



**Bellarine Catchment Network
Action Plan 2009 - 2014**



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Barwon Coast Committee of Management
 Bellarine Bayside Foreshore Committee of Management
 Bellarine Landcare Group
 Bellarine Secondary College & Bellarine Landcare Nursery
 Borough of Queenscliffe
 City of Greater Geelong
 Coast Action Coastcare (Department of Sustainability & Environment)
 Drysdale / Clifton Springs Community Association
 Friends of Begola Wetland
 Friends of the Bellarine Rail Trail
 Friends of Buckley Park
 Friends of Edwards Point
 Friends of Ocean Grove Nature Reserve
 Friends of Point Richards
 Global Warming Group Queenscliffe
 Greening Australia Victoria – Moolapio Project
 Lake Connewarre Restoration Group
 Parks Victoria
 Swan Bay Environment Association



Kate and Alex Lockhart collecting Golden Wattle seed at a seed collecting field day. Photo: Matt Crawley

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Front and Back cover image:
 Black-anther Flax-lily, *Dianella revoluta*
 Photo: Rosalind Smallwood

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Executive Summary

An innovative Project, highlighting how the desire to protect a marine Ramsar wetland can stimulate better catchment and coastal management, began at Swan Bay on the Bellarine Peninsula in 1997. Twelve years later the Project is still flourishing, has expanded to include the whole Bellarine Peninsula and is highly regarded as an excellent model for other communities in the integration of catchment, terrestrial, coastal and marine based issues. The Bellarine Catchment Network, formerly Swan Bay Integrated Catchment Management Committee, oversees the Project.

Ramsar wetlands and Marine National Parks

Located on the Bellarine Peninsula in Victoria, are the Ramsar wetlands, Swan Bay, Lake Connewarre and Reedy Lake, which form part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site. These Ramsar wetlands are of international importance. The wetlands provide habitat for thousands of waterbirds and migratory shorebirds (waders). Swan Bay and Lake Connewarre have extensive and diverse saltmarsh vegetation communities, a source of critical winter habitat for the nationally endangered Orange-bellied Parrot. Swan Bay and sections of intertidal and subtidal reefs and sandy beach habitats at Point Lonsdale are also components of the Port Phillip Heads Marine National Park.

Catchment connections

The Bellarine Peninsula is largely rural with growing coastal townships. Approximately 5% of pre-European indigenous vegetation remains in the region with the majority of vegetation communities classified as endangered, vulnerable or threatened. The Peninsula's hills, remnant woodlands, coastal foreshores, rural, residential and industrial areas are intrinsically linked to the surrounding wetlands or marine environments. Many land management activities adversely affect Reedy Lake, Lake Connewarre, and Swan Bay via these catchment links. Increasing population shifts to coastal townships on the Bellarine Peninsula put further strain on already fragile and fragmented coastal and wetland habitats. The effect of climate change

on our catchment, coastal and marine habitats is an emerging issue.

Bellarine Catchment Network

The Bellarine Catchment Network (BCN) comprises representatives from key catchment and coastal organisations (both government and non-government) with a landcare / coastcare focus, as well as two project coordinators. A designated representative from each of the organisations is appointed by the individual organisations to the BCN.

The Bellarine Catchment Network Action Plan 2009 - 2014

The Bellarine Catchment Network recognises that all sections of society need to play an active role in caring for the environment and this is best achieved using a holistic approach. The Bellarine Catchment Network initiates combined action by community, schools, government and non-government organisations and industry to tackle major environmental and land management issues across the catchment, coastal and marine environments of the Bellarine Peninsula.

The Bellarine Catchment Network Action Plan 2009 - 2014 has been developed with community input, as the primary focus document for Bellarine Catchment Network project activity and direction. (Details are given on pages 32 - 40). The two coordinators are primarily responsible for driving the implementation of the BCN Action Plan. They also provide advice and support, where possible, to individual Network organisations to assist them with projects that deliver BCN Action Plan outcomes. The coordinators and Network representatives receive advice and support from other Network representatives and their organisations. It is this many-way mentoring, exchange of ideas and co-operation between community, government and non-government organisations that is the essence and strength of the Bellarine Catchment Network.

The BCN coordinators will each year develop an annual work plan designed to address the priority aims, priority actions and long term targets identified in the BCN Action Plan.

Potential project partners for each activity will be identified in the work plan. Activities delivered, the outcomes and the partners involved, will be reported to the BCN at the monthly BCN meetings and documented in the BCN's Annual Report.

Adaptive management will be important for the BCN as there are uncertain climatic conditions in operation and BCN needs to be responsive to these changing circumstances, information and outcomes.

VISION

The Bellarine Catchment Network region will work towards healthy, well connected and resilient wetlands, waterways and native vegetation ecosystems; sustainable agricultural and land management practices; and a community which is engaged and involved in protecting and managing the natural environment.

PRIORITY AIMS

- I. Protect and enhance Ramsar wetlands and connecting wetlands
- II. Promote and apply Ramsar values and guidelines
- III. Protect, enhance and link remnant vegetation
- IV. Protect indigenous fauna and enhance existing habitats
- V. Facilitate community awareness and participation
- VI. Advocate for adaptive management to climate change
- VII. Rehabilitate and protect watercourses and improve water quality (in-stream & stormwater)
- VIII. Increase the adoption of sustainable agricultural and land management practices
- IX. Promote pest plant and pest animal control
- X. Be an active, engaged and well-supported network



Figure 1: East-Asian Australasian Flyway. One of the longest and most important migration routes in the natural world is the East Asian-Australasian Flyway. Wetlands along this route, including those on the Bellarine Peninsula, provide essential habitats for a number of bird species on their annual migration between the northern hemisphere, Australia and New Zealand.

Recognition of the international importance of certain wetlands, led to the declaration of these areas as Ramsar Sites.

On the Bellarine Peninsula, Swan Bay, Lake Connewarre and Reedy Lake are components of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site.

2. Background

A grass-roots, community-driven project to protect Swan Bay, a marine Ramsar wetland, began in the Swan Bay Catchment in 1997 with the formation of the **Swan Bay Integrated Catchment Management Committee**.

The project brought together government and non-government organizations to plan and initiate combined action by community, schools, government and industry to tackle major environmental and land management issues across the catchment, coastal and marine environments of the Swan Bay Catchment. The Swan Bay Catchment Action Plan was developed by the committee as the primary focus document for committee activity and direction.

The project, which expanded in 2004, under Corangamite Catchment Management Authority guidance, to include the whole of the Bellarine Peninsula, is highly regarded as an excellent model for other communities in the integration of catchment, terrestrial, coastal and marine based issues.

The project has won numerous State and Regional environment awards including:

- 2009 Victorian Coastal Award for Excellence Integrated Coastal and Catchment Management
- 2007 Victorian Landcare Awards - Australian Government Coastcare Award
- 2005 Federal Environment Minister's Award for Coastal Custodians - "Victoria Highly Commended"
- 2005 City of Greater Geelong World Environment Day Award - in recognition of services to the environment.
- 2002 Victorian Coastal Awards for Excellence - "Award for Excellence in Coastal Conservation and Protection by a Community Group"
- 2001 Victorian Coastal Awards for Excellence - A "High Commendation" for Coastal Conservation and Protection
- 2000 Victorian Landcare Awards - The BP Landcare Catchment Management Award.

In 2008 a ten year review of the project was held and a new action plan **The Bellarine Catchment Network Action Plan 2009 - 2014** was developed. At this time the Swan Bay Integrated Catchment Management Committee changed its name to the **Bellarine Catchment Network (BCN)** to better reflect the area that the project now covers.

The Bellarine Catchment Network currently comprises a representative from each of the following organizations:

Barwon Coast Committee of Management
 Bellarine Bayside Foreshore Committee of Management
 Bellarine Landcare Group
 Bellarine Secondary College & Bellarine Landcare Nursery
 Borough of Queenscliffe
 City of Greater Geelong
 Coast Action Coastcare (Department of Sustainability & Environment)
 Drysdale / Clifton Springs Community Association
 Friends of Begola Wetland
 Friends of the Bellarine Rail Trail
 Friends of Buckley Park
 Friends of Edwards Point
 Friends of Ocean Grove Nature Reserve
 Friends of Point Richards
 Global Warming Group Queenscliffe
 Greening Australia Victoria – Moolapio Project
 Lake Connewarre Restoration Group
 Parks Victoria
 Swan Bay Environment Association



Bellarine Catchment Network representatives

3. Bellarine Catchment Network Member Organisations - Community Groups

Bellarine Landcare Group (BLG) covers the entire Bellarine Peninsula. Membership is open to urban and rural residents. BLG widely promotes biodiversity and the sustainable use of land and water resources in order to create and maintain a healthy and natural environment on the Bellarine Peninsula. Specific projects are implemented. Assistance is also given to landowners through advocacy, information and grants programmes.

Bellarine Secondary College & Bellarine Landcare Nursery (BSCBLN) is a co-operative effort between Bellarine Landcare Group and Bellarine Secondary College at Drysdale. The nursery facility has an educational component which is part of the BSC curriculum, and a production component with a part time manager supported by volunteers. Indigenous (local native) plants are propagated, including threatened species. Plants are available to members and BCN projects.

Drysdale / Clifton Springs Community Association has an active Foreshore Committee sub-group which meets monthly and focuses on environmental and recreational issues associated with the foreshore area of Clifton Springs. They have shared and supported Green Corp teams with BCN in conducting revegetation activities.

Friends of Begola Wetland: Begola Wetland in eastern Ocean Grove was originally an ephemeral wetland that has been considerably altered to manage stormwater run-off from the surrounding urban areas. The wetland provides habitat for native water birds including the migratory Latham's Snipe. Group activities include monthly Waterwatch monitoring for BCN and irregular activities as needed such as Clean Up Australia Day.

Friends of the Bellarine Rail Trail focuses on the Geelong – Drysdale section of the Bellarine Rail Trail which extends from Geelong to Queenscliff passing through Leopold and Drysdale. It is a great recreational and environmental asset to the region. Significant

remnant vegetation communities occur along the Bellarine Rail Trail. Group activities include general native vegetation and habitat protection works (weeding/ revegetation) and plant propagation.

Friends of Buckley Park: Buckley Park Foreshore Reserve is a 5 km narrow strip of foreshore and coastal barrier dunes between Ocean Grove and Pt. Lonsdale. Significant plant communities covering the dunes include Spinifex tussock grassland, Coast Tea-tree/ Coast Beard Heath Shrubland and Coastal Moonah Woodland. Coastal conservation works include Aboriginal heritage site protection, coastal and dune conservation works.

Friends of Edwards Point: Edwards Point Wildlife Reserve fringes the southern edge of St Leonards. It is a narrow strip of land between Port Phillip and Swan Bay which is covered with a mosaic pattern of coastal woodland and salty wetlands. Coastal conservation works include weed removal, interpretive sign development, plant propagation, seed collection, revegetation, frog monitoring and Artists at Edwards Point events.

Friends of Ocean Grove Nature Reserve: Ocean Grove Nature Reserve is one of the last remaining patches of native woodland on the Bellarine Peninsula. It includes Grassy Woodland and Heathy Woodland. Group activities include general native vegetation and habitat protection works (weeding/revegetation), information centre, flora and fauna walks and general participant awareness raising activities.

Friends of Point Richards: Point Richards Flora and Fauna Reserve is located on the northern Bellarine Peninsula at Portarlington. The Reserve contains remnant woodland communities. Group activities include general native vegetation and habitat protection works (weeding/ revegetation), and plant propagation.

Global Warming Group Queenscliff educates about the effects of global warming, and initiates local actions to reduce the Borough's contribution to greenhouse gas emissions.

Bellarine Catchment Network Member Organisations

- Community Groups

Lake Connewarre Restoration Group focuses on improving the health of the Lake Connewarre wetland. The health of the lake has declined over time and this has led to associated problems for water life, wetland plants and bird life. A Ramsar wetland since 1983, it is important to resident Australian birdlife and migratory waders that frequent the area in the warmer months.

Swan Bay Environment Association is based in the Queenscliff and Pt Lonsdale areas. The group undertakes activities to protect Swan Bay, a Ramsar wetland, adjoining vegetation on the southern shores of Swan Bay and the coastal foreshore. Group activities include general coastal conservation and protection, community education, weed control, revegetation and indigenous plant propagation. SBEA coordinates the Queenscliff Community Nursery.

- Foreshore Committees of Management

Barwon Coast Committee of Management manages the coastal Crown land foreshore reserves from Collendina on the eastern boundary of Ocean Grove through to Blue Rocks to the west of Thirteenth Beach. Barwon Coast partners BCN in education programs involving the Ocean Grove campus of Bellarine Secondary College - for year 7 students a practical experience in sand dune brush-matting, identification and planting of dune vegetation; for year 8 students an environment festival at the school. Barwon Coast partners BCN and City of Greater Geelong in Bridal Creeper *Asparagus asparagoides* biocontrol, through the rust fungus spore-water distribution program. Barwon Coast provides ongoing support to BCN and administrative support.

Bellarine Bayside Foreshore Committee of Management: Bellarine Bayside manages the foreshore between Point Richards and St. Leonards. Bellarine Bayside support the Friends of Point Richards in undertaking coastal restoration works at Point Richards Flora and Fauna Reserve. Bellarine Bayside liaises with BCN on coastal issues.



*Brushmatting with year 7 BSC students at Ocean Grove – a joint BCN and Barwon Coast project
Photo: Sue Longmore*

- Local Government

Borough of Queenscliffe has partnered BCN in rehabilitation of the terminal scour and Coastal Moonah Woodland in The Narrows dune system at Queenscliff. The Borough of Queenscliffe provides ongoing office space and materials for BCN staff, and meeting facilities for Network meetings. This arrangement will enhance and improve BCN operations.

City of Greater Geelong partners BCN and Barwon Coast in the Bridal Creeper *Asparagus asparagoides* biocontrol program. They provide stewardship funding to BCN for on-ground works, assist with technical advice on coastal and wetland issues, and provide ongoing support for the Bonnyvale Wetland revegetation project and BSCBLN rabbit fencing project.

Bellarine Catchment Network Member Organisations

- Non-government Organisations

Greening Australia Victoria (GAV) / Alcoa Point Henry: Greening Australia Victoria engages the community in vegetation management to protect and restore the health, diversity and productivity of our unique Australian landscapes. GAV joined BCN in 2007. GAV and BCN are developing ways in which both organisations can work together to jointly address environmental issues on the Bellarine Peninsula.

BCN – GAV seed collection field day. Photo: Matt Crawley



- Government Organisations

Coast Action Coastcare: BCN is supported by the Coast Action Coastcare program in numerous ways. Support includes technical, funding and strategic advice; training opportunities for BCN staff and network representatives; opportunities to attend coastal forums and community focussed workshops; opportunities to develop or procure community education resources; and assistance with awareness activities that highlight links between catchment, coastal and marine environments.

Parks Victoria: On the Bellarine Peninsula Parks Victoria manages the Swan Bay and Lake Connewarre Ramsar wetlands, various coastal reserves and the Port Phillip Heads Marine National Park. Parks Victoria has been a long supporter of BCN, providing for many years a meeting point for network meetings and use of office facilities. Parks Victoria has partnered BCN in many on-ground and community education projects that assist in the protection of biodiversity values in the Ramsar wetlands and reserves that Parks Victoria manages. Parks Victoria partners BCN and other organisations in the Spiny Rush *Juncus Acutus* control program and with an integrated Pest Animal Program.

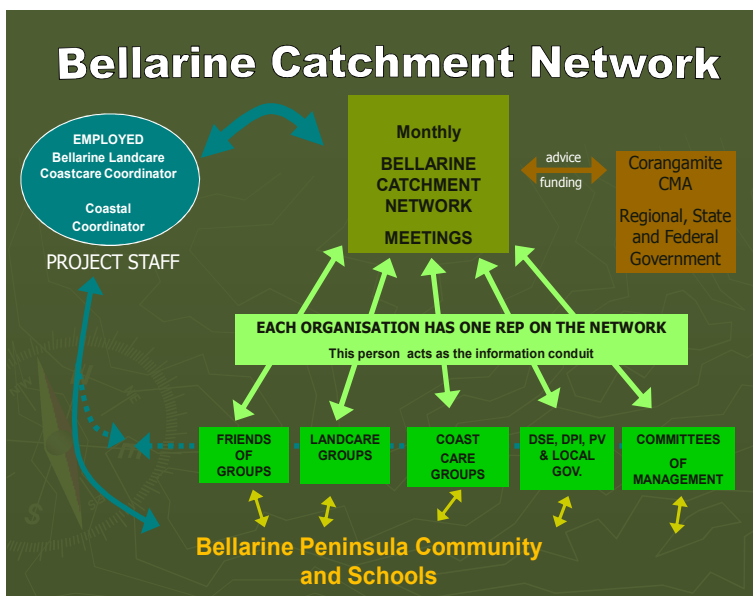


Figure 3: BCN structure:

This diagram illustrates the structure and functioning of the Bellarine Catchment Network and its connections to other organizations and the wider Bellarine community.

4. Resource condition and context - snapshot

4.1 Physical Setting

Area: The Bellarine Catchment Network Action Plan covers a land area of 34,000 hectares and approximately 137 kilometres of coastline comprising the Bellarine Peninsula. The project area extends offshore to the immediate marine environment, including Swan Bay which covers approximately 3000 hectares at high tide, and the Pt. Lonsdale section of the Port Phillip Heads Marine National Park which covers 415 hectares.

Local Government / authority areas: City of Greater Geelong (majority of project area); Borough of Queenscliffe (immediate vicinity of Queenscliff and Point Lonsdale); Corangamite Catchment Management Authority (all); Barwon Water (all).

Topography: Bellarine Hills and low-lying plains fringed by coastal dunes and saltmarshes. The southern edge of the Peninsula is oceanic, fronting onto Bass Strait, but the eastern and northern shorelines form part of Port Phillip Bay and are more sheltered.

Hydrology: The Barwon River is the dominant watercourse in the area flowing through significant wetlands to the south-east and reaching the sea at Ocean Grove/ Barwon Heads. Numerous small creeks drain into the Barwon River.

Intermittent creeks drain from the upper north-west area of the Swan Bay catchment towards Swan Bay. Yarram Creek, the largest of these, drains much of the western part of the catchment to southern Swan Bay. Masons Creek catchment drains into northern Swan Bay.



*Revegetation of Yarram Creek by Green Corps team
Photo: Matt Crawley*



*Dune rehabilitation at 'The Narrows' Queenscliff
– a joint BCN and Borough of Queenscliffe project
Photo: Matt Crawley*

Major lakes and wetlands occur on the Peninsula: Lake Connewarre and Reedy Lake on the Barwon; a chain of wetlands west of Queenscliff and Point Lonsdale; Swan Bay between Queenscliff and St Leonards; and Salt Lagoon south of Indented Head.



*Lake Connewarre wetlands and Barwon River
confluence. Photo: Sue Longmore*



Figure 4: Bellarine Catchment Network Project Area



Figure 5: Key wetlands, waterways and drainage lines in the Bellarine Catchment Network Project area. Map source: Corangamite Catchment Management Authority.

Resource condition and context - snapshot

4.2 Environmental Values

Water availability in the region has been under stress due to prolonged drought. Increased community interest in planting indigenous plants has resulted from this. Reduced patterns of rainfall on the Bellarine have impacted on waterway and wetland flows. Inflows to the Barwon in 2005/6 were only 39% of normal. Despite drought and reduced inflows, 57% of total inflow reached the river mouth in 2005/6 bringing vital water to the wetlands of the Lake Connewarre Ramsar system.

Water quality: The great majority of the streams (91%) in the Barwon River system, particularly downstream, are in very poor, poor or marginal condition. This is due to loss of riparian vegetation, siltation from erosion often caused by stock access to frontages, nutrient run-off from agricultural land and subsequent algal blooms, alteration of flow regimes through damming and diversion for urban, industrial and agricultural use, and pest plant and pest animal invasions - such as by European Carp. Five years of monitoring by the SBICMC from 1997 onwards in the eastern part of the Peninsula indicated that at times of peak flow “excessive amounts of nutrients and sediments enter Swan Bay from both rural and urban areas”. Rural sources of degradation were found to be as above, and in addition, urban stormwater run-off was also found to be a problem. “Nutrients present in detergents, garden fertilisers and dog faeces, together with litter dropped in streets and oils and other substances falling on roadways adds to the burden placed on Swan Bay” (SBICMC 2002).

Wetlands on the Bellarine are recognised as being of international significance under the Ramsar Convention. Recognition highlights the exceptional environmental values of Swan Bay as well as the extensive saltmarsh communities of Lake Connewarre. A chain of wetland complexes and associated vegetation communities, located between Ocean Grove and Point Lonsdale, support the high conservation values of Swan Bay and contribute to supporting species for which the Port Phillip Bay (Western Shoreline) & Bellarine Peninsula Ramsar Site is recognized. The Lonsdale Lakes Nature Conservation Reserve, comprising Lake Victoria, Freshwater Lake and two other coastal saline lakes is a part of this chain. Salt Lagoon Nature Reserve, which is located north of Swan Bay, also contributes to supporting species for which the Ramsar Site is recognised. Threats to the integrity and values of wetlands on the Bellarine Peninsula include urban development and altered drainage regimes.



*Brolga-regularly seen at Reedy Lake
Photo: Trevor Pescott*



Friends of Begola Wetland volunteer conducting water quality monitoring. Photo: Corangamite Waterwatch



Our Lady Star of the Sea Primary School at Bonnyvale Wetlands. Photo: Matt Crawley

Vegetation in the plan area has been substantially altered since European settlement, with 95% of the original woodlands and saltmarsh cleared and much of the remaining degraded. Such high levels of change have left nearly all remnants threatened, with about 90% of ecological vegetation classes (vegetation communities) present classified as endangered, vulnerable or depleted and 27 individual species rated similarly. Major threats include clearing for agriculture, urban development and infrastructure, competition from pests and weeds, altered fire and climate regimes and declining water quality and quantity.



Remnant Yellow Gum woodland at St. Leonards. Grassy Woodland EVC. Photo: Matt Crawley



Red-necked Stints, migratory waders, at Lonsdale Lakes, Point Lonsdale. Photo: John Murray

The Fauna of the Bellarine has suffered from the severe depletion of native vegetation. There are 71 threatened and near threatened fauna species. At least 3 fauna species are presumed locally extinct. The marine and wetland environment is still sufficiently healthy to provide highly significant habitat for many species, particularly for wetland birds and waders and fish. Resident and migratory waders and waterbirds use the extensive wetlands of Swan Bay, Lake Connewarre and others for food, breeding and roosting. The feeding resource is so important for migratory species from the northern hemisphere that 45 species are recorded from the Chinese and Japanese migratory bird agreements established for their global conservation. These sites also provide critical overwintering habitat for the Orange-bellied Parrot with up to 40% of the world population wintering here at any one time.

The marine environment is less well known but of special significance also. Diverse marine environments and habitats occur in Port Phillip Bay: 44 fish species occur in Swan Bay; Pt Lonsdale tidal platform and Lonsdale Wall exhibit a high to very high diversity of sponges, fish and invertebrates; and Swan Bay has significant seagrass beds used as a 'nursery' area for commercial and other fish species (as well as birds and invertebrates). Port Phillip Heads Marine National Park recognises and protects many of these values.



Intertidal seagrass at Swan Bay. Photo: Sue Longmore

See Appendix A1: Table 8, page 45, for Environmental Values - Snapshot facts and references.

Tables 1a & b: Conservation Status of Ecological Vegetation Classes on the Bellarine Peninsula

The majority of the Bellarine Peninsula lies in the Otway Plain bioregion, with a smaller area in the central north of the Bellarine lying in the Victorian Volcanic Plain bioregion. Table 1a lists Ecological Vegetation Classes (EVCs) that have been recorded on the Bellarine Peninsula by the Victorian Department of Sustainability and Environment and the EVC conservation status for the bioregion. Table 1b lists further EVCs that have recently been recorded on the Bellarine Peninsula by Ecology Australia in 2007.

Table 1a

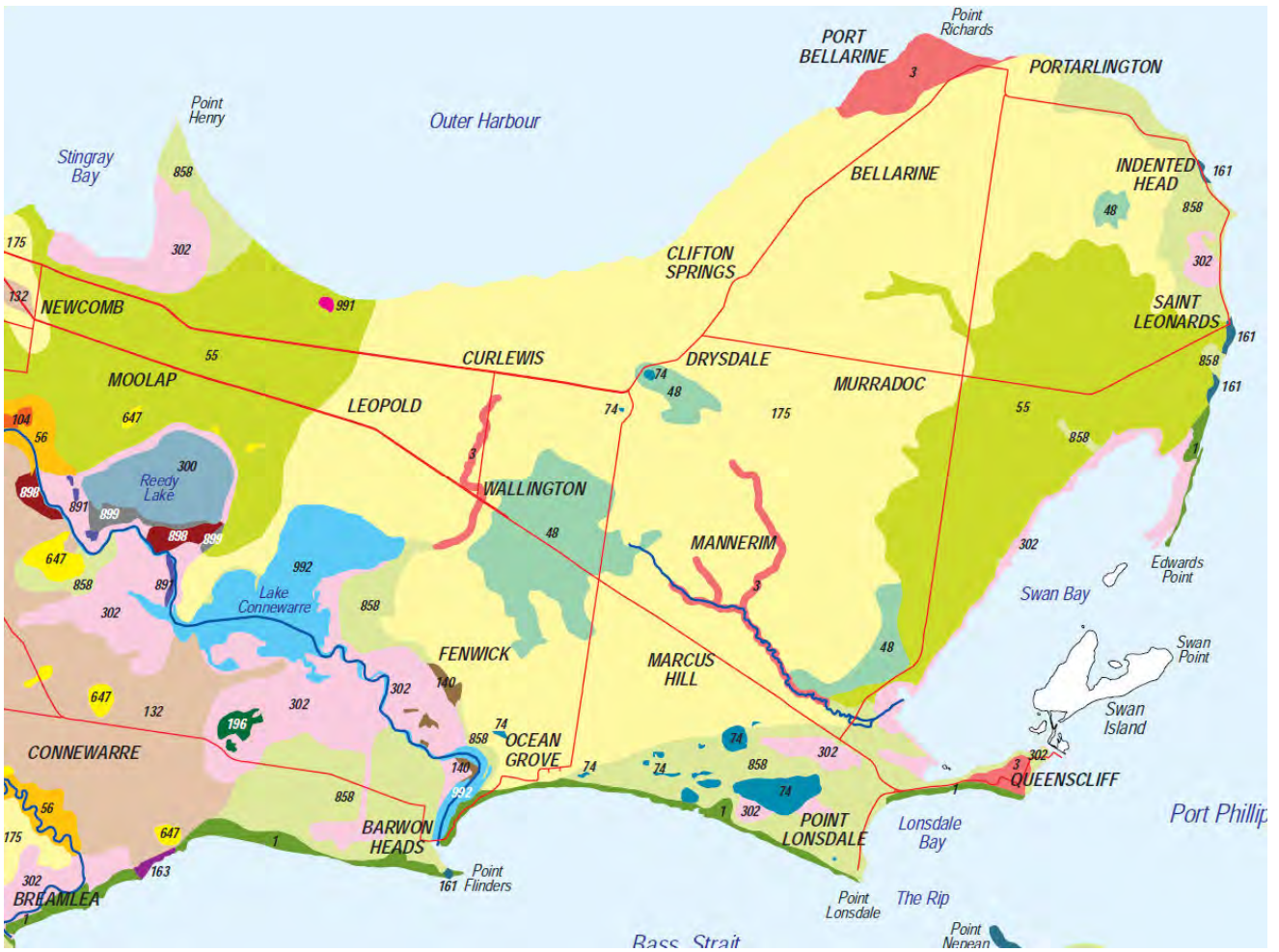
Bioregion	EVC Number	Ecological Vegetation Class EVC	Conservation Status
OP	1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Depleted
OP	3	Damp Sands Herb-rich Woodland	Vulnerable
OP	9	Coastal Saltmarsh	Vulnerable
OP	48	Heathy Woodland	Least Concern
OP	55	Plains Grassy Woodland	Endangered
OP	74	Wetland Formation	Endangered
OP	140	Mangrove Shrubland	Vulnerable
OP	161	Coastal Heathland Scrub	Vulnerable
OP	163	Coastal Tussock Grassland	Vulnerable
OP	175	Grassy Woodland	Endangered
OP	196	Seasonally Inundated Sub-saline Herbland	Rare
OP	300	Reed Swamp	Vulnerable
OP	302	Coastal Saltmarsh/Mangrove Shrubland Mosaic	Endangered
OP	647	Plains Sedgy Wetland	Endangered
OP	858	Coastal Alkaline Scrub	Endangered
OP	898	Cane Grass-Lignum Halophytic Herbland	Vulnerable
OP	899	Plains Freshwater Sedge Wetland	Vulnerable
OP	991	Water Body – Salt	N/A
OP	992	Water Body – Fresh	N/A
VVP	175	Grassy Woodland	Endangered

Reference: Biodiversity and Ecosystem Services Division, Department of Sustainability and Environment, Victoria

Table 1b

Bioregion	EVC Number	Ecological Vegetation Class EVC	Conservation Status
OP	13	Brackish Sedgeland	Vulnerable
OP	537	Brackish Aquatic Herbland	Vulnerable
OP	538	Brackish Herbland	Vulnerable
OP	656	Brackish Wetland	Endangered
OP	821	Tall Marsh	Endangered
OP	842	Saline Aquatic Meadow	Rare
OP	845	Seagrass Meadow	Rare
OP	914	Estuarine Flats Grassland	Endangered

Reference: Ecology Australia 2007. Biodiversity Values of Lonsdale Lakes Wetland Complex and Sand Island.



Pre 1750 Ecological Vegetation Class

1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	175	Grassy Woodland
3	Damp Sands Herb-rich Woodland	196	Seasonally Inundated Sub-saline Herbland
48	Heathy Woodland	300	Reed Swamp
55	Plains Grassy Woodland	302	Coastal Saltmarsh/Mangrove Shrubland Mosaic
56	Floodplain Riparian Woodland	647	Plains Sedy Wetland
74	Wetland Formation	858	Coastal Alkaline Scrub
104	Lignum Wetland	891	Plains Brackish Sedge Wetland
132	Plains Grassland	898	Cane Grass-Lignum Halophytic Herbland
140	Mangrove Shrubland	899	Plains Freshwater Sedge Wetland
161	Coastal Headland Scrub	991	Water Body - Salt
163	Coastal Tussock Grassland	992	Water Body - Fresh

Figure 4: Pre 1750 Ecological Vegetation Classes. Map source: Department of Sustainability & Environment. 2007.

Note: This map is useful as a general guide. However BCN is aware that there are some errors and omissions in the map.

Table 2: State or Nationally Significant Plants on the Bellarine Peninsula

Flora species on the Bellarine Peninsula that have conservation significance at a State or National level are listed in Table 2. BCN endeavours to protect and, where appropriate, re-introduce these species in BCN rehabilitation or revegetation projects.

Table 2

COMMON NAME	SCIENTIFIC NAME	EPBC Act	Vic Status	FFG Act	FFG Action Statement No.
# Austral Trefoil	<i>Lotus australis</i>		k		
Bellarine Yellow-gum	<i>Eucalyptus leucoxydon subsp. bellarinensis</i>		e	L	180
# Coast Bitter-bush	<i>Adriana quadripartita</i> (pubescent form)		v		
Coast Hollyhock	<i>Malva sp. aff. australiana</i>		v		
Coast Saltwort	<i>Salsola tragus subsp. pontica</i>		r		
# Coast Twin-leaf	<i>Zygophyllum billardierei</i>		r		
# Coast Wirilda	<i>Acacia uncifolia</i>		r		
Creeping Rush	<i>Juncus revolutus</i>		r		
# Devious Sea-wrack	<i>Halophila decipiens</i>		k		
# Dune Poa	<i>Poa poiformis var. ramifer</i>		r		
Fragrant Saltbush	<i>Rhagodia parabolica</i>		r		
Grey Mangrove	<i>Avicennia marina subsp. australasica</i>		r		
Leafy Greenhood (coastal form)	<i>Pterostylis cucullata</i> (coastal form)	VU	e	L	54
# Marsh Saltbush	<i>Atriplex paludosa subsp. paludosa</i>		r		
Native Peppergrass	<i>Lepidium pseudohyssopifolium</i>		k		
# Oval Sea-wrack	<i>Halophila australis</i>		k		
Pale Swamp Everlasting	<i>Helichrysum aff. rutidolepis</i> (Lowland Swamps)		v		
# Prickly Arrowgrass	<i>Triglochin mucronata</i>		r		
Δ # Rare Bitter-bush	<i>Adriana quadripartita s.s.</i> (glabrous form)		e	L	

Table 2 (cont)

COMMON NAME	SCIENTIFIC NAME	EPBC Act	Vic Status	FFG Act	FFG Action Statement No.
# Salt Lawrenca	<i>Lawrenca spicata</i>		r		
Sea Nymph	<i>Amphibolis antarctica</i>		k		
# Sea Water-mat	<i>Lepilaena marina</i>		v	N	
Slender Beard-orchid	<i>Calochilus gracillimus</i>		k		
Δ # Tiny Arrowgrass	<i>Triglochin minutissima</i>		r		
# Tuberous Tassel	<i>Ruppia tuberosa</i>		k		
Variable Spider-orchid	<i>Caladenia X variabilis</i>		e		
# Yellow Sea-lavender	<i>Limonium australe</i>		r		

References: (1) Department of Sustainability and Environment (2005) *Advisory List of Rare or Threatened Plants in Victoria - 2005*. Victorian Department of Sustainability and Environment, East Melbourne, Victoria.

(2) DSE/CCMA/NAP, 2003. *Biodiversity Action Planning: Landscape Plan for Bellarine Zone, Otway Plain Bioregion*.

KEY

EPBC Act Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

FFG Act Flora and Fauna Guarantee Act 1988 (Victorian)

e Endangered in Victoria

v Vulnerable in Victoria

r Rare in Victoria

k Poorly Known in Victoria

VU Vulnerable in Australia

L Listed as threatened

N Noted as threatened

plant specie's location includes Swan Bay

Δ plant specie's location includes Lake Connewarre



Rare Bitter-bush, *Adriana quadripartita* (female plant), Buckley Park Foreshore Reserve, Ocean Grove. Photo: Sue Longmore



Salt Lawrenca, *Lawrenca spicata*. Pt. Lonsdale. Photo: Sue Longmore

Regionally Significant plants on the Bellarine Peninsula

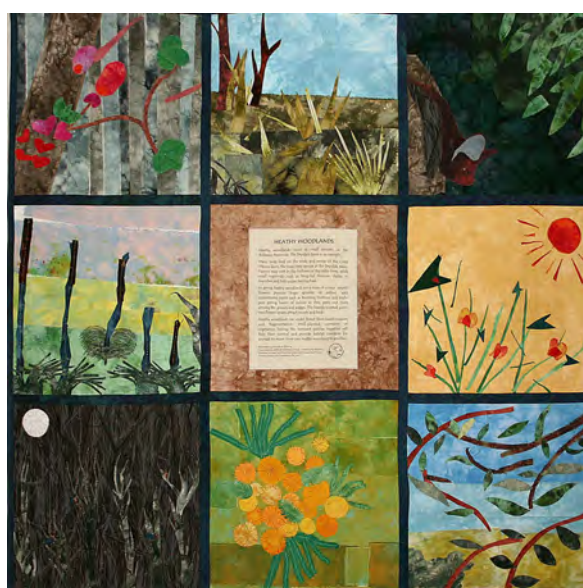
With approximately 5% of pre-European indigenous (local native) vegetation remaining in the Geelong Region, all remnant indigenous vegetation is considered to be of conservation significance locally and a critically important resource. Of 1119 plant species recorded in the City of Greater Geelong area, approximately 72% are poorly known, rare, vulnerable, endangered or extinct at a regional level and therefore have a Regional Conservation Significance status. Ninety-one plant species (8% of the total species) are extinct.

A complete list of Regionally Significant plant species in the City of Greater Geelong is given in Carr et al (2002) City of Greater Geelong Biodiversity Management Strategy - Draft Report, City of Greater Geelong.

Table 3 in the BCN Action Plan lists Regionally Significant plant species that BCN endeavours to re-introduce, where appropriate, in BCN rehabilitation or revegetation projects.



Coastal Moonah Woodland Bellarine Biodiversity Quilt, made by Bellarine Secondary College students & local quilters. Photo: Mal Kidson



Heathy Woodland Bellarine Biodiversity Quilt, made by Bellarine Secondary College students & local quilters. Photo: Mal Kidson

Table 3: Regionally Significant plant species used in BCN revegetation projects on the Bellarine Peninsula

COMMON NAME	SCIENTIFIC NAME	Regional Rare or threatened taxa in CoGG
Black She-oak	<i>Allocasuarina littoralis</i>	rare
Broom Spurge	<i>Amperea xiphoclada</i> var. <i>xiphoclada</i>	rare
Chaffy Saw-sedge	<i>Gahnia filum</i>	vulnerable
Climbing Lignum	<i>Muehlenbeckia adpressa</i>	rare
Coast Banksia	<i>Banksia integrifolia</i> ssp. <i>integrifolia</i>	endangered
Coast Bone-fruit	<i>Threlkeldia diffusa</i>	rare
Coast Manna Gum	<i>Eucalyptus viminalis</i> ssp. <i>pryoriana</i>	vulnerable
Coast Pomaderris	<i>Pomaderris paniculosa</i> ssp. <i>paralia</i>	rare
Coast Swainson-pea	<i>Swainsona lessertifolia</i>	rare
Common Boobialla	<i>Myoporum insulare</i>	rare
Common Correa	<i>Correa reflexa</i> var. <i>reflexa</i>	vulnerable
Creamy Stackhousia	<i>Stackhousia monogyna</i>	rare
Drooping She-oak	<i>Allocasuarina verticillata</i>	rare
Dune Groundsel	<i>Senecio pinnatifolius</i> var. 2	rare
Gold Dust Wattle	<i>Acacia acinacea</i>	rare
Golden Spray	<i>Viminaria juncea</i>	endangered
Grass Trigger-plant	<i>Stylidium graminifolium</i> s.l.	rare
Hairy Pennywort	<i>Hydrocotyle hirta</i>	rare
Hairy Spinifex	<i>Spinifex sericeus</i>	rare
Heath Tea-tree	<i>Leptospermum myrsinoides</i>	rare
Hop Bitter-pea	<i>Daviesia latifolia</i>	endangered
Lightwood	<i>Acacia implexa</i>	rare
Running Postman	<i>Kennedia prostrata</i>	poorly known
Sea Box	<i>Alyxia buxifolia</i>	rare
Showy Bossiaea	<i>Bossiaea cinerea</i>	endangered
Silky Guinea-flower	<i>Hibbertia sericea</i> var. <i>sericea</i>	rare
Silver Banksia	<i>Banksia marginata</i>	rare
Slender Bush-pea	<i>Pultenaea tenuifolia</i>	endangered
Slender She-oak	<i>Allocasuarina misera</i>	endangered
Slender Velvet-bush	<i>Lasiopetalum baueri</i>	endangered
Small Grass-tree	<i>Xanthorrhoea minor</i> ssp. <i>lutea</i>	endangered
Sticky Boobialla	<i>Myoporum</i> sp. 1	rare
Sticky Daisy-bush	<i>Olearia glutinosa</i>	extinct CoGG? recorded in BoQ
Sweet Bursaria	<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	rare
Sweet Wattle	<i>Acacia suaveolens</i>	rare
Tassel Rope-rush	<i>Hypolena fastigiata</i>	rare
Thyme Rice-flower	<i>Pimelia serphyllifolia</i> ssp. <i>serphyllifolia</i>	rare
Variable Sword-sedge	<i>Lepidosperma laterale</i> var. <i>laterale</i>	poorly known
Varnish Wattle	<i>Acacia verniciflua</i> s.l.	rare
White Correa	<i>Correa alba</i> var. <i>alba</i>	rare

References: (1) Carr et al (2002) City of Greater Geelong Biodiversity Management Strategy – Draft Report. City of Greater Geelong. (2)BCN & Queenscliff Community Nursery Coordinators (personal comments).

Table 4: Conservation Status of threatened fauna on the Bellarine Peninsula

Fauna species on the Bellarine Peninsula that are of conservation significance at a State or National level are listed in Table 4.

Table 4

COMMON NAME	SCIENTIFIC NAME	EPBC Act	Vic Status	FFG Act	FFG Action Statement No.
BIRDS					
Australasian Bittern	<i>Botaurus poiciloptilus</i>		EN		
Australasian Shoveler	<i>Anas rhynchos</i>		VU		
Australian Painted Snipe	<i>Rostratula australis</i>	VU	CR	L	
Baillon's Crake	<i>Porzana pusilla palustris</i>		VU	L	
Black Falcon	<i>Falco subniger</i>		VU		
Black-browed Albatross	<i>Thalassarche melanophris melanophris</i>	VU	VU		
Black-eared Cuckoo	<i>Chrysococcyx osculans</i>		NT		
Black-faced Cormorant	<i>Phalacrocorax fuscescens</i>		NT		
Black-tailed Godwit	<i>Limosa limosa</i>		VU		
Blue-billed Duck	<i>Oxyura australis</i>		EN	L	174
Brolga	<i>Grus rubicunda</i>		VU	L	119
Brown Quail	<i>Coturnix ypsilophora australis</i>		NT		
Bush Stone-curlew	<i>Burhinus grallarius</i>		EN	L	78
Cape Barren Goose	<i>Cereopsis novaehollandiae</i>		NT		
Caspian Tern	<i>Sterna caspia</i>		NT	L	
Common Diving-Petrel	<i>Pelecanoides urinatrix</i>		NT		
Common Sandpiper	<i>Actitis hypoleucos</i>		VU		
Eastern Curlew	<i>Numenius madagascariensis</i>		NT		
Fairy Prion	<i>Pachyptila turtur</i>	VU	VU		
Fairy Tern	<i>Sterna nereis nereis</i>		EN	L	
Freckled Duck	<i>Stictonetta naevosa</i>		EN	L	105
Glossy Ibis	<i>Plegadis falcinellus</i>		NT		
Great Egret	<i>Ardea alba</i>		VU	L	120
Great Knot	<i>Calidris tenuirostris</i>		EN	L	
Greater Sand Plover	<i>Charadrius leschenaultii</i>		VU		
Grey Goshawk	<i>Accipiter novaehollandiae</i>		VU	L	
Grey Plover	<i>Pluvialis squatarola</i>		NT		
Grey-headed Albatross	<i>Thalassarche chrysostoma</i>	VU	VU	L	181
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>		CR	L	
Ground Parrot	<i>Pezoporus wallicus</i>		EN	L	
Gull-billed Tern	<i>Sterna nilotica macrotarsa</i>		EN	L	
Hardhead	<i>Aythya australis</i>		VU		
Hooded Plover	<i>Thinornis rubricollis rubricollis</i>		VU	L	9
Intermediate Egret	<i>Ardea intermedia</i>		CR	L	120
Latham's Snipe	<i>Gallinago hardwickii</i>		NT		
Lesser Sand Plover	<i>Charadrius mongolus</i>		VU		
Lewin's Rail	<i>Rallus pectoralis pectoralis</i>		VU	L	

Table 4 (cont)

COMMON NAME	SCIENTIFIC NAME	EPBC Act	Vic Status	FFG Act	FFG Action Statement No.
Little Bittern	<i>Ixobrychus minutus</i>		EN	L	
Little Egret	<i>Egretta garzetta</i>		EN	L	120
Little Tern	<i>Sterna albifrons sinensis</i>		VU	L	51
Magpie Goose	<i>Anseranas semipalmata</i>		NT	L	
Musk Duck	<i>Biziura lobata</i>		VU		
Nankeen Night Heron	<i>Nycticorax caledonicus</i>		NT		
Northern Giant-Petrel	<i>Macronectes halli</i>	VU	NT	L	181
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	CR	CR	L	43
Pacific Golden Plover	<i>Pluvialis fulva</i>		NT		
Pacific Gull	<i>Larus pacificus pacificus</i>		NT		
Pectoral Sandpiper	<i>Calidris melanotos</i>		NT		
Pied Cormorant	<i>Phalacrocorax varius</i>		NT		
Red Knot	<i>Calidris canutus</i>		NT		
Royal Spoonbill	<i>Platalea regia</i>		VU		
Sanderling	<i>Calidris alba</i>		NT		
Shy Albatross	<i>Thalassarche cauta</i>	VU	VU	L	
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>		NT		
Southern Giant-Petrel	<i>Macronectes giganteus</i>	EN	VU	L	181
Spotted Harrier	<i>Circus assimilis</i>		NT		
Swift Parrot	<i>Lathamus discolor</i>	EN	EN	L	169
Terek Sandpiper	<i>Xenus cinereus</i>		EN	L	
Wandering Albatross	<i>Diomedea exulans</i>	VU	EN	L	181
Whimbrel	<i>Numenius phaeopus</i>		VU		
Whiskered Tern	<i>Chlidonias hybridus javanicus</i>		NT		
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>		VU	L	60
White-faced Storm-Petrel	<i>Pelagodroma marina</i>		VU		
White-fronted Tern	<i>Sterna striata</i>		NT		
White-winged Black Tern	<i>Chlidonias leucopterus</i>		NT		
Wood Sandpiper	<i>Tringa glareola</i>		VU		
Yellow-nosed Albatross	<i>Thalassarche chlororhynchus</i>	VU	VU	L in part	

KEY

- CR** Critically Endangered
- EN** Endangered
- VU** Vulnerable
- NT** Near Threatened
- L** Listed as threatened



Hooded Plovers on ocean beach. Photo: Bev Wood

Table 4 (cont)

COMMON NAME	SCIENTIFIC NAME	EPBC Act	Vic Status	FFG Act	FFG Action Statement No.
REPTILES					
Glossy Grass Skink	<i>Pseudemoia rawlinsoni</i>		NT		
Swamp Skink	<i>Egernia coventryi</i>		VU		
FISH					
Australian Grayling	<i>Prototroctes maraena</i>	VU	VU	L	
AMPHIBIANS					
Growling Grass Frog	<i>Litoria raniformis</i>	VU	EN		

Reference: Victorian Department of Sustainability and Environment (2007). *Advisory List of Threatened Vertebrate Fauna in Victoria. 2007. DSE, East Melbourne, Victoria.*



Growling Grass Frog at Point Richards.
Photo: Steve Boothroyd



Little Egret at Lake Victoria.
Photo: Sue Longmore



Orange-bellied Parrot
Photo: Trevor Pescott



White-bellied Sea-Eagle
Photo: Trevor Pescott

Table 5: Migratory species of National & International Environmental Significance on the Bellarine Peninsula

COMMON NAME	SCIENTIFIC NAME	EPBC Act	JAMBA	CAMBA	ROKAMBA	BONN
Arctic Jaegar	<i>Stercorarius parasiticus</i>	Mi	✓		✓	
Asian Dowitcher	<i>Limnodromus semipalmatus</i>	Mi	✓	✓	✓	✓
Bar-tailed Godwit	<i>Limosa lapponica</i>	Mi	✓	✓	✓	✓
Black-tailed Godwit	<i>Limosa limosa</i>	Mi	✓	✓	✓	✓
Broad-billed Sandpiper	<i>Limicola falcinellus</i>	Mi	✓	✓	✓	✓
Caspian Tern	<i>Sterna caspia</i>	Mi	✓	✓		
Cattle Egret	<i>Ardea ibis</i>	Mi	✓	✓		
Common Greenshank	<i>Tringa nebularia</i>	Mi	✓	✓	✓	✓
Common Sandpiper	<i>Actitis hypoleucos</i>	Mi	✓	✓	✓	✓
Common Tern	<i>Sterna hirundo</i>	Mi	✓	✓	✓	
Curlew Sandpiper	<i>Calidris ferruginea</i>	Mi	✓	✓	✓	✓
Double-banded Plover	<i>Charadrius bicinctus</i>	Mi				✓
Eastern Curlew	<i>Numenius madagascariensis</i>	Mi	✓	✓	✓	✓
Fork-tailed Swift	<i>Apus pacificus</i>	Mi	✓	✓	✓	
Glossy Ibis	<i>Plegadis falcinellus</i>	Mi		✓		✓
Great Egret	<i>Ardea modesta</i>	Mi	✓	✓		
Great Knot	<i>Calidris tenuirostris</i>	Mi	✓	✓	✓	✓
Greater Sand Plover	<i>Charadrius leschenaultii</i>	Mi	✓	✓	✓	✓
Grey Plover	<i>Pluvialis squatarola</i>	Mi	✓	✓	✓	✓
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>	Mi	✓	✓	✓	✓
Latham's Snipe	<i>Gallinago hardwickii</i>	Mi	✓	✓	✓	✓
Lesser Sand Plover	<i>Charadrius mongolus</i>	Mi	✓	✓	✓	✓
Little Curlew	<i>Numenius minutus</i>	Mi	✓	✓	✓	✓
Little Ringed Plover	<i>Charadrius dubius</i>	Mi		✓	✓	
Little Tern	<i>Sternula albifrons</i>	Mi	✓	✓	✓	✓
Long-toed Stint	<i>Calidris subminuta</i>	Mi	✓	✓	✓	✓
Marsh Sandpiper	<i>Tringa stagnatilis</i>	Mi	✓	✓	✓	✓
Northern Shoveler	<i>Anas clypeata</i>	Mi	✓	✓	✓	
Oriental Plover	<i>Charadrius veredus</i>	Mi	✓		✓	✓

Table 5 (cont)

COMMON NAME	SCIENTIFIC NAME	EPBC Act	JAMBA	CAMBA	ROKAMBA	BONN
Pacific Golden Plover	<i>Pluvialis fulva</i>	Mi	✓	✓	✓	✓
Painted Snipe	<i>Rostratula australis</i>	Mi		✓		
Pectoral Sandpiper	<i>Calidris melanotos</i>	Mi	✓		✓	✓
Red Knot	<i>Calidris canutus</i>	Mi	✓	✓	✓	✓
Red-necked Phalarope	<i>Phalaropus lobatus</i>	Mi	✓	✓	✓	✓
Red-necked Stint	<i>Calidris ruficollis</i>	Mi	✓	✓	✓	✓
Ruddy Turnstone	<i>Arenaria interpres</i>	Mi	✓	✓	✓	✓
Ruff	<i>Philomachus pugnax</i>	Mi	✓	✓	✓	✓
Sanderling	<i>Calidris alba</i>	Mi	✓	✓		✓
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Mi	✓	✓	✓	✓
Short-tailed Shearwater	<i>Ardenna tenuirostris</i>	Mi	✓		✓	
Terek Sandpiper	<i>Xenus cinereus</i>	Mi	✓	✓	✓	✓
Whimbrel	<i>Numenius phaeopus</i>	Mi	✓	✓	✓	✓
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	Mi		✓		
White-throated Needletail	<i>Hirundapus caudacutus</i>	Mi	✓	✓	✓	
White-winged Black Tern	<i>Chlidonias leucopterus</i>	Mi	✓	✓	✓	
Wood Sandpiper	<i>Tringa glareola</i>	Mi	✓	✓	✓	✓

Reference: EPBC Migratory Species List. Australian Government. Department of the Environment, Water, Heritage and the Arts.

KEY

EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
Mi	Migratory Bird Species listed under the EPBC Act
JAMBA	Japan - Australia Migratory Bird Agreement
CAMBA	China - Australia Migratory Bird Agreement
ROKAMBA	Republic of Korea - Australia Migratory Bird Agreement
BONN	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)

Resource condition and context - snapshot

4.3 Social Values

Population: The Bellarine Peninsula contains a diverse mix of land uses and settlements – residential, tourism, agricultural, conservation, recreational – because of its high natural values and proximity to the large population centres of Geelong and Melbourne. Major settlements and their 2001 population include, from west to east: Leopold (6,783), Ocean Grove (10,055), Drysdale (1,731), Clifton Springs (7,302), Point Lonsdale and Queenscliff (3,000), Portarlington (2,686), Indented Head (597) and St Leonards (1,226) (Parsons Brinkerhoff 2006). Total resident population is now approximately 50,000 and growing, (15% from 2001 - 2006), particularly in Ocean Grove, through both overspill from Geelong and the attractions of the area. Population age varies significantly across the Peninsula, with younger areas concentrated in growth areas like Ocean Grove and older areas like Queenscliff and Portarlington containing many retirees. Overall, the Peninsula has a considerably older population than the national average.

Community capacity and the involvement of local conservation/environment groups is high with an impressive 21 groups contributing to the original Swan Bay Catchment Action Plan in 2002 and a further 15 groups or organisations participating in project activities by 2007. Students from 13 kindergarten, primary and secondary schools have been active participants in environmental restoration projects, and tertiary institutions have been involved in environmental research and monitoring projects.



Corangamite Landcare Forum delegates visit Bellarine Secondary College & Bellarine Landcare Nursery. Photo: Matt Crawley



Wallington Primary School at Edsall Reserve. Photo: Hilary Bouma

Tourism: The population expands significantly in the summer months and on weekends with the influx of holidaymakers, tourists and holiday-home owners. Tourism uses are concentrated on the coastal fringe and ring the Peninsula. 2.4 million day visits occurred in the immediate vicinity in 2000 and visitation rates are increasing at as much as 15%/yr. Extensive employment and income is generated from tourism and recreation and much of it stems from the natural and semi-natural values of the Peninsula's beaches, coast and hinterland. The Bellarine Rail Trail offers opportunities for walking and cycling through the heart of the Bellarine. Walking tracks through foreshore and coastal reserves are also popular.

Growth in population and tourism can lead to pressures on the particular values that people cherish, and contribute to biodiversity and habitat loss. Strengthening community understanding and capacity is vital.

See Appendix A1: Table 9, page 48, for Social Values- Snapshot facts and references.



Friends of the Bellarine Rail Trail working bee, Christies Rd, Leopold. Photo: Peter Cowden

Resource condition and context - snapshot

4.4 Cultural Values

Indigenous Cultural Heritage:

For countless generations the Wathaurong / Wadda Wurrung people lived on the Bellarine Peninsula. Their tribal lands extended from the Bellarine Peninsula west to Airey's Inlet and north from Werribee River to Ballarat.

The Bengalat balug clan of the Wathaurong people lived on the Bellarine Peninsula. Large camps included Stingaree Bay (Geelong), Point Henry, Clifton Springs and the sand ridges between Portarlington and Indented Head. The clan frequented the coastal area around Point Lonsdale in the warmer seasons. The sea provided plentiful food resources, as did the Barwon Estuary and the wetlands of Swan Bay, Lake Victoria and Lake Connewarre. A variety of plant foods were seasonally harvested and light burns were used to promote their regeneration. Animals were also attracted to new grassland growth, making them easier to hunt.



Intertidal reefs at Point Lonsdale. Photo: Matt Crawley

Evidence of the Wathaurong people's occupation and ways of life is all around us - from the intertidal reefs, where shellfish was harvested, to the abundant shell middens in the coastal barrier dunes, to artefact scatter sites around the Bellarine coast and hinterland, to an Aboriginal scar tree in the heart of the Bellarine. Radiocarbon dating of midden shells indicates that the Wathaurong people inhabited this area for at least 6000 years.



Running Postman, Kennedia prostrata, a traditional Aboriginal plant food. The nectar was sucked and the stems used for twine. Photo: Steve Smithyman

Many large shell middens have been recorded in Buckley Park Foreshore Reserve and along Lonsdale Bay in the dunes, coastal scrub and woodlands, or on exposed cliff tops with good vantage points. Coastal shell middens contain the remains of shellfish eaten by Aboriginal people over time in the one location. They may also contain burnt or black soil, charcoal and hearth stones from fires, and stone and bone artefacts. Shell middens provide Aboriginal people today with an important link to their culture and their past, and provide an important chronological record of life.

All Aboriginal cultural places, artefacts and scatters are protected by law. Erosion and other natural processes threaten some Aboriginal sites. Human activities may also be a threat.

European Cultural Heritage:

The first European to live on the Bellarine Peninsula was the escaped convict, William Buckley, who was befriended by the Wathaurong people in 1803 and lived with them for 32 years.

Today visitors and residents alike appreciate the Bellarine Peninsula's historic heritage, particularly the nineteenth century buildings of Queenscliff and scattered infrastructure of rail and shipping and fishing, such as bridges, piers, lighthouses, jetties and wharves.

See Appendix A1: Table 10, page 48, for Cultural Values - Snapshot facts and references.

Resource condition and context - snapshot

4.5 Economic Values

Agriculture is the major primary production in the area, with a mixture of hobby farms and larger enterprises present. Cropping and grazing are the major forms of agriculture, but numerous fruits, berries and other crops are grown commercially or for lifestyle reasons. In addition there are olives, vines, horticulture, poultry and pigs. The marine environment also yields primary production economic value with aquaculture and fisheries in operation.

Parks, tourism and recreation generate significant local income, with 40-50,000 visitors to the Bellarine at peak times each year.

Threats to environmental values have economic costs if not managed appropriately, or if the environmental service is lost or diminished.

Wetlands provide flood control, groundwater replenishment, sediment and nutrient retention, water purification and are areas of biodiversity. Urban development poses the most significant threat to wetlands on the Bellarine.



Weed removal along Bellarine Rail Trail, Mannerim. Bellarine Landcare Group and community volunteers
Photo: Matt Crawley

Pest plants and pest animals are a considerable problem in the area, particularly regionally prohibited, regionally controlled or environmental weeds along roadsides and other public land, watercourses, in pastures and encroaching on native vegetation. The BCN has identified 57 species of concern, with 29 species

specified by BCN for priority control, such as Gorse *Ulex europaeus*, Flax-leaf Broom *Genista linifolia*, Bridal Creeper *Asparagus asparagoides*, Bellarine Pea *Polygala myrtifolia* and Italian Buckthorn *Rhamnus alaternus*. Foxes are prevalent in the area, as are rabbits, which cause \$5 million in loss to agriculture in the wider Corangamite region per year as well as degrading the natural assets on the Bellarine. The impact of marine pests such as Northern Pacific Seastars and Marine Fanworms are difficult to measure at this stage but can be expected to be considerable. The Victorian Government has in place a procedure where new outbreaks or sightings are recorded, and a monitoring strategy then put in place to address any further impacts and possible treatments.



Rabbit proof fencing.
Photo: Steve Smithyman

Secondary salinity affects primary production and environmental values particularly, and is of concern at Lake Connewarre and surrounds.

Industrial development is limited in the plan area. An aluminium refinery is situated on the western margin at Pt Henry near Geelong, and a quarry and City of Greater Geelong waste and landfill site are located near Drysdale. Shell grit mining occurs at Pt. Lonsdale.

Table 6: Pest Plants on the Bellarine Peninsula

Key weed species on the Bellarine Peninsula and their general distribution and abundance are listed in Table 6. Some species are widespread, others have a restricted distribution and their impacts, though serious, may be localised.

Table 6 References: (1). Swan Bay Catchment Action Plan 2002. SBICMC.
 (2). Carr et al (2002) City of Greater Geelong Biodiversity Management Strategy Draft Report.
 (3), Melville Ryan (2008). Landcare Notes: Declared Noxious Weeds. DPI Victoria.

WEED STATUS	COMMON NAME	BOTANICAL NAME	ABUNDANCE
Regionally Prohibited Weed	Cape Tulip	<i>Maraea spp.</i>	Occasional
	Serrated Tussock (WONS)	<i>Nassella trichotoma</i>	Occasional
	St. John's Wort	<i>Hypericum perforatum</i>	Occasional
	Wild Garlic	<i>Allium vineale</i>	Occasional
Regionally Controlled Weeds	African Boxthorn	<i>Lycium ferocissimum</i>	Scattered
	Angled Onion	<i>Allium triquetrum</i>	Scattered
	Blackberry (WoNS)	<i>Rubus fruticosus</i>	Few
	Boneseed (WoNS)	<i>Chrysanthemoides monilifera</i>	Occasional
	Caltrop	<i>Tribulus terrestris</i>	# Few
	Fennel	<i>Foeniculum vulgare</i>	Scattered
	Flax-leaf Broom	<i>Genista linifolia</i>	Common
	Great Mullein	<i>Verbascum Thapsus</i>	# Occasional
	Gorse/ Furze	<i>Ulex europaeus</i>	Common
	Horehound	<i>Marrubium vulgare</i>	Few
	Onion Weed	<i>Aspodelus fistulosus</i>	Occasional
	Paterson's Curse	<i>Echium plantagineum</i>	Scattered
	Soursob	<i>Oxalis pres-caprae</i>	Common
	Spiny Rush	<i>Juncus acutus</i>	# Occasional
	Sweet Briar	<i>Rosa rubiginosa</i>	Few
Wild Watsonia	<i>Watsonia meriana var. bulbifera</i>	Scattered	
Restricted Weeds	Bridal Creeper (WoNS)	<i>Asparagus asparagoides</i>	# Common
	Chilean Needle-grass (WoNS)	<i>Nasella neesiana</i>	Occasional
Emerging Weeds	Texas Needle-grass	<i>Nasella leucotricha</i>	Occasional

Table 6 (cont)

WEED STATUS	COMMON NAME	BOTANICAL NAME	ABUNDANCE
Environmental Weeds	African Thistle	<i>Berkheya rigida</i>	Scattered
	Arum Lily	<i>Zantedeschia aethiopia</i>	Few
	Agapanthus	<i>Agapanthus praecox</i>	# Scattered
	Apple of Sodom	<i>Solanum Sodom</i>	Few
	Artichoke Thistle	<i>Cynara cardunculus</i>	Occasional
	Bellarine Pea / Myrtle-leaf Milkwort	<i>Polygala myrtifolia</i>	# Common
	Blue Periwinkle	<i>Vinca major</i>	# Occasional
	Bracelet Honey-myrtle	<i>Melaleuca armillaris</i>	Scattered
	Buffalo Grass	<i>Stenotaphrum secundatum</i>	Common
	Cape Ivy	<i>Delairea odorata</i>	# Occasional
	Cape Wattle	<i>Paraserianthes lophantha</i>	Occasional
	Climbing Groundsel	<i>Senecio angulatus</i>	# Occasional
	*Coast Tea-tree	<i>Leptospermum laevigatum</i>	Scattered
	Cotoneaster	<i>Cotoneaster sp.</i>	# Scattered
	Cretan Trefoil	<i>Lotus creticus</i>	# Few
	Dolichos Pea	<i>Dipogon lignosus</i>	# Scattered
	English Ivy	<i>Hedera helix</i>	# Occasional
	Galenia /Carpet Weed/ Blanket Weed	<i>Galenia pubescens</i>	Common
Gazania	<i>Gazania linearis</i>	# Occasional	



Community awareness display: pest plant: Serrated Tussock, *Nassella trichotoma*. Photo: Steve Smithyman



Mechanical removal of pest plant, Gorse, near Andersons Rd, Drysdale. A Bellarine Landcare Group project. Photo: Matt Crawley

Table 6 (cont)

WEED STATUS	COMMON NAME	BOTANICAL NAME	ABUNDANCE
Environmental Weeds	Golden Wreath Wattle	<i>Acacia saligna</i>	# Scattered
	Italian Buckthorn	<i>Rhamnus alaternus</i>	Common
	Kikuyu	<i>Pennisetum clandestinum</i>	Common
	Mirror Bush	<i>Coprosma repens</i>	# Scattered
	Montbretia	<i>Crocasmia x crocosmiiflora</i>	Few
	Monterey Pine	<i>Pinus radiata</i>	Scattered
	Olive	<i>Olea europaea ssp europaea</i>	# Occasional
	Onion Grass	<i>Romulea rosea var. australis</i>	# Occasional
	Pampas Grass	<i>Cortaderia selloana</i>	#Occasional
	Perennial Veldgrass	<i>Ehrharta calycina</i>	Scattered
	Phalaris	<i>Phalaris aquatic</i>	Common
	Sallow Wattle	<i>Acacia longifolia var. longifolia</i>	# Scattered
	Sea Spurge	<i>Euphorbia paralias</i>	# Scattered
	Sweet Pittosporum	<i>Pittosporum undulatum</i>	# Scattered
Tall Wheat Grass	<i>Thinopyrum ponticum</i>	Occasional	

KEY:

Weed species designated by BCN for priority control in the BCN Action Plan are in **bold print**.

denotes weeds that are primarily coastal weeds on the Bellarine Peninsula.

* denotes indigenous in the coastal fringe but a weed beyond this range.

Weeds of National Significance WoNS: 20 weeds identified at a National level as threats to Australia's productive capacity and natural ecosystems.

Regionally Prohibited Weed: Declared noxious weed, not widely distributed in the Corangamite Region, but capable of spreading further. Landowners and land managers must eradicate or control these weeds on their land.

Regionally Controlled Weed: Declared noxious weed, widespread and considered important in the Corangamite Region. Landowners are responsible for taking all reasonable steps to control and prevent spread and growth.

Restricted: Trade in these declared noxious weeds and materials containing them is prohibited in Victoria.

Environmental Weeds: Plants that invade natural areas.

Common Common throughout wide areas of the Bellarine Peninsula

Scattered Scattered infestations in limited areas of the Bellarine Peninsula

Occasional Occasional small infestations in limited areas of the Bellarine Peninsula

Few Few individuals

5. BCN Plan Development, Vision & Aims

The Bellarine Catchment Network Action Plan has been developed with regard to a number of key influencing national, state, regional, and local policies. These key policies are outlined in Appendix A2, page 49.

The Bellarine Catchment Network Action Plan builds on its precursor, the Swan Bay Catchment Action Plan 2002-2007. See Appendix A3 for an overview of the Swan Bay Catchment Action Plan 2002-2007 and its achievements.

Two community consultation workshops were held in 2008 to facilitate community input into the development of the BCN Action Plan. Key natural or naturally drawn assets identified at the workshops were biodiversity, wetlands, marine ecosystems, primary production, tourism/lifestyle development and community.

The workshops explored the services these assets provide and identified threats to the assets. Hotspots for action were also identified. See Appendix A4 on page 53 & Figure 5 on page 41.

Analysis of all this information has informed the development of the Plan's Vision, Priority Aims, Priority Actions and Long Term Targets.

The BCN will each year develop a work plan designed to address the Priority Aims, Priority Actions and Long Term Targets. Adaptive management will be important for the BCN as there are uncertain climatic conditions in operation and BCN needs to be responsive to these changing circumstances, information and outcomes.



BCN representatives on a tour of the Corangamite Catchment. Photo: Matt Crawley

VISION

The Bellarine Catchment Network region will work towards healthy, well connected and resilient wetlands, waterways and native vegetation ecosystems; sustainable agricultural and land management practices; and a community which is engaged and involved in protecting and managing the natural environment.

PRIORITY AIMS

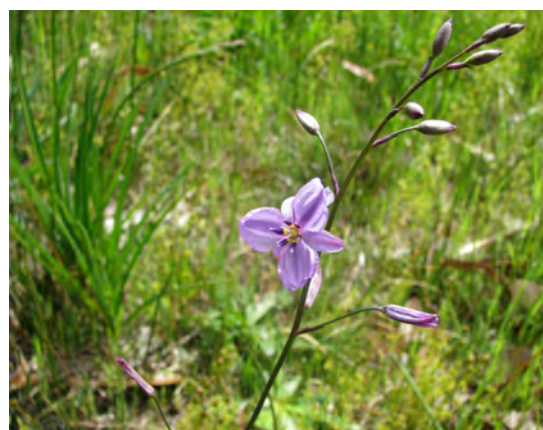
- I. Protect and enhance Ramsar wetlands and connecting wetlands
- II. Promote and apply Ramsar values and guidelines
- III. Protect, enhance and link remnant vegetation
- IV. Protect indigenous fauna and enhance existing habitat
- V. Facilitate community awareness and participation
- VI. Advocate for adaptive management to climate change
- VII. Rehabilitate and protect watercourses and improve water quality (in-stream & stormwater)
- VIII. Increase the adoption of sustainable agricultural and land management practices
- IX. Promote pest plant and pest animal control
- X. Be an active, engaged and well-supported network

6. Targets for 2014

Table 7 outlines Long Term Targets and Priority Actions that aim to protect and enhance the key natural assets of the Bellarine Peninsula and assist BCN achieve its Vision and Priority Aims. It is recognised that some Priority Aims overlap with others. A holistic approach has therefore been taken where one priority action may deliver multiple benefits. This is referenced in the last column of Table 7.

Table 7: Targets for 2014

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
1. Indigenous Vegetation			
1.1. An additional 150 ha of native vegetation added to the Bellarine Peninsula, with priority given to increasing Threatened EVCs	a. Conduct indigenous revegetation activities annually of 30ha	Coordinate	I, II, III, IV, V, VI, VII, VIII
1.2. Protect and improve 10ha of private and 454 ha of public remnant vegetation communities and increase connectivity	a. Assist in mapping known remnants b. Facilitate partnerships to link remnants and existing revegetation projects c. Prioritise annually 50% of on-ground works funding for protection of remnants d. Facilitate research to ascertain flora diversity and distribution and develop appropriate management strategies e. Educate and facilitate communities and land managers to protect and link remnant vegetation	Coordinate and influence	I, II, III, IV, V, VI, VII, VIII



Leopard Orchid Diuris pardina (left) and Chocolate Lily Arthropodium strictum (right) along the Bellarine Rail Trail.
Photos: Matt Crawley

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
2. Wetlands and Waterways			
<p>2.1. Protect and improve wetlands, waterways and their vegetation communities, and increase their connectivity, with priority given to Ramsar wetland protection;</p> <p>20 sites along drainage lines / watercourses / wetlands protected and enhanced.</p>	<ul style="list-style-type: none"> a. Assist in mapping health of watercourses and wetlands b. Facilitate partnerships to link remnants and existing revegetation projects c. Conduct indigenous vegetation activities as described in Target 1 d. Provide advice for the improved management of wetlands and waterways for biodiversity 	<p>Coordinate and Influence</p>	<p>I, II, III, IV, V, VI, VII, VIII</p>
<p>2.2. Reduce nutrient and sediment loads into waterways and wetlands, with priority given to Ramsar wetland protection;</p> <p>20 sites along drainage lines / watercourses / wetlands protected and enhanced. Key stormwater drains in towns marked with flow outlet.</p>	<ul style="list-style-type: none"> a. Facilitate and support on ground works that reduce rural and urban impacts on wetlands and waterways b. Advocate for reduction of threats to waterways, wetlands and their catchments 	<p>Coordinate and influence</p>	<p>I, II, III, IV, V, VII, VIII</p>
<p>2.3. Monitor water quality annually at up to 9 strategic locations along watercourses and wetlands.</p>	<ul style="list-style-type: none"> a. Undertake 24 water quality monitoring sessions annually through the Waterwatch Program b. Facilitate 72 water quality sessions annually through the Waterwatch Program c. Undertake up to 12 water quality monitoring sessions annually through the Estuarywatch Program 	<p>Coordinate</p>	<p>I, V</p>

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
3. Indigenous Fauna			
<p>3.1. Improve conditions that lead to stabilised or increased fauna biodiversity; 10 sites monitored for fauna species and 10 priority sites improved for fauna.</p>	<ul style="list-style-type: none"> a. Conduct indigenous vegetation activities as described in Target 1 b. Conduct pest plant and animal activities as described in Targets 4 and 5 c. Facilitate research to ascertain species diversity, population and distribution and develop appropriate management strategies 	Coordinate and Influence	I, II, III, IV, V, VI, VII, VIII, IX
4. Pest Plants			
<p>4.1. Eradicate or contain the spread of new and emerging weeds on the Bellarine Peninsula; 10 priority sites treated and improved.</p>	<ul style="list-style-type: none"> a. Record and report infestations of new and emerging weeds b. Promote awareness of new and emerging weeds c. Facilitate appropriate control measures for the management and removal of new and emerging weeds 	Influence	I, II, III, IV, V, VI, VII, VIII, IX
<p>4.2. Reduce priority weed species and their spread; 20 priority sites treated and improved.</p>	<ul style="list-style-type: none"> a. Record and report new outbreaks of priority weeds d. Promote awareness of priority weed species b. Facilitate appropriate control measures for the management and control of priority weeds c. Participate in planning to target hot spots and protect areas of high biodiversity 	Coordinate	I, II, III, IV, V, VI, VII, VIII, IX

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
5. Pest Animals			
<p>5.1. Reduce overall numbers of rabbits and foxes;</p> <p>20 priority sites treated and improved.</p>	<p>a. Support appropriate control measures for the management of pest animals</p> <p>b. Facilitate removal of rabbit harbour</p> <p>c. Undertake planning to target hot spots and protect areas of high biodiversity</p>	<p>Influence and coordinate</p>	<p>I, II, IV, V, VIII, IX</p>
<p>5.2. Protect threatened fauna from the impacts of domestic or feral animals;</p> <p>10 priority sites treated and improved.</p>	<p>a. Review and make comment on domestic animal and pest management strategies relevant to protection of native fauna.</p> <p>b. Record and report incidences and localities of predation on native fauna</p>	<p>Influence</p>	<p>I, II, IV, V, IX</p>



Pest Plant: Flax-leaf Broom, *Genista linifolia*.
Photo: Steve Smithyman



Pest plant: Bellarine Pea, *Polygala myrtifolia*.
Photo: Steve Smithyman

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
6. Cultural Heritage protection			
<p>6.1. Contribute to the protection of cultural heritage sites; 50 sites referred to CCMA Cultural Heritage Officer.</p>	<ul style="list-style-type: none"> a. Consult with appropriate authorities when planning on-ground works to protect cultural heritage and historic features from damage or disturbance b. Report to appropriate authorities the discovery of any Aboriginal cultural heritage sites c. Provide information to landholders, land managers and community 	<p>Coordinate and influence</p>	<p>V</p>
7. Community Engagement Activities			
<p>7.1. A community that is engaged and involved in protecting and managing the natural environment; 13 community groups as part of BCN, stable or growing membership.</p>	<ul style="list-style-type: none"> a. Work with up to 10 educational institutions annually on education and practical on-ground works b. Conduct up to 8 community capacity-building activities annually c. Display resources and research outcomes to assist community awareness and understanding d. Communicate information with up to 160 community members annually 	<p>Coordinate</p>	<p>I, II, III, IV, V, VI, VII, VIII, IX, X</p>



Swan Bay Environment Association volunteer participating in coastal restoration works. Photo: Matt Crawley



Community planting day at The Dell, with the Mannerim Junior Fire Brigade, the Clifton Springs Foreshore Sub-Committee, and Bellarine Landcare Group. Photo: Linda Gallus

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
8. Salinity			
<p>8.1. Appropriately manage secondary salinity sites, and contain salinity spread; 5 sites treated and improved.</p>	<p>a. Work with DPI, BLG and Landholders to assess and address salt affected areas</p> <p>b. Undertake revegetation activities as described in Target 1</p> <p>c. Advocate for and assist in salinity mapping and targeted works</p>	<p>Influence and Coordinate</p>	<p>1, III, V, VII, VIII,</p>
9. Climate Change			
<p>9.1. Advocate for adaptive management to climate change.</p>	<p>a. Advocate for buffer zones for coastal ecosystem migration, connectivity and biodiversity adaptation</p> <p>b. Support opportunities for communities to reduce their local carbon footprint</p> <p>c. Incorporate new NRM techniques addressing climate change mitigation</p>	<p>Influence and coordinate</p>	<p>1, 11, III, IV, V, VI</p>



Interpretive sign along Swan Bay Environment Trail, Queenscliff. Photo: Sue Longmore



Beaded Glasswort –southern shores of Swan Bay. Photo: Glen Tandberg

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
10. Business Management, Administration & Training			
10.1. Appropriate governance procedures and policies in place.	a. Develop /review/ update governance procedures and policies as required.	Coordinate	X
10.2. A safe work environment for employees and community volunteers	a. Implement the DSE 'Sure & Steady' OHS guide at all BCN community activities	Coordinate	X
10.3. A yearly work plan designed to address the priority aims, priority actions and long term targets.	a. Develop and implement annual work plan	Coordinate	X
10.4. Employees undergo professional development annually	a. Staff to undertake professional development activities each year	Coordinate	X
10.5. All reports submitted within set timeframes	a. Prepare staff officer reports for monthly BCN meetings b. Prepare and submit grant and other reports within set timeframes	Coordinate	X



Friends of Point Richards volunteer conducting woody weed removal at Point Richards.
Photo: Matt Crawley



Waterwatch training day.
Photo: Corangamite Waterwatch

Table 7 (cont)

LONG TERM TARGETS	PRIORITY ACTIONS	INFLUENCE OR COORDINATE	PRIORITY AIMS ADDRESSED
<p>10.6. All major grant possibilities prioritized and discussed by committee. Grant proposals identified and submitted.</p>	<p>a. Facilitation of grant development</p>	<p>Coordinate</p>	<p>X</p>
<p>10.7. Provision of BCN administrative support.</p>	<p>a. Provide BCN administration support for monthly, AGM and sub-committee meetings</p> <p>b. Deliver other BCN administrative support as necessary</p>	<p>Coordinate</p>	<p>X</p>
<p>10.6. Provision of support to BCN organizations.</p>	<p>a. Facilitate and promote training opportunities for BCN representatives</p> <p>b. Facilitate opportunities to assist network organisations through programs such as the Community Involvement Program and Green Corps</p>	<p>Coordinate</p>	<p>X</p>



Community shorebird monitoring at Swan Bay Ramsar wetland. Photo: Sue Longmore



Bellarine Secondary College & Bellarine Landcare Nursery volunteers weeding tubestock. Photo: Matt Crawley

7. Action Planning and Hotspots

THE BCN will, each year, develop a work plan of activities designed to address the BCN Action Plan priority aims, priority actions and long term targets. This will be in line with the Australian Government Caring for our Country key priorities and the Corangamite Catchment Management Authority's Regional Catchment Investment Plan. These programs include a priority focus on the protection of Bellarine components of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site.

The work plan will contain precise details as to activities to be undertaken, key participants for each activity, costs and quantity measures for guidance, budgeting and monitoring.

Some targets can only be met through application to the entire Peninsula (or even beyond), but many activities can be focussed upon 'hotspot' areas of particular value or concern. 'Hotspots' were identified during community consultation and will form an essential guide for the yearly work plan, alongside the target list. See figure 5 below.



Aerial view of Swan Bay Ramsar wetland, southern wetlands and Buckley Park Foreshore Reserve. Photo: George Stawicki, courtesy of Geelong Environment Council.



Figure 5: Hotspots Map. (Note that the hotspot symbol for: roadside remnants, Bellarine Rail Trail, agricultural land, growth centre margins and waterways covers a wider area than represented)

8. Monitoring, Evaluation and Reporting

Evaluating performance

The Bellarine Catchment Network Action Plan will follow the National Natural Resource Management and Monitoring and Evaluation Framework (2003) as well as individual project and grant requirements.

Responding to Feedback

The National NRM Monitoring and Evaluation Framework states that: “Adaptive management enables lessons learned to be realised during the life of the program and to make necessary adjustments in response. Adaptive management utilises monitoring and evaluation activities to form a feedback loop in order to make necessary adjustments to the program. ... Evaluation serves as a powerful tool for reviewing the appropriateness of performance indicators and identifying gaps in the performance information structure. Evaluations will rely on, and therefore should be responsive to, monitoring information. For example, unexpected or undesired results from monitoring data might allow triggering of unscheduled

evaluations. These linkages are represented in the following diagram from the National NRM Monitoring and Evaluation Framework, 2003.”

Adaptive management will be important for the Bellarine Catchment Network Action Plan as there is further baseline data to be collected, certain targets and benchmarks to be clarified, and uncertain climatic conditions in operation. In some instances, these will set in train unexpected management actions and results and rigorous adaptive management will be required if the BCN is to be responsive to these changing circumstances, information and outcomes.



Swan Bay Environment Association volunteers at the Queenscliff Community Nursery.
Photo: Sue Longmore

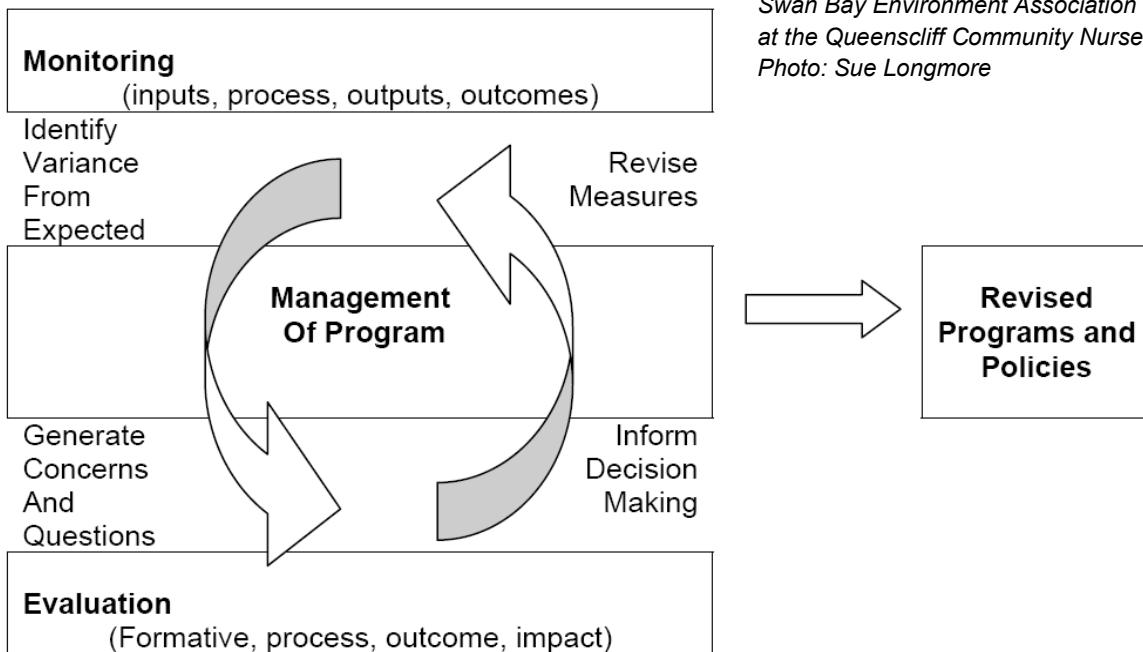


Figure 6: Monitoring and Evaluation flow chart

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Austral Grass Tree Xanthorrhoea australis, Ocean Grove Nature Reserve. Photo: Steve Smithyman

Appendix A1: Snapshot Facts and References

Table 8: Environmental Values –snapshot facts and references

RESOURCE	CONDITION	REFERENCE
Water: Quantity		
Inflow (Barwon)	39% of long-term av. in 2005/6	DSE 2006
Outflow of Barwon system ('environmental flows')	81 GL (57% of total inflow) 2005/6	DSE 2006
Water: Quality		
Salinity	Frequently does not meet WHO acceptable standards	National Land and Water Resources Audit 2002
Nutrient & suspended solids index	0.15 (low upper Barwon catchment, high lower catchment)	SBICMC 2002 Waterwatch
Catchment disturbance index	0.50 (50% land cover change)	National Land and Water Resources Audit 2002
Riparian vegetation index	0.52 (substantial-some degradation)	National Land and Water Resources Audit 2002
Algal blooms	57-58 algal blooms/yr Corangamite region	CCMA 2000
Waterway condition (overall)	14% very poor 33% poor 44% marginal	NRE 1999
Vegetation		
Bioregion	Otway Plain bioregion, Victorian Volcanic Plain bioregion	DSE/CMA/NAP 2003
% Cleared	87.3 %. Original vegetation predominantly Grassy and Heathy Woodland and Dune Woodland and Coastal Salt Marsh	DSE/CCMA/NAP 2003
No. and conservation status of ecological vegetation classes (EVC)	10 EVCs Endangered 11 Vulnerable 1 Depleted 3 Rare 1 Least Concern Threatened: Coastal Moonah Woodland (FFG Act)	Biodiversity and Ecosystem Services Division, Department of Sustainability and Environment (DSE), Victoria. Ecology Australia 2007.
Threatened flora species (State & National listings)	27	DSE/CCMA/NAP 2003
Common species elsewhere but nearly extinct in Swan Bay catchment	2 Hop Goodenia <i>Goodenia ovata</i> Heath Tea-tree <i>Leptospermum myrsinoides</i>	SBICMC 2002

Table 8 (cont)

RESOURCE	CONDITION	REFERENCE
Wetlands		
Ramsar: Port Phillip Bay (Western Shoreline) and Bellarine Peninsula	International significance (biological, geological and geomorphological values)	ANCA 1996
Lake Connewarre	135 bird species; 8 threatened flora/fauna species; 85% of Victorian salt marsh species; Most extensive Australian Saltmarsh Grassland in Vic.; Important Silky Wiltonia herbland	DSE/CCMA/NAP 2003
Lonsdale Lakes Wetland Complex and Sand Island (Lake Victoria System, Lonsdale Lakes, Freshwater Lagoon, Lakers Cutting & SW shoreline of Swan Bay, Sand Island)	15 Ecological Vegetation Classes, all of which are rare, threatened or depleted; 433 indigenous plant taxa; 9 habitats exist for 174 fauna species (includes 90 bird species) 38 threatened fauna species	Ecology Australia 2007
Swan Bay	192 bird species 233 indigenous plant species 15 threatened flora species Up to 10,000 migratory waders in summer months Largest continuous seagrass meadow in Port Phillip Bay	DCE 1991 VIMS 1995 Department of Sustainability & Environment 2005.
Fauna		
Threatened and near threatened species	71 species	DSE/CCMA/NAP 2003
International bird treaties (Japanese, Chinese, Republic of Korea & Bonn Agreements)	46 species	SBICMC 2002 DSE 2003
Fauna presumed <u>locally</u> extinct	Brush-tailed Phascogale <i>Phascogale tapoatafa</i> Eastern Barred Bandicoot <i>Perameles gunnii</i> Broad-toothed Rat <i>Mastocomys fiscus</i>	Longmore & O'Callaghan 1997 DCE 1991
Waders	Swan Bay: - most diverse site for waders in Port Phillip Bay; provides feeding and roosting habitat for thousands of waders	DCE 1991
Significant species	Swan Bay and Lake Connewarre provide critical over-wintering sites for Orange-bellied Parrots (up to 40% of world population); Hooded Plover reduced to 7 pairs along ocean coastline between Pt Lonsdale and Torquay	DSE/CCMA/ NAP 2003 Maguire, G.S. 2008

Table 8 (cont)

RESOURCE	CONDITION	REFERENCE
Marine		
Port Phillip Heads Marine National Park	High diversity marine life; 10% of Australia's hydroids; Seagrass beds major nursery habitat fish and roosting and breeding site for birds; 90% seagrass decline 1987-2002 Swan Bay 44 fish species Swan Bay; Pt Lonsdale intertidal platform (calcarenite reef) highest diversity invertebrates of this reef type in Vic.; High-very high species diversity sponges, fish and invertebrates at Lonsdale Wall; Important kelp community declining elsewhere (<i>Macrocystis</i>) off Pt Lonsdale	Parks Victoria 2008 " " SBICMC 2002 Parks Victoria 2008 " " "
Conservation Reserves (major)		
	Port Phillip Heads Marine National Park, Lake Connewarre State Game Reserve, Buckley Park Foreshore Reserve Edwards Point Wildlife Reserve, Ocean Grove Nature Reserve, Lonsdale Lakes Nature Conservation Reserve, Salt Lagoon Nature Reserve, Point Richards Flora and Fauna Reserve	Parks Victoria CoGG Bellarine Bayside
Pest Plants and Animals		
Pest Plants	57 species of concern identified for the Bellarine 29 priority weed species for control	Updated From SBICMC 2002
Pest Animals	Rabbits and foxes are key pests \$5 million loss to agriculture caused by rabbits in the wider Corangamite region per year	CCMA 2003
Secondary Salinity		
	Serious threats to the land resource of Lake Connewarre and surrounds	CCMA 2004

Table 9: Social Values –snapshot facts and references

RESOURCE	CONDITION	REFERENCE
Population	2001: ~ 42,000; 2006: ~50,000; % increase:15%; Peak holiday period population: ~ 90,000 Age breakdown: 25% > 60 years old (nat. av. 18%)	CoGG 2006 Osborn, R. 2006 CoGG 2006
Conservation & environment groups	21 volunteer/community/school/govt. groups participated in SBICM Plan 2002; 36 groups participated 2007	SBICMC 2007
Tourism/recreation	2.4 million day visits in 2000 (Geelong and Bellarine Peninsula); 40-50,000 visitors Bellarine Peninsula peak holiday periods; Annual average increase in visitor numbers:15%	URS/AgInsight 2002 CoGG 2006 CCMA 2003

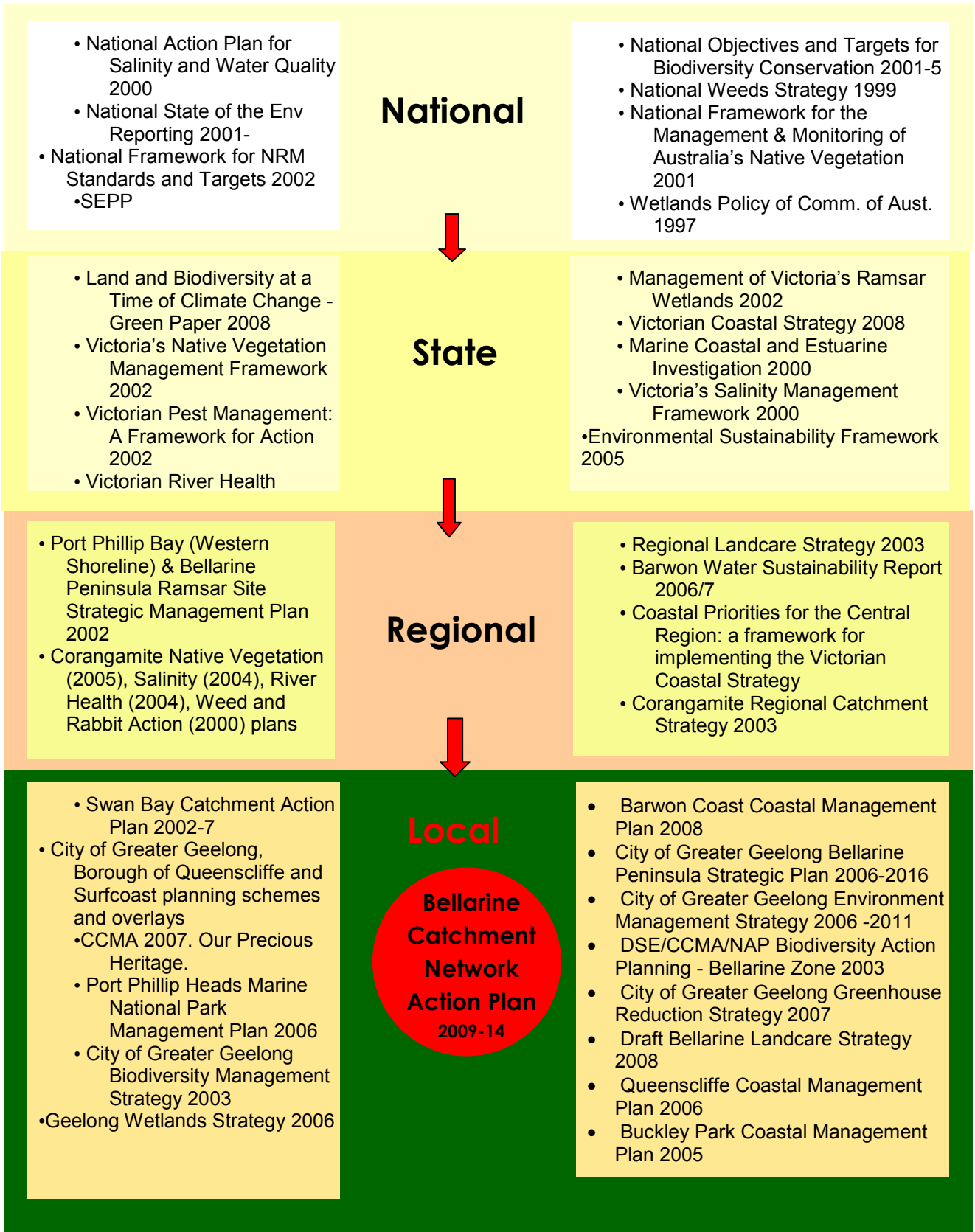
Table 10: Cultural Values –snapshot facts and references

RESOURCE	CONDITION	REFERENCE
Indigenous Cultural Heritage		
Heritage sites	Numerous Aboriginal Sites, especially coastal middens, contact sites and ceremonial grounds.	CCMA 2007 AAV 2003 Cultural Advisor, Wathaurong Aboriginal Co-operative Parks Victoria 2006 Longmore, S & O'Callaghan, P. 1997 DCE 1991 www.barwonbluff.com.au/koorie/
Heritage sites	Post-settlement: numerous sites, particularly travel infrastructure (e.g. rail, shipping) tourism-associated, e.g. Queenscliff and fishing industry	



Stabilisation of eroding primary dune to protect Coastal Moonah Woodland. Photos: Sue Longmore

Appendix A2: Key Influencing Policies



† Major policies only listed

KEY INFLUENCING POLICIES

The Bellarine Catchment Network Action Plan (and its predecessor, the Swan Bay Catchment Action Plan), is both complementary and distinctive in relation to its planning context.

There is a consistent policy thread from the national level to the local level. National natural resources management (NRM) initiatives, such as the National Action Plan for Salinity and Water Quality 2000 and the National Framework for NRM Standards and Targets 2002 articulated the key NRM assets of the nation – water and biodiversity assets particularly - the threats they face and a consistent set of measures and processes for setting targets and goals. These directions were translated at the state level into policies and frameworks such as the Native Vegetation Management Framework 2002 and the River Health Strategy 2002, which were then further refined and given local and regional detail and application via documents such as the Corangamite Regional Catchment Strategy 2003, Corangamite Native Vegetation Action Plan 2005 and Ramsar wetland management plans. Final detail, precision and circumstance was supplied by local plans like the previous Swan Bay Catchment Action Plan 2002-7 and the Biodiversity Action Planning Bellarine Zone 2003.



Catchment 4 Coasts Green Corps team at Bellarine Secondary College & Bellarine Landcare Nursery. Photo: Jama Moran

Running in parallel to this strong thread of natural resources policy is a later, broader policy outlook that seeks to address wider environmental issues as well, such as sustainability, climate change, waste management and urban development and planning. The State Government’s Victoria’s Environmental Sustainability Framework 2005 adopted this broad approach as did the policy Land and Water at a Time of Climate Change 2008. This approach was mirrored by the City of Greater Geelong’s Environment Management Strategy 2006 - 2011 and goes even further again and takes a truly holistic, community-development perspective in the Bellarine Strategic Plan 2006. This latter plan sets community visions for all the settlements and localities of the Peninsula, as well as essential planning parameters, such as areas earmarked for growth (Ocean Grove, Clifton Springs/Drysdale, and Leopold).

The first Swan Bay Catchment Action Plan was largely a natural resources management plan with a central core of community involvement and capacity building. This core is retained in the second plan, as is the natural resources standpoint and focus, but wider connection is made with related environmental, social and economic issues. In addition, the area of interest has more than doubled to include the majority of the Bellarine Peninsula and associated marine environment (see “Resource Condition & Context”). This widening of outlook can be presented diagrammatically – see Figure 7.



Figure 7: Issues coverage and approach: comparison between SBICMC / BCN plans.

Appendix A3: Swan Bay Catchment Action Plan 2002 -2007

The previous catchment action plan had six priority goals and areas of action:

- Increasing community awareness and participation
- Advancing the protection, enhancement and linking of remnant vegetation
- Improving stormwater quality
- Improving in-stream water quality
- Promoting pest plant and animal control
- Increasing the adoption of sustainable agricultural practices.

Progress towards these goals has been good, and in some cases exceptional, particularly as regards community awareness and participation. Of the 96 actions listed in the Plan, 86 have been fully implemented (SBICMC archives and S. Longmore pers. comm.).

Highlights of the five years of implementation since 2002 include:

Community Awareness and Participation

- Bellarine Secondary College Year 8 Environment Day: *"Our Communities -People, Plants and Animals on the Bellarine"*;
- Facilitated, supported and involved 15 pre-school, primary, secondary and tertiary institutions in practical activities that enhance the local environment;

Remnant Vegetation and Wildlife Corridors

- Important wetlands between Point Lonsdale and Collendina were recognised by the Victorian Government as having complementary values to Swan Bay, and documented in Appendix 9 of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site Strategic Management Plan;
- Yarram Creek and other strategic waterways and remnant vegetation have been restored and linked through revegetation;



Wildlife corridor revegetation linking remnant Heathy Woodland EVC. Photo: Matt Crawley



Environmental and BCN group displays at community event. Photo: Sue Longmore

Water Quality

- Community monitoring of key waterways in the Swan Bay catchment for over 10 years, through the Waterwatch program.

Pest Plants and Animals

- Bridal Creeper biological control program – leafhopper and rust fungus biocontrols established at 72 sites.

Sustainable Agriculture

- Land and Waterways Management Kit developed, distributed and used by landholders across the Peninsula.

Significant achievements in these five years have resulted in SBICMC receiving the following awards:

- 2007 Victorian Landcare Awards - Australian Government Coastcare Award
- 2005 Federal Environment Minister's Award for Coastal Custodians - "Victoria Highly Commended"
- 2005 City of Greater Geelong World Environment Day Award - in recognition of services to the environment.
- 2002 Victorian Coastal Awards for Excellence - "Award for Excellence in Coastal Conservation and Protection by a Community Group"
- 2001 Victorian Coastal Awards for Excellence - A "High Commendation" for Coastal Conservation and Protection
- 2000 Victorian Landcare Awards - The BP Landcare Catchment Management Award.

Overall, the plan's greatest strength has been its ability to build community capacity and involvement, so that new groups have been constantly added while previous groups have remained active participants. A vital part of this capacity building has been energetic and skilful schools' and community programs that provide practical, 'hands-on' activities for a range of ages. Activities vary from water monitoring to weed surveys, to revegetation of rural land, dunes, waterways and wetlands, to breeding and releasing biological control agents to combat Bridal Creeper infestations. In 2007 alone 10 schools, 82 sessions, 1032 student and 229 adult contacts were carried out across the Peninsula through the school's program (SBICMC 2007).

Extensive and active community engagement has occurred because the plan has been valued and is seen as relevant by the residents of the Bellarine and because it deals explicitly with local issues and problems. The committee has also been open and skilful in the integration of the diverse interests and perspectives of its constituent members and is seen to be a strong advocate on the region's behalf.



St Aloysius Primary School releasing Bridal Creeper leafhoppers in Coastal Moonah Woodland. Photo: St Aloysius PS



Buckley Park Foreshore Reserve: Bridal Creeper affected by rust fungus, a biological control agent. Photo: Sue Longmore



Preparation of rust fungus spore-water for aerial spraying. Barwon Coast, City of Greater Geelong and DPI. Photo: Sue Longmore

Appendix A4: Linking Assets, Services and Threats



Figure 8: Relationship between assets, services and threats

Figure 8 summarises and groups the natural or naturally-drawn assets of the Bellarine Catchment Network Action Plan as wetlands, biodiversity, marine ecosystem, tourism/lifestyle development and primary production. In addition, community is seen as a real asset because of its engagement with, and care for, the local environment.

These broad asset groupings can be elaborated and developed by listing the services they provide. “Ecosystems provide a diverse range of goods and services that drive our economy and support the wellbeing of our communities. Ecosystem services, such as the productivity of the soil and the purification of water can be readily costed...other services like cultural heritage values and the health benefits of spending time in nature are more difficult to place a value on” (DSE 2008).

The figure lists 10 services that are delivered by the assets of the Bellarine Peninsula and surrounding natural environment. They vary from ‘Prevention of erosion’ to ‘Climate stabilisation’ at a time of climate disruption, to the ‘Spiritual and cultural value’ that the community draws from the exceptional environments of the Peninsula.

These services will be delivered to varying degrees by the local environment and be of varying importance locally (see “Resource Condition” section).

The 10 ecosystem services flowing from the assets of the Bellarine will be affected by different and multiple threats. The ability of marine wetlands to control seafloor erosion and provide nursery areas for fish can be threatened by siltation from denuded rivers in the catchment as well as nutrient pollution from urban and agricultural run-off. Cultural identity can be threatened by the degradation of natural environments and the destruction of the natural setting of the Peninsula’s settlements through inappropriate development. Farm income can be reduced by threats as varied as pests and weeds, salinity and decreased water quality and quantity.

It is essential to protect the ecosystem services of the Peninsula both for their current value but also for future viability. “An environment rich in diversity and complexity ensures we continue to have options for sustainable economic activity, the capacity to nurture human welfare and the ability to adapt to change” (DSE 2008).

Appendix A5: Assets, Services and Threats

Identifying and Valuing Ecosystem Services

In order to determine the relationship between services and threats it is first necessary to identify services and assign them a value. It is also important to understand how the service is changing in terms of its condition or quality. By combining these factors it is possible to determine a priority score for each asset. The priority score is given on a scale of 1 to 5, with 5 being major. Table 11 below demonstrates this process for the Bellarine Peninsula, as arrived at by the Steering Committee and community consultation

Table 11: Indicative ecosystem service values

SERVICE	EXTENT	CONDITION	TREND	VALUE	PRIORITY SCORE (1-5)
1. Air quality	Entire area	Good	Improving	Medium-High	3
2. Water: 2.1 Quantity 2.2 Quality	81 GL/yr outflow Barwon River 2005/6	See 'Quality'	Declining	High	5
	Entire area	Poor	Variable-Declining	High	5
					Total: 5
3. Pest control	Limited ability/extent land environment; greater potential marine environment	Land poor, Marine fair	Declining	Medium-Low	2
4. Detoxification / decomposition of wastes	Tip sites and waterways particularly	Fair	Unknown	Medium-Low	3
5. Pollination and crop production	Limited. 13% remnant vegetation only	Poor	Declining	Medium	2-3
6. Climate stabilisation	Entire land and marine area	Resilience variable: land poor, marine fair-good	Declining (land more sharply than marine)	High	5
7. Prevention and mitigation of natural degradation	Land vegetation: Limited (13%) Coastal vegetation: Limited Marine vegetation: Limited	Poor Poor Fair	Declining Declining Stable-Declining	High High High	5

Table 11 (cont)

SERVICE	EXTENT	CONDITION	TREND	VALUE	PRIORITY SCORE (1-5)
8. Food security: 8.1 Land 8.2 Water	Diverse	Fair	Declining	High-Medium	4
	Extensive fish nursery Swan Bay	Fair	Stable-Declining	High-Medium	4
					Total: 4
9. Health	Entire area/pop. 15.5% with 'disability'	Good-Fair	Improving	High	5
10. Spiritual and cultural value	Natural environment informs all population	Good	Improving	High	4.5
11. Tourism and recreation	Extensive, particularly coastal	Good	Improving	High \$940M - Great Ocean Rd tourism/2000	5
12. Indigenous and cultural heritage	Numerous sites, partic. coastal	Poor	Stable	High	4
13. Income: 13.1 Primary production 13.2 Parks	Extensive	Variable	Extent declining	\$770M Corangamite \$100M fisheries/ Vic \$860M/Vic	5
					3
					Total: 5



Friends of Edwards Point volunteer and Parks Victoria ranger monitoring Bridal Creeper biological controls at Edwards Point Wildlife Reserve. Photo: Sue Longmore



Creating 20m wide indigenous vegetation corridor linking Swan Bay with Grassy Woodland EVC Photo: Matt Crawley

Assessing the threats

The condition and value of the services identified are at risk from a number of threats. In order to assess the outcome of these threats the following measures are taken. The significance of the threat is given on a scale of 1 to 5 with 5 being major. The trend of the threat is assessed - if it is getting worse (3) or better (1) or neither (2); and a combined ranking is made from the sum of the significance and threat to give a priority score. The priority score is given on a scale of 1 to 8, with 8 being major. Table 12 below demonstrates this process as undertaken by the Steering Committee and through community consultation.

Table 12: Threat Scores

THREAT	SIGNIFICANCE (1-5)	TREND (1-3)	PRIORITY SCORE (1-8)
Water Quality			
Silt load	4	3	7
Nutrient pollution	4	3	7
Algal growth	3	3	6
Groundwater quality	2	2	4
Water Quantity			
Surface water use/diversion	3	2	5
Groundwater use/diversion	1	1	2
Land Systems			
Inappropriate development	5	3	8
Firewood collection	2	1	3
Fire management	2	2	4
Companion animals	4	2	6
Roadside management	5	2	7
Foot-vehicle traffic erosion/clearing	3	1	4
Marine Systems			
Seagrass decline	5	2	7
Overfishing	4	2	6
Infrastructure works, e.g. channel deepening, harbour works	4	2	6
Coastal erosion	4	2	6
Ship-borne contaminants/invasive species	3	3	6

Table 12 (cont)

THREAT	SIGNIFICANCE (1-5)	TREND (1-3)	PRIORITY SCORE (1-8)
Food systems			
Pests and weeds	5	3	8
Dryland salinity	3	3	6
Air quality			
	1	2	3
Spiritual/cultural/health/tourism values			
Declining community capacity	4	3	7
Declining community health	2	2	4
Declining tourism values	1	2	3
Declining heritage values	2	2	4
Climate change			
	5	3	8

Integrating services and threat management

By linking the assessment value of a service with the impact of the threat it is possible to establish which threat impacts most upon which service and thus set priorities for the plan. The scores are derived by adding the priority score of each service versus each threat. The final total score is an aggregate sum of all the scores for each threat.

This assessment helps to identify priorities for the plan in that key threats create the greatest risk to those services considered the most valuable.

The assessment reveals that the most important ecosystem services on the Bellarine are (in rank order):

1. Prevention of natural degradation
2. Spiritual and cultural value
3. Income
4. Water quality
5. Climate stabilisation
6. Water quantity/availability
7. Detoxification/decomposition of wastes
8. Food security
9. Tourism and recreation
10. Health

The major themes drawn from these appear to be natural protection/stability (**land, wetland and marine health**), **water** (quality and quantity), **income** (primary production mostly), **cultural identity/health**, and **climate change**. These will structure the setting of targets from herein.

Dominant threats identified via the matrix are (in rank order):

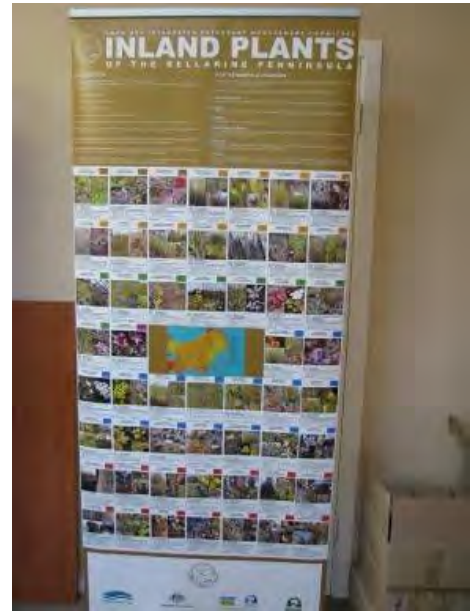
1. Climate change
2. Inappropriate development
3. Declining community capacity
4. Water quantity/availability
5. Roadside management
6. Pest and weeds
7. Declining community health
8. Nutrient pollution
9. Silt load
10. Dryland salinity
11. Foot-vehicle-clearing of vegetation
12. Seagrass decline
13. Coastal erosion
14. Tourism decline

Appendix A6: Bellarine Catchment Network Resources

Bellarine Catchment Network has developed significant resources to facilitate community awareness and involvement. These include:

- Coastcare Landcare Community Environmental Works Trailer and equipment
- Coastal Plants of the Bellarine Peninsula booklet
- Inland Plants of the Bellarine Peninsula booklet
- Fauna of the Bellarine Peninsula brochure
- Inland Plants of the Bellarine Peninsula banner
- Coastal Plants of the Bellarine Peninsula banner
- Land Management Kit
- Ambassadors of the Dunes Brochure
- Swan Bay Share the Care Brochure
- Swan Bay Environment Trail Brochure
- Swan Bay Environment Trail signs
- Bonnyvale Wetlands sign
- Edwards Point Saltmarsh Boardwalk sign
- Swan Bay (western shoreline) sign
- Bellarine Peninsula Environmental Groups Information Sheet
- Bellarine Biodiversity Quilts
- A variety of displays

Resources developed by individual network organisations include: the BLG Community Landcare Education Trailer; Park Notes for Parks Victoria Reserves and the Port Phillip Heads Marine National Park; and a variety of other publications.



*Images on right from top to bottom:
Inland flora banner; community environmental works trailer, flora booklets and fauna brochure.
Photos: Matt Crawley*



Appendix A7:

Acronyms and Terms

AAV -	Aboriginal Affairs Victoria	FFG Act	Flora and Fauna Guarantee Act 1988 (Victorian)
AGM -	Annual General Meeting	FOBRT -	Friends of Bellarine Rail Trail
BA -	Birds Australia	FOBW -	Friends of Begola Wetlands
BBCOM -	Bellarine Bayside Committee of Management	FOBP -	Friends of Buckley Park
BC -	Barwon Coast Committee of Management	FOEP -	Friends of Edwards Point
BCN -	Bellarine Catchment Network	FOGNR -	Friends of Ocean Grove Nature Reserve
BLG -	Bellarine Landcare Group	FOPR -	Friends of Point Richards
BONN -	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)	GAV -	Greening Australia Victoria
BoQ -	Borough of Queenscliffe	GC -	Green Corp
BSCBLN -	Bellarine Secondary College & Bellarine Landcare Nursery	GWGQ -	Global Warming Group Queenscliff
CAMBA -	China - Australia Migratory Bird Agreement	JAMBA -	Japan - Australia Migratory Bird Agreement
CCMA -	Corangamite Catchment Management Authority	Mi	Migratory Bird Species listed under the EPBC Act
CoGG -	City of Greater Geelong	NAP	National Action Plan
CVA -	Conservation Volunteers Australia	NRM -	Natural Resources Management
DPI -	Department of Primary Industries	OHS -	Occupational Health and Safety
DSE -	Department of Sustainability and Environment	OP -	Otway Plain
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	PV -	Parks Victoria
EVC -	Ecological Vegetation Class	ROKAMBA -	Republic of Korea - Australia Migratory Bird Agreement
		SBEA -	Swan Bay Environment Association
		SBICMC -	Swan Bay Integrated Catchment Management Committee
		VVP -	Victorian Volcanic Plain
		WoNS -	Weeds of National Significance