APPENDICES

CORANGAMITE REGIONAL CATCHMENT STRATEGY 2013-2019

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CORANGAMITE CMA

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Corangamite Regional Catchment Strategy 2013-2019 Appendices

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GLOSSARY OF TERMS AND ABBREVIATIONS

Terms

Aquifer	A below-ground, discrete layer of fractured rock, gravel, sand, or limestone that is porous enough to hold and convey groundwater.
Capacity building	Investment in people to increase their ability (knowledge, skills etc.) to achieve an outcome.
Community	All those with an interest or potential interest in our environment who, live, work in or visit the Corangamite region. Includes agencies, industries, authorities, investors, groups and individuals.
Community member	A member of the general public.
Community values	The importance that a regional community places on a natural asset or asset theme.
Delivery partners	Delivery partners are stakeholders that will have a lead or partner role in the delivery and implementation of the RCS.
Ecosystem services	The resources and processes that natural ecosystems supply. Ecosystem services are often referred to in terms of social, environmental, or economic values or services. Refer also to *Triple Bottom Line*.
Investment	The application of resources (land, labour, capital) to natural resources in order to improve the quality or extent of those natural resources.
Investment priorities	Ranking investment alternatives according to the magnitude of the difference expected to be delivered by each investment alternative.
Key stakeholder	see *Stakeholder*.
Natural resource	A tangible biophysical element of the environment that is identified by a particular geographic location and has environmental, social, and/or economic value (also known as 'assets'). The natural resources identified in this RCS have been grouped into eight categories (see *Natural resource category*).
Natural resource category	Eight categories of natural resources (also known as 'thematic asset classes') that are addressed through the RCS: • Soils and agricultural land • Rivers, floodplains and estuaries • Wetlands • Native vegetation • Threatened flora and fauna • Coasts • Marine environment • Aquifers.

GLOSSARY OF TERMS AND ABBREVIATIONS (CONTINUED)

Terms

Objective	A statement that describes a desired outcome of natural resource management, on a regional scale, at the end of a 20-year period.
Ramsar	The Ramsar Convention on Wetlands: an international, intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their wetlands that are of international importance.
Regional significance	Areas of concentrations of aggregated high value natural resources.
Resilience	The capacity of a system to absorb or recover from disturbances so as to retain essential structures, functions and feedbacks.
Stakeholder/key stakeholder	Landholders, land managers and planners, NRM industries, Traditional Owners and other indigenous groups, people and groups who participate in natural resource management, the three levels of government, water authorities and investors. Any party with an interest in the RCS, including groups or individuals who may be affected by the strategy or who may significantly influence it. These can include decision-makers, government agencies, businesses, landholders and interest groups. **Key stakeholder:** Someone who represents a particular interest or group concerned with land or natural resource management. This includes those who make decisions regarding land or natural resource management.
Strategic action	An action that needs to occur over the six-year life of the RCS if one or more of the objectives are to be achieved. Strategic actions are regionally focussed, strategic, and generally not specific to any individual area or location.
Sub-strategy	A regional planning document that sits under the RCS and prioritises actions for management of the region's assets. For example, the Corangamite River Heath Strategy.
Threat	A process, activity or event that has potential to harm an asset, e.g. pest plants, pest animals, erosion.
Triple bottom line (TBL)	Environmental, social and economic values (provided by natural resources).
Vision	A statement describing a the strategy's overall aspiration, set with a 50-year horizon.

Abbreviations

ABC database	Actions for Biodiversity Conservation database
AROTS	Australian Rare or Threatened Species
CaLP Act	*Catchment and Land Protection Act 1994*
CAP	Coastal Action Plans
CfES	Commissioner for Environmental Sustainability
CRHS	Corangamite River Health Strategy
DIWA	Directory of Important Wetlands Australia
DEPI	Department of Environment and Primary Industries
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FFG Act	*Flora and Fauna Guarantee Act 1988*
ISC	Index of Stream Condition
IWC	Index of Wetland Condition
NRM	Natural Resource Management
RCS	Regional Catchment Strategy
VEAC	Victorian Environmental Assessment Council
VEWH	Victorian Environmental Water Holder
VROTS	Victorian Rare or Threatened Species
VVP	Victorian Volcanic Plains

APPENDIX 1

THE RCS IN CONTEXT

The Corangamite Regional Catchment Strategy sits within a hierarchy of international, national, state and regional legislation, agreements, strategies, frameworks and plans (Figure A1.1). These both inform, and are informed by, the RCS.

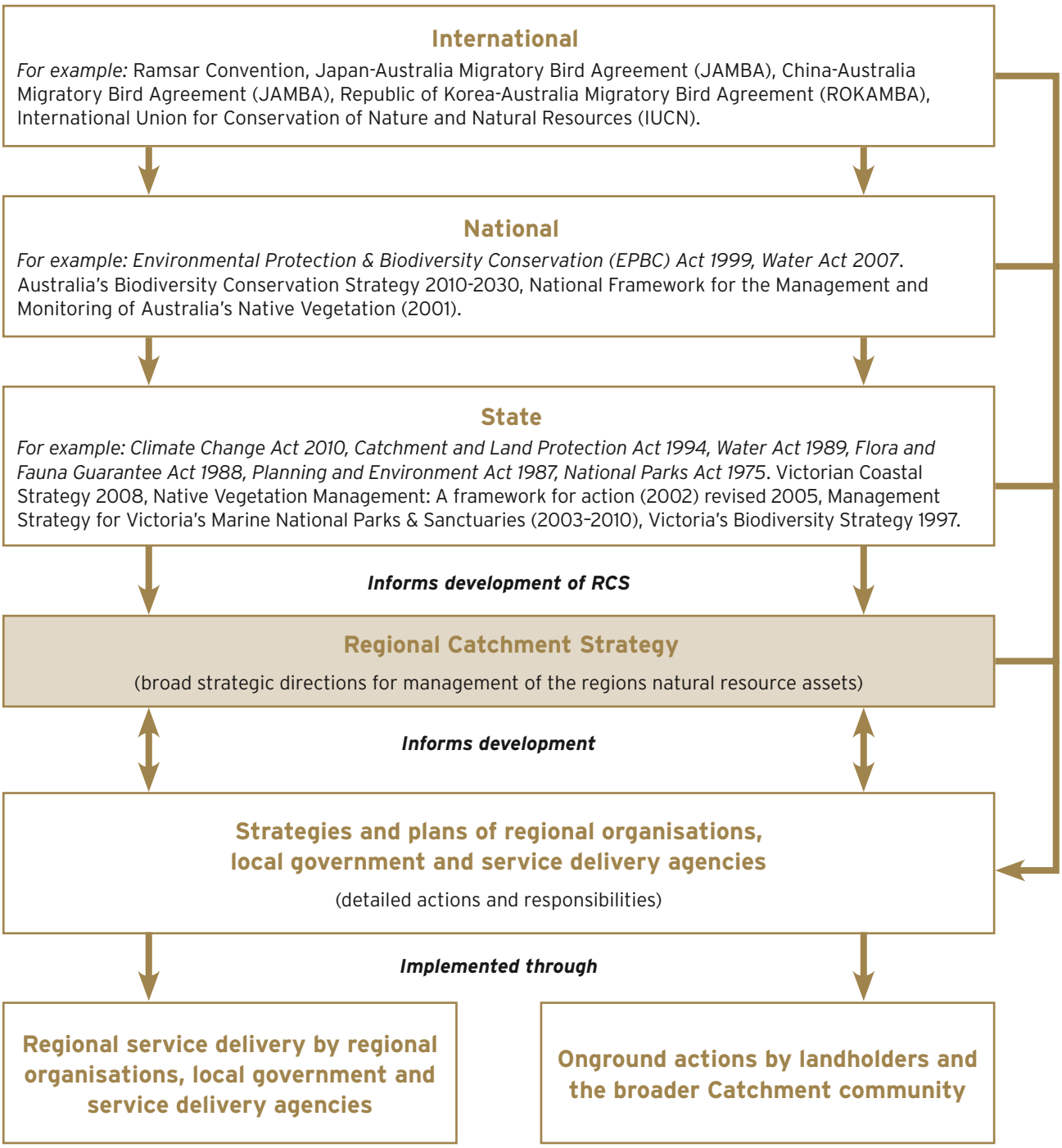

Figure A1.1 The legislative, regulatory and planning context of the Corangamite RCS

APPENDIX 2

RCS DEVELOPMENT AND REVIEW PROCESS

RCS DEVELOPMENT

The 2013–2019 RCS is the Corangamite region's third, and builds on the lessons from the previous two. This RCS was developed by following these steps:

1: Review of the 2003-2008 RCS

The region's second RCS was developed in 2002–03, and a subsequent review[1] recommended that the 2013–2019 RCS:

- should be a short, strategic and high level document that is clear in scope and provides clear and measurable priorities
- needs to provide broad strategic direction (rather than detailed on-ground management targets) which supports a flexible approach to implementation responsive to new information and funding arrangements
- be aligned with national, state and regional priorities for successful implementation
- be supported by existing and future sub-strategies and action plans
- promote ownership by all stakeholders and identify lead organisations
- include strategies for stakeholder engagement to develop successful partnerships
- include a process to address gaps in the knowledge of biophysical assets
- support the development and implementation of a sound monitoring, evaluation and reporting system.

These recommendations have formed the basis for developing the 2013–2019 RCS.

2: Development of program logic

A program logic was prepared, setting out the RCS's framework, proposing a vision and key goals, 20-year objectives, six-year strategic actions, outcomes, implementation, and prerequisite activities. This program logic was reviewed and updated as the development of the RCS progressed (Appendix 14).

The RCS needed to meet a number of guidelines and satisfy community needs. Preliminary activities included identifying and applying the directions given in:

- the DSE Asset Based Approach Standard (ABA) and its thematic asset classes (called 'natural resource categories' in this RCS), in order to be consistent with the regional catchment strategies of other CMAs, whilst maintaining regional distinctions
- the Victorian Catchment Management Council Guidelines for the development of Regional Catchment Strategies
- the rigorous planning and community engagement that took place to develop the various regional sub-strategies and plans over recent years.

3: Input to the RCS and preparation of the Community Draft RCS

Development of the RCS has been led by the Corangamite CMA, with significant direction and input from regional groups and agencies. The Community Draft Corangamite RCS was released for public comment on 4th June 2012.

To facilitate and support community participation in the development of this RCS, a three-stage engagement program (Table A2.1) was prepared and implemented. An engagement plan was developed and delivered in accordance with the International Association for Public Participation 2 (IAP2) principles, with guidance from the RCS Community Engagement Group (Table A2.1).

[1] Corangamite Catchment Management Authority (2009) *Corangamite Regional Catchment Strategy Review 2003–2008*. Corangamite Catchment Management Authority, Colac.

APPENDIX 2

RCS DEVELOPMENT AND REVIEW PROCESS (CONTINUED)

Table A2.1 Engagement program for the development of the Corangamite RCS

Stage 1 Review previous RCS and collate outcomes of related engagement activities
Review previous RCS. Collect information obtained through the delivery of engagement programs to develop regional sub-strategies, local plans and Landscape Zone Action Plans. Hold discussions with key stakeholders.
Stage 2 Define governance and engagement model and commence draft report
Establish a project governance and engagement model for RCS development (Figure A2.1) comprising: • CCMA Board • Project Partners Group • CCMA Reference Group • Community Engagement Group • Community engagement program and activities. Conduct intensive workshops and meet with stakeholders to develop the RCS draft. Finalise the RCS Engagement Plan. Commence drafting the RCS.
Stage 3 Community engagement period
The Community Draft RCS was released for community input on 4th June, and launched at the CCMA partnership dinner on 6th June 2012. Implement the Engagement Plan. Approximately 275 people from across the region were involved in a 6-week period of community engagement between 4th June and 15th July 2012. During this period: • The Draft RCS was available for online comment and editing through a wiki website that was developed for the RCS engagement - *http://joinin.ccma.vic.gov.au* • A number of events were run, including: - 7 workshops - 3 open houses - 4 listening posts - 4 online forums. • A number of written responses were received, including: - 35 formal written submissions - 27 official feedback forms.

4: Review and approval process

The community's comments, suggestions, and ideas that were elicited in the engagement program were considered in a review of the draft RCS directed by the Corangamite CMA Board. Input was also sought from the RCS Project Partners Group and further revisions made.

The final draft RCS content was endorsed by the Corangamite CMA Board on 22nd November 2012.

The Corangamite CMA Board will submit the final RCS to the Minister for Environment and Climate Change and the Minister for Water late 2012.

Following Ministerial approval the RCS will be gazetted, and subject to securing funding, it will then be implemented by the region's community and agency partners.

Identifying high priority natural resources in neighbouring CMAs

In developing the Corangamite RCS, it was important to identify high value natural resources that overlap the boundaries with neighbouring CMAs. The relevant CMAs were consulted to understand their approach to identifying and mapping high priority natural resources (or assets), and to ensure that such assets adjacent to the Corangamite region could be considered appropriately in RCS implementation.

Glenelg Hopkins CMA

Glenelg Hopkins CMA used the Investment Framework for Environmental Resources (INFFER) process to identify and prioritise significant assets for each class of assets (called 'natural resource category' in the Corangamite RCS). Priority areas were identified based on a number of considerations including significance, threats and feasibility of intervention. A range of tools and approaches were used, including: NaturePrint v2.0; the Actions for Biodiversity Conservation (ABC) database; the Glenelg Hopkins River Health Strategy, which referenced the Index of Stream Condition (ISC); information found in sub-strategies and plans; and expert opinion.

North Central CMA

North Central CMA conducted an asset identification process with the community and regional stakeholders, in which the most valued environmental assets were nominated. Assets were then aggregated together (where appropriate) and rated for their environmental significance and threats. Highly significant assets were also rated for feasibility of implementation from a technical and socio-economic perspective consistent with DSE's Asset Based Approach. Tools and approaches considered included: NaturePrint v2.0; the ABC database; the North Central River Health Strategy (including the ISC); expert opinion; and information in found in sub-strategies, plans and the index of Wetland Condition. *[Note: This information was current as of 2 November 2012.]*

Port Phillip and Westernport CMA

Core habitats in the Port Phillip and Westernport CMA were assessed using DSE's native vegetation quality dataset (NV 2005qual) and native vegetation extent dataset (NV 2005extent). Areas of very high quality native vegetation greater than 80 ha were identified as high value. Waterway assets were evaluated in Melbourne Water's Healthy Waterways draft plan, which took into account seven indicators including: platypus abundance, fish populations, frog diversity and condition, bird species richness and frequency of occurrence, the ISC , vegetation condition using Ecological Vegetation Class, macroinvertebrate populations using the SIGNAL approach (Stream Invertebrate Grade Number – Average Level) and the amenity value a waterway provides.

[Note: This information was current as of 2 November 2012. At this time, community consultation on the draft PP&WP RCS was underway, the outcome of which may result in changed classifications or mapping boundaries in the final documents.]

APPENDIX 2

RCS DEVELOPMENT AND REVIEW PROCESS (CONTINUED)

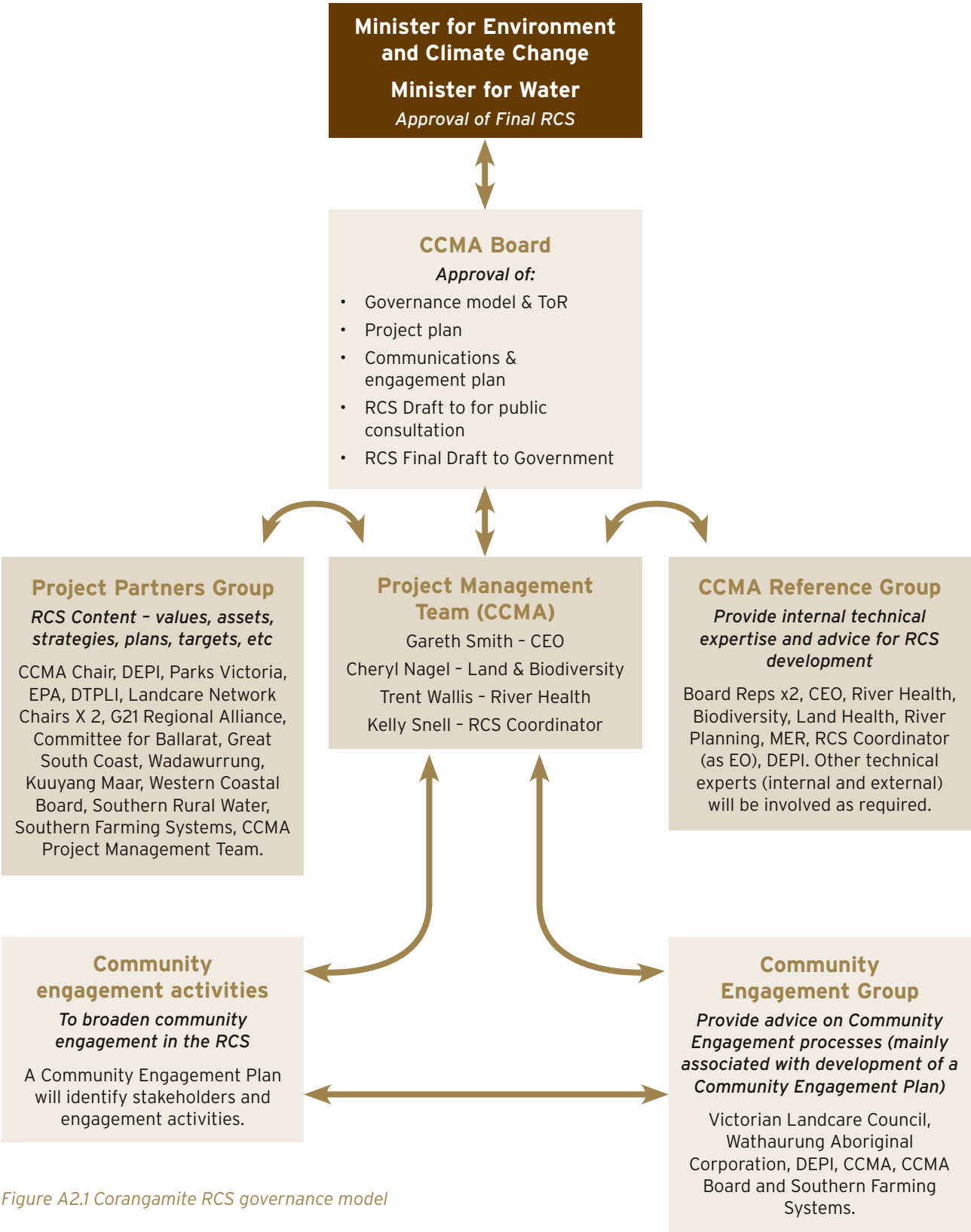

Figure A2.1 Corangamite RCS governance model

RCS REVIEW

The RCS will be periodically reviewed to review or adjust objectives and actions as required. In consultation with the key stakeholders, a mid-term evaluation by will be conducted by December 2016. A full evaluation of progress and achievements will be undertaken by December 2020.

APPENDIX 3

OVERVIEW OF THE CORANGAMITE REGION

This overview is an extract from the draft regional overview prepared by RM Consulting Group[2] (Stephanie Drum) and describes the region from environmental, social, cultural and economic viewpoints, using a whole of landscape approach including private and public land, and coastal and marine areas (to the three nautical mile limit). The complete overview identifies links to relevant Federal and State legislation, policies and strategies and relevant regional policies, strategies and action plans, including provision for dealing effectively with cross-boundary regional issues.

THE CORANGAMITE REGION

The Corangamite region covers an area of approximately 13,340 square kilometres stretching along the coast from Geelong to Peterborough. Home to 371,000 people, it includes all or part of the Cities of Ballarat and Greater Geelong, the Borough of Queenscliffe and the Shires of Moorabool, Surf Coast, Corangamite, Golden Plains, Colac Otway and Moyne.

History and people

The Corangamite Region was occupied for thousands of years by Aboriginal peoples. The traditional boundary of the Wadawurrung people starts along the coastline from Werribee to the Lorne Peninsula area. It traverses inland to Colac, through to Cressy onwards to Ballarat. Within these boundaries there were approximately 14 clan groups who were traditional owners of their particular ancestral site. Smaller clan groups were connected to these dominant groups through marriages. The Wadawurrung traditional language covered most of the Corangamite Region. Other language groups in the Region include the Kirrae Whurrong, Gadubanud, Gulidjan and the Djargurd Wurrung[3].

The Corangamite Region was one of the first regions of European settlement in Victoria. The open grassland plains attracted settlers who moved rapidly inland from Geelong and Portland to establish grazing runs. The tall forests of the Otways attracted timber cutters in search of resources to establish the rapidly growing cities and towns of the colony. The gold rush of the mid-19th century promoted very rapid population growth around Ballarat. By the start of the 20th century, subdivision of the original grazing runs saw the establishment of more intensive agricultural industries such as dairying and cropping.

Today, the Region has a diversified economy, booming population and rural and coastal areas whose natural values support strong primary industries and a growing tourism industry.

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[2] RM Consulting Group (2012) Regional Catchment Strategy Regional Overview – Draft Report to the Corangamite Catchment Management Authority.

[3] Clark, I. (c. 1990). *Aboriginal languages and clans: an historical atlas of western and central Victoria, 1800–1900*. Department of Geography & Environmental Science, Monash University, Melbourne.

[4] Department of Transport, Planning and Local Infrastructure (2012) Victoria in Future 2012 Spatial Analysis and Research, Department of Transport, Planning and Local Infrastructure, Melbourne.

[5] Australian Bureau of Statistics (2012) Census of Population and Housing, 2011. Australian Bureau of Statistics, Canberra.

Population

Population data are derived from a number of sources. The Australian Bureau of Statistics (ABS) reports census data at various scales including Statistical Local Areas (SLAs) and regional natural resource management boundaries. The SLAs (that comprise the Corangamite region) boundary and regional NRM boundary do not coincide, and the SLA data encompasses additional areas of population. Not all data from the 2011 census has been reported at a regional level yet, and in these cases, SLA data is used. Other sources of data include Australian public datasets (data.gov.au) and the Department of Transport, Planning and Local Infrastructure (DTPLI) Victoria in Future projections[4]. Thus, there may be inconsistencies in some sections of this report.

The population of the Region was 371,281 in 2011, an increase of 26,000 since 2006. This equates to an average annual growth rate of 1.5%. Nearly 2500 people identified themselves as having Aboriginal or Torres Strait Island origins[5]. More than half of these people lived in the Greater Geelong Local Government Area (LGA).

From 1996 to 2011, the Region's population grew by nearly 58,000 people – a 19% increase over fifteen years (Figure A3.1).

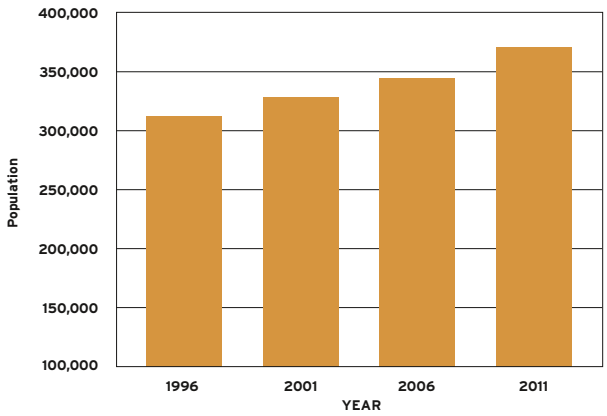


Figure A3.1: Corangamite region population 1996–2011
Source: ABS (2007, 2012)

The rate of population growth since 2006, however, has been variable across the Corangamite Region (Table A3.1). Surf Coast East, which includes Torquay, has experienced the greatest population growth rate over the last five years (5.4%), followed by Golden Plains East (4.1%).

APPENDIX 3

OVERVIEW OF THE CORANGAMITE REGION (CONTINUED)

Table A3.1 Corangamite Region population change by locality Source: ABS SLA data (2007, 2012)

Locality (SLA)	1996	2001	2006	2011	Annual growth rate 1996-2011	Annual growth rate 2006-2011
Ballarat Central	33,601	33,602	32,885	33,979	0.1%	0.7%
Ballarat Inner North	22,391	24,719	28,889	32,654	3.1%	2.6%
Ballarat South	19,647	20,701	22,424	25,858	2.1%	3.1%
Colac Otway Colac	9793	9883	10,857	11,299	1.0%	0.8%
Colac Otway North	6745	6697	6064	5801	-0.9%	-0.9%
Colac Otway South	3226	3509	3376	3244	0.0%	-0.8%
Corangamite North	7554	7275	9205	9026	1.3%	-0.4%
Corangamite South	6016	6065	7414	7346	21.5%	-0.2%
Golden Plains North West	6392	6976	7439	7917	1.6%	1.3%
Golden Plans South East	6766	7343	9012	10,849	4.0%	4.1%
Greater Geelong (LGA)	163,130	171,427	197,479	210,877	2.0%	1.4%
Moorabool West	3054	3182	3520	3527	1.0%	0.0%
Moorabool Ballan	5060	5632	5985	6530	1.9%	1.8%
Queenscliff (Borough)	3193	3078	3017	2999	-0.4%	-0.1%
Surf Coast East	9065	11,072	13,194	16,768	5.7%	5.4%
Surf Coast West	7649	8557	8576	9107	1.3%	1.2%
Total	**313,282**	**329,718**	**369,336**	**397,781**	**1.8%**	**1.5%**

In 2006, the largest urban centres in the Corangamite Region were (data.gov.au, 2009):

- Geelong (136,518 people)
- Ballarat (75,015 people)
- Ocean Grove (10,767 people)
- Colac (10,562 people)
- Torquay (9468 people)

Other notable urban locations in the Corangamite Region with populations exceeding 3000 people are Clifton Springs (7995 people), Queenscliff (3774 people) and Camperdown (3028 people).

Population density also varies widely across the Corangamite Region (Table A3.2). Ballarat Central SLA has the highest population density per square kilometre with 996 people per square kilometre. The population density is much lower in the region's west with less than five people per square kilometre in Corangamite and Colac Otway SLAs.

Table A3.2 Corangamite Region population density by SLA Source: ABS SLA data (2011)

SLA	Area (square kilometres)	2011 population	Density (population per square kilometre)
Ballarat Central	34	33,979	996
Ballarat Inner North	328	32,654	100
Ballarat South	113	25,858	228
Colac Otway Colac	20	11,299	551
Colac Otway North	1867	5801	3
Colac Otway South	1550	3244	2
Corangamite North	2688	9026	3
Corangamite South	1720	7346	4
Golden Plains North West	1037	7917	8
Golden Plans South East	1666	10,849	7
Greater Geelong (LGA)	1248	210,877	169
Moorabool West	595	3527	6
Moorabool Ballan	908	6530	7
Queenscliff (Borough)	9	2999	349
Surf Coast East	356	16,768	47
Surf Coast West	1197	9107	8
Region totals	**15,336**	**397,781**	**26**

Between 2006 and 2026, the Corangamite Region's population is projected to grow by more than 30% (1.5% per annum), consistent with the overall expected growth for Victoria over that period (Table A3.3).

APPENDIX 3

OVERVIEW OF THE CORANGAMITE REGION (CONTINUED)

Table A3.3 Expected population growth in the Corangamite Region and Victoria overall Source: DPCD SLA data (2009)

Year	Corangamite Region		Victoria overall	
	Population	Growth to 2026	Population	Growth to 2026
2006	384,430		5,128,310	
2011 (estimated)	419,000	9.0%	5,545,000	8.2%
2016 (projected)	442,000	15.2%	5,943,000	15.9%
2021 (projected)	472,000	22.9%	6,333,000	23.5%
2026 (projected)	502,000	30.6%	6,711,000	30.9%

The projected growth varies considerably by location, with the greatest growth expected in the following SLAs: Surf Coast East (80% between 2006 and 2026); South Barwon– Inner (66%); Golden Plains – South East (57%); Ballarat - Inner North (54%); and Ballarat (C) – South (45%).

Age structure

The Region's population is ageing. In 2011, 23% of the population was aged under 20, compared to 33% in 1991. Similarly, 22% were aged over 60 in 2011, up from 16% in 1991.

The Region's population is slightly older (22% aged 60+) compared to Victoria overall (19.7%) and has a smaller proportion of its population aged between 20 and 39 (24.5% compared to 28.3% overall). This trend is likely to continue, according to the G21 Geelong Regional Plan[6], which projects that by 2026, people 65 years and older will make up 38% of the population in the G21 Region, which covers much of the Corangamite Region. This is a much larger proportion than is expected for Australia overall (29%). The Plan also notes that there will be 14,000 fewer people in the 0 to 44 age group by 2051.

Education and household income

Education levels are generally lower for the Region than for Victoria overall. In 2011, 41.4% of the Region's population who were aged 15 or over had completed Year 12 or equivalent, compared to 49.8% for Victoria overall. Tertiary qualification levels were also generally lower for Corangamite than for Victoria overall. In 2011, 16% of the Corangamite population who were aged 15 or over had a Bachelor Degree or higher, compared to 21% for Victoria overall.

Income levels in the Corangamite Region are slightly lower than for Victoria overall. In 2011, 16% of the Region's households had an income of more than $2000 per week compared to 21% across all of Victoria.

Employment and industry

The diverse economy of the region reflects its mix of highly urbanised, growing coastal and traditional rural areas.

In 2011, healthcare and social assistance, retail trade and manufacturing accounted for the largest shares of employment in the Corangamite Region (Figure A3.2). These sectors are concentrated in Geelong and Ballarat. Overall 13.7% were employed in the health care and social assistance sector, 12.1% were employed in retail trade and 10.8% were employed in the manufacturing sector. The agriculture and forestry sector has seen its share of regional employment decline from 4% to 3.5% between 2006 and 2011.

[6] G21– Geelong Regional Alliance (2007) The Geelong Regional Plan – a sustainable growth strategy. G21 – Geelong Region Alliance, Geelong.

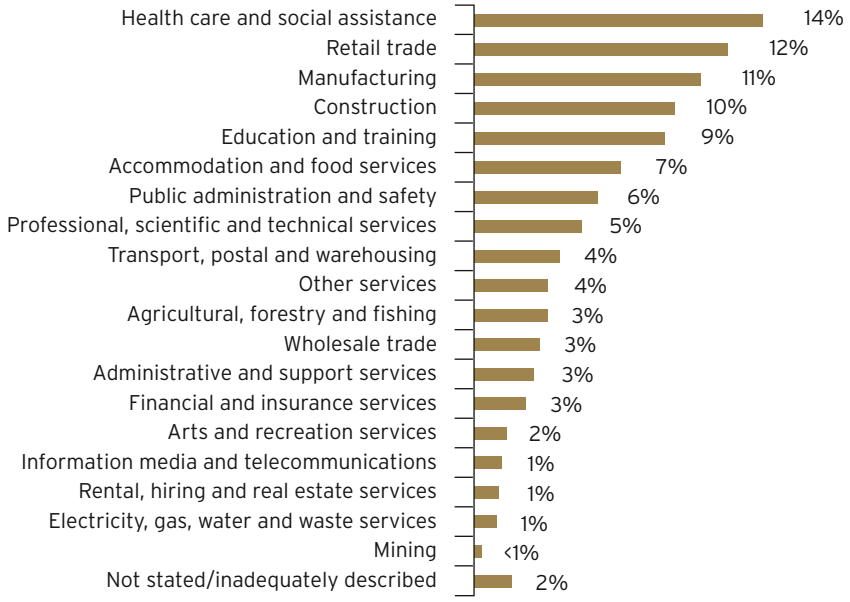


Figure A3.2 Industries by employment, 2011 Source: ABS (2012)

Agriculture

Agriculture is the dominant land use of the region, with approximately 3450 agricultural businesses[7] operating across 772,436 ha. Enterprises include sheep and cattle grazing, dairying, cropping, forestry and viticulture. Just over 75% of private land used for food and fibre production is used for livestock grazing and 20% is used for crop production, including timber. In addition, the Region has smaller areas dedicated to the poultry and pig industries.

Livestock numbers in 2005–2006 were approximately 271,000 dairy cattle, 209,000 beef cattle and 1.7 million sheep and lambs. In 2005–2006, the Corangamite region produced approximately 10% of the gross value of agricultural commodities produced in Victoria[8].

The gross value of agricultural commodities produced in the region in 2009 was $971 million, up from $770 million in 1999[9]. Milk production accounted for 31% of total agricultural commodity value. Livestock slaughtering, such as for lamb and meat production, accounted for 22%. Broadacre and horticultural crops accounted for 26%.

Tourism

The Corangamite Region contains some of Victoria's most significant tourism experiences based on the natural environment, such as the Great Ocean Road and Otway Ranges.

The Great Ocean Road tourism region[10] received an estimated 4.9 million domestic daytrip visitors in 2010. Twenty percent of all domestic daytrips to or within regional Victoria visited the Great Ocean Road region. The region received 163,300 international overnight visitors in 2010, an increase of 0.7% from 2009. Fifty percent of all international overnight visitors to regional Victoria visited the Great Ocean Road region. The average annual growth since 2000 was 1.8% for international overnight visitors to the region compared to 2.1% for regional Victoria generally.

By estimating the ratio of the region's total tourism output to its total economic output, it is estimated tourism represents 4.1% of the economy in the Great Ocean Road region.

[7] Agricultural businesses are those defined as having an Estimated Value of Agricultural Operations greater than $5000.

[8] Australian Bureau of Statistics (2008). *Agricultural commodities: Small area data, Australia, 2005–2006.* Cat. 7125.0. Australian Bureau of Statistics, Canberra.

[9] RM Consulting Group (2012) Regional Catchment Strategy Regional Overview – Draft Report to the Corangamite Catchment Management Authority.

[10] Tourism Victoria. (2011). *Great Ocean Road Market Profile Year Ending December 2010.*

APPENDIX 3

OVERVIEW OF THE CORANGAMITE REGION (CONTINUED)

Challenges and Drivers of Change

The presence of Geelong and Ballarat plays a large role in shaping population growth and distribution in the Corangamite region. As Victoria's second largest city, Geelong is the primary service centre in south-west Victoria. With its close proximity to Melbourne, Geelong is increasingly being seen as a major urban growth location within the broader Melbourne context. Ballarat, too, is experiencing strong population growth as its regional service centre role expands. The western growth area of Melbourne is experiencing rapid growth and this will have an impact on both Geelong and Ballarat in future. Future growth is also expected in the peri-urban municipalities of Surf Coast, Golden Plains and Moorabool.

Population growth[11] in the region is occurring as a result of:

- people moving from Melbourne and other regions in Victoria
- natural population increase (that is, births exceeding deaths)
- migration from other states and countries
- more people choosing to stay in the region
- people permanently moving to coastal holiday homes.

The expected growth of the region to 500,000 people and beyond, coupled with the growth of Melbourne's west, will place pressure on the capacity of the region's transport, education, health, community and tourism infrastructure and on farmland and the natural environment.

The management and development of settlements, particularly along the coastline, will become increasingly important.

[11] G21– Geelong Regional Alliance (2007) The Geelong Regional Plan – a sustainable growth strategy. G21 – Geelong Region Alliance, Geelong.

APPENDIX 4

NATURAL RESOURCE VALUE ASSOCIATIONS

Each natural resource category has been evaluated by ranking its social, economic and environmental values across a range of attributes, services and functions (Table A4.1). The services and functions categorised ranged from food or water production to cultural and spiritual values, and biological diversity. The social, economic and environmental value of each of these has been given a ranking of low (L), medium (M), high (H), very high (VH) or not applicable (NA) for every natural resource category. Each value association was determined by asking the following: how important is the social (or economic or environmental) value of this category (e.g. rivers, estuaries and floodplains) to this service (e.g. food production).

APPENDIX 4

NATURAL RESOURCE VALUE ASSOCIATIONS

Table A4.1. The social, economic and environmental value of each natural resource category in the Corangamite region for a range of services, functions and attributes

Value	Rivers, estuaries & floodplains			Wetlands			Native vegetation			Threatened flora and fauna		
	Soc	Eco	Env	Soc	Eco	Env	Soc	Eco	Env	Soc	Eco	Env
Food production	L	H	NA	L	L	NA	L	M	NA	L	L	NA
Water production	NA	VH	VH	NA	H	VH	NA	H	M	NA	L	L
Minerals/fibre/products	L	M	NA	L	M	NA	M	H	NA	NA	NA	NA
Energy production	L	L	L	NA	NA	NA	L	L	L	NA	NA	NA
Carbon sequestration & climate regulation	L	L	H	L	L	H	L	L	H	L	L	L
Pollution control, detoxification and air purification	M	H	VH	M	H	VH	M	M	M	L	L	L
Pest & disease control*	-	-	-	-	-	-	-	-	-	-	-	-
Nutrient cycling	NA	H	VH	NA	L	VH	NA	L	H	NA	NA	H
Indigenous seed dispersal	NA	NA	VH	NA	NA	VH	NA	NA	VH	NA	NA	VH
Cultural/spiritual	VH	VH	NA	H	H	NA	VH	VH	NA	M	M	NA
Educational/scientific	H	M	H	H	M	H	H	M	H	H	M	H
Recreation/tourism	VH	VH	L	VH	VH	L	VH	H	L	L	L	L
Flood mitigation	L	VH	VH	H	VH	VH	L	L	L	NA	NA	NA
Biological diversity	M	L	VH	M	M	VH	L	L	VH	NA	NA	VH
Habitat connectivity	M	M	VH	M	M	VH	H	H	VH	L	L	VH

*Pest & disease control at a regional scale could not be adequately assessed due to the large number of pests and diseases, including those that are currently emerging or unknown (and their varying impacts/degree of impacts).

Soc: Social values, Eco: Economic values, Env: Environmental values.

Table A4.1. (Continued)

Value	Coasts			Marine environment			Aquifers			Soils and agricultural land		
	Soc	Eco	Env	Soc	Eco	Env	Soc	Eco	Env	Soc	Eco	Env
Food production	L	L	NA	M	H	NA	NA	L	NA	VH	VH	NA
Water production	NA	L	L	NA	L	L	NA	VH	VH	NA	L	L
Minerals/fibre/products	L	L	NA	L	L	NA	NA	NA	NA	H	VH	NA
Energy production	L	L	L	L	L	L	NA	NA	NA	L	L	L
Carbon sequestration & climate regulation	L	L	H	M	M	M	L	L	L	L	M	L
Pollution control, detoxification and air purification	L	L	H	M	M	L	M	M	H	L	L	L
Pest & disease control*	-	-	-	-	-	-	-	-	-	-	-	-
Nutrient cycling	NA	NA	H	NA	NA	H	NA	NA	NA	L	H	L
Indigenous seed dispersal	NA	NA	VH	NA	L	L	NA	NA	NA	NA	NA	NA
Cultural/spiritual	VH	VH	NA	VH	VH	NA	NA	NA	NA	H	H	NA
Educational/scientific	H	M	H	H	M	H	M	M	M	H	H	H
Recreation/tourism	VH	VH	L	VH	VH	L	NA	NA	NA	L	L	L
Flood mitigation	H	H	H	L	L	L	L	L	L	L	L	L
Biological diversity	H	H	VH	H	VH	VH	L	L	L	L	L	L
Habitat connectivity	H	VH	VH	M	M	M	L	L	H	L	L	L

*Pest & disease control at a regional scale could not be adequately assessed due to the large number of pests and diseases, including those that are currently emerging or unknown (and their varying impacts/degree of impacts).

Soc: Social values, Eco: Economic values, Env: Environmental values.

APPENDIX 5

THREATS ASSOCIATION TABLE

The threats to each natural resource category have been evaluated in a similar way to their values. A range of threats were identified, and the risk they pose to each natural resource category has been classified as low (L), medium (M), high (H) or not applicable (NA). The threats range from channel modifications and sedimentation to water logging and inadequate regulation or resources (Table A5.1).

Table A5.1 Threats and their risk to each natural resource category in the Corangamite region

Threats	Rivers, estuaries & floodplains	Wetlands	Native vegetation	Threatened flora and fauna	Coasts	Marine enviro.	Aquifers	Soils and agricultural land
Channel Modifications (CM)	VH	M	L	L	L	L	L	L
Degradation of Riparian Vegetation (DRV)	H	M	M	M	NA	L	M	H
Stream bed/ bank Erosion	H	M	M	M	L	L	L	H
Barriers to fish Migration	H	M	NA	H	NA	M	NA	NA
Drainage of wetlands	H	H	L	H	M	L	M	NA
Uncontrolled Stock Access	H	H	H	H	L	L	H	H
Sedimentation (SED)	H	M	L	M	L	L	NA	L
Water Storage, Diversion and Extraction	H	H	M	H	M	L	H	M
Altered Hydrological Regimes (AHR)	H	H	M	M	M	L	H	H
Loss of Habitat	H	H	H	H	H	H	NA	M
Habitat Fragmentation/ reduced connectivity	H	M	H	H	H	H	NA	L
Vegetation degradation	H	M	H	H	H	NA	M	H
Loss of Hollow-Bearing Trees (LHT)	NA	NA	H	H	M	NA	NA	H
Loss of Woody Debris (LWD)	H	M	H	H	M	NA	A	NA
Soil Nutrient decline	NA	NA	NA	NA	NA	NA	NA	H

Table A5.1 (Continued)

Threats	Rivers, estuaries & floodplains	Wetlands	Native vegetation	Threatened flora and fauna	Coasts	Marine enviro.	Aquifers	Soils and agricultural land
Soil Structure Decline (SSD)	M	L	M	L	L	L	H	H
Soil Organic Matter Decline	L	L	M	L	L	NA	NA	H
Soil Biota Decline	M	M	M	H	L	NA	NA	H
Soil Acidification (SA)	H	M	L	L	L	L	H	H
Soil Compaction (SC)	L	M	M	M	M	L	H	H
Water logging of soils (WL)	NA	NA	L	L	L	NA	M	H
Organic Carbon Decline (OCD)	M	L	M	L	L	NA	L	H
Acid Sulfate Soils (ASS)	H	H	L	M	M	L	L	H
Salinity (SAL)	H	H	M	M	L	NA	H	H
Sheet, Gully, Rill, Tunnel Erosion (SRE)	M	M	M	L	L	L	NA	H
Wind Erosion (WE)	M	L	M	L	H	L	M	H
Landslides (LS)	M	L	L	L	M	L	NA	H
Altered Fire Regime (AFR)	L	L	H	H	H	NA	M	H
Contaminants/ Pollution (CP)	H	H	L	M	H	M	L	M
Cultivation (CUL)	H	H	H	H	L	NA	M	NA
Climate Change/Climate Variability (CCV)	H	H	H	H	H	H	M	H
Sea Level Rise (SLR)	H	H	M	H	H	H	H	M

APPENDIX 5

THREATS ASSOCIATION TABLE

Table A5.1 (Continued)

Threats	Rivers, estuaries & floodplains	Wetlands	Native vegetation	Threatened flora and fauna	Coasts	Marine enviro.	Aquifers	Soils and agricultural land
Sea Water Intrusion and Interception	H	H	M	H	NA	NA	H	M
Pest Animals	H	H	H	H	H	H	H	H
Pest Plants	H	H	H	H	H	H	H	H
Diseases and/or Pathogens (DP)	H	M	H	H	H	H	NA	H
Unsustainable Resource Utilisation	H	H	H	H	H	H	H	H
Significant disturbance events (fire, flood, storms)	M	M	H	M	L	H	H	H
Inadequate regulation/ enforcement	H	H	H	H	M	H	H	H
Inadequate Resources - Money (IRM)	H	H	H	H	M	H	H	H
Inadequate Resources - People (IRP)	H	H	H	H	M	H	H	H
Inadequate Strategic Management (ISM)	M	H	H	H	H	H	H	H
Knowledge Limitations (KL)	M	M	M	H	H	H	H	H
Limited Community Capacity (LCC)	M	M	M	M	H	L	L	H
Urban Development	VH	M	M	M	H	M	H	H
Tourism recreation pressures	VH	H	M	M	H	M	M	M

This page: *Lake Weering.*

APPENDIX 6

CORANGAMITE LANDSCAPE ZONES

The Corangamite catchment contains four drainage basins – Lake Corangamite, Moorabool River, Barwon River and Otways Coast. These four basins can be further stratified into geographic sub-units based on the similarity of land-form, geology, hydrology and sociology. These geographic sub-units are called Landscape Zones and there are 15 in the Corangamite region. The 15 Landscape Zones provide the basic management unit for the Corangamite Catchment Management Authority's regional natural resource management strategies and other planning frameworks.

The Lake Corangamite Basin comprises the Lismore, Stony Rises and Woady Yaloak Landscape Zones. The Barwon River Basin is composed of the Leigh, Murdeduke, Mid Barwon, Upper Barwon and Bellarine Landscape Zones. The Moorabool River Basin includes the Moorabool and Hovells Landscape Zones. The Otway Coast Basin includes the Curdies, Gellibrand, Aire, Otway Coast and Thompsons Landscape Zones which all drain into Bass Strait.

Planning for integrated management of natural resources within and between each landscape zone has commenced. This will identify high value natural resources at the Landscape Zone scale and management priorities. The completion of Landscape Zone Actions Plans is a key action within this RCS.

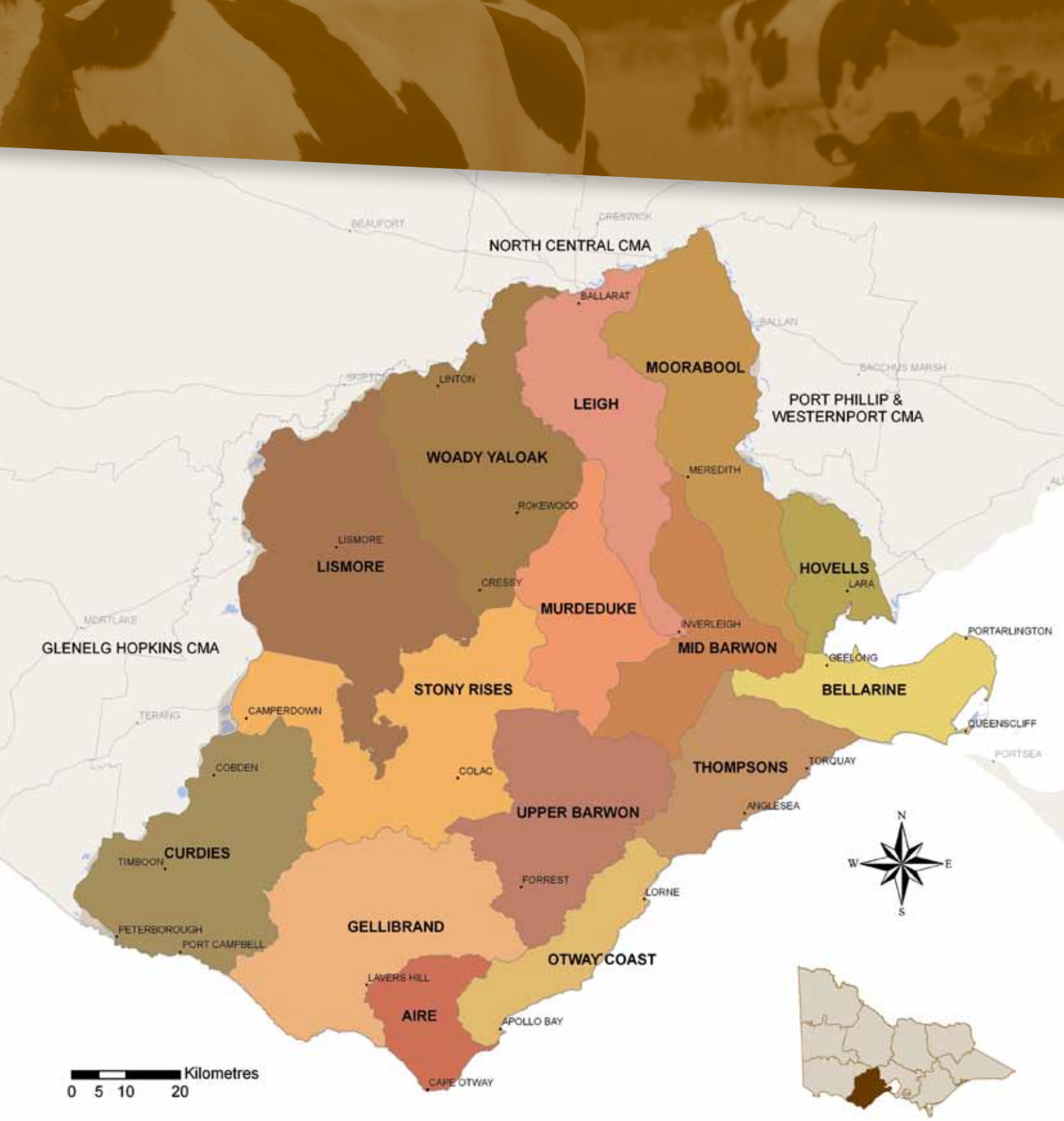


Figure A6.1 Landscape Zones of the Corangamite region

APPENDIX 7

SOILS OF THE CORANGAMITE REGION

The Corangamite region is characterised by a large number of different soil and landform types.

These soil and landform types have been clustered into 'Soil Groups'. These groupings are based on the texture profile of the soil, as well as the characteristics of the parent material.

The soil groups of the Corangamite region have been mapped by the Department of Transport, Planning and Local Infrastructure12.

[12] Department of Transport, Planning and Local Infrastructure (2003) A land resource assessment of the Corangamite region. Primary Industries Research Victoria, Bendigo.)

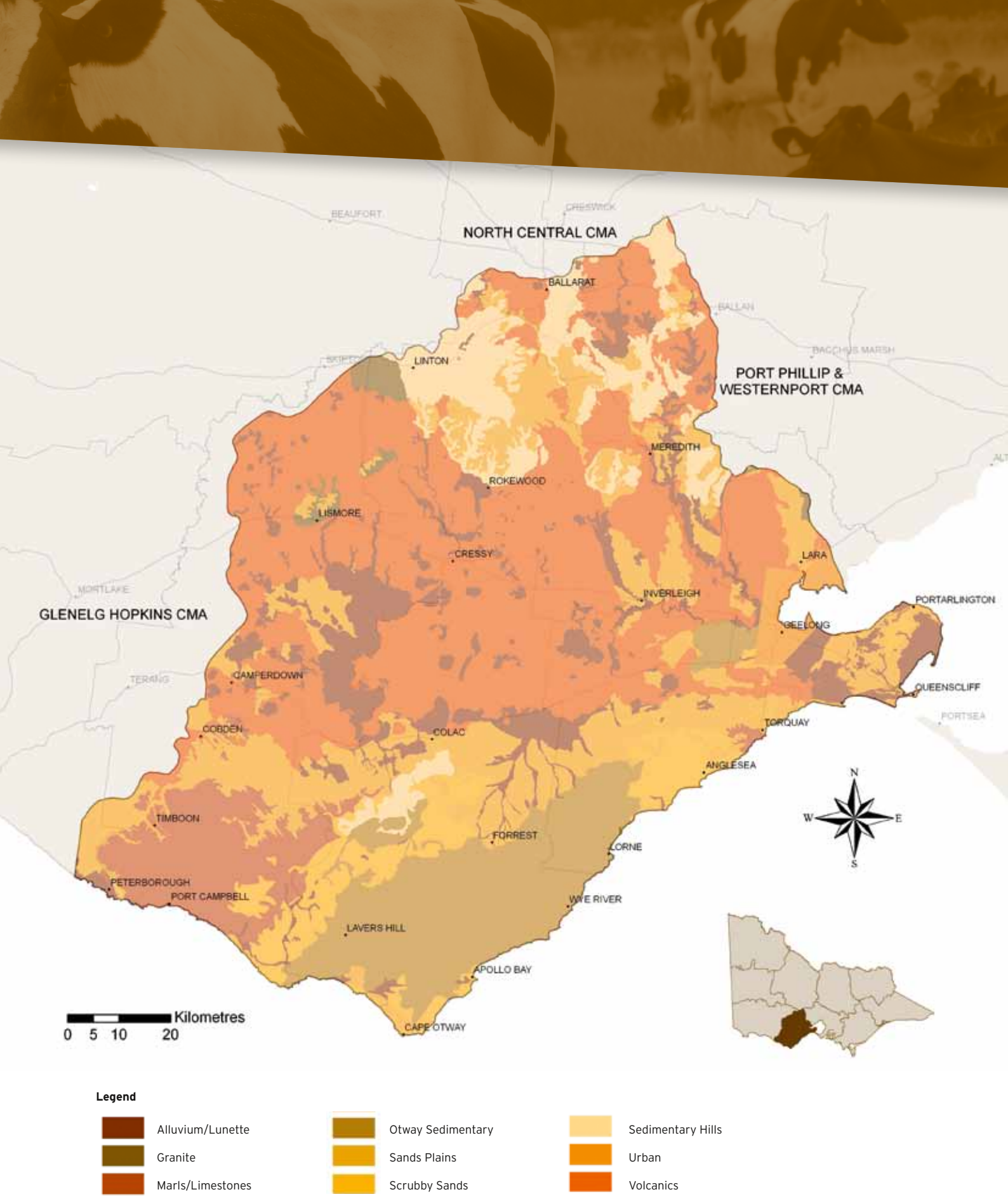


Figure A7.1 Soil groups of the Corangamite region

APPENDIX 8

RIVER REACH VALUES

Priority waterways of the Corangamite region were determined in the 2006 Corangamite River Health Strategy[13] and its 2010 Addendum. The values of each are summarised in Table A8.1 at an international, national and regional level. The same waterways have been evaluated for the risks they face (Appendix 9). For the purpose of this RCS, high value river reaches determined through the Corangamite River Health Strategy process have been grouped so that a whole-of-the-river system is considered.

Table A8.1 Values of priority waterways in the Corangamite region

Waterway	Intern-ationally Important	National Importance			State Importance		Regional Significance			EHR*
		Wetland	Marine Parks	Significant Species	Heritage River	Represent River	Enviro	Social	Economic	
Ford River							X			
Aire River		X		X	X	X	X	X	X	X
Elliot River							X		X	X
Parker River							X		X	X
Barwon River	X	X	X	X			X	X	X	
Waurn Ponds Creek				X						
Curdies River				X				X	X	
Gellibrand River		X	X	X			X	X	X	
Leigh River							X			
Moorabool River to SheOaks									X	
Sutherland Creek West				X						
Woady Yaloak River				X						
Barham River				X			X		X	
Anderson Creek				X			X			
Cumberland River				X			X		X	
Erskine River				X				X	X	

[13] Corangamite Catchment Management Authority (2006) *Corangamite River Health Strategy 2006–2011.* Corangamite Catchment Management Authority, Colac.

Table A8.1 (Continued)

Waterway	Intern-ationally Important	National Importance			State Importance		Regional Significance			EHR*
		Wetland	Marine Parks	Significant Species	Heritage River	Represent River	Enviro	Social	Economic	
St George River							X	X	X	
Wye River				X			X		X	
Kennett River				X					X	
Grey River							X		X	X
Carisbrook Creek				X			X		X	X
Smythes Creek							X			X
Skenes Creek				X					X	
Wild Dog Creek				X			X			
Anglesea River			X					X	X	
Thompson Creek				X						
Painkalac Creek								X	X	
Barwon River East Branch									X	
Matthews Creek									X	
Pennyroyal Creek				X					X	
Gosling Creek				X			X			

**EHR-Ecologically Healthy River*

APPENDIX 9

RIVER RISK STATUS

A range of risks specific to rivers and water ways have been evaluated in a similar way to the risks to other natural resources. Threats were identified, and the risk they pose to each waterway has been classified as high (H) or very high (VH). The threats range from erosion and channel modifications and to stock access and floodplain or wetland connectivity (Table A9.1).

Table A9.1 Risks and their likelihood for high value rivers and waterways in the Corangamite region

Asset	Erosion	Fish barriers	Channel mod	Flow	Water quality	Weeds	Riparian vegetation degradation	Instream habitat loss	Floodplain/ wetland connectivity	Stock access
Ford River						H	VH	H	VH	VH
Aire River	VH				VH	VH	VH	VH	VH	VH
Elliot River					H			H		
Parker River					H			H	H	
Barwon River	H	VH	VH	VH	VH	VH	VH	H	VH	VH
Waurn Ponds Creek	VH		VH				VH	H	VH	VH
Curdies River	H		H		VH	H	VH	H	VH	VH
Gellibrand River	H		VH	H	VH	VH	VH	H	H	VH
Leigh River	H	H		VH	H	VH	H	H		VH
Moorabool River to SheOaks	VH				VH		VH			VH
Sutherland Creek West	H				H	H	H	H		VH
Woady Yaloak River	H				H	VH	VH			VH
Barham River	H	VH	VH		H	VH	VH	H	VH	VH
Anderson Creek										
Cumberland River		VH			VH	H		H		
Erskine River	VH	VH	H		H	VH	VH			

Table A9.1 (Continued)

Asset	Erosion	Fish barriers	Channel mod	Flow	Water quality	Weeds	Riparian vegetation degradation	Instream habitat loss	Floodplain/ wetland connectivity	Stock access
St George River				VH	H	H		H		
Wye River	H	VH			H	VH	VH	H		
Kennett River	H				H	H		H		
Grey River					H	H		H		
Carisbrook Creek					H	H		H		
Smythes Creek					H	H		H		
Skenes Creek					H	H		H		VH
Wild Dog Creek	VH					H		H		
Anglesea River	H		H		VH	H	H		VH	
Thompson Creek			VH	H	VH		VH	VH	VH	VH
Painkalac Creek	VH		H	VH	VH	VH	VH		VH	VH
Barwon River East Branch					VH	H			H	
Matthews Creek					VH		H			VH
Pennyroyal Creek	H		VH		VH		H			VH
Gosling Creek	VH				H		VH			VH

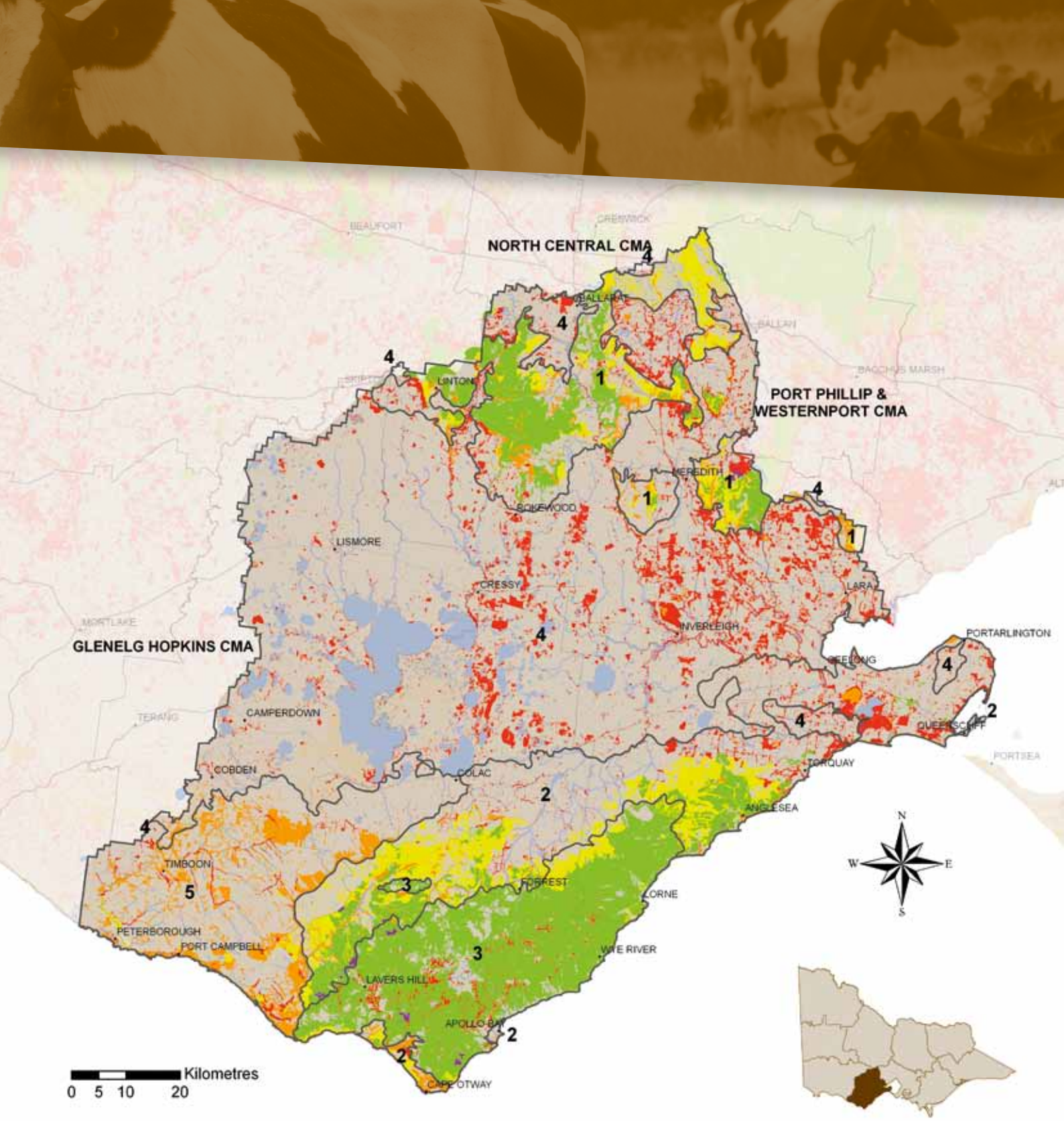
H = High risk, VH = Very High risk

APPENDIX 10

BIOREGIONAL CONSERVATION STATUS

A bioregion is a broad-scale mapping unit that captures the patterns and ecological characteristics in the landscape. Bioregions are used for biodiversity planning in Victoria through Victoria's Biodiversity Strategy (1997) and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. There are 28 bioregions identified in Victoria and five of these occur in the Corangamite region (Figure A10.1).

Vegetation is defined by communities known as Ecological Vegetation Classes (EVC). Each EVC is attributed a relative threat status in the context of a particular bioregion. This is expressed as its Bioregional Conservation Status (BCS). The BCS is determined by comparing a vegetation community's total remaining extent with the extrapolated pre-1750 extent (Figure A10.1).



Bioregions

1 Central Victorian Uplands

2 Otway Plain

3 Otway Ranges

4 Victorian Volacanic Plain

5 Warrnambool Plain

Bioregional conservation status

Endangered

Vulnerable

Depleted

Rare

Least concern

Figure A10.1 Bioregional Conservation Status (BCS) of the five bioregions in the Corangamite region

APPENDIX 11 NATUREPRINT SUMMARY OF THE

NATURAL VALUES OF THE CORANGAMITE REGION

NaturePrint is being developed by DSE to provide a relatively simple-to-use tool that would help users make decisions affecting biodiversity, including strategic planning, targeting investment, and regulatory frameworks (public land management). It integrates and analyses the best available statewide information about biodiversity values, threatening processes, and ecosystem function at the landscape scale. It provides a consistent basis for understanding the synergies and trade-offs involved in policy options and operational decisions. This includes, but is not limited to, establishing the relative value of vegetation protection and enhancement efforts, as well as the relative value of revegetation to establish and/or strengthen ecosystem functional connectivity throughout the landscape.

The latest version of NaturePrint, NaturePrint v2.0, integrates information on the modelled spatial distribution and co-location of mammals, birds, amphibians, reptiles, fish and plants. It explicitly considers rare and threatened species. NaturePrint v2.0 also includes information on connectivity potential and recoverability. NaturePrint v2.0 conveys information on the relative contribution of natural values for all areas in Victoria (excluding marine and wetlands), not just those with native vegetation. This means that cleared areas that are used by mobile fauna are also considered.

NaturePrint v2.0 was used to provide a consolidated overview of the natural values of the Corangamite region (Figure A11.1).

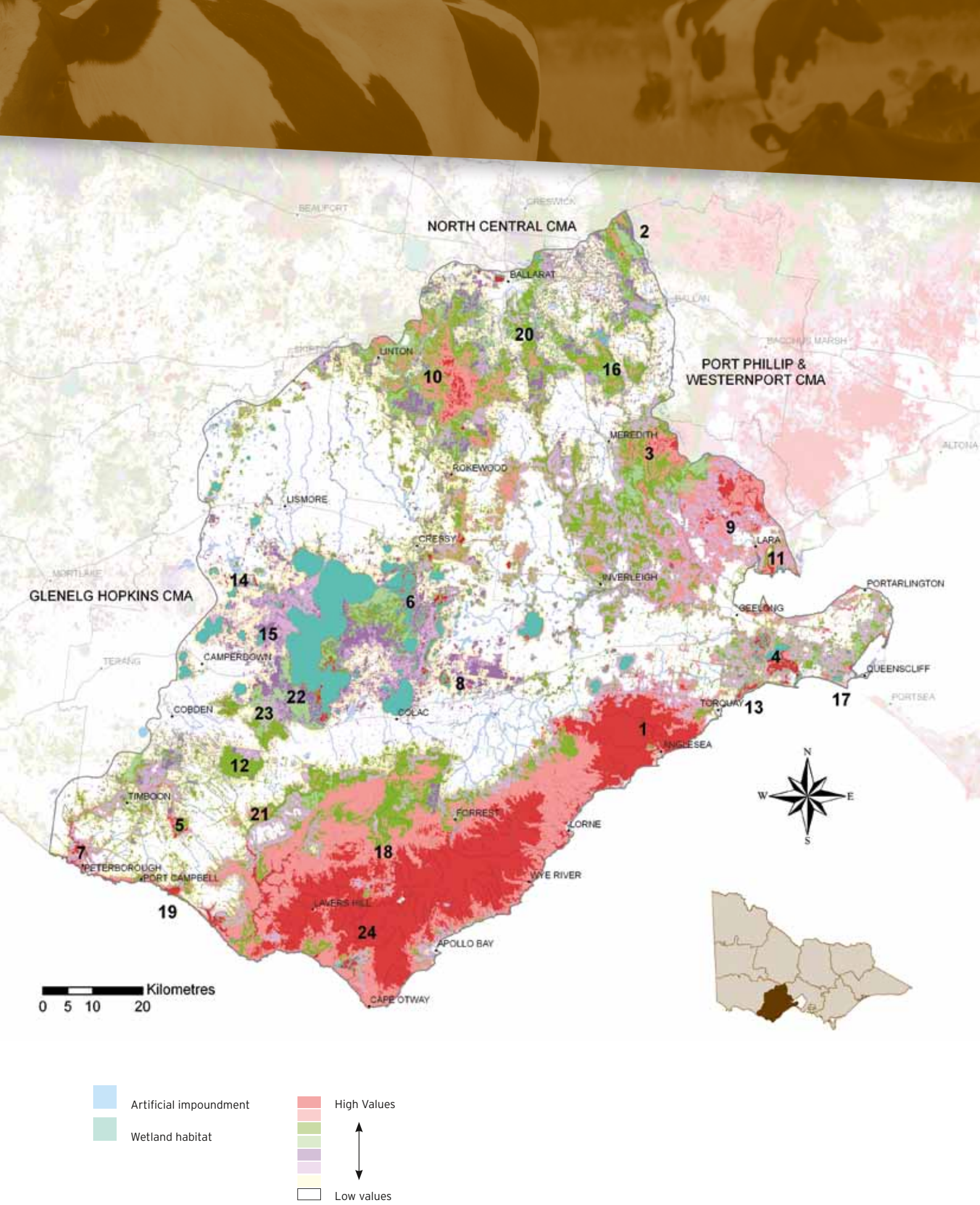


Figure A10.1 NaturePrint overview of the natural values of the Corangamite region

APPENDIX 12

THREATENING PROCESSES UNDER THE *FLORA AND FAUNA GUARANTEE ACT 1988*

There is a formal list of potentially threatening processes specified under Section 10 of the *Flora and Fauna Guarantee Act 1988*. The most recent amendment was contained in the Victorian Government Gazette G 27, p. 1494 (5 July 2012) and the current list is shown in Table A12.1.

Table A12.1 Current list of potentially threatening processes specified in Section 10 of the FFG

Listed potentially threatening processes:

1. Alteration to the natural flow regimes of rivers and streams.
2. Alteration to the natural temperature regimes of rivers and streams.
3. Collection of native orchids.
4. Degradation and loss of habitats caused by feral horses *(Equus caballus)*.
5. Degradation of native riparian vegetation along Victorian rivers and streams.
6. Habitat fragmentation as a threatening process for fauna in Victoria.
7. High frequency fire resulting in disruption of life cycle processes in plants and animals and loss of vegetation structure and composition.
8. Human activity which results in artificially elevated or epidemic levels of Myrtle Wilt within *Nothofagus*-dominated cool temperate rainforest.
9. Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity.
10. Incidental catch (or bycatch) of seabirds during longline fishing operations.
11. Increase in sediment input into Victorian rivers and streams due to human activities.
12. Infection of amphibians with *Chytrid* fungus, resulting in chytridiomycosis.
13. Input of organotins to Victorian marine and estuarine waters.
14. Input of petroleum and related products into Victorian marine and estuarine environments.
15. Input of toxic substances into Victorian rivers and streams.
16. Introduction and spread of *Spartina* to Victorian estuarine environments.
17. Introduction of live fish into waters outside their natural range within a Victorian river catchment after 1770.
18. Invasion of native vegetation by Blackberry (*Rubus fruticosus* L. agg.).
19. Invasion of native vegetation by 'environmental weeds'.
20. Invasion of native vegetation communities by Tall Wheat-grass *(Lophopyrum ponticum)*.
21. Loss of biodiversity in native ant populations and potential ecosystem integrity following invasion by Argentine ants *(Linepithema humile)*.
22. Loss of coarse woody debris from Victorian native forests and woodlands.

23. Loss of hollow-bearing trees from Victorian native forests.
24. Loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases.
25. Predation of native wildlife by the cat *(Felis catus)*.
26. Predation of native wildlife by the introduced Red Fox *(Vulpes vulpes)*.
27. Prevention of passage of aquatic biota as a result of the presence of in-stream structures.
28. Reduction in biodiversity of native vegetation by Sambar *(Cervus unicolor)*.
29. Reduction in biodiversity resulting from Noisy Miner *(Manorina melanocephala)* populations in Victoria.
30. Reduction in biomass and biodiversity of native vegetation through grazing by the Rabbit *(Oryctolagus cuniculus)*.
31. Removal of wood debris from Victorian streams.
32. Soil and vegetation disturbance resulting from marble mining.
33. Soil degradation and reduction of biodiversity through browsing and competition by feral goats *(Capra hircus)*.
34. Soil erosion and vegetation damage and disturbance in the alpine regions of Victoria caused by cattle grazing.
35. Spread of *Pittosporum undulatum* in areas outside its natural distribution.
36. The discharge of human-generated marine debris into Victorian marine or estuarine waters.
37. The introduction and spread of the Large Earth Bumblebee *(Bombus terrestris)* into Victorian terrestrial environments.
38. The introduction of exotic organisms into Victorian marine waters.
39. The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.
40. Threats to native flora and fauna arising from the use by the feral honeybee *(Apis mellifera)* of nesting hollows and floral resources.
41. Use of *Phytophthora*-infected gravel in construction of roads, bridges and reservoirs.
42. Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing.

Formerly listed potentially threatening processes which have been repealed:

1. Use of lead shot in cartridges for the hunting of waterfowl.

APPENDIX 13

ROLES OF DELIVERY PARTNERS IN NATURAL RESOURCE MANAGEMENT

Group or agency	*Role and responsibility in natural resource management*
Office of Aboriginal Affairs Victoria (AAV)	Administer legislation that protects Aboriginal cultural heritage. Generate job opportunities. Invest in building skills, leadership and capacity within communities and organisations to improve the lives of Indigenous Victorians. Establish the Indigenous representative arrangements and structure in Victoria, and work closely with the Secretariat to the Ministerial Taskforce on Aboriginal Affairs on the Victorian Indigenous Affairs Framework.
Australian Government Department of Agriculture Fisheries and Forestry (DAFF)	Encourage and support sustainable natural resource use and management. Protect the health and safety of plant and animal industries. Enable industries to adapt to compete in a fast-changing international and economic environment. Help improve market access and market performance for the agricultural and food sector. Encourage and assist industries to adopt new technology and practices. Assist primary producers and the food industry to develop business and marketing skills, and be financially self-reliant.
Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPAC)	Protect and conserve: biodiversity; air quality; national fuel quality standards; land contamination; meteorology; and natural, built and cultural heritage. Administer: the Australian Antarctic Territory and the Territory of Heard Island and McDonald Islands; environmental research; water policy and resources; ionospheric prediction. Coordinate sustainable communities, population and urban environment policies.
Committees of Management (CoM) e.g. Great Ocean Road Coast Committee	Manage, improve, maintain and control the land under its jurisdiction for the purposes for which the land is reserved. Maintain records and administer its affairs as a public body. Exercise all powers, functions and authorities and carry out all duties as specified under the *Crown Land (Reserves) Act 1978* and related regulations .
Community Groups e.g. Landcare Networks/ Groups, Environmental Networks/Groups, Friends Groups)	Care for local natural assets by: undertaking on-ground works (pest plant and animal control, revegetation etc); coordinating projects, events and workshops; working in partnership with agencies and community groups; and educating and building awareness.
Corangamite Catchment Management Authority (CCMA)	Deliver integrated catchment management by developing regional strategic planning directions for natural resource management including preparation and review of strategies, building cooperation, coordination and partnerships, brokering knowledge and investment and delivering key projects. Deliver statutory waterway, floodplain and drainage management functions and manage specific areas of land under its jurisdiction such as the Barwon through Geelong.
Department of Transport, Planning and Local Infrastructure (DTPLI)	Central role in managing Victoria's growth and development and building stronger communities. Develop long-term plans for Victoria's regions and cities, invest in infrastructure and services and support the development of local communities. Provide research, policy and planning advice and administer legislation and regulations.
Department of Environment and Primary Industries (DEPI)	Design and deliver government policies and programs that enable Victoria's primary and energy industries (agriculture, fisheries, earth resources, energy and forestry) to sustainably maximise the wealth and wellbeing they generate. Roles include: emergency management; policy development; legislation and regulation; science research and development; sustainable practice change.

Group or agency	*Role and responsibility in natural resource management*
Department of Environment and Primary Industries (DEPI) *(continued)*	Responsible for: sustainable water management and supply; sustainable catchment management; services for management and governance of Victoria's Parks; services for biodiversity, conservation, ecosystem, heritage recreation and tourism; public land and sustainable forest management services; fire prevention operations and planning environment; urban and regional strategies and programs; sustainable greenhouse policy; sustainable cities, regions and heritage conservation; land information; policy frameworks, regulations and services to protect the environment.
Environment Protection Authority (EPA)	Environmental regulator and authority on environmental impacts, including the provision of clean air; healthy water; safe land; and minimal disturbance from noise and odour under the auspices of the *Environment Protection Act 1970*.
Greening Australia (GA)	Tackle critical issues like salinity, declining water quality, soil degradation, climate change and biodiversity loss by blending practical experience, science and community engagement. Dedicated to protecting heritage, biodiversity and natural resources, and enabling all Australians to be part of the climate change solution.
Landholders	Manage land under their control. Maintain health and welfare of animals; ensure responsible chemical use; farm safety; protect water resources; control pest animals; eradicate noxious weeds; conserve soil and avoid contributing to land degradation.
Local government (LG)	Land and water planning and management, including the statutory provisions of the *Planning and Environment Act 1987*. Provide environment services such as: natural resource management; coastal reserve management; greenhouse gas mitigation and climate change adaptation programs; land use planning and economic development. Provide a range of other services: transport and infrastructure; emergency management, including response and recovery; community services such as disability support and community facilities; local laws.
Parks Victoria (PV)	Manage land and waterways under its control, including terrestrial and marine parks and reserves and other public land and waterways. Manage the activities and assets within those areas, including natural, cultural and visitor services assets and values. Has the role of local port manager for Port Phillip Bay, Western Port Bay and Port Campbell.
Regional Coastal Boards (RCB) e.g. Central Coastal Board, Western Coastal Board	Advise the Minister, the Victorian Coastal Council and government on coastal development and other issues. Develop Coastal Action Plans. Prepare and publish guidelines for coastal planning and management. Facilitate public awareness, consultation and involvement in the development and implementation of the Victorian Coastal Strategy, Coastal Action Plans and coastal guidelines. Liaise with and encourage the cooperation of departments, councils, public authorities, industry, community groups and others involved in the planning and management of their region under the *Coastal Management Act 1995*.
Registered Aboriginal Parties and Traditional Owners	Evaluate Cultural Heritage Management Plans and provide advice on: applications for Cultural Heritage Permits; decisions about Cultural Heritage Agreements; applications for interim or ongoing Protection Declarations, under the *Aboriginal Heritage Act 2006*.

APPENDIX 13

ROLES OF DELIVERY PARTNERS IN NATURAL RESOURCE MANAGEMENT

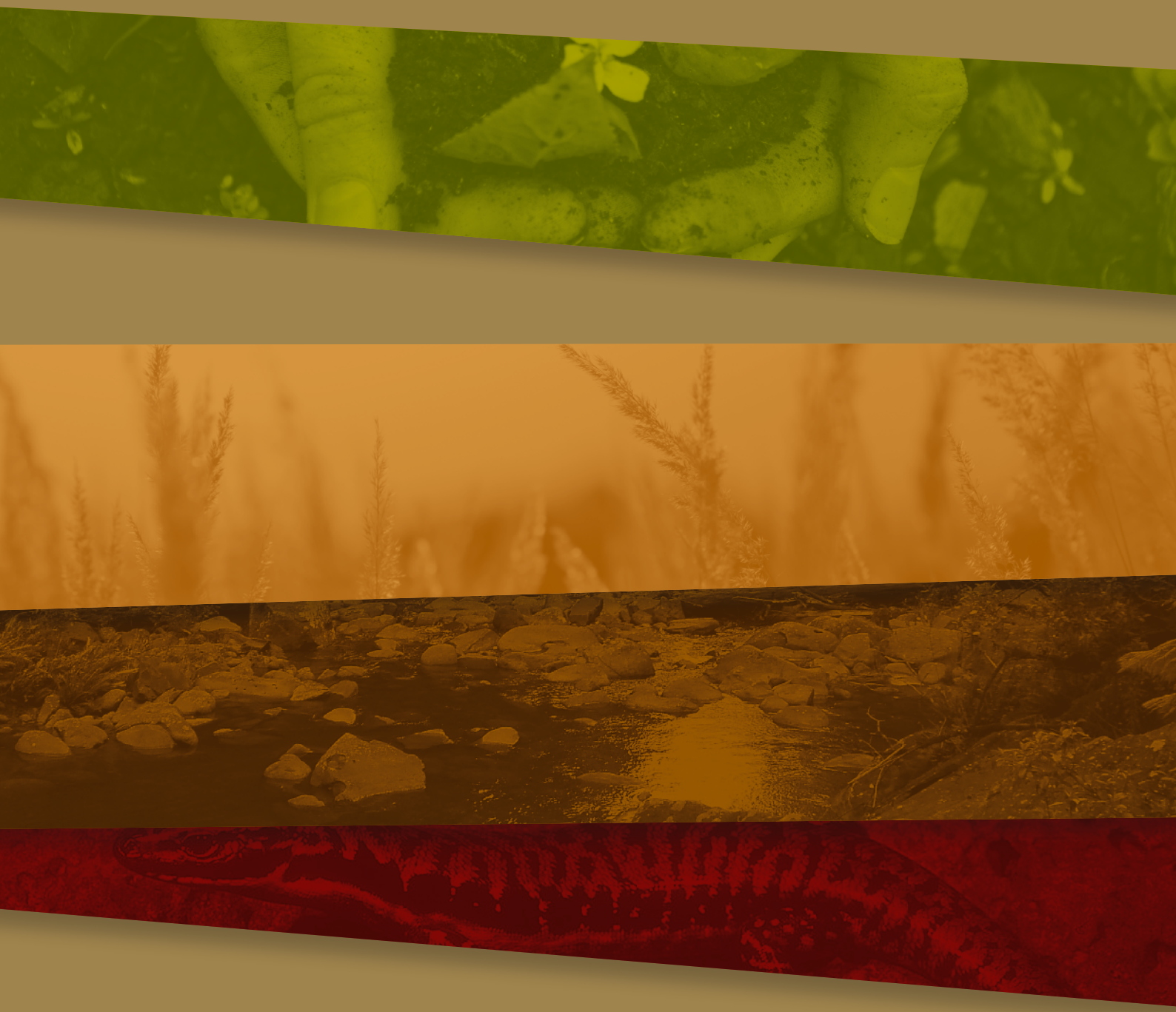
Group or agency	*Role and responsibility in natural resource management*
Rural Water Authorities (RWA) e.g. Southern Rural Water	Issue licences for extraction of groundwater and construction of farm or major dams, deliver services such as providing irrigation, oversee groundwater use and river diversion, drainage, salinity control and water supply for agricultural production; under the *Water Act 1989, Water Industry Act 1994, Essential Services Act 1958, Essential Services Commission Act 2001, Safe Drinking Water Act 2003, Food Act 1984, Utility Meters (Metrological Controls) Act 2002, Financial Management Act 1994, Planning & Environment Act 1987, Environment Protection Act 1970*.
Trust for Nature (TFN)	Facilitate voluntary and targeted covenants and provides land management and stewardship agreements and registered and legal land protection instruments. Support landowners through developing relationships and providing advice. Facilitate community linkages and volunteers and assists with monitoring, payment and reporting systems. Provide commercial services and biodiversity market development, eco-market services, voluntary and compliance environmental offsets and conservation land transactions. Landscape partnership services including community engagement and education, project development and advice and development of landscape scale partnerships. Establish conservation reserves through land acquisition via donations, gifts and grants, and provide education, research and demonstration sites and volunteer facilitation services.
Urban Water Authorities (UWA) e.g. Barwon Water, Wannon Water, Central Higlands Water	Provide water and sewerage services to customers within defined service areas. Harvest water supplies from various surface and ground water sources throughout the region, regulated under the *Water Act 1989*. Treat, reuse or discharge wastewater as regulated under the *Environment Protection Act 1970*. Manage water resources, ensure required passing flows and environmental entitlements from water storages are met.
Victorian Catchment Management Council (VCMC)	Advise the Minister for the Environment and the Minister for Water, and any other Minister as requested, on land and water management issues. Report annually on the operation of the *CaLP Act*; and report every five years on the environmental condition and management of Victoria's land and water resources, through the VCMC Catchment Condition Report.
Victorian Coastal Council (VCC)	State-wide strategic coastal planning including the Victorian Coastal Strategy. Advise the Minister. Facilitate the operation of Regional Coastal Boards. Monitor the development of Coastal Action Plans. Coordinate the implementation of the Victorian Coastal Strategy and Coastal Action Plans. Prepare and publish guidelines for the planning and management of the coast. Liaise with and encourage the cooperation of Government departments and other authorities, organisations and people involved in the planning, management and use of the coast to meet the objectives of the *Coastal Management Act 1995*. Provide opportunities for the public and interested groups to be informed and involved in the work of the Council. Encourage the work of volunteers in using and conserving coastal resources. Give consideration to the needs of Aborigines and other interested groups in relation to the coast.
Victorian Environmental Water Holder (VEWH)	Work with catchment management authorities and Melbourne Water to ensure environmental water entitlements are used to achieve the best environmental outcome with the water that is available. Operate independently of the government, but in accordance with rules issued by the Minister (under the *Water Act 1989*).

APPENDIX 14

PROGRAM LOGIC OF THE CORANGAMITE RCS

A program logic (which maps the rationale behind a project and defines the steps needed to implement it) was prepared, setting out the framework for the RCS. It identifies the RCS's 50-year vision and key goals, 20-year objectives, six year strategic actions, outcomes, implementation, and prerequisite activities (Figure A14.1). The implementation and intermediate outcomes in the program logic can be used to monitor whether a project is on track, evaluate the likelihood of continued success, or identify if there is a need for corrective action. These elements will be developed in more detail during the development of the Monitoring, Evaluation and Reporting Plan of the RCS.

Vision	A healthy Corangamite catchment valued by engaged communities.					50-year statement that is balanced between aspirational and achievable. Developed as part of the RCS document.
Long-term outcomes *(20-year objectives)*	Protection, enhancement and restoration of valuable natural resources has increased and contributes to a healthy and productive catchment.					20-year objectives set to achieve each of these outcomes. For natural resources these are condition based. 20 years is considered an appropriate timeframe to measure biophysical change. Developed as part of the RCS document.
	Natural resource objectives have been achieved	Increased breadth and depth of participation	Increased investment and development of joint priorities	Improved integration and coordination	Increased and widely shared knowledge	
Actions *(6-year strategic actions)*	RCS actions for natural resource categories	Actions for increased breadth and depth of participation	Actions for increased investment and joint priorities	Actions for improved integration and coordination	Actions for increased and widely shared knowledge	6-year region-wide strategic actions that will contribute towards achieving the 20-year objectives. For natural resources these are not specific to high value locations or particular threats. Developed as part of the RCS document.
Intermediate outcomes	Outcomes achieved through implementation of the RCS. This includes those of sub-strategies, action plans, etc that are referenced in the RCS.					These are for monitoring and evaluation purposes to enable reporting on progress and review of RCS. Developed as part of the RCS MER Plan.
Implementation	Implementation of RCS strategic actions, including actions that occur through regional sub-strategies, action plans, etc.					To achieve intermediate outcomes and ultimately RCS actions and objectives.
Foundational works	Develop RCS Implementation Plan.		Develop RCS MER Plan.			



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