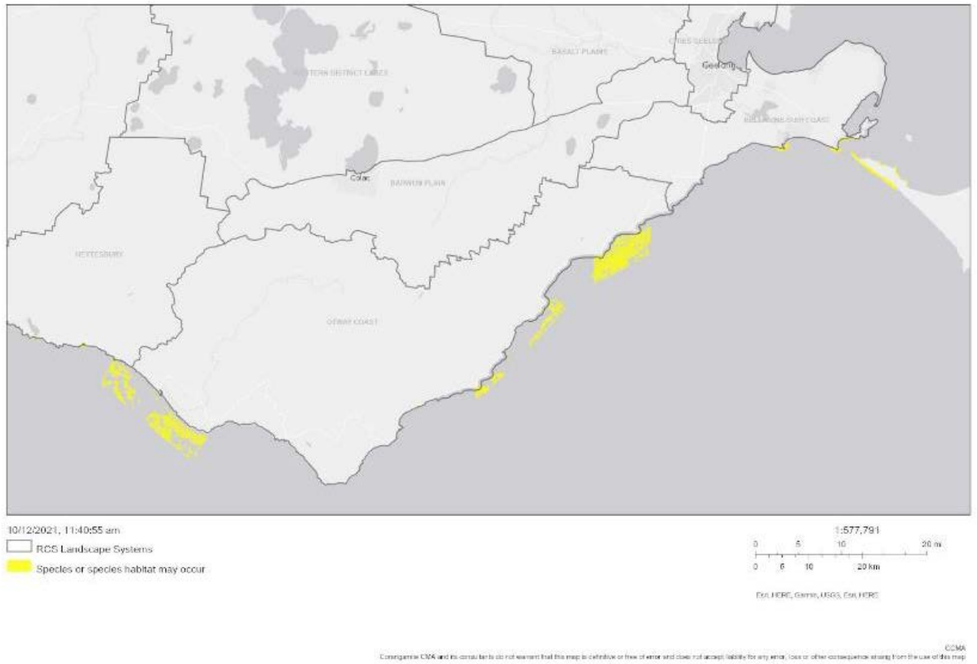


FIGURE 16: Subtropical and Temperate Coastal Saltmarsh

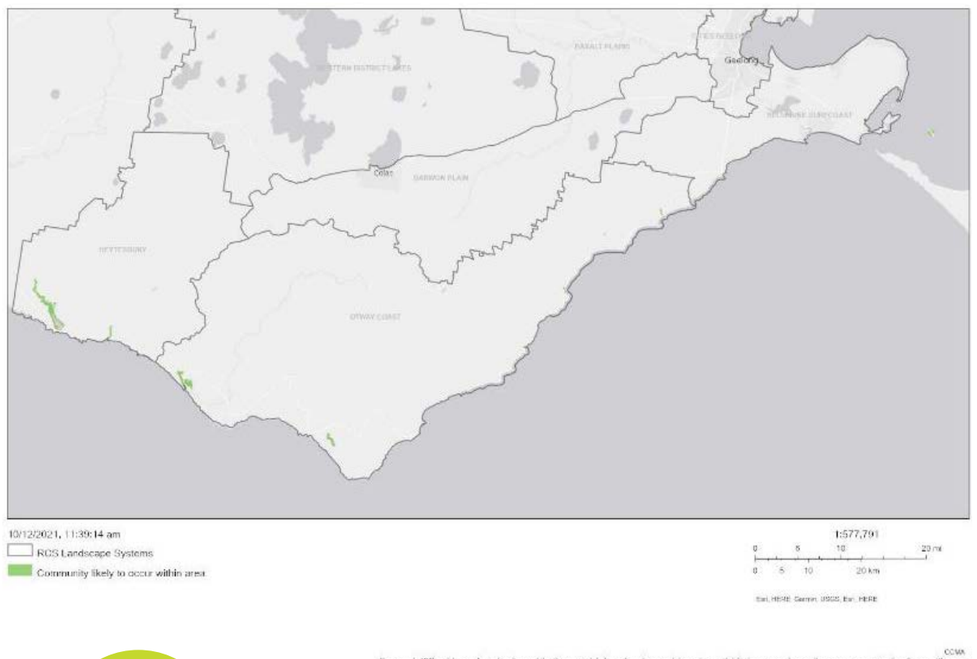


FIGURE 17: Natural Damp Grasslands of the Victorian Coastal Plains

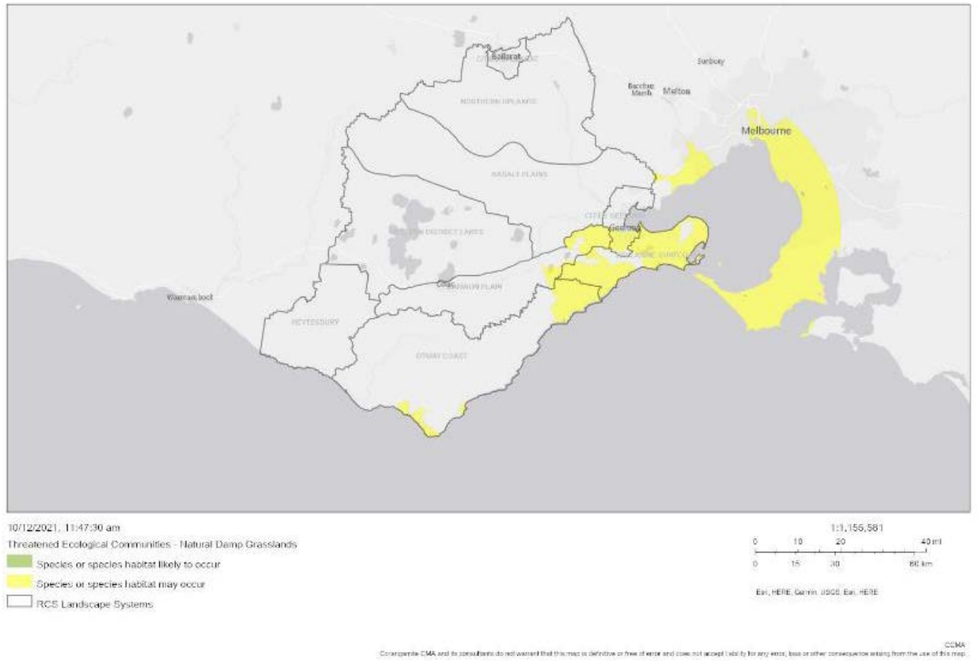
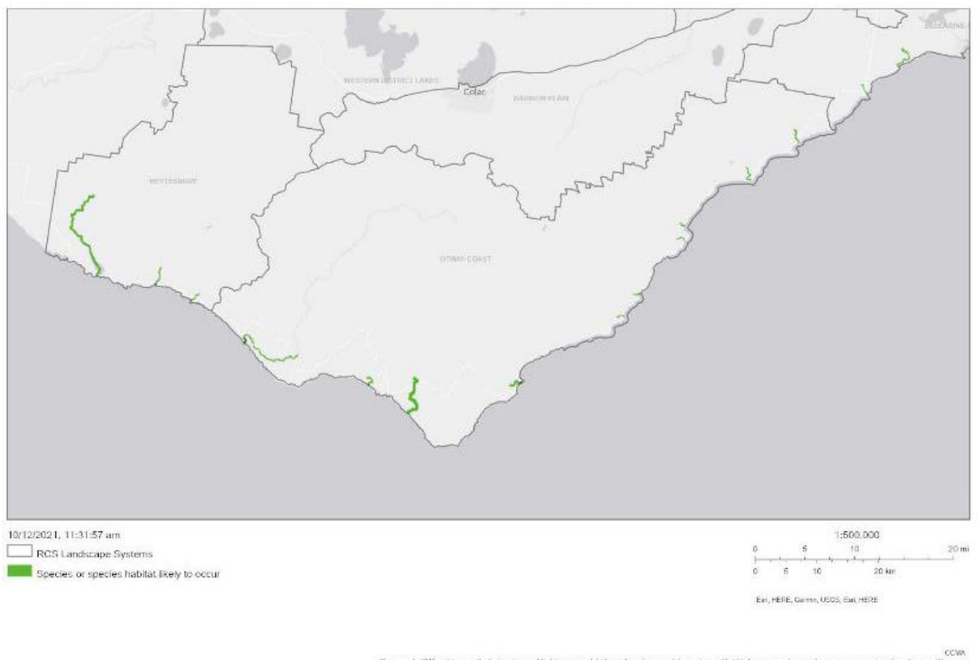


FIGURE 18: Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria



Ecological Vegetation Class (EVC) benchmarks relate to a single EVC within one bioregion. They have been developed to assess the vegetation quality of EVCs at the site scale in comparison to a 'benchmark' condition. These benchmarks have been developed to assess native vegetation using the method for Vegetation Quality Assessment (VQA). EVCs listed as endangered under the Victorian Bioregional Conservation Status meet the following criteria:

- Contracted to less than 10% of former range; OR
- Less than 10% pre-European extent remains; OR
- Combination of depletion, degradation, current threats and rarity is comparable overall to the above:
  - 10-30% pre-European extent remains and severely degraded over a majority of this area; or
  - Naturally restricted EVC reduced to 30% or less of former range and moderately degraded over a majority of this area; or
  - Rare EVC cleared and/or moderately degraded over a majority of former area

In 5.92% of the Corangamite region, the Ecological Vegetation Classes (EVCs) that exist are classified as endangered. A further 4.24% of the Corangamite region is classified as vulnerable. Several Ecological Vegetation Classes within the region are now presumed to be extinct, including Coast Gully Thicket, Plains Grassy Wetland and Scoria Cone Woodland.

There are a number that are currently endangered, including:

- Plains Sedgy Wetland (EVC 647)
- Aquatic Herbland (EVC 653)/Plains Sedgy Wetland (EVC 647) Mosaic
- Grassy Woodland (EVC 175)
- Lignum Swamp (EVC 104)
- Plains Grassland (EVC 132)
- Floodplain Riparian Woodland (EVC 56)
- Grassy Forest (EVC 128)
- Damp Heath Scrub (EVC 165)
- Swampy Riparian Woodland (EVC 83)
- Coastal Alkaline Scrub/Calcarenite Dune Woodland (EVC 858)
- Stream-bank Shrubland (EVC 851)
- Swamp Scrub, (EVC 53) and
- Damp Sands Herb-rich Woodland (EVC 3).

The Bellarine–Surf Coast has the largest relative percentage of land where the Ecological Vegetation Classes are classified as endangered (13.23%), followed by the Geelong City landscape system (11%). The landscape system with the lowest percentage of EVCs classified as endangered is Heytesbury (1.88%) but, of all the landscape systems, it has the greatest percentage of land where the EVCs are classified as vulnerable (14.71%). This is followed by the Otway Coast, with 6.01% of the landscape area falling into vulnerable Ecological Vegetation Classes.

Key threats to threatened ecological communities include:

- **Clearing** – a major contributor to the fragmentation and decline of native grassy vegetation across the Victorian Volcanic Plain (VVP) bioregion. It is among the most heavily cleared bioregions across Australia, with about 92% of native vegetation across the bioregion having been cleared or heavily modified. In recent years, even marginal sites have succumbed directly to intensive development pressures with the introduction of raised bed cropping and the utilisation of rock removal and rock-crushing machinery (Threatened Species Scientific Community (2008 and 2009)).
- **Land management practices (grazing regimes, inappropriate burning, fertiliser application, rock removal, and so on)** – a threat to the EVCs of the VVP. Nutrient enrichment, through the application of inorganic fertilisers or accumulation of manure from livestock is especially detrimental to many native plant species that are adapted to the poor nutrient status of most Australian soils. Increased availability of soil nutrients following soil disturbance also contributes to the incursion and establishment of weeds into grassy systems. As a result of these agricultural practices, good quality patches of grassy vegetation have become increasingly restricted to small remnants in areas marginal for agriculture, for instance rocky outcrops. Smaller woodland remnants appear more prone to increased soil nutrient load as a consequence of livestock sheltering as well as drift from surrounding agricultural land (Threatened Species Scientific Community (2008 and 2009)).
- **Weeds** – Chilean Needle Grass, Serrated Tussock and Texan Needle Grass all belong to the Nasella genus and threaten native grass communities. Chilean Needle Grass, if left untreated, will wipe out what is left of the small, high value remnants across the VVP, as it forms dense monocultures with a high flammability. Tall wheatgrass *(Thinopyrum ponticum)* is a drought-tolerant, summer-active, tussock-forming perennial that grows two metres high and is used to restore land affected by salinity. It is also a serious weed that invades native ecosystems, reducing biodiversity and creating monocultures. Tall wheatgrass has been identified as a threat to a number of wetlands in the Western District Lakes landscape system. Other weeds of concern include Gorse, Boxthorn and Blackberry while foxes, rabbits and wild pigs can also be problematic.
- **Climate Change** – it is expected that this will impact the region's native vegetation through modifications to vegetation communities, such as loss of plant species and changes to community structure, as a result of higher temperatures and lower rainfall, changes to natural fire and flooding regimes and climatic conditions favouring new and established weed species.

8.3 MANAGEMENT ACTIONS, KEY COLLABORATORS AND CONTRIBUTION TO OUTCOMES

The application of the multi-criteria analysis (MCA) resulted in a priority ranking of EVCs in the Corangamite management unit as listed in *Table 22*.

The following list of Ecological Communities were listed in the federal EPBC Act search by NRM region as occurring within the Corangamite Management Unit, but the expert panel of biodiversity staff who were consulted to assess species against the MCA deemed these Ecological Communities as not occurring in the region. As such, they have been excluded from the MCA scoring:

- Giant Kelp Marine Forests of South East Australia
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland
- Natural Damp Grassland of the Victorian Coastal Plain (could reconsider pending advice from DELWP).

TABLE 22: Ranking and scores of the top six Ecological Communities in the Corangamite Management Unit

Rank	Ecological Community Name	Ranking Score
1	Grassy Eucalypt Woodland of the Victorian Volcanic Plain	7.5
2	Natural Temperate Grasslands of the Victorian Volcanic Plain	7.5
3	Grey Box *(Eucalypts macrocarpa)* Grassy Woodlands and derived native grasslands of South Eastern Australia	6.75
4	Seasonal Herbaceous Wetlands (freshwater) of the temperate lowland plains	6.5
5	Assemblages of species associated with open coast salt-wedge estuaries of western and central Victoria ecological community	5.5
6	Sub-tropical and temperate Coastal Saltmarsh	5.5

Management actions can be summarised as including:

Engagement and capacity building

- Landholder engagement
- Traditional Owner capacity building
- Stakeholder engagement

On ground works

- Seed collection and propagation
- Revegetation
- Weed control
- Pest animal management
- Cultural and ecological burns to manage biomass
- Controlled grazing

Research and monitoring

- Returning hydrological process to Seasonal Herbaceous Wetlands
- Vegetation monitoring
- Identify key research gaps and management actions across the Corangamite Management Unit to improve the condition of the threatened ecological community 'Assemblages of the species associated with open-coast salt-wedge estuaries of the western and central Victoria ecological communities'

Table 23 summarises project concepts that will contribute to RLP *Outcome 4*. It should be noted that project concepts have been designed to contribute to other outcomes also, where there are multiple benefits to be achieved.

The projects focus on the first four ranked communities, with rank 5 included in the 'knowledge gap' project under *Outcome 2* and rank 6 considered a secondary priority under *Outcome 1*.

TABLE 23: Project concepts for Outcome 4

Project concept name	Primary RLP Outcome	Secondary RLP Outcome(s)	Descriptor of concept and how it contributes to 5-year Outcomes	Alignment with stakeholder aspirations	Prospective partners and collaborators
Seeding the Victorian Volcanic Plains	4	2 and 5	Two-part private land stewardship program building on the strengths of the GEW Stewardship Program (2020–2023) and establishing a new Natural Temperate Grasslands and Seasonal Herbaceous Wetlands Stewardship Program. Addressing threats and management actions for priority threatened ecological communities as well as priority threatened flora and fauna species that occur within this landscape. This project will build on the robust mapping system established.	In the Basalt Plains landscape system, more cultural burning every 2–4 years on the Victorian Volcanic Plain (VVP). Community believes to enhance grasslands of the VVP, concurrent weed control and burning needed. Actions around working with landholders to improve grasslands of the VVP. In the Basalt Plains landscape, interest in bio links to connect fragmented habitat, for example, existing grassland pockets. Targeted outcomes around establishing vegetation links and tying in with climate resilience through species composition mix. Increased opportunities for Traditional Owner management of land and biodiversity. Landscape approach to revegetation, including targeted revegetation, seed supply, seed provenance, climate change adaptation.	**Existing partners:** Private Landholders, Greening Australia, Landcare, Wadawurrung Traditional Owners Aboriginal Corporation, Arthur Rylah Institute for Environmental Research, Geelong Field Naturalists Club, Trust for Nature, Local Government, community groups. **Potential partners:** Eastern Maar Aboriginal Corporation, local nurseries, Royal Botanic Gardens, local nurseries and seed growers, Nature Glenelg Trust.
Traditional Land Management on the VVP	4	2 and 5	*Traditional Owners will need to be consulted in early stages of project development. Wadawurrung Traditional Owners have been leading cultural burns within this landscape under the existing project.* This program will 'heal' Country with critically endangered Grassy Eucalypt Woodlands and Natural Temperate Grasslands of the Victorian Volcanic Plain using traditional land management on public and private land. Traditional Owners will determine project sites with cultural values and develop and implement 10-year management plans that are culturally sensitive and ecologically sensible including cultural burning, seed collection, propagation, revegetation/ reintroduction, weed control. Addressing priority threatened ecological communities as well as supporting aspirations expressed in Country plans.	Increased opportunities for Traditional Owner management of land and biodiversity. In the Basalt Plains landscape system, more cultural burning every 2–4 years on the Victorian Volcanic Plain (VVP). Community believes to enhance grasslands of the VVP, concurrent weed control and burning needed.	**Existing partners:** Wadawurrung Traditional Owners Aboriginal Corporation, DELWP, Arthur Rylah Institute, Parks Victoria, CFA, Private Landholders, Local Government Authorities **Potential partners:** Eastern Maar Aboriginal Corporation

TABLE 23: Project concepts for Outcome 4 (continued)

Project concept name	Primary RLP Outcome	Secondary RLP Outcome(s)	Descriptor of concept and how it contributes to 5-year Outcomes	Alignment with stakeholder aspirations	Prospective partners and collaborators
Linear Reserves Program	4	2 and 5	Continue Linear Reserves partnership project to protect critically endangered Grassy Eucalypt Woodlands and Natural Temperate Grasslands of the Victorian Volcanic Plain on roadsides, rail reserves and cemeteries using a multifaceted approach to targeted weed control including selective herbicide control, fire management, stakeholder engagement and improved partnerships. Addressing priority threatened ecological communities.	Increased opportunities for Traditional Owner management of land and biodiversity. In the Basalt Plains landscape system, more cultural burning every 2–4 years on the Victorian Volcanic Plain (VVP). Community believes to enhance grasslands of the VVP, concurrent weed control and burning needed. Landscape approach to revegetation, including targeted revegetation, seed supply, seed provenance, climate change adaptation.	DELWP, Glenelg Hopkins CMA, Country Fire Authority, Local Government Authorities, Regional Roads Victoria, Rail authorities, Parks Victoria, Traditional Owners (WTOAC, EMAC), Arthur Rylah Institute, universities.

Landscape approach to revegetation, including targeted revegetation, seed supply, seed provenance, climate change adaptation.

09. Outcome 5 – Soil, vegetation and biodiversity on farms within the Corangamite Management Unit – location, condition and threats

9.1 OUTCOME STATEMENT

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.

The full list of investment priorities is provided in *Table 3*, and discussed further in Section 9.2.

9.2 LOCATION, CONDITION AND THREATS

Native vegetation in the Corangamite region has undergone a major change since European settlement, with less than 25% of the region's original vegetation remaining *(see Figure 19 and Figure 20)* as a comparison between pre-European and recent native vegetation extent. Native grasslands and grassy woodlands have been reduced to an estimated 1% of their former extent. The region has significant areas of remnant vegetation in protected reserves such as National Parks but most of the estimated 66,000 hectares of remnants on private land are under some form of pressure. These changes are most evident in areas that have been cleared for agriculture.

The loss of native vegetation has contributed to the main natural resource management problems in the region. Loss of biodiversity, salinity, soil erosion, poor water quality and the spread of exotic species are just some of the problems that have emerged.

Note: Vegetation is classified using Ecological Vegetation Classes (EVCs) which are the standard unit for classifying vegetation types in Victoria. EVCs are described through a combination of floristics, lifeforms and ecological characteristics, and through an inferred fidelity to particular environmental attributes.

FIGURE 19: Modelled pre-European settlement native vegetation (1750) *(data source: DELWP)*

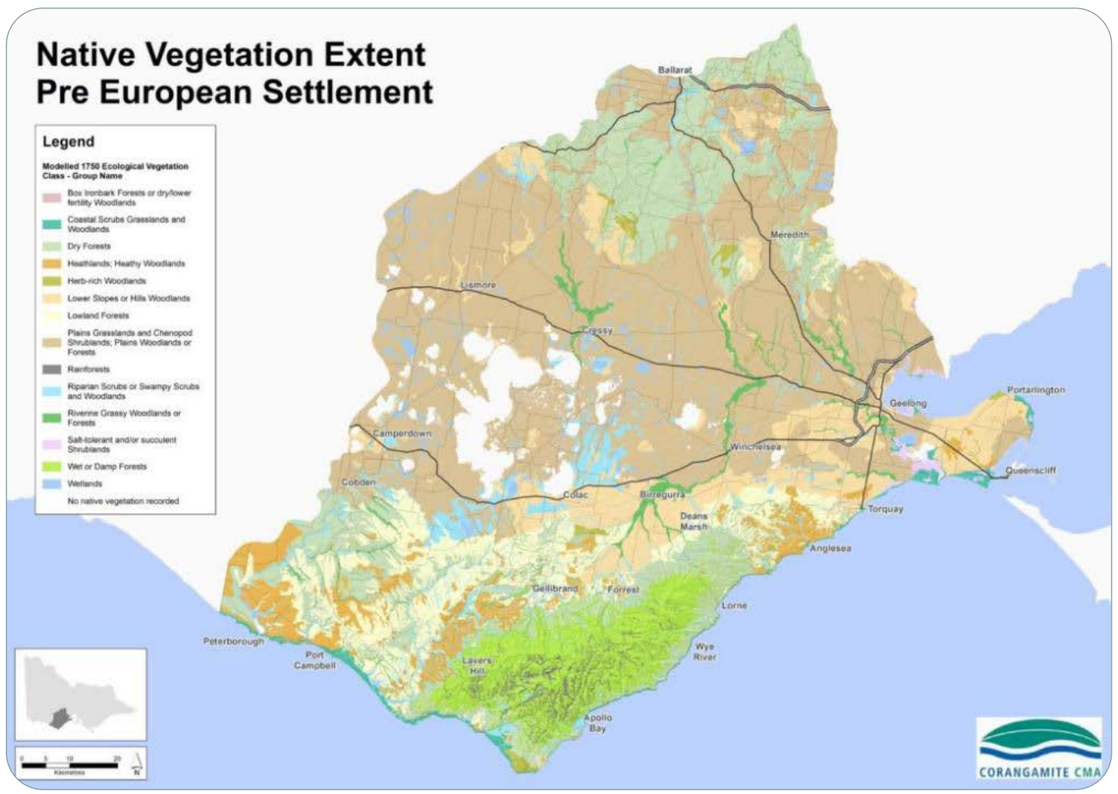
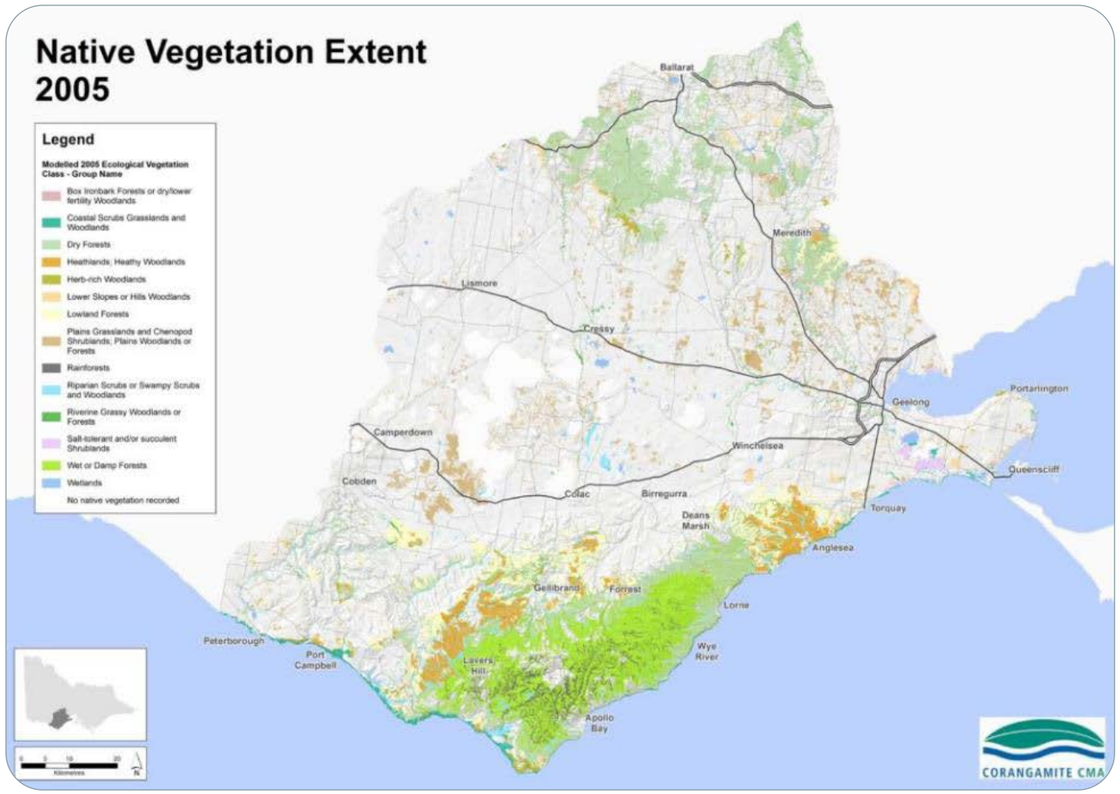


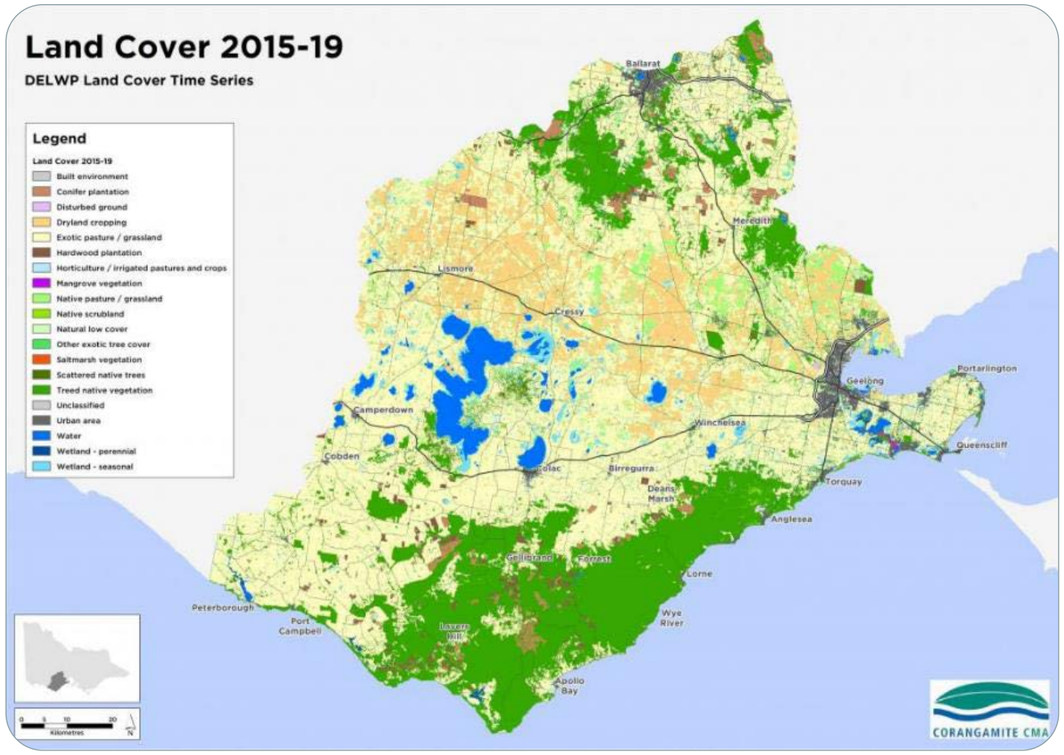
FIGURE 20: Modelled extent of native vegetation in 2005 based on Ecological Vegetation Classes (EVCs) *(data source: DELWP)*



DELWP's Victorian Land Cover Time Series provides a snapshot of changes in land cover types between 1985 and present. Between 1985 and 1990, the top three land cover classes in the Corangamite region were non-native pasture (occupying over 51% of the region), native trees (19% of the region) and native grass herb (4% of the region). Between 2015 and 2019, however, non-native pastures have decreased significantly to just under 43% of total coverage, native trees have slightly increased to just under 20% of the region, and dryland cropping now occupies the third most prevalent land cover, occupying over 10% of the Corangamite region (from a previous 2.9%). This represents a significant increase in dryland cropping of over 100,000 ha. The distribution of dryland cropping in Figure 21 corresponds with loss of Plains Grassland and Plains Woodland demonstrated in *Figure 19* and *Figure 20*.

Over the 30-year period, native vegetation cover classes generally reduced, as did wetlands (perennial and seasonal), while mangroves and saltmarsh stayed constant (although both land cover classes are the least represented). Wetlands showed a significant relative decrease, with perennial wetlands decreasing by 23%, and seasonal wetlands decreasing by 15%. Dryland cropping, exotic woody vegetation and both hardwood and pine plantation coverages increased. Urban and built-up areas, whilst a small proportion of the region, also increased over this period.

FIGURE 21: Land cover in the Corangamite Region *(Data source: DELWP Land Cover Time Series 2015-2019)*



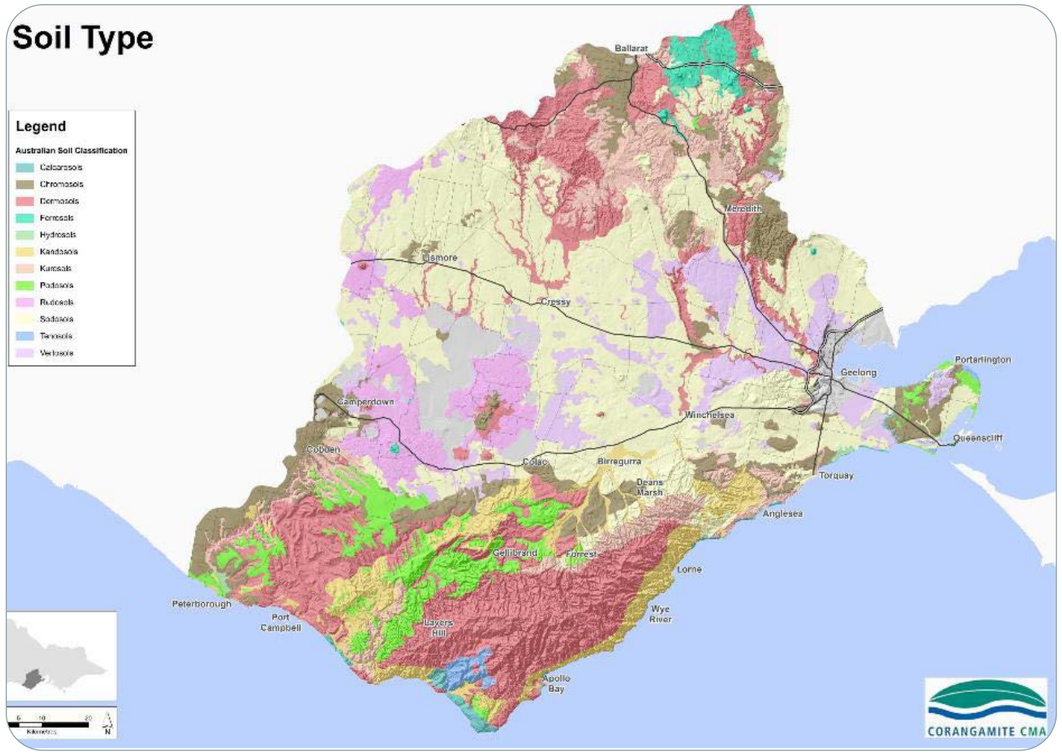
High production soils in the south-west of the region are generally in fair to good condition *(refer to Figure 22)*. However, high fertility, high rainfall, the topography and land-use in these localities make these soils prone to landslides, waterlogging and soil structure decline. These soils are also prone to acidification. Such soils occur predominantly in the Heytesbury and Otway Coast Landscape Systems defined within the RCS. Highly productive red volcanic soils of the north-east of the region are naturally fertile, but prone to acidification.

Medium production value soils, mostly found in the Victorian Volcanic Plain, are the most widespread soil type in the region. They are generally in average condition. Various inputs, like inorganic fertilisers and agricultural lime, are used to manage acidity and maintain, or improve, fertility. These soils are prone to waterlogging and can erode if groundcover is lost or the land is used beyond its capability (refer to threats). Secondary salinity may also affect land and soils for food and fibre, especially on the plains, reducing productivity and potentially impacting other catchment resources. These soils occur predominantly in the Northern Uplands, Basalt Plains and Western District Lakes Landscape Systems.

Lower production value sedimentary soils are generally of lower fertility and in average condition. These soils are geologically older and more fragile; they are poorly structured and more dispersive. They may be more subject to water erosion when exposed through the removal of groundcover or over-cultivation. These soils tend to acidify rapidly when disturbed from their natural state and used for agriculture.

Most major threats are natural processes (albeit some are the consequences of land clearing, agricultural, forestry and urban development and inappropriate land management).

FIGURE 22: Soil type across the Corangamite region *(map produced by Corangamite CMA)*



Most major threats are natural processes (albeit some are the consequences of land clearing, agricultural, forestry and urban development and inappropriate land management). The consequences of these threats impacting on land and agriculture have also become greater. For instance, built infrastructure has spread across wider areas with a larger proportion of the population served by various utilities, roads and so on. A growing and expanding human population requires larger volumes of water. High value biodiversity, wetlands and cultural heritage sites are considered more significant and valuable as their number has declined.

Across the Corangamite region, potential acid sulfate soils (yet to be disturbed) have been mapped based on probability of occurrence. Overall, the Corangamite region has 0.03% of its total area with high probability (>70%), and 0.02% with low level of probability (5–70%) of acid sulfate soils occurrence. All landscape systems with coastline areas, particularly around estuarine zones, contain areas of high probability of acid sulfate soil occurrence (>70%), as well as upstream of the Barwon River near Geelong. Additionally, the Lake Connewarre Complex wetlands in the Bellarine and Surf Coast landscape system, and the Western District Lakes contain many areas with high probability of acid sulfate soils around the lakes. All other areas of the Corangamite region have extremely low probability of occurrence (<5%), and small distributions.

Landslide susceptibility *(see Figure 23)* represents a significant threat to the southern and south-western parts of the Corangamite region. The Otway Coast and Heytesbury landscape systems are the most vulnerable to landslide occurrences, ranging from moderate to very high susceptibility. The adjacent southern boundary of the Barwon Plain Landscape System also faces some moderate susceptibility to landslides, while the rest of the Corangamite region has generally very low susceptibility – particularly along the flatter Victorian Volcanic Plain.

Sheet and rill erosion susceptibility across the Corangamite region is highly variable and distributed *(see Figure 24)*. The least susceptible land is located in the south-west around Heytesbury, Otway Coast and Barwon Plain Landscape Systems. The land at highest risk of sheet and rill erosion is located in the Northern Uplands, followed by the Basalt Plains. The remainder of the region is generally between moderate to moderate-high sheet and rill erosion susceptibility. Gully erosion *(Figure 25)* is more susceptible in the northern part of the region.

FIGURE 23: Landslide susceptibility in Corangamite region *(map produced by Corangamite CMA)*

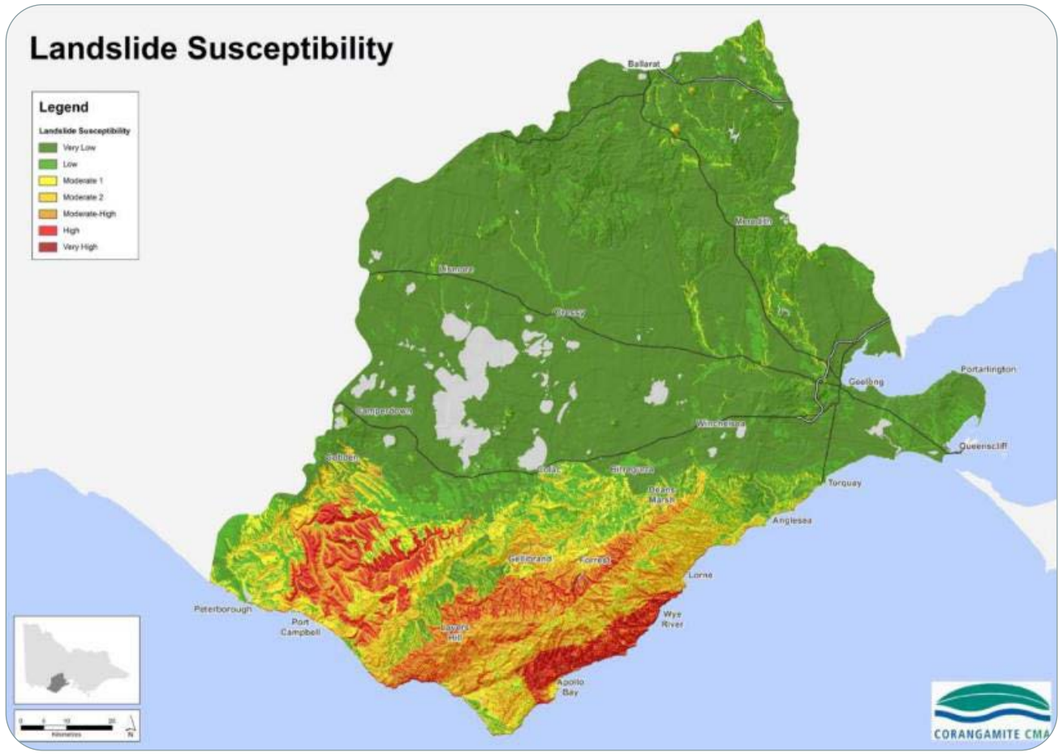


FIGURE 24: Sheet and rill erosion susceptibility in Corangamite region *(map produced by Corangamite CMA)*

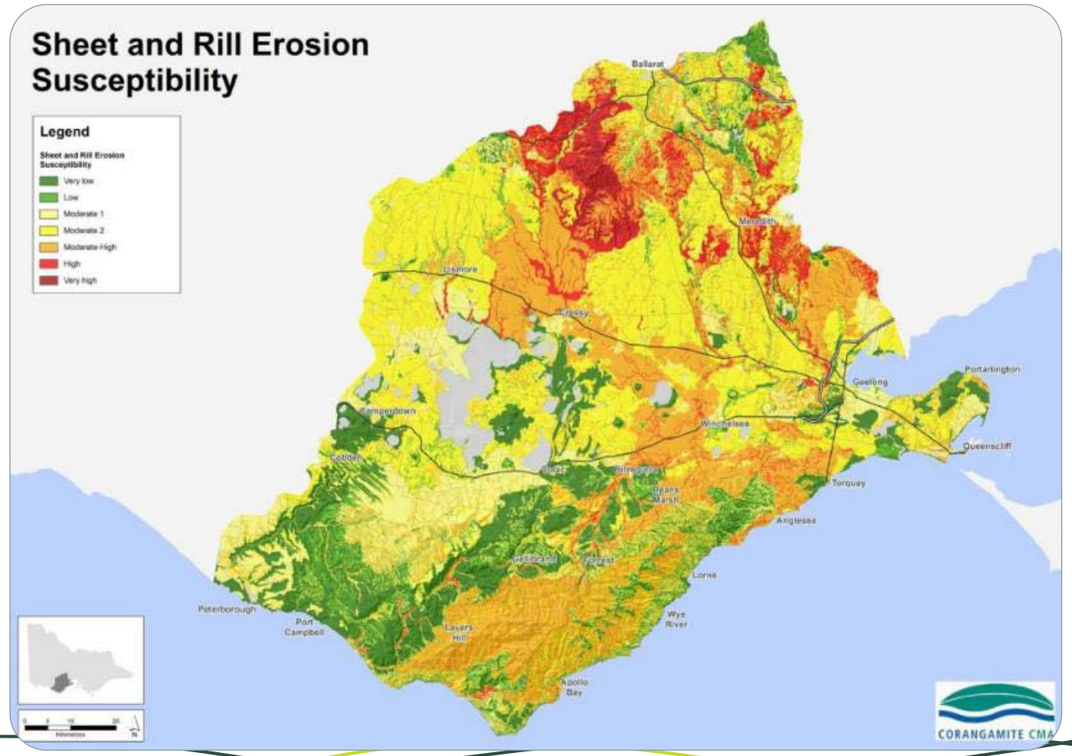
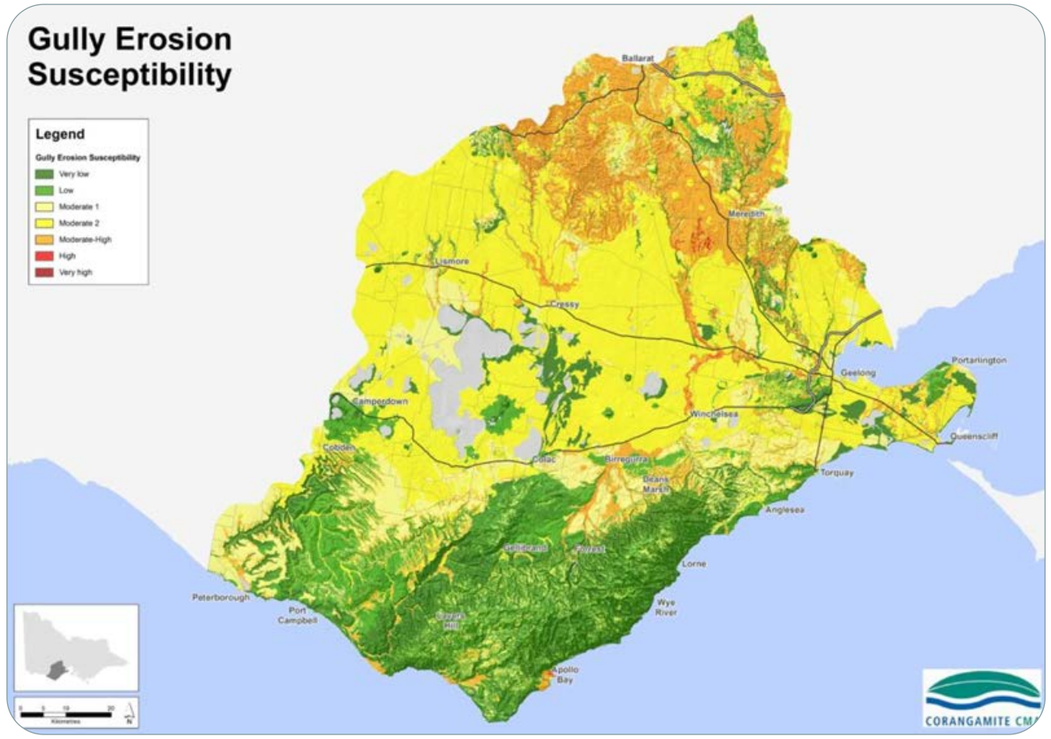


FIGURE 25: Gully erosion susceptibility in Corangamite region *(map produced by Corangamite CMA)*



Further, potential threats/threatening processes to agricultural land, soil and biodiversity on farms include:

- pest plants and animals
- disturbance of potential acid sulfate soils
- soil-borne diseases
- contamination
- population growth and urban development
- historical clearing and introduced pastures
- climate change
- decline in nutrient, soil organic carbon, soil biota and structure
- unsustainable resource utilisation
- acidification
- over application of agricultural fertiliser
- waterlogging
- uncontrolled stock access to remnant vegetation or waterways
- secondary salinity
- agricultural practices that leave bare ground and a risk of erosion (for example, burning off to manage crop stubble, wind rowing and removing stubble
- soil compaction
- landslides, wind and water erosion.

9.3 MANAGEMENT ACTIONS, KEY COLLABORATORS AND CONTRIBUTION TO OUTCOMES

There is an opportunity to build on the current sustainable agricultural practices in the region including pasture management, cultivation, crop stubble and/or trash management, soil enhancer use, fertiliser use, management of native pastures, stock movement around waterways and wetlands, and dairy practices. Although irrigation is only a minor land use in the region, there is also an opportunity to ensure current and new irrigation developments use sustainable irrigation practices to reduce the off-site impacts of irrigation including waterlogging, salinity and nutrient discharge.

There is an **opportunity** to build on the **current sustainable agricultural practices** in the region

Management actions can be summarised as:

Engagement and capacity building

- Workshops, field days and demonstration sites
- One-on-one extension/farm visits
- Training course – whole farm planning, Master Tree Growers course
- Management/property plans, including nutrient and effluent management plans
- Written publications – for example, Farm Talk
- Establishment and support for mentors
- Regional Agriculture Landcare Facilitator
- Enhancing collaborations across projects and with industry groups
- Communities of Practice

On ground works

Landholder incentives for:

- revegetation
- farm dam enhancement
- fencing to protect remnant vegetation
- Implementation of plans
- off-stream watering

Research and monitoring

- Soil testing and interpretation
- Research trials
- Effluent testing
- Climate change modelling and development of future farm/enterprise options
- Natural capital accounting assessments and farm carbon audits
- Facilitation of partnerships between researchers and practitioners (for example, industry, community, agency, supply chain)

Table 24 summarises project concepts that will contribute to the RLP outcome. It should be noted that project concepts have also been designed to contribute to other outcomes.

Locate farms that want to **improve soil carbon** and create a prospectus for investment.

TABLE 24: Project concepts for Outcome 5

Project concept name	Primary RLP Outcome	Secondary RLP Outcome(s)	Descriptor of concept and how it contributes to 5-year Outcomes	Alignment with stakeholder aspirations	Prospective partners and collaborators
Sustainable Dairies Program	5	6	Continuing the current Sustainable Dairies Program, which delivers the Dairy Australia FERT SMART program combined with the development of Effluent Management plans. The program also has sessions on biodiversity on farm, soil acidity, soil biology and alternative soil amendments such as compost. This builds on the success of the current project but includes the addition of further extension support and incentives for biodiversity and vegetation projects on farm to help increase adoption of best practice land management.	Community identified actions around working with farmers to understand soil conditions and fertiliser load, to decrease poor land management practices and runoff from fertiliser misuse. Locate farms that want to improve soil carbon and create a prospectus for investment. Encourage farmers to establish vegetation links, tying in with climate resilience.	**Existing partners:** Agriculture Victoria, West Vic Dairy. **Potential partners:** Landcare, Glenelg Hopkins CMA, Dairy Australia.
What is healthy soil?	5	6	This project will work with agricultural industry groups in the region and Landcare to monitor soil health and share key messages around soil health and understanding of: What is soil carbon? How does it change? Is it possible to increase it by changing your farm management? What are the limitations? The project will support the ongoing research of the 100 soil monitoring sites established in the 2012-13 financial year on farms across the Corangamite region. These sites were located across a range of soil types and management practices and uploaded onto the online Soil Health Knowledgebase. Learnings from this monitoring and other demonstration sites will be shared with landholders through workshops and field days to encourage landholders to adopt changes in their farm management that will result in improvements to soil health and the storage of carbon. Ongoing support to this increases the likelihood of increasing adoption of good practice land management practices and managing for the impacts of climate change. This project aligns with the National Soils Strategy priorities of soil health, empowering soil innovation and stewards, and strengthening soil knowledge and capability.	Community identified actions around working with farmers to understand soil conditions and fertiliser load, to decrease poor land management practices and runoff from fertiliser misuse. Locate farms that want to improve soil carbon and create a prospectus for investment.	**Existing partners:** Southern Farming Systems, Landcare. **Potential partners:** Agriculture Victoria, Southern Regenerative Farmers, other Corangamite CMA programs (VVP project), Federation University, CERDI.
Talking Trees – multiple benefits to planting trees on your property	5	6	This project aims to increase biodiversity on farms through increasing tree cover. The project will support landholders to participate in programs/planning courses such as Whole Farm Planning and Master Tree Growers Course, workshops and field days that explore multiple benefits of trees and native vegetation on farms (including biodiversity, sustainable timber products, pollination services, integrated pest management, stock shade and shelter, health and wellbeing). Ongoing support to this increases the likelihood of increasing adoption of good practice land management practices and managing for the impacts of climate change.	Encourage farmers to establish vegetation links, tying in with climate resilience. Need more actions surrounding offsetting burning on crown land, potentially through revegetation on private land.	**Current:** Existing partners: Otway Agroforestry Network . **Potential partners:** Agriculture Victoria, Landcare, National Centre for Farmer Health, Traditional Owners.
Regional Agriculture Landcare Facilitator (RALF)	5 and 6		The Corangamite region's RALF will continue to support farmers, industry and community groups (including Landcare Groups) to adopt new and innovative sustainable agriculture practices, establishing and building partnerships with these key groups. The RALF role will: • engage and inform farming communities and agricultural industries within their NRM region about emerging ideas, innovative practices and relevant new government policies and programs to help improve the sustainability, productivity and profitability of agriculture • facilitate partnerships that will best deliver agriculture outcomes, such as connecting industry, grower and community groups so that they can work together to address common issues • assist farming communities and agriculture industry groups to develop new projects and seek new funding opportunities • support the delivery of Sustainable Agriculture projects within the Corangamite region • participate in or facilitate 'Communities of Practice' to better understand complex issues, improve networks and help develop solutions for national priorities.	Community identified actions around working with farmers to understand soil conditions and fertiliser load, to decrease poor land management practices and runoff from fertiliser misuse. Locate farms that want to improve soil carbon and create a prospectus for investment. Encourage farmers to establish vegetation links, tying in with climate resilience.	Agriculture Victoria, West Vic Dairy, Landcare bodies (local, state and Australian), Glenelg Hopkins CMA, Dairy Australia, Research institutions, Victorian Farmers Federation, Victorian Serrated Tussock Working Party, Victorian Gorse Taskforce, Research and Development Corporations (for example, MLA, GRDC), Traditional Owners, Local Government Authorities, Southern Farming Systems, State and National RALF Networks, Corangamite Rural Women's Network, Australian Women in Agriculture, Golden Plains Rural Women's Network, Otway Agroforestry Network, landholders, agribusiness consultants, other industry groups, Australian Government.
Climate Change Investigations	5	6, 1, 2 and 4	The ability to adapt and contribute to climate change mitigation is dependent upon having available relevant information for the Management Unit. There are gaps in relevant information for the region relating to some species and communities that need to be addressed to ensure that 5-year outcomes address ongoing climate change scenarios. The ability to adopt adaptation pathways processes and build these into projects is reliant on being able to access up to date data. This project would be done in line with relevant government policies to produce regional natural resource management outcomes.	Water use efficiency Mitigate pressures on threatened species and EVCs Climate resilience through species composition mix Encourage farmers re climate resilience Offsetting and regenerative farming	NRM Australia, Victorian Farmers Federation, Southern Farming Systems, Deakin University, CERDI, Members of Barwon South West Climate Alliance, Agriculture Victoria, West Vic Dairy, other industry groups.

10. Outcome 6 – Agriculture systems adapting to change – location, condition and threats

10.1 OUTCOME STATEMENT

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.

The full list of investment priorities are provided in *Table 3*, and discussed further in Section 10.1 with a focus on systems adapting to climate change.

10.2 LOCATION, CONDITION AND THREATS

Agricultural systems are dependent on geo-physical landscape attributes such as geology (underlying soil type), which dictates land capability and suitability, and historic land use and land management practices. The condition and threatening processes associated with these for the Corangamite region are outlined in Section 9. The Corangamite CMA has access to state-wide land use and land cover mapping through the Victorian Land Use Information System (VLUIS), which provides parcel level land use data base from 2010-2017. The VLUIS contains references to the Australian Land Use Management (ALUM) classification system. ALUM is being revised to underpin the National Soil Strategy (DAWE, 2021). New data being developed will form part of the Australian National Soil Information System hosted by CSIRO. This better data will allow farmers to make more informed soil management decisions into the future, through aligning soil condition and land management practices.

Agricultural systems are also dependent on rainfall and climate, which are projected to become more variable with climate change. The remainder of this section is dedicated to predictions under a changing climate for the Corangamite region, and agricultural systems adapting to climate change.

According to the latest Bureau of Meteorology regional weather and climate guide, in the 30-year period 1989-2018, the Corangamite region has experienced stable annual rainfall levels, that, while decreasing slightly over the time period, are within normal variability. The region has experienced 12 dry years over this time, with rainfall in the lowest 30%, and nine wet years, with rainfall in the highest 30%. Eight of the dry years accounted for occurred during the Millennium Drought.

Overall, rainfall is consistent and reliable throughout the years. It is at its most reliable during winter over the whole region, and the most reliable in the central south and south-west areas. Corangamite has exhibited a pattern of consistently drier autumns region-wide in last 30 years as compared with the previous 30 years. The Corangamite region's 'autumn break', defined by greater than 25mm of rainfall over three days (around the beginning of the winter cropping season), has also been occurring in the central and northern parts of the region one or two months later than it did in the previous 30-year period. The number of hot days experienced by Corangamite in the last 30 years has been relatively stable. Ballarat has also been experiencing later and more frequent frosts.

The Victorian Government's State of the Environment Report (Office of the Commissioner for Environmental Sustainability, 2013) provides an overview of both the current condition of Victoria's climate and trends based on past climatic data. It is important in planning for the future that we learn from the past and the report provides an excellent basis for this.

The report states that:

- Average temperatures in Victoria have risen by approximately 0.8°C since the 1950s.
- The severity, duration and frequency of heatwaves have increased.
- Between 1997 and 2009, Victoria experienced a record-breaking 13-year drought, the longest recorded period of rainfall deficits on record.
- Over the past two decades, there has been a large decline in autumn rainfall, a small decline in winter and spring rainfall, a small increase in summer rainfall, and reduced frequency of very wet years.
- Victoria experienced its highest summer rainfall on record in 2010-11. The record rainfall led to major flooding that affected a third of Victoria.
- Since 1993, Victoria's sea-level rise has been similar to global averages of 3 mm per year
- Annual sea-surface temperatures in south-eastern Australia increased at approximately four times the global average.

More frequent and intense fires may also change the structure and productivity of soils.

Climate change may provide opportunities that have not been possible in the past due to the climatic conditions. Agricultural productivity may increase or decrease under a changing climate, depending on where it is located, for example, from grazing to cropping. However, as a general rule, productivity will reduce as total rainfall declines.

Farmers will need to think more strategically about shifting some of their practices and sources of revenue to accommodate any medium-term and long-term changes to the climate, or diversify their livelihoods to be less reliant on rainfall with it becoming less reliable.

Climate change will have a direct impact on soil health and on its ability to support specific uses (see *Figure 26* for soil and land vulnerability and *Figure 27* for projected worst impact on soils and land under a high emissions scenario by 2050). Prolonged periods of higher temperatures and reduced moisture may lead to more areas being more susceptible to wind erosion. More intense rainfall events may also lead to areas of sheet, rill and gully erosion. Reduced vegetation cover due to climate change will also exacerbate these impacts. More frequent and intense fires may also change the structure and productivity of soils. An increase in dryness and lack of moisture will also impact organic carbon in soil.

FIGURE 26: Vulnerability of soils and land to climate change under a Representative Concentration Pathway (RCP) of 8.5 (the highest emissions concentration scenario according to the IPCC) by 2050 ***(data from the South West Climate Change Portal, map produced by Corangamite CMA)***

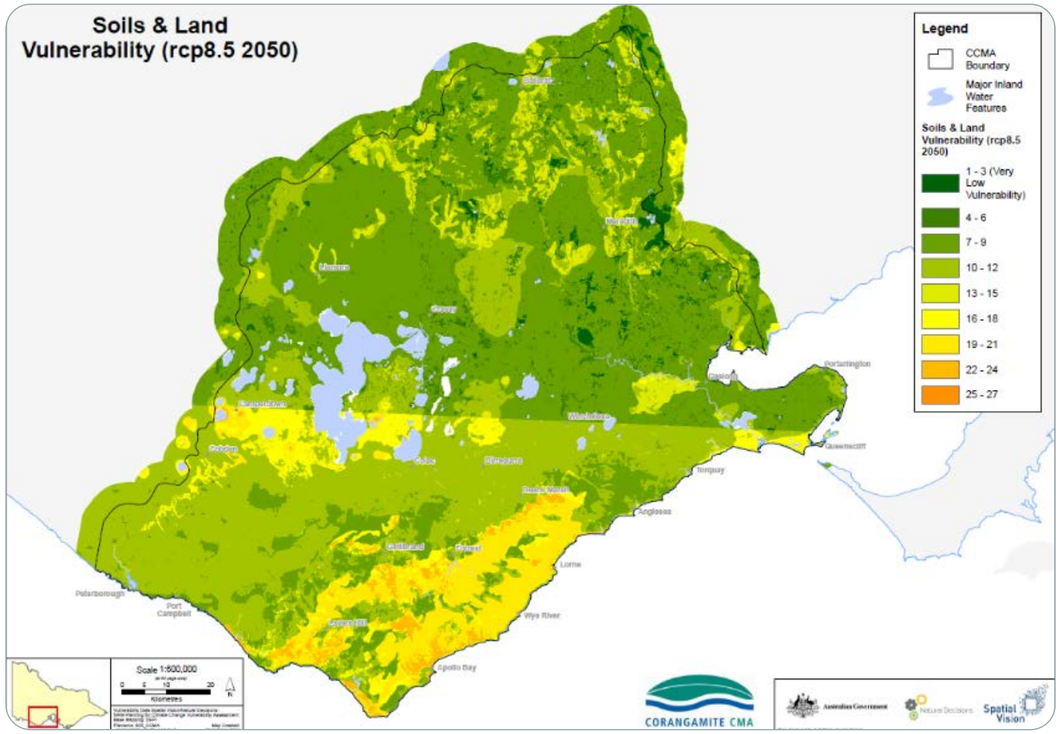
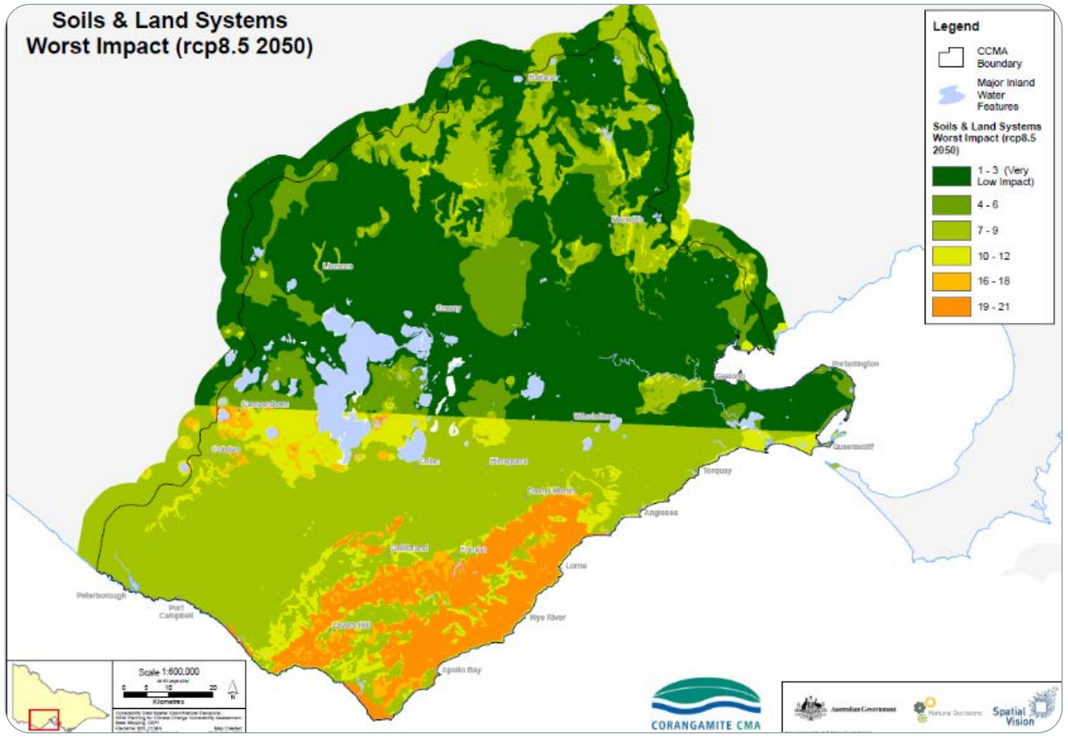


FIGURE 27: Projected worst impact on soils and land under a Representative Concentration Pathway (RCP) of 8.5 (the highest emissions concentration scenario according to the IPCC) by 2050 *(data from the South West Climate Change Portal, map produced by Corangamite CMA)*



10.3 MANAGEMENT ACTIONS, KEY COLLABORATORS AND CONTRIBUTION TO OUTCOMES

Under RLP 2, the CCMA does not currently receive funding for *Outcome 6*, however, the current funded RLP project under *Outcome 5*: Improving On-farm Soil, Vegetation and Biodiversity for larger agricultural enterprises in the Corangamite Management Unit, contributes to *Outcome 6* as a secondary priority.

Management actions can be summarised as:

Engagement and capacity building

- Workshops, field days and demonstration sites
- One on one extension / farm visits
- Training course - whole farm planning;
- Management / property plans, including nutrient and effluent management plans
- Written publications – eg Farm Talk
- Establishment and support for mentors
- Regional Agriculture Landcare Facilitator
- Communities of Practice
- Facilitation across projects and stakeholders to enhance collaboration
- Inter-regional knowledge exchange
- Farm Carbon Audits

On ground works

Landholder incentives for

- Revegetation / protection of remnant vegetation
- water efficiency on farm
- fencing to protect remnant vegetation
- Implementation of plans
- Off-stream watering

Research and monitoring

- Climate change modelling and development of future farm / enterprise options
- Natural capital accounting assessments and farm carbon audits
- Research trials and demonstrations
- Facilitation of partnerships between researchers and practitioners (e.g. industry, community, agency, supply chain)

Table 25 summarises project concepts that will contribute to the RLP outcome. It should be noted that project concepts have been designed to contribute to other outcomes.

TABLE 25: Project Concepts for Outcome 6

Project concept name	Primary RLP Outcome	Secondary RLP) Outcome(s)	Descriptor of concept and how it contributes to 5-year Outcomes	Alignment with stakeholder aspirations	Prospective partners and collaborators
Exploring the potential of Natural Capital Accounting on Farms	6	5	This project will be designed as a pilot to support interested landholders to undertake natural capital accounting assessments (soil and biodiversity) on their properties. Farm planning from an on ground and business perspective, including exploring the use of carbon audits and other tools to assist. These concepts will help to guide landholders with planning and adopting management practices to maximise carbon sequestration, increase the health of their natural assets, improve productivity and adapt to a changing climate. By supporting farm businesses to calculate their natural capital and carbon neutrality this potentially provides access to premium markets and accreditation schemes that local farm businesses participate in; along with improvements to farm biodiversity and soil health including soil organic matter and soil carbon. This increases the likelihood of increasing adoption of good practice land management practices and managing for the impacts of climate change	Promote actions around regenerative farming – improving biodiversity outcomes through improved natural capital. Promotion of farming to increase and improve natural capital, meeting market demand for carbon capture and storage, and sustainable farming practices. Actions to link land management practices which improve natural capital with sustainably sourced food labelling.	**Existing partners:** N/A **Potential partners:** Landcare, External Consultants
A new generation-adapting agribusiness in a changing landscape	6	5	The aim of this project is to build the resilience of the agriculture sector to adapt to change by empowering landholders and rural community leaders to increase their skills, knowledge and confidence, relating to sustainable land management practices and growing good quality food and fibre in a changing climate. This project will have a strong focus on new and innovative ideas and will support existing groups, networks and leading farmers to bring their ideas to life. Education, networking and the sharing of experiences can create long lasting change and tailored mentoring programs will help young farmers and Agriculture professionals lead the way. This increases the likelihood of increasing adoption of good practice land management practices and managing for the impacts of climate change and increasing resilient agricultural industries.	Promotion of regenerative farming to increase and improve natural capital, meeting market demand for carbon capture and storage, and sustainable farming practices.	**Existing partners:** Corangamite Rural Women's Network, Landcare **Potential partners:** Education institutions, Southern Farming Systems, Agriculture Victoria, Local Government, Industry representatives
Regional Agriculture Landcare Facilitator	6 5		*Refer to Outcome 5 project.*	*Refer to Outcome 5 project.*	*Refer to Outcome 5 project.*

11. Implementation and community participation

CCMA works collaboratively with key agency stakeholders, industry groups, traditional owner groups and community groups such as Landcare as well as individual landholders. The implementation of this NRM Plan will be embedded in the RCS implementation process that incorporates joint implementation planning, identification of project partners for design, seeking funding and implementation, evaluating progress and adaptive management

The implementation can be summarised as an annual Plan – Do – Review – Communicate cycle *(Figure 28)*

At a project scale, the engagement, collaboration and involvement will naturally vary depending on the project, but typically key collaborators are involved at project concept and planning. In addition, any newly funded projects will have a detailed Communications and Engagement strategy developed and implemented with detailed actions. The application of the IAP2 framework is fundamental to these strategies.

The implementation and delivery of the projects themselves will involve all relevant stakeholders and communities of interest.

FIGURE 28: Summary of Implementation Process

12. Traditional Ecological Knowledge

The CCMA is guided by our respective Traditional Owner Groups in what contribution of Traditional Ecological Knowledge is provided and how it can be used. The CCMA will be guided by both parties as to what Traditional Ecological Knowledge (TEK) they will share and how, and this may not be immediately demonstrable, as incorporation of TEK into management actions will be on a case-by-case basis and evolve throughout the implementation of projects outlined in this NRM plan and the RCS.

The CCMA applies culturally safe principles in the work undertaken, therefore this NRM Plan will provide principles associated with TEK and existing incorporation of TEK into currently funded projects. The formation of Country Plans are underpinned by TEK and their alignment with RLP outcomes has been presented in the section above. It is important to note that the delivery of Traditional Owner aspirations for NRM projects is reliant on their capacity and desired level of involvement.

Traditional Ecological Knowledge has already been used in the implementation of traditional burns.

For the currently funded RLP project Protecting the VVP, the CCMA have partnered with DELWP, the Country Fire Authority (CFA) and Traditional Owners to undertake ecological / cultural burns and weed control works on public linear reserves adjacent to existing and new private land sites. Wadawurrung Traditional Owners have been involved in project planning and will continue to be involved in implementation to ensure management is culturally sensitive.

The Orange Bellied Parrot (OBP) project has the following as a medium-term outcome in the RLP project logic: By 2023, management of Priority Orange-bellied Parrot habitat at Lake Connewarre and Swan Bay incorporates Indigenous cultural considerations identified through completion of a cultural heritage assessment.

TEK has also been utilised when developing projects along waterways and for environmental flows.

FIGURE 29: Grass firestick burning on the Grassy Eucalypt Woodland of the VVP with Traditional Owners. *Photo credit: Jarrod Boord, Streamline Media.*

13. Monitoring, Evaluation and Review (MER) processes

As articulated in the CMA's Corporate Plan (Corangamite CMA, 2021), the organisation establishes relevant evaluative processes across various scales to ensure an adaptive and learning culture that will deliver the regional vision of "healthy and productive lands and waters cared for and enjoyed by thriving communities". This includes the incorporation of Australian Government funded projects and their monitoring and evaluation requirements that enable the CMA to report performance and contribution of projects to the Australian Government as well as better understand contribution of these project outcomes to natural resource management at a regional scale.

A series of principles are employed to enable the Corangamite CMA's monitoring and evaluation processes to be effective (Corangamite CMA, 2022 (in draft)):

1. Link evidence and evaluation needs across planning scales
2. Be cost-effective and fit for purpose
3. Be participatory
4. Use multiple line of evidence – drawing on best available qualitative and quantitative sources
5. Apply ethical practices
6. Have a culture for risk, learning and adaptive management to ensure timely decisions.

These principles enable the MER process for the NRM plan to incorporate the Regional Land Partnerships MERI Framework (National Landcare Program, 2017) and the Victorian Outcomes Framework for NRM *(see Figure 30)*.

Every project invested in will have its own specific monitoring and evaluation plan but all will be developed through:

1. Consideration of the project's theory of change and contribution to regional as well as relevant Australian Government Outcomes
2. Defining specific evaluation questions that will consider aspects of appropriateness, efficiency, effectiveness and impact at different stages over the life of the project
3. Diverse evidence sources to address the questions and the most appropriate evaluation techniques to enable judgements to be made for the questions
4. Clear understanding of who needs to know what, when and how including feedback loops to enable timely decisions.

The linkage between investment in RLP projects, this NRM Plan for RLP, the Regional Land Partnership Program Logic, the Regional Catchment Strategy and the Victorian Outcomes Framework will enable the Corangamite CMA to look at the effectiveness of the NRM Plan over its lifecycle. This will be linked to RCS midterm and final evaluations as well as significant changes in RLP.

FIGURE 30: Victorian Outcomes Framework for NRM

WATER	LAND	BIODIVERSITY	COASTS & MARINE	COMMUNITIES	INTEGRATED CATCHMENT MANAGEMENT
The Victorian Government has defined the following high level outcomes relevant to Regional Catchment Strategies					
Safe, sustainable and productive water resources. The environmental condition of waterways supports environmental social, cultural and economic values.	Land use and management is sustainable with the condition of soil, biodiversity and vegetation improved. Victoria's agricultural systems have adapted to significant changes in climate and markets.	Victoria's biodiversity is healthy, valued and actively cared for.	A healthy, dynamic and biodiverse marine and coastal environment that is valued in its own right benefits he Victorian community now and in the future.	Effective community engagement and citizen participation in catchment management.	Healthy, sustainable and productive land, water and biodiversity maintained by ICM that is strongly community based, regionally focused and collaborative.
The Victorian Government's commitment to self-determination: We're committed to self-determination and working closely with the Aboriginal community to drive action and improve outcomes.					
Healthy, sustainable and productive land, water and biodiversity maintained by ICM that is strongly community based, regionally focused and collaborative.					
• Increase in Victoria's water security. • Protect the condition of Victoria's groundwater resources. • Increase in the number of river reaches/wetlands with maintained or improved environmental condition.	• An increased number of farmers have adopted practices needed to reduce the risk of soil and nutrient loss and acidification and biodiversity protection on-farm. • Increase in area of agricultural land mapped that has improved biodiversity protection in place. • A demonstrable increase in the number of farmer using new technologies to support their climate related farm decisions.	• Net gain of the overall extent and condition of habitats across terrestrial, waterway and marine environment. • (On average) % Change in Suitable Habitat expected over 50 years from sustained improved management for threatened species. • (On average) % Change in Suitable Habitat expected over 50 years from sustained improved management for culturally significant species. • Percentage of all species with positive % Change in Suitable Habitat expected over 50-years from sustained improved management.	• Net gain in the extent and condition of coastal habitats. • Improved catchment impact on marine environments through water quality of coastal rivers and estuaries. • Improved catchment impact on marine environments through improved water quality of coastal rivers and estuaries.	• Victorians are contributing to the health of Victoria's environment (biodiversity/ catchments/waterways). • RCS include Traditional Owner cultural values in specific section/s, or weaved throughout. • Traditional Owners endorse how their values and priorities are incorporated in the RCS, or letters of support. • Partnership and participation of Traditional Owners.	• Area under active stewardship to improve catchment health and resilience. • ICM Stewardship Partnerships.
Through the development of the Regional Catchment Strategy, each Catchment community will identify and agree outcomes they seek to achieve. We will monitor and report annually the following set of state-wide outcome and condition indicators as well as regionally specific outcome and condition measures that reflect regionally specific outcomes and Traditional Owner consultations.					
REGIONAL OUTCOMES					
• Extent of protected or improved riparian land (ha). • River flows. • Extent of wetlands (ha). • Groundwater levels	• Percentage of exposed soils. • Agriculture (type, number of enterprises, area, value). • Amount of change over time of land use	• Extent of native vegetation (ha). • Area (ha) of pest herbivore control. • Area (ha) of pest predator control Area (ha) of weed control. • Area (ha) of permanent protection.	• Extent of coastal vegetation (mangrove, saltmarsh and other regionally relevant species). • Water quality.	• Community volunteering (Landcare/community NRM groups - Group Health Score). • Number of formal partnerships agreements for planning and management between Traditional Owners and key NRM agencies.	• Number of Partnerships.

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Appendix 2: Meeting RLP core services criteria

The following table outlines which section of this plan addresses the criteria as required under the core services agreement.

Section Criteria	NRM Plan Sections
3.2 (c) (i) identify and describe the 5-year Outcomes and Investment Priorities that are relevant to the Management Unit	Section 2
3.2 (c) (ii) describe stakeholder aspirations for natural resource management in the Management Unit, and where possible, how these align with the 5-year Outcomes and other relevant Australian Government priorities	Section 4
3.2 (c) (iii) identify and prioritise natural resource management actions based on knowledge of: (A) location and condition of natural resources, including the Investment Priorities (B) threats to, or impacts on, natural resources (C) prioritisation methods for determining the most cost-effective management actions, including decision support and spatial mapping tools (D) methodologies for assessing the effectiveness of management actions	Sections 5-10 and Section 13
3.2 (c) (iv) identify how the delivery of Projects will contribute to 5-year Outcomes and Investment Priorities for the Management Unit	Sections 5-10
3.2 (c) (v) identify how the Natural Resource Management Plan(s) will be implemented with comprehensive Community participation	Sections 6-10 and Section 11
3.2 (c) (vi) identify indigenous peoples 'land and sea management aspirations for the relevant Management Unit, including how they relate to 5-year Outcomes, and strategies to prioritise and implement them	Section 3
3.2 (c) (vii) incorporate traditional ecological knowledge, where appropriate, in accordance with agreed protocols and with prior approval of the indigenous custodians of the knowledge	Section 12
3.2 (c) (viii) describe key collaborations, for example between the Service Provider, industry and/or Community groups, for delivery of 5-year Outcomes	Section 4 and Sections 6-10
3.2 (c) (ix) identify the monitoring and reporting processes in place and how they are utilised to measure the achievements and the effectiveness of the Natural Resource Management Plan(s)	Section 5 and Section 13
3.2 (c) (x) include any other content relevant to the Service Provider's obligations under clause 3.2(a)	Not applicable

Appendix 3: Ranking investment priorities against the multi-criteria analysis

The following tables present the scoring for all EPBC-listed flora species in the Management Unit against the criteria, including final scores and ranking.

TABLE 26: Flora species scores and ranking against the multi-criteria analysis (part 1)

Rank	Common and Scientific Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	FFG Listing Score	TSS Status (Top 100)	Overall distribution (% DELWP Habitat Distribution Model in Corangamite region)	SMP benefit	Genetic risk index	Importance to people	Multiple benefits	Feasibility/ effectiveness	Leverage	Total Score
1	Hoary Sunray, Grassland Paper-daisy *(Leucochrysum albicans subsp. Tricolor)*	Endangered	2	Endangered	1.5	0	0.31	1		1	1	0.5	0.5	7.81
2	Button Wrinklewort *(Rutidosis leptorhynchoides)*	Endangered	2	Endangered	1.5	0	0.29	1	High	1	1	0.5	0.5	7.79
3	Fragrant Leek-orchid *(Prasophyllum suaveolens)*	Endangered	2	Critically Endangered	2	0	0.37	1		0.5	1	0.25	0.5	7.62
4	Matted Flax-lily *(Dianella amoena)*	Endangered	2	Critically Endangered	2	0	0.17	1	High	0.5	1	0.25	0.5	7.42
5	Large-fruit Fireweed, Large-fruit Groundsel *(Senecio macrocarpus)*	Vulnerable	1.5	Critically Endangered	2	0	0.27	1	Very high	0.5	1	0.5	0.5	7.27
6	Metallic Sun-orchid *(Thelymitra epipactoides)*	Endangered	2	Endangered	1.5	0	0.02	1	Very high	1	1	0.25	0.5	7.27
7	Dwarf Spider-orchid *(Caladenia pumila)*	Critically Endangered	2.5	Not listed	0	0	1	1	Very high	1	1	0.25	0.5	7.25

TABLE 27: Flora species scores and ranking against the multi-criteria analysis (part 2)

Rank	Common and Scientific Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	FFG Listing Score	TSS Status (Top 100)	Overall distribution (% DELWP Habitat Distribution Model in Corangamite region)	SMP benefit	Genetic risk index	Importance to people	Multiple benefits	Feasibility/ effectiveness	Leverage	Total Score
8	Spiral Sun-orchid *(Thelymitra matthewsii)*	Vulnerable	1.5	Endangered	1.5	0	0.22	1		1	1	0.5	0.5	7.22
9	Spiny Pepper-cress *(Lepidium aschersonii)*	Vulnerable	1.5	Endangered	1.5	0	0.42	1		1	1	0.25	0.5	7.17
10	Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed *(Lepidium hyssopifolium)*	Endangered	2	Endangered	1.5	0	0.1	1		0.5	1	0.25	0.5	6.85
11	Adamson's Blown-grass *(Lachnagrostis adamsonii)**	Endangered	2	Not listed	0	1	0.24	1	Very high	0.5	1	0.5	0.5	6.74
12	Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea *(Pimelea spinescens subsp. Spinescens)*	Critically Endangered	2.5	Not listed	0	0	0.17	1		1	1	0.5	0.5	6.67
13	Clover Glycine, Purple Clover *(Glycine latrobeana)*	Vulnerable	1.5	Vulnerable	1	0	0.14	1		1	1	0.5	0.5	6.64

TABLE 28: Flora species scores and ranking against the multi-criteria analysis (part 3)

Rank	Common and Scientific Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	FFG Listing Score	TSS Status (Top 100)	Overall distribution (% DELWP Habitat Distribution Model in Corangamite region)	SMP benefit	Genetic risk index	Importance to people	Multiple benefits	Feasibility/ effectiveness	Leverage	Total Score
14	Wrinkled Buttons *(Leiocarpa gatesii)*	Vulnerable	1.5	Not listed	0	0	1	1		0.5	1	0.5	0.25	5.75
15	Salt-lake Tussock-grass *(Poa sallacustris)*	Vulnerable	1.5	Not listed	0	0	0.45	1	High	1	1	0.25	0.5	5.7
16	Enfield Grevillea *(Grevillea bedggoodiana)*	Vulnerable	1.5	Not listed	0	0	0.84	1		0.5	1	0.25	0.5	5.59
17	Green-striped Greenhood *(Pterostylis chlorogramma)*	Vulnerable	1.5	Endangered	1.5	0	0.08	1		1	0	0.25	0.25	5.58
18	Anglesea Grevillea *(Grevillea infecunda)*	Vulnerable	1.5	Not listed	0	0	1	1	Very high	1	0	0.5	0.25	5.25
19	Leafy Greenhood *(Pterostylis cucullata)*	Vulnerable	Vulnerable	1.5	Endangered	1.5	0.09	1		0.5	0	0.25	0.25	5.09
20	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass *(Amphibromus fluitans)*	Vulnerable	Vulnerable	1.5	Not listed	0	0.07	1		0.5	1	0.5	0.5	5.07
21	Sturdy Leek-orchid, Mount Remarkable Leek-Orchid *(Prasophyllum validum)*	Vulnerable	Vulnerable	1.5	Not listed	0	0.5	0.5		0.5	1	0.5	0.5	5
22	Tall Astelia *(Astelia australiana)*	Vulnerable	Vulnerable	1.5	Not listed	0	0.46	1	Very high	1	0	0.5	0.5	4.96
23	Trailing Hop-bush *(Dodonaea procumbens)*	Vulnerable	Vulnerable	1.5	Not listed	0	0.13	1		0.5	1	0.25	0.5	4.88

The following species were deemed to have knowledge gaps too extensive for a complete and accurate assessment to be given at this time.

TABLE 29: Species deemed to have knowledge gaps too extensive for complete assessment

Common and Scientific Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	FFG Listing Score	TSS Status (Top 100)	Overall distribution (% DELWP Habitat Distribution Model in Corangamite region)	SMP benefit	Genetic risk index
Basalt Greenhood *(Pterostylis basaltica)*	Endangered	2	Critically endangered	0	0	0.01	1	Very high
Swamp Fireweed, Smooth-fruited Groundsel *(Senecio psilocarpus)*	Vulnerable	1.5	Not listed	0	0	0.14	1	
Small Golden Moths Orchid, Early Golden Moths *(Diuris basaltica)*	Endangered	2	Critically endangered	0	0	0.1	1	Very high
Swamp Greenhood, Dainty Swamp Orchid *(Pterostylis tenuissima)*	Vulnerable	1.5	Critically endangered	0	0	0.23	1	
Strzelecki Gum *(Eucalyptus strzeleckii)*	Vulnerable	1.5	Not listed	0	0	0	0	Moderate
Wingless Raspwort, Square Raspwort *(Haloragis exalata subsp. Exalata)*	Vulnerable	1.5	Not listed	0	0	0	0	

The following flora species were listed in the federal EPBC Act search by NRM region as occurring within the Management Unit, but the expert panel of biodiversity staff who were consulted to assess the flora species against the MCA deemed these species as not occurring in the region. As such, they have been excluded from the MCA scoring.

TABLE 30: Flora species deemed as not occurring within the Corangamite Management Unit

Species deemed as not occurring within Corangamite Management Unit
Dense Leek-orchid *(Prasophyllum spicatum)*
Swamp Everlasting, Swamp Paper Daisy *(Xerochyysum palustre)*
Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid *(Prasophyllum frenchii)*
Ornate Pink Fingers *(Calendenia ornata)*
Black Gum *(Eucalyptus aggregate)*
Sunshine Diuris, Fragrant Doubletail, White Duiuris *(Diuris fragrantissima)*
Sand Ixodia, Ixodia *(Ixodia achillaeoides subsp. Arenicola)*

The following tables present the scoring for all EPBC-listed fauna species in the Management Unit against the criteria, including final scores and ranking. Large marine birds that are not listed under a migratory agreement (for example, Petrels, Albatross species) have been excluded from the list, due to a lack of feasibility and capacity for the Corangamite CMA to address.

TABLE 31: Fauna species scores and ranking against the multi-criteria analysis

Rank	Common and Scientific Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	FFG Listing Score	TSS Status (Top 100)	Overall distribution (% DELWP Habitat Distribution Model in Corangamite region)	SMP benefit	Genetic risk index	Importance to people	Multiple benefits	Feasibility/ effectiveness	Leverage	Total Score
1	Orange-bellied Parrot *(Neophema chrysogaster)**	Critically Endangered	2.5	Critically Endangered	2	1	0.58	0	Very high	1	1	0.25	0.5	8.83
2	Eastern Curlew, Far Eastern Curlew *(Numenius madagascariensis)**	Critically Endangered	2.5	Critically Endangered	2	1	0.18	0	Low	1	1	0.25	0.25	8.18
3	Swift Parrot *(Lathamus discolor)**	Critically Endangered	2.5	Critically Endangered	2	1	0.01	0	High	1	1	0.25	0.25	8.01
4	Australasian Bittern *(Botaurus poiciloptilus)**	Endangered	2	Critically Endangered	2	1	0.09	0	Moderate	1	1	0.25	0.25	7.59
5	Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog *(Litoria raniformis)**	Vulnerable	1.5	Vulnerable	1	1	0.09	1	Very high	1	1	0.5	0.5	7.59
6	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) *(Isoodon obesulus obesulus)*	Endangered	2	Endangered	1.5	0	0.07	1		1	1	0.5	0.5	7.57
7	Curlew Sandpiper *(Calidris ferruginea)*	Critically Endangered	2.5	Critically Endangered	2	0	0.21	0	Low	1	1	0.25	0.25	7.21
8	Striped Legless Lizard, Striped Snake-lizard *(Delma impar)*	Vulnerable	1.5	Endangered	1.5	0	0.11	1	Very high	1	1	0.5	0.5	7.11
9	Corangamite Water Skink, Dreeite Water Skink *(Eulamprus tympanum marnieae)*	Endangered	2	Endangered	1.5	0	0.55	0		1	1	0.5	0.5	7.05
10	Great Knot *(Calidris tenuirostris)*	Critically Endangered	2.5	Critically Endangered	2	0	0.09	0	Moderate	1	1	0	0.25	6.84
11	New Holland Mouse Pookila *(Pseudomys novaehollandiae)**	Vulnerable	1.5	Endangered	1.5	1	0.03	0	Very high	1	1	0.25	0.5	6.78
12	Plains-Wanderer *(Pedionomus torquatus)*	Critically Endangered	2.5	Critically Endangered	2	0	0	0	Very high	1	1	0	0.25	6.75
13	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) *(Dasyurus maculatus maculatus)*	Vulnerable	1.5	Endangered	1.5	0	0	1	Very high	1	1	0.25	0.5	6.75
14	Long-nosed Potoroo (SE Mainland) *(Potorous tridactylus tridactylus)*	Vulnerable	1.5	Vulnerable	1	0	0.13	1	Very high	1	1	0.5	0.5	6.63
15	Eastern Hooded Plover *(Thinornis cucullatus cucullatus)**	Vulnerable	1.5	Vulnerable	1	1	0.12	0	Moderate	1	1	0.5	0.5	6.62
16	Smoky Mouse, Konoom *(Pseudomys fumeus)*	Endangered	2	Endangered	1.5	0	0.03	0	High	1	1	0.25	0.5	6.28
17	Southern Bent-wing Bat *(Miniopterus orianae bassanii)*	critically Endangered	2.5	Critically Endangered	2	0	0.01	0		1	0	0.25	0.5	6.26
18	Australian Grayling *(Prototroctes maraena)*	Vulnerable	1.5	Endangered	1.5	0	0.1	0		1	1	0.5	0.5	6.1
19	Australian Fairy Tern *(Sternula nereis nereis)*	Vulnerable	1.5	Critically Endangered	2	0	0.01	0		0.5	1	0.5	0.5	6.01
20	Golden Sun Moth *(Synemon plana)*	Vulnerable	1.5	Vulnerable	1	0	0.33	0		1	1	0.5	0.5	5.83
21	Australian Painted Snipe *(Rostratula australis)*	Endangered	2	Critically Endangered	2	0	0.07	0	Moderate	0.5	1	0	0.25	5.82

TABLE 31: Fauna species scores and ranking against the multi-criteria analysis *(continued)*

Rank	Common and Scientific Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	FFG Listing Score	TSS Status (Top 100)	Overall distribution (% DELWP Habitat Distribution Model in Corangamite region)	SMP benefit	Genetic risk index	Importance to people	Multiple benefits	Feasibility/ effectiveness	Leverage	Total Score
22	Yarra Pygmy Perch *(Nannoperca obscura)*	Vulnerable	1.5	Vulnerable	1	0	0.25	0		1	1	0.5	0.5	5.75
23	Swamp Antechinus (mainland) *(Antechinus minimus maritimus)*	Vulnerable	1.5	Vulnerable	1	0	0.16	0	Moderate	1	1	0.5	0.5	5.66
24	Eastern Dwarf Galaxias, Dwarf Galaxias *(Galaxiella pusilla)*	Endangered	2	Not listed	0	0	0.15	0		1	1	0.5	0.5	5.15
25	Broad-toothed Rat (mainland), Tooarrana *(Mastacomys fuscus mordicus)*	Vulnerable	1.5	Vulnerable	1	0	0	0	Very high	0.5	1	0.5	0.5	5
26	Lesser Sand Plover, Mongolian Plover *(Charadrius mongolus)*	Endangered	2	Not listed	0	0	0.11	0	Moderate	1	1	0.25	0.5	4.86
27	Red Knot, Knot *(Calidris canutus)*	Endangered	2	Not listed	0	0	0.1	0	Low	1	1	0.25	0.5	4.85
28	Grassland Earless Dragon *(Tympanocryptis pinguicolla)*	Endangered	2	Not listed	0	0	0.27	0	Very high	1	1	0	0.25	4.52
29	Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit, Nunivak *(Limosa lapponica baueri)*	Vulnerable	1.5	Not listed	0	0	0.15	0	Low	1	1	0.25	0.5	4.4
30	Greater Sand Plover, Large Sand Plover *(Charadrius leschenaultia)*	Vulnerable	1.5	Not listed	0	0	0.09	0	Moderate	1	1	0.25	0.5	4.34
31	White-throated Needletail *(Hirundapus caudacutus)*	Vulnerable	1.5	Vulnerable	1	0	0.06	1	Low	0.5	0	0	0	4.06
32	Painted Honeyeater *(Grantiella picta)*	Vulnerable	1.5	Vulnerable	1	0	0.01	0	Moderate	0.5	1	0	0	4.01
33	Greater Glider *(Petauroides Volans)*	Vulnerable	1.5	Vulnerable	1	0	0	0	High	1	0	0	0	3.5
34	Grey-headed Flying-fox *(Pteropus poliocephalus)*	Vulnerable	1.5	Vulnerable	1	0	0.06	0	Low	0.5	0	0	0	3.06

The following list of fauna species were listed in the federal EPBC Act search by NRM region as occurring within the Management Unit, but the expert panel of biodiversity staff who were consulted to assess the fauna species against the MCA deemed these species as not occurring in the region. As such, they have been excluded from the MCA scoring.

TABLE 32: Fauna species deemed as not occurring within the Corangamite Management Unit

Species deemed as not occurring within Corangamite Management Unit
Regent Honeyeater *(Anthochaera phrygia)*
Macquarie Perch *(Macquaria australasica)*
Trout Cod *(Maccullochella macquariensis)*
Indian Yellow-nosed Albatross *(Thalassarche carteri)*
Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow *(Galaxias rostratus)*
Grey Falcon *(Falco hypoleucos)*
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard *(Aprasia parapulchella)*
Murray Cod *(Maccullochella peelii)*
Southern Pygmy Perch (Murray-Darling Basin lineage) *(Nannoperca australis)*

The following table presents the scoring for all EPBC-listed Ecological Communities in the Management Unit against the criteria, including final scores and ranking.

TABLE 33: Ecological Communities' scores and ranking against the multi-criteria analysis

Ecological Community Name	EPBC Listing Status	EPBC Listing Score	FFG Listing Status	State Significance	Overall Distribution	DELWP Focal Landscape	Importance to People	Multiple Benefits	Feasibility Effectiveness	Leverage	Total Score
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	2.5	Equivalent EVC	1	0.5	0.5	1	1	0.5	0.5	7.5
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	2.5	Equivalent EVC	1	0.5	0.5	1	1	0.5	0.5	7.5
Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	2	Equivalent EVC	1	0.5	0.5	1	1	0.5	0.5	6.75
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	2.5		0	0.5	0.5	1	1	0.5	0.5	6.5
Assemblages of species associated with open-coast-salt-wedge estuaries of western and central Victoria ecological community	Endangered	2		0	0.5	0.5	1	1	0.25	0.5	5.5
Sub-Tropical and Temperate Coastal Saltmarsh	Vulnerable	1.5		0	0.5	0.5	1	1	0.5	0.5	5.5

The following Ecological Communities were listed in the federal EPBC Act search by NRM region as occurring within the Management Unit, but the expert panel of biodiversity staff who were consulted to assess species against the MCA deemed these Ecological Communities as not occurring in the region. As such, they have been excluded from the MCA scoring.

TABLE 34: Ecological Communities deemed as not occurring within the Corangamite Management Unit

Ecological Communities deemed as not occurring within Corangamite Management Unit
Giant Kelp Marine Forests of South East Australia
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland
Natural Damp Grassland of the Victorian Coastal Plain – may reconsider based on advice from DELWP/J. Yuogovic

Appendix 4: Identified knowledge gaps

The following tables capture where knowledge gaps have been identified.

TABLE 35: Knowledge gaps relevant to the ecological character of the Western District Lakes Ramsar site (Hale & Butcher 2011)

Knowledge Gap	Recommended Action
Threatened flora (Spiny Peppercress and Salt-lake Tussock Grass) – abundance, trends and effects of altered water and salinity regimes.	Long-term monitoring of known populations.
Total waterbird abundance and diversity – most counts are for select groups of birds only.	Expand current annual monitoring to include all waterbirds at the lakes.
The value of the site for waterbird breeding remains unknown.	Recording of nesting and breeding behaviours during annual counts.
The value of the site for international migratory shorebirds.	Continued biannual monitoring of shorebirds within the site.
The potential for the system for recovery. Given a few years where rainfall returns to averages of 750 millimetres per year will the system recover some of its values and biota?	Annual assessments of hydrology, water quality and flora to complement waterbird and threatened species monitoring.
Seed and egg bank viability following extensive dry/hypersaline conditions.	Seed and egg bank study of sediments from affected lakes.
Effect of 2010 rains and increased water levels on threatened plant species. Will they be able to migrate to higher ground?	Monitoring of threatened species at known locations in 2011 and 2012.

TABLE 36: Knowledge gaps and actions for Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site

Knowledge Gap	Recommended Action
Chemicals of emerging concern (e.g., pharmaceuticals): sources, concentrations, and risk to the Ramsar site.	4.3 Improve our understanding of the effects of chemicals of emerging concern on ecological character.
Micro-plastics: risk to ecological character.	1.6 Identify and prioritise litter hotspots within the Ramsar site and undertake prevention and remediation activities. 4.1 Investigate the risks to ecological character from micro-plastics.
Effect of mosquito control chemicals on waterbirds through the food chain.	4.2 Investigate the risks to waterbirds and fish associated with aerial spraying for mosquitoes in intertidal habitats.
Water quality of stormwater discharges in key locations, including Swan Bay.	1.7 Investigate options for addressing cumulative impacts of land use change and development on ecological character. 3.5 Assess the risk to water quality in Swan Bay from inflowing streams.
Potential impacts of stormwater discharge on Hospital Swamp.	1.7 Investigate options for addressing cumulative impacts of land use change and development on ecological character. 6.2 Apply the appropriate State and Commonwealth environmental impact assessment and approval processes for activities that have the potential to impact on the Ramsar site and Matters of National Environmental Significance (MNES).
Impacts of duck hunting on disturbance of shorebirds and Orange-bellied Parrot.	1.7 Investigate options for addressing cumulative impacts of land use change and development on ecological character. 4.4 Assess the impact of duck hunting on disturbance of non-target species, particularly shorebirds and OBP.
Freshwater inflows to Swan Bay – magnitude and effects on ecology.	3.5 Assess the risk to water quality in Swan Bay from inflowing streams.
The benefits of surrounding wetland systems on the ecological character of the Ramsar site (Swan Bay in particular).	1.8 Develop advice to assist local government and other agencies to manage development within the Ramsar site buffers to protect the ecological character of the Ramsar site. 6.1 Review the Ramsar site boundary to reflect: • potential adjacent habitat that could be added to the site • excising of areas that do not contribute habitat or buffer capacities • to allow for future migration of habitats under future climates.
Causes and effects of pathogens and disease on waterbirds (for example, botulism, avian cholera).	4.5 Investigate the causes and potential mitigation strategies for avian diseases in the Ramsar site.
The impacts of introduced marine pests on ecological character.	1.3 Monitor priority locations for marine pests and respond rapidly to new introductions.

TABLE 37: Knowledge gaps: Threatened fauna species with or without Conservation Advice or Recovery Plans

Fauna species	Conservation Advice available?	Recovery Plan available?
Australasian Bittern *Botaurus poiciloptilus*	Y	N
Australian Fairy Tern *Sternula nereis nereis*	Y	N
Australian Painted Snipe *Rostratula australis*	Y	N
Australian Grayling *Prototroctes maraena*	N	Y
Black-browed Albatross *Thalassarche melanophris*	N	Y
Blue Petrel *Halobaena caerulea*	Y	N
Blue Whale *Balaenoptera musculus*	N	Y
Buller's Albatross, Pacific Albatross *Thalassarche bulleri*	N	Y
Corangamite Water Skink, Dreeite Water Skink *Eulamprus tympanum marnieae*	N	Y
Eastern Dwarf Galaxias, Dwarf Galaxias *Galaxiella pusilla*	N	Y
Golden Sun Moth *Synemon plana*	Y	N
Green Turtle *Chelonia mydas*	N	Y
Grey-headed Albatross *Thalassarche chrysostoma*	Y	Y
Grey-headed Flying-fox *Pteropus poliocephalus*	N	Y
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog *Litoria raniformis*	N	Y
Humpback Whale *Megaptera novaeangliae*	Y	N
Leatherback Turtle, Leathery Turtle, Luth *Dermochelys coriacea*	Y	Y
Loggerhead Turtle *Caretta caretta*	N	Y
Long-nosed Potoroo (SE Mainland) Potorous *tridactylus tridactylus*	Y	N
Macquarie Perch *Macquaria australasica*	Y	Y
New Holland Mouse, Pookila *Pseudomys novaehollandiae*	Y	N
Northern Giant Petrel *Macronectes halli*	N	Y
Olive Ridley Turtle, Pacific Ridley Turtle *Lepidochelys olivacea*	N	Y
Orange-bellied Parrot *Neophema chrysogaster*	N	Y
Regent Honeyeater *Anthochaera phrygia*	Y	Y
School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark *Galeorhinus galeus*	N	N
Smoky Mouse, Konoom *Pseudomys fumeus*	Y	Y
Soft-plumaged Petrel *Pterodroma mollis*	Y	N
Southern Bluefin Tuna *Thunnus maccoyii*	N	N
Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) *Isoodon obesulus obesulus*	Y	N
Southern Giant-Petrel, Southern Giant Petrel *Macronectes giganteus*	N	Y
Southern Right Whale *Eubalaena australis*	N	Y
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) *Dasyurus maculatus maculatus* (SE mainland population)	Y	Y
Striped Legless Lizard, Striped Snake-lizard *Delma impar*	Y	Y
Swift Parrot *Lathamus discolor*	Y	Y
White Shark, Great White Shark *Carcharodon carcharias*	N	Y
Yarra Pygmy Perch *Nannoperca obscura*	N	Y

TABLE 38: Knowledge gaps: Threatened flora species with or without Conservation Advice or Recovery Plans

Flora species	Conservation Advice available?	Recovery Plan available?
Adamson's Blown-grass *Lachnagrostis adamsonii*	N	Y
Anglesea Grevillea *Grevillea infecunda*	Y	Y
Basalt Greenhood *Pterostylis basaltica*	N	Y
Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed *Lepidium hyssopifolium*	N	Y
Clover Glycine, Purple Clover *Glycine latrobeana*	N	Y
Dense Leek-orchid *Prasophyllum spicatum*	N	Y
Dwarf Spider-orchid *Caladenia pumila*	Y	N
Enfield Grevillea *Grevillea bedggoodiana*	Y	Y
Fragrant Leek-orchid *Prasophyllum suaveolens*	Y	Y
Grassy Eucalypt Woodland of the Victorian Volcanic Plain [ecological community]	Y	N
Grey Box *(Eucalyptus microcarpa)* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia [ecological community]	Y	N
Large-fruit Fireweed, Large-fruit Groundsel *Senecio macrocarpus*	N	Y
Leafy Greenhood *Pterostylis cucullata*	Y	Y
Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid *Prasophyllum frenchii*	N	Y
Metallic Sun-orchid T*helymitra epipactoides*	Y	Y
Natural Temperate Grassland of the Victorian Volcanic Plain [ecological community]	Y	N
Ornate Pink Fingers *Caladenia ornata*	Y	Y
Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea Pimelea *spinescens subsp. spinescens*	Y	Y
Salt-lake Tussock-grass *Poa sallacustris*	Y	Y
Spiny Pepper-cress *Lepidium aschersonii*	N	Y
Spiral Sun-orchid *Thelymitra matthewsii*	N	Y
Swamp Everlasting, Swamp Paper Daisy *Xerochrysum palustre*	N	Y
Swamp Fireweed, Smooth-fruited Groundsel *Senecio psilocarpus*	Y	N
Swamp Greenhood, Dainty Swamp Orchid *Pterostylis tenuissima*	N	Y
Tall Astelia *Astelia australiana*	N	Y
Trailing Hop-bush *Dodonaea procumbens*	N	Y
Wingless Raspwort, Square Raspwort *Haloragis exalata subsp. exalata*	Y	N
Wrinkled Buttons *Leiocarpa gatesii*	Y	Y
Yarra Pygmy Perch Nannoperca obscura	N	Y

Appendix 5: Current RLP investment summaries

Table 39 provides a summary of the current RLP projects that are funded to June 2023 within the Corangamite Management Unit and how they contribute to the 5-year RLP outcomes.

It should also be noted that a brief descriptor of contribution has been provided in the table below but every funded RLP project has a logic model that illustrates the theory of change and contribution to the 5-year outcomes as part of the MERI plan.

TABLE 39: Current funded RLP projects for Corangamite region

RLP Outcome	Current RLP Project Title	Primary Investment Priority	Secondary investment priority	Descriptor of how it contributes to 5-year outcomes
Outcome 1: By 2023, there is a restoration of, and reduction in threats to, the ecological character of Ramsar sites, through the implementation of priority actions.	N/A- none directly funded.	Port Phillip Bay (Western Shoreline) And Bellarine Peninsula	Orange-bellied Parrot, Australasian Bittern, Hooded Plover and Growling Grass Frog (Outcome 2) Natural Damp Grassland of the Victorian Coastal Plain and Subtropical and Temperate Coastal Saltmarsh (Outcome 4)	None directly funded, but investment in Orange-bellied Parrot project (see Outcome 2) will have benefits for Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site as it is addressing one of the priority actions in the Ramsar site management plan for the ecological character of the site
Outcome 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.	Protecting Priority Threatened Species of the Corangamite Coast	Orange-bellied Parrot *(Neophema chysogaster)*	Subtropical and Temperate Coastal Saltmarsh (Outcome 3) Port Phillip Bay (Western Shoreline) And Bellarine Peninsula Ramsar site (Outcome 1)	The priority of the Orange-bellied Parrot was selected to improve the likelihood of the species persisting in the wild. Actions were prioritised using INFFER and focused on improving condition and extent of saltmarsh, improving tracking techniques and understanding of bird movement, improving knowledge of impacts to habitat.
Outcome 4: By 2023, the implementation of priority actions is leading to an improvement in the condition of *EPBC Act* listed Threatened Ecological Communities.	Protecting the Victorian Volcanic Plains (VVP)	Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Western District Lakes Ramsar (Outcome 1) Growling Grass Frog, Spiny Pepper-cress. Spiny Rice Flower, Button Wrinklewort (Outcome 2) Natural Temperate Grassland of the Victorian Volcanic Plain; Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (Outcome 4) Improving management of on-farm native vegetation and biodiversity (Outcome 5)	A number of EBPC threatened taxa could potentially be considered for the project. Given limited funding, along with stakeholder discussions about project design and recognising that some taxa have received a larger proportion of Australian Government program funding in the past, it has been agreed that this project will target Grassy Eucalypt Woodlands (as defined in Australian Government Conservation advice) within the CCMA portion of the VVP Investment in this project has been enabled to go further through re-focusing on the primary investment priorities given the investment in the secondary priority of soil acidification by Southern Farming Systems. It therefore and builds from SFS project and other past projects within the region

TABLE 39: Current funded RLP projects for Corangamite region (continued)

RLP Outcome	Current RLP Project Title	Primary Investment Priority	Secondary investment priority	Descriptor of how it contributes to 5-year outcomes
Outcome 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.	Improving on-farm soil, vegetation and Biodiversity for larger agriculture enterprises in the Corangamite Management Unit	Soil carbon Vegetation and biodiversity on farms	Soil acidification (Outcome 5) Climate change adaptation (Outcome 6)	Investment in this project has been enabled to go further through re-focusing on the primary investment priorities given the investment in the secondary priority of soil acidification by Southern Farming Systems. It therefore and builds from SFS project and other past projects within the region
	Core services including Regional Agriculture Landcare Facilitator	Improving management of on-farm native vegetation and biodiversity Opportunities for increasing soil organic carbon Supporting farmers and industries to create and utilise market opportunities related to provenance and sustainable production services Building resilience of sustainable agriculture systems to adapt to changes in climate	Refer to primary investment priorities	The Corangamite region RALF supports farmers, industry and community groups (including Landcare Groups) to adopt new and innovative sustainable agriculture practices, establishing and building partnerships with these key groups. The RALF role engages and informs farming communities and agricultural industries within their NRM region about emerging ideas, innovative practices and relevant new government policies and programs to help improve the sustainability, productivity and profitability of agriculture; facilitate partnerships that will best deliver agriculture outcomes, such as connecting industry, grower and community groups so that they can work together to address common issues; assist farming communities and agriculture industry groups to develop new projects and seek new funding opportunities; support the delivery of Sustainable Agriculture projects within the Corangamite region; and participate in or facilitate 'Communities of Practice' to better understand complex issues, improve networks and help develop solutions for national priorities.
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.	N/A- none directly funded	See climate change adaptation under the large farms project in Outcome 5.		None directly funded but delivery of the project under Outcome 5 contributes to this outcome. Additionally, the work of the Regional Agriculture Landcare Facilitator (RALF) under Core Services contributes to this outcome.

More information

The Corangamite CMA involves communities in planning and implementing works in the region.

To download this plan please go to:
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