

MORNINGTON PENINSULA BIODIVERSITY: SURVEY AND RESEARCH HIGHLIGHTS



Design and editing:

Linda Bester, Universal Ecology Services.

General review: Sarah Caulton.

Project manager: Garrigue Pergl, Mornington Peninsula Shire.

Photographs: Matthew Dell, Linda Bester, Malcolm Legg, Arthur Rylah Institute (ARI), Mornington Peninsula Shire, Russell Mawson, Bruce Fuhrer, Save Tootgarook Swamp, and Celine Yap.

Maps: Mornington Peninsula Shire, Arthur Rylah Institute (ARI), and Practical Ecology.

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Acknowledgement of Country: The Mornington Peninsula Shire acknowledges Aboriginal and Torres Strait Islanders as the first Australians and recognises that they have a unique relationship with the land and water. The Shire also recognises the Mornington Peninsula is home to the Boonwurrung / Bunurong, members of the Kulin Nation, who have lived here for thousands of years and who have traditional connections and responsibilities to the land on which Council meets.

Data sources - This booklet summarises the results of various biodiversity reports conducted for the Mornington Peninsula Shire:

...Costen, A. and South, M. (2014) Tootgarook Wetland Ecological Character Description. Mornington Peninsula Shire.

...Cook, D. (2013) Flora Survey and Weed Mapping at Tootgarook Swamp Bushland Reserve. Mornington Peninsula Shire.

...Dell, M.D. and Bester L.R. (2006) Management and status of Leafy Greenhood (*Pterostylis cucullata*) populations within Mornington Peninsula Shire. Universal Ecology Services, Victoria.

...Legg, M. (2014) Vertebrate fauna assessments of seven Mornington Peninsula Shire reserves located within Tootgarook Wetland. Consultant report to Mornington Peninsula Shire by Mal's Environmental & Ecological Services, Victoria..

...Legg, M., McCaffrey, N., Henry, J. and Ewing, A. (2012) Mornington Peninsula fauna atlas 2007–2012. Consultant report to Mornington Peninsula Shire by Practical Ecology Pty Ltd and Mal's Environmental & Ecological Services, Victoria.

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MORNINGTON PENINSULA BIODIVERSITY: SURVEY AND RESEARCH HIGHLIGHTS

This report outlines key results of scientific reports conducted over several years. Some nomenclature and information in this publication may have been revised, or may be in the process of revision.

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Flora and fauna surveys

Overview

The Mornington Peninsula Shire is located to the south-east of Melbourne and occupies a peninsula which separates Western Port and Port Phillip Bay. It consists of 720 km² of highly variable vegetation communities within the Gippsland Plain bioregion.

Mornington Peninsula Biodiversity: Survey and Research Highlights aligns with the Shire's Strategic Plan 2013—2017; in particular Goal 1: *Liveable peninsula* and Goal 4: *Leading change on climate change*.

The Mornington Peninsula has a complex pattern of native vegetation, reflected in over forty-three vegetation types (Ecological Vegetation Classes) and associated complex habitats. Since European settlement in the early 19th Century, 82% of natural vegetation cover has disappeared along with the associated decline in ecosystems upon which fauna are dependant. Today, native vegetation removal occurs at a slower rate, although retained native vegetation is increasingly subject to fragmentation and numerous degrading processes.



Photo: Linda Bester

Mornington Peninsula Shire is required to make day-to-day planning and management decisions, many of which have the potential to impact on the Peninsula's biodiversity. Until now, the Shire's flora and fauna records focussed on public land, and were largely out of date. Furthermore, existing databases were not able to provide information at the individual property level. Council recognised the need to move towards a more evidence-based decision-making process and allocated priority funding towards municipal-scale natural resource mapping. The first step involved the Shire-wide mapping of remnant native vegetation at a scale of 1:10,000. This was completed in 2006, at which point Stage Two commenced; resource mapping of native fauna.

The growing need for more current, detailed and accessible mapped fauna data to improve decision-making is perhaps better understood in the light of existing and proposed development projects, including Peninsula Link, Westernport highway duplication and the associated development of the Port of Hastings, alongside other developments, the associated increased density of settlement, and the emerging challenge of mitigating effects of climate change on flora and fauna.

The Natural Resource Mapping project was a major undertaking for the Shire, particularly in relation to the study of private land and roadsides. An integral part of the study involved surveying biodiversity on private land, which was a first for the Shire.

Ongoing research involving biodiversity values across the Peninsula landscape by the Shire, state agencies and the community is critical for helping to inform strategic planning, natural systems and infrastructure asset management.

Fauna surveys

on the Mornington Peninsula

The study area focused primarily on terrestrial environments. A buffer of approximately 1 km wide was applied to the boundaries of terrestrial zones in order to capture adjacent coastal and marine environments and associated fauna.



Crimson Rosella — *Platycercus elegans* Photo: Linda Bester

Survey sites

Fauna surveys were conducted and data was collected at a variety of sites across the Mornington Peninsula and Quail Island in Western Port (Map 1, Page 5), including selected:

- ... private freehold properties;
- ... road reserves;
- ... private and public wetlands;
- ... areas of known mortality based on road networks;
- ... Council-managed bushland reserves;
- ... private and public land where exotic predator control has occurred; and
- ... Parks Victoria-managed land, bushland and foreshore reserves.

Survey methods and types

Surveys took place throughout all months in an annual cycle from 2007 until late September 2011, with sampling methods modified as required to maximise the detection of target

species. Modifications were often necessary based on site characteristics such as size, topography, Ecological Vegetation Classes (EVCs) and vegetation condition/structure.

The following survey methods were used:

- ... Spotlighting
- ... Elliot and cage traps
- ... Pitfall traps
- ... Sheet-iron placement
- ... Scats, diggings and other traces
- ... Call recordings and playbacks
- ... Hair tubes
- ... Remote camera traps
- ... Incidental surveys e.g. road-kill
- ... Skeletal remains, including in scats

Survey aims

The aims of these fauna surveys were to:

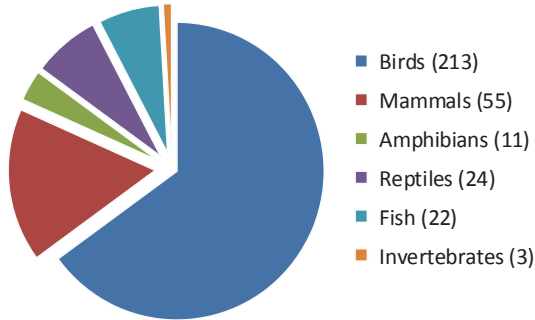
- ... Establish the presence all targeted species occurring within designated areas, using the survey techniques (listed further below).
- ... Establish the presence or absence of all threatened and/or conservation significant fauna, to ascertain their relative distributions within the survey sites.
- ... Identify any habitat associations / dependencies (e.g. whether particular vegetation communities support particular faunal assemblages).

These aims were achieved by developing a detailed survey design after the background analysis and initial site inspections were done.

Results

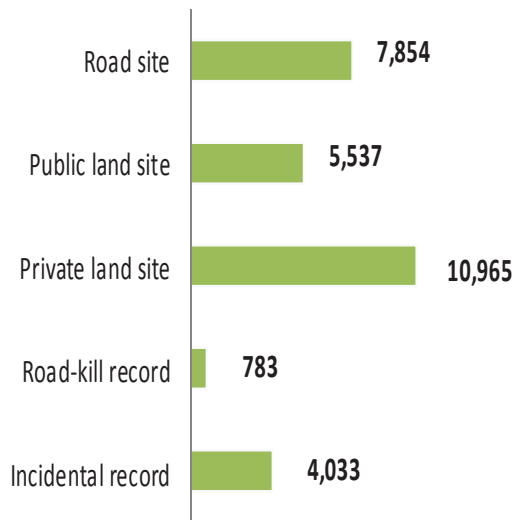
In summary

The surveys identified birds (64.9%) and mammals (16.8%) as the largest fauna lifeform groups within the study area.

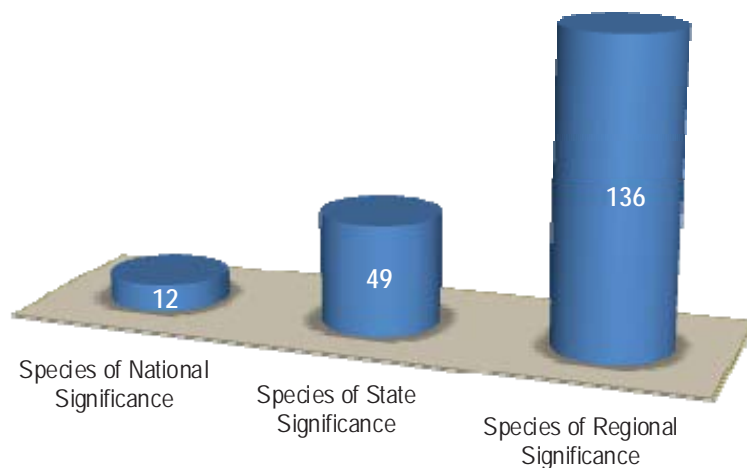


Total number of species recorded within the study area (328, including 30 introduced species)

In total 29,172 observations were made of fauna, either incidentally or in targeted sites across the Mornington Peninsula.



Out of the 328 fauna species recorded, 144 species (or 44 %) are considered to have some level of significance above 'local' significance (see *Glossary*).

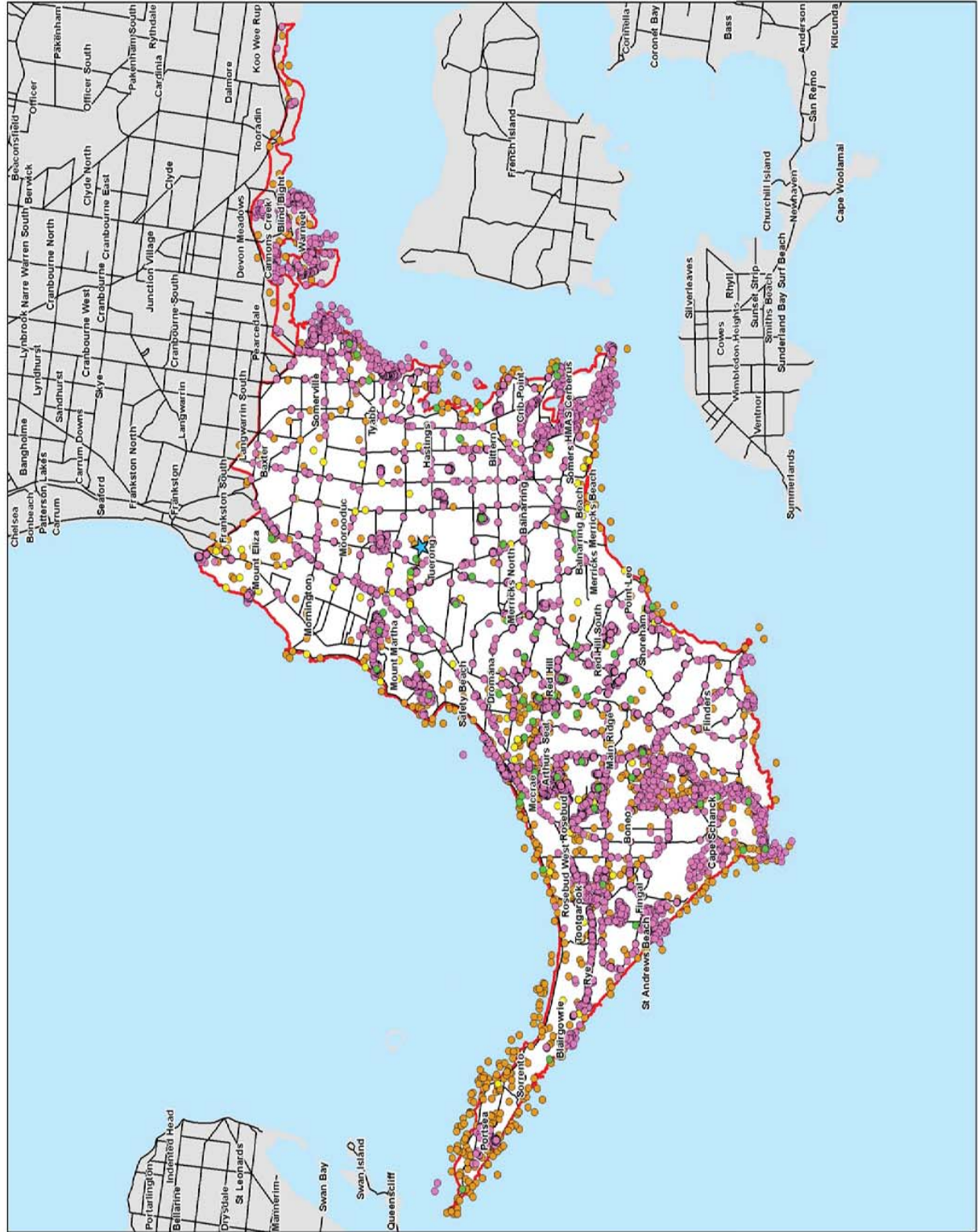


Agile Antechinus — *Antechinus agilis* Photo: Malcolm Legg



Cage traps Photo: Linda Bester

FAUNA



Map 1: Fauna records

Legend

Fauna records

Data source

● Stage 1 (1991-2005)

● Stage 2 (2007-2011)

★ Devilbend Reservoir Bird Observations

● Birds Australia / BOCCA

● Atlas of Victorian Wildlife

— Major roadways

▭ Study area

Notes:

- Due to high density of data, many points are hidden by overlapping points
- Devilbend Reservoir star symbol represents a cluster of bird observations

Details

Mapping by: Colin Broughton

Data Source: Base GIS data provided by Mornington Peninsula Shire and Geoscience Australia.

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N



0 5 10 km

Scale 1:225,000 (Page size A3)

Disclaimer

Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.

Practical Ecology Pty Ltd



Contracting and Consulting in Ecological Restoration and Environmental Planning
 100/101 Sturt Street
 PO Box 228, Preston VIC 3072
 Australia
 Tel: 03 9479 1111
 Email: info@practical-ecology.com.au

New Peninsula fauna records

During the surveys, several species of fauna were recorded that were not already listed in the Atlas of Victorian Wildlife (DSE 2011) - now referred to as the Victorian Biodiversity Atlas.

One of the most important findings involved the discovery of a healthy population of the EPBC listed Southern Brown Bandicoot on Quail Island in 2008 (refer to page 11). Other records are outlined in the following tables.

Amphibians (1)

...Striped Marsh Frog, *Limnodynastes peronii*

Birds (6)

...Black-tailed Native-hen, *Gallinula ventralis*
 ...Brown Honeyeater, *Lichmera indistincta*
 ...Diamond Firetail, *Stagonopleura guttata*
 ...Osprey, *Pandion cristatus*
 ...Purple-crowned Lorikeet, *Glossopsitta porphyrocephala*
 ...Rainbow Bee-eater, *Merops ornatus*

Fish (19)

...Black Bream, *Acanthopagrus butcheri*
 ...Blue-spot Goby, *Pseudogobius olorum*
 ...Bridled Goby, *Arenigobius bifrenatus*
 ...Brown Trout, **Salmo trutta*

Common Galaxias — *Galaxias maculatus* Photo: Malcolm Legg



...Common Galaxias, *Galaxias maculatus*
 ...Eastern Dwarf Galaxias, *Galaxiella pusilla*
 ...Eastern Gambusia, **Gambusia holbrooki*
 ...Estuary Catfish, *Cnidogobius macrocephalus*
 ...Flatheaded Gudgeon, *Philypnodon grandiceps*
 ...Goldfish, **Carassius auratus*
 ...Greenback, Flounder *Rhombosolea tapirina*
 ...Long-finned Goby, *Favonigobius lateralis*
 ...Redfin Perch, **Perca fluviatilis*
 ...Short-finned Eel, *Anguilla australis*
 ...Small-mouthed Hardyhead, *Atherinosoma microstoma*
 ...Smooth Toadfish, *Tetractenos glaber*
 ...Tench, **Tinca tinca*
 ...Tommy Rough, *Arripis georgianus*
 ...Yelloweye Mullet, *Aldrichetta forsteri*

Invertebrates (4)

...Common Yabby, *Cherax destructor*
 ...Burrowing Crayfish, *Engaeus* sp.
 ...Freshwater Crayfish, *Geocharax gracilis*
 ...Granular Burrowing Crayfish, *Engaeus cunicularius*

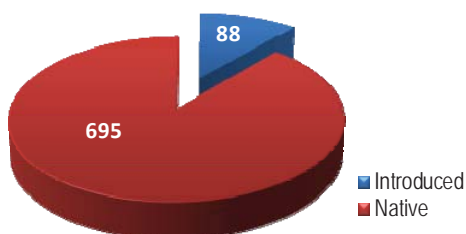
Mammals (14)

...Blue Whale, *Balaenoptera musculus*
 ...Bottlenose Dolphin (Port Phillip), *Tursiops* sp. (cf. *aduncus*)
 ...Eastern Broad-nosed Bat *Scotorepens orion*
 ...Eastern False Pipistrelle, *Falsistrellus tasmaniensis*
 ...Ferret, **Mustela furo*
 ...Freetail Bat (eastern form), *Mormopterus* sp. EG
 ...Gould's Long-eared Bat, *Nyctophilus gouldi*
 ...Little Broad-nosed Bat, *Scotorepens greyii*
 ...Long-finned Pilot Whale, *Globicephala melas*
 ...Pig, **Sus scrofa*
 ...Pygmy Blue Whale, *Balaenoptera musculus breviceauda*
 ...Red-necked Wallaby, *Macropus rufogriseus*
 ...Sambar, **Cervus unicolor*
 ...Southern Free-tail Bat, *Mormopterus* sp. 1

*introduced species

Road-kill: Random survey results 2007—2011

Fauna, deceased as a result of vehicle impact (known as road-kill), was recorded incidentally within proximity of roads and road-sides. The outcome was limited by the presence of foxes and other scavengers which quickly remove road-kill, however the data indicate where it mostly occurs, which species are affected and how often (Page 9).

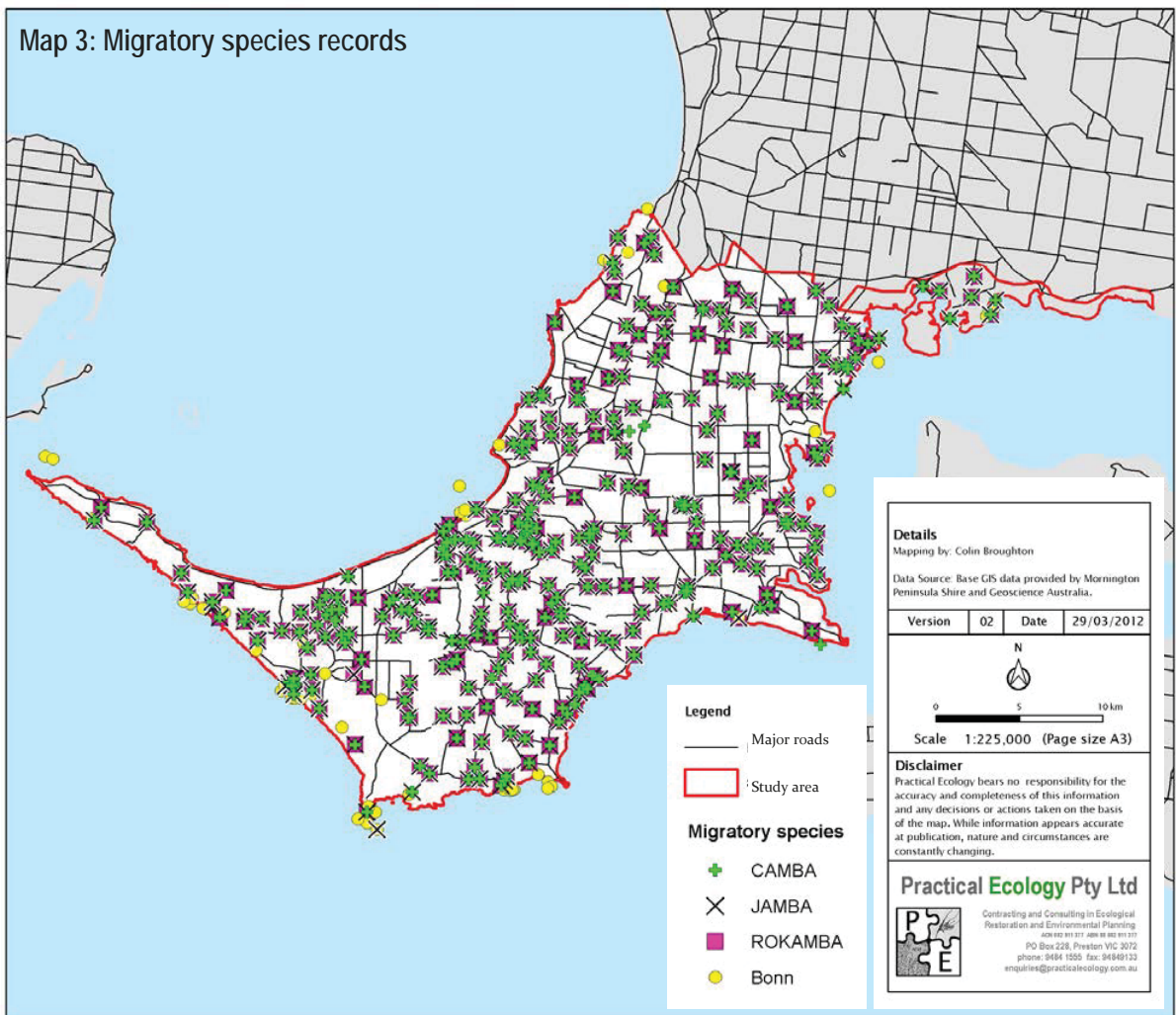
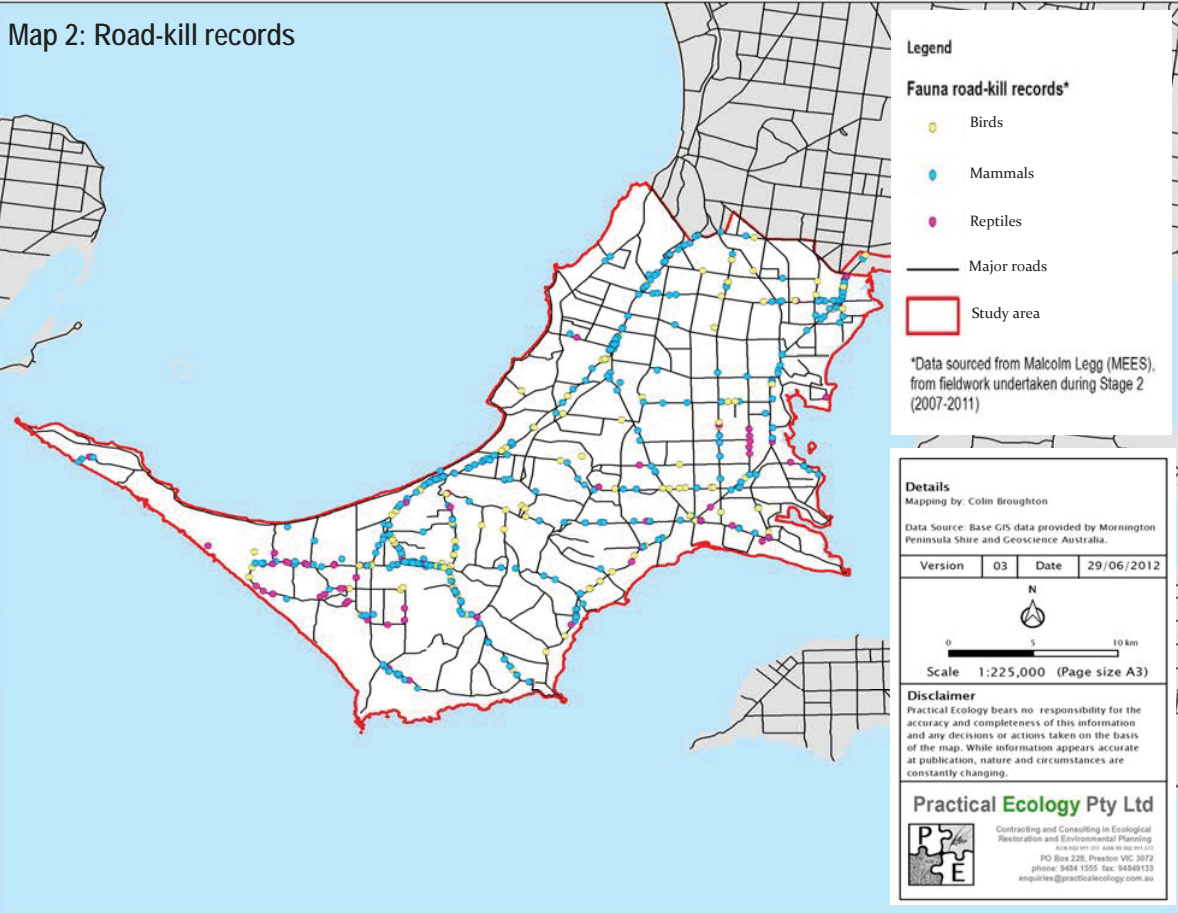


Number of road-kill animals recorded

Fauna group	No. of species	No. of road-kill
Birds	32	172
Reptiles	7	95
Mammals	17	516
TOTAL	56	783

A total of 783 incidences were recorded from 2007 to 2011 (Map 2, Page 7).

The data suggests that wildlife mortality is high as a result of vehicle impact on the Mornington Peninsula, with 89% of all recorded road-kill deaths being native animals.



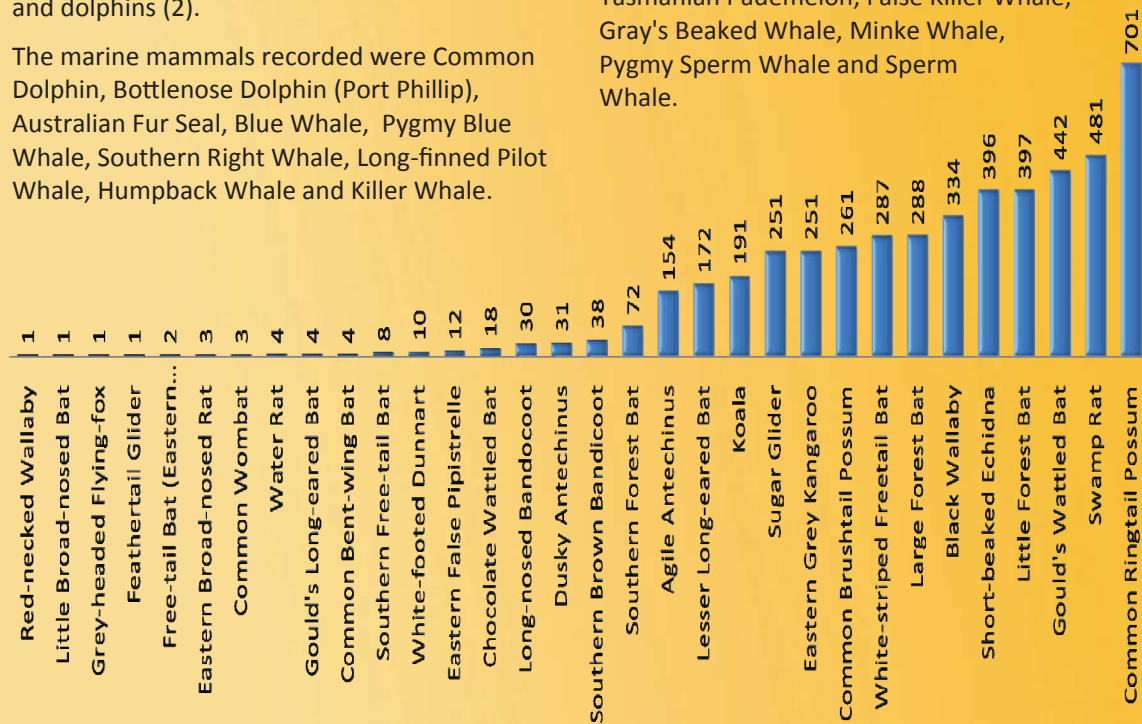
Mammal survey records

Fifty-five mammal species were found during the study, including fourteen introduced species.

The graph below includes the numbers of each mammal species recorded, with the exception of introduced species (14), whales (6), seals (1) and dolphins (2).

The marine mammals recorded were Common Dolphin, Bottlenose Dolphin (Port Phillip), Australian Fur Seal, Blue Whale, Pygmy Blue Whale, Southern Right Whale, Long-finned Pilot Whale, Humpback Whale and Killer Whale.

A number of species were recorded on the Peninsula between the mid-1800s and the mid-1970s that were not seen during the survey period (1991–2005 and 2007–2011) including Dingo, Eastern Pygmy Possum, Eastern Quoll, Long-nosed Potoroo, New Holland Mouse, Spot-tailed Quoll, Tasmanian Bettong and Tasmanian Pademelon, False Killer Whale, Gray's Beaked Whale, Minke Whale, Pygmy Sperm Whale and Sperm Whale.



Bird survey records

Birds were noted as the largest fauna group on the peninsula, with 213 bird species being recorded over the survey period (64.9% of all peninsula fauna species). This number included:

- ... 26 migratory species;
- ... 6 native species not previously recorded;
- ... 59 species that are considered close to extinction; and
- ... 32 species that were recorded as road-kill.

There is a clear gradient of change in bird communities on the Peninsula, from forest interiors to roadsides, suggesting that interiors of



medium-sized <1,000 ha patches may play an important role in providing refuges for forest-dependent birds (Antos and White 2004).

The retention of dead trees is also important; particularly those with hollows that are used by cavity-dependent birds and other animals. It often takes more than a hundred years for a tree to form suitable hollows.

Water availability has been shown to cause a collapse in bird numbers and breeding events (DSE 2009).

At least 38 bird species have become extinct on the Peninsula since European settlement, and an overall extinction phase is currently occurring.

ROAD-KILL SPECIES ON THE PENINSULA

Birds

...Australasian Grebe, 2
 ...Australian Magpie, 36
 ...Australian Raven, 5
 ...Australian White Ibis, 1
 ...Australian Wood Duck, 13
 ...Barn Owl, 1
 ...Black Swan, 1
 ...Black-shouldered Kite, 3
 ...Brown Goshawk, 4
 ...Chicken (domestic), 1
 ...Common Blackbird, 4
 ...Common Bronzewing, 6
 ...Crimson Rosella, 3
 ...Eastern Great Egret, 1
 ...Eastern Rosella, 2
 ...Galah, 1
 ...Grey Butcherbird, 5
 ...Grey Shrike-thrush, 1
 ...Laughing Kookaburra, 7
 ...Little Wattlebird, 1
 ...Magpie-lark, 5
 ...Noisy Miner, 9
 ...Pacific Black Duck, 1
 ...Purple Swamphen, 11
 ...Rainbow Lorikeet, 2
 ...Red Wattlebird, 8
 ...Sacred Kingfisher, 1
 ...Silver Gull, 2
 ...Southern Boobook, 4
 ...Superb Fairy-wren, 2
 ...Tawny Frogmouth, 26

...Yellow-tailed Black-Cockatoo, 1

Mammals

...Agile Antechinus, 1
 ...Black Wallaby, 58
 ...Cat (feral), 9
 ...Common Brushtail Possum, 38
 ...Common Ringtail Possum, 216
 ...Dusky Antechinus, 1
 ...Eastern Grey Kangaroo, 72
 ...European Rabbit, 19
 ...Ferret (feral), 1
 ...Grey-headed Flying-fox, 1
 ...Koala, 25
 ...Long-nosed Bandicoot, 3
 ...Red Fox, 54
 ...Red-necked Wallaby, 1
 ...Short-beaked Echidna, 12
 ...Swamp Rat, 4
 ...Water Rat, 1

Reptiles

...Blotched Blue-tongued Lizard, 43
 ...Common Blue-tongued Lizard, 20
 ...Common Long-necked Tortoise, 7
 ...Lowland Copperhead, 15
 ...Tiger Snake, 6
 ...Tree Dragon, 2
 ...White-lipped Snake, 2

that several bird, mammal, fish and reptile species have either become extinct or been reduced to critically low numbers on the peninsula and possibly further afield. The table below assumes extinction based on 20 or more years of absence on the peninsula, despite surveys of suitable habitat.

KNOWN FAUNAL EXTINCTIONS
on the Peninsula since European settlement

Birds

... Arctic Tern
 ... Australian Bustard
 ... Azure Kingfisher
 ... Brolga
 ... Barking Owl
 ... Bar-tailed Godwit
 ... Black-tailed Godwit
 ... Bush Stone-curlew
 ... Curlew Sandpiper
 ... Diamond Dove
 ... Flesh-footed Shearwater
 ... Glossy Black Cockatoo
 ... Glossy Ibis
 ... Greater Sand Plover
 ... Great Knot
 ... Grey-crowned Babbler
 ... Grey-headed Albatross
 ... Grey Plover
 ... Gull-billed Tern
 ... Intermediate Egret
 ... Lesser Sand Plover
 ... Long-tailed Jaeger
 ... Musk Duck
 ... Orange-bellied Parrot
 ... Pacific Golden Plover
 ... Plains Wanderer
 ... Pomarine Jaeger
 ... Regent Honeyeater
 ... Royal Albatross
 ... Ruff
 ... Southern Giant-Petrel
 ... Spotted Quail-thrush
 ... Terek Sandpiper
 ... Turquoise Parrot
 ... Whimbrel
 ... Whiskered Tern
 ... White-faced Storm-Petrel
 ... Yellow-nosed Albatross
 ... Yellow Wattlebird

Eastern Quoll — *Dasyurus viverrinus* Photo: Matt Dell

Mammals

... Eastern Pygmy-possum
 ... Eastern Quoll
 ... Long-nosed Potoroo
 ... New Holland Mouse
 ... Sperm Whale
 ... Spot-tailed Quoll
 ... Tasmanian Bettong
 ... Tasmanian Pademelon

Invertebrates

... Chiton 5254
 ... Caddisfly

Fish

... River Blackfish

Extinction on the Peninsula

Fauna throughout Australia have had to adapt to a changing landscape, altered over time by extreme environmental events such as fire, droughts and floods. In recent times human activities, amongst other things, have caused significant impacts; some that are contributing to climate change.

A change in temperature of just 1 to 2°C will be enough to trigger mass extinctions (DSE 2010) and rising sea-levels will be an issue for populations in low lying and coastal areas.

Other threats include (but are not limited to) predation, vehicular impact, recreational activities, habitat removal and fragmentation, and diseases. Results from this, and previous, surveys indicate

SPECIES OF CONSERVATION AND MIGRATORY SIGNIFICANCE ON THE PENINSULA

Mammals

...Common Dolphin 3/15	...Black-winged Stilt, 1/12	...Hardhead, 6/10	...Shy Albatross, 4/5
...Grey-headed Flying-fox, 1/26	...Blue-billed Duck, 2/10	...Hooded Plover, 2/7	...Sooty Oystercatcher, 11/7
...Humpback Whale, 3/16	...Blue Petrel, 0/15	...Latham's Snipe, 18/10	...Sooty Shearwater, 1/27
...Killer Whale, 1/6	...Brown Quail, 8/12	...Lewin's Rail, 29/13	...Spotted Harrier, 1/28
...Southern Brown Bandicoot, 38/26	...Cape Barren Goose, 19/14	...Little Egret, 1/9	...Swift Parrot, 4/25
...Southern Elephant Seal, 0/11	...Caspian Tern, 3/12	...Little Tern, 0/15	...Wandering Albatross, 1/24
...Southern Right Whale, 3/15	...Cattle Egret, 7/12	...Magpie Goose, 2/19	...White-bellied Sea-Eagle, 19/5
...White-footed Dunnart, 10/25	...Chestnut-rumped Heathwren, 0/6	...Marsh Sandpiper, 2/21	...White-fronted Tern, 2/19
...Bottlenose Dolphin, 0/8	...Common Diving-Petrel, 0/14	...Nankeen Night Heron, 12/12	...Wood Sandpiper, 0/10
	...Common Greenshank, 1/20	...Northern Giant-Petrel, 2/27	
	...Common Sandpiper, 4/14	...Pacific Gull, 49/10	
	...Common Tern, 0/18	...Peregrine Falcon, 44/10	
	...Eastern Curlew, 3/14	...Pied Cormorant, 25/8	
	...Eastern Great Egret, 24/5	...Powerful Owl, 34/4	
	...Fairy Prion, 0/15	...Red Knot, 2/22	
	...Fairy Tern, 1/22	...Red-necked Stint, 1/18	
	...Fork-tailed Swift, 0/7	...Royal Spoonbill, 34/10	
	...Freckled Duck, 1/10	...Ruddy Turnstone, 2/18	
	...Grey-crowned Babbler, 0/13	...Sanderling, 1/26	
	...Grey Goshawk, 10/4	...Sharp-tailed Sandpiper, 2/20	
	...Grey-tailed Tattler, 1/21	...Short-tailed Shearwater, 5/5	

Reptiles

...Glossy Grass Skink, 49/10
...Green Turtle, 0/6
...Lace Monitor, 2/26
...Leathery Turtle, 0/19
...Loggerhead Turtle, 0/17
...Swamp Skink, 57/10

Amphibians

...Growling Grass Frog, 7/11
...Southern Toadlet, 55/11

(Numbers quoted = No. of records during this study / Years since last Atlas of Victorian Wildlife record). Excludes species extinct from the peninsula.

Migratory species survey records

Migratory species are those that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migrations e.g. albatrosses, petrels, whales and dolphins.

Twenty-nine fauna species (25 bird species and four marine mammals species; 9% of all peninsula fauna recorded) are considered to have significance due to their classification as 'migratory' under the *Australian Environment Protection and Biodiversity Act 1999* within one or more international migratory species agreements referred to as:

CAMBA: China-Australia Migratory Bird Agreement 1986.

JAMBA: Japan-Australia Migratory Bird Agreement 1974.

ROKAMBA: Republic of Korea-Australia Migratory Bird Agreement 2006.

Bonn: Convention on the Conservation of Migratory Species of Wild Animals - also known as CMS or Bonn Convention, 1979; this includes birds listed under the Agreement on the Conservation of Albatrosses and Petrels.

Their distribution can be seen on Map 3, Page 7.



BIRDS	AGREEMENTS			
Arctic Jaeger		J	R	
Black-browed Albatross				B
Black-winged Stilt				B
Caspian Tern	C	J		
Cattle Egret	C	J		
Common Greenshank	C	J	R	B
Common Sandpiper	C	J	R	B
Eastern Curlew	C	J	R	B
Eastern Great Egret	C	J		
Grey-tailed Tattler	C	J	R	B
Latham's Snipe	C	J	R	B
Marsh Sandpiper	C	J	R	B
Northern Giant-Petrel				B
Rainbow Bee-eater		J		
Red Knot	C	J	R	B
Red-necked Stint	C	J	R	B
Ruddy Turnstone	C	J	R	B
Sanderling	C	J	R	B
Sharp-tailed Sandpiper	C	J	R	B
Short-tailed Shearwater		J	R	
Shy Albatross				B
Sooty Shearwater	C	J		
Wandering Albatross		J		B
White-throated Needletail	C	J	R	
White-bellied Sea-Eagle	C			
MAMMALS				
Blue Whale				B
Humpback Whale				B
Killer Whale				B
Southern Right Whale				B
No. of spp. under each agreement	17	20	14	20

A snapshot of SIGNIFICANT FAUNA on the

Southern Brown Bandicoot

Isoodon obesulus obesulus

While this was a common species in 1837, it is now scarce on the peninsula and is listed as threatened under the Commonwealth EPBC Act, Victorian FFG Act and near threatened under the Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2013). Both a Federal and Regional



(Mornington Peninsula and Western Port Biosphere Reserve) Recovery Plan exists for this species.

It was only recorded 38 times during this study, and the majority of these records were the result of discovering a healthy population on Quail Island in 2008.

The persistence of this population is likely due to its key threats being less common on the island than on the mainland i.e. predators, vehicles, lack of habitat linkages, habitat loss, weed invasion and fire. The species is active both day and night, consuming fungi, plant tubers and arthropods.

Habitat: Southern Brown Bandicoots prefer grassy and heathy woodlands that include dense understorey vegetation for cover.



Powerful Owl

Ninox strenua

This is Australia's largest owl species, with a head to tail length of 45–65 cm.

On the peninsula this species appear to be thriving predominantly at the southern end where there are larger areas of remnant vegetation containing suitable habitat.

Vegetation clearance, including the loss of hollow-bearing trees, is a key threat to this species.

A total of 34 individuals were recorded during this study. Their abundance is linked to the abundance of Ringtail Possums and other prey found in this area.

While Powerful Owls are not listed under the Commonwealth EPBC Act, they are listed as threatened under Victoria's FFG Act and the Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2013). They are also considered to be regionally significant within the Gippsland Plain. An Action Plan exists for this species, and a Recovery Plan has been produced for New South Wales populations.

Habitat: Powerful Owls prefer forest, woodland and scrub with hollow bearing trees for breeding.

Mornington Peninsula

Agile Antechinus

Antechinus agilis

As recently as 20 years ago, this small marsupial was recorded as abundant in the Moorooduc Quarry Reserve area, and was likely to have been abundant elsewhere on the peninsula.

Their numbers have since declined significantly and only 154 records of this species were made over the study period. The Mt Martha population appears to be the last remaining for Port Phillip Bay, probably due to the retention of large areas of good quality vegetation. Its key threats on the peninsula are land clearance (including the loss of mature trees), firewood collection and predators such as cats and foxes.

It depends on hollow trees and logs on the forest



Photo: Malcolm Legg

floor for foraging and nesting. An Action Statement exists titled *Loss of hollow-bearing trees from Victorian native forests and woodland* (DSE 2003), which discusses the problem with respect to this and other species.

While this species is not listed as threatened at state or national level, it is considered significant within the Gippsland Plain and has a reduced distribution on the peninsula.

Habitat: Agile Antechinus prefers forest, woodland and scrub with tree hollows and logs.

Growling Grass (or Southern Bell) Frog

Litoria raniformis

Not so long ago this species was so common that it was used for dissections at universities and to feed snakes at the Melbourne Zoo, however only seven individuals were recorded during this study.

The paucity of recent records across the Peninsula indicates that there has been a significant decline in this species, which may reflect on the fate of other frog species.

It is listed for protection under the Commonwealth EPBC Act, Victoria's FFG Act, and the Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2013). A Recovery Plan exists for this species.

On the Peninsula they are considered to be regionally significant. Their key threats here are habitat loss and fragmentation, predation by



Photo: Malcolm Legg

introduced species (in particular Eastern Gambusia — *Gambusia holbrooki*), reduced rainfall and the introduced Chytrid Fungus.

Habitat: Growling Grass Frogs prefer to live amongst sedges, rushes and reeds growing in slow moving streams and waterbodies where dense vegetation helps to protect their eggs and tadpoles. Further research is required with regards to the status of this species on the Mornington Peninsula.

A snapshot of

TOOTGAROOK WETLAND

Tootgarook Wetland (also known as Boneo Wetland) is one of the largest examples of a Groundwater Dependent Ecosystem and Shallow Fresh-water Marsh left in the South-east Melbourne region.

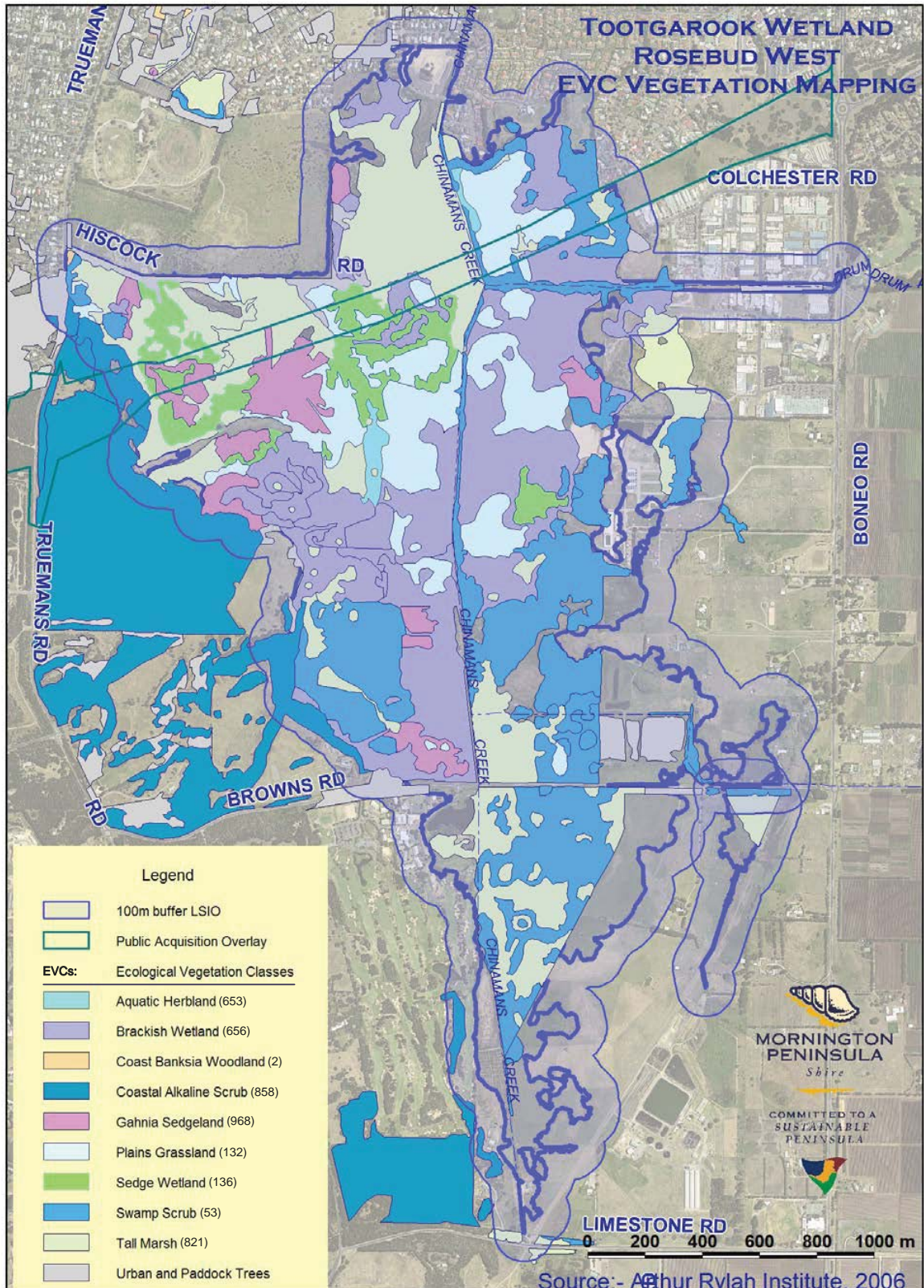




Photo: Save Tootgarook Swamp

Location

Tootgarook Wetland is located on the Mornington Peninsula, Victoria. It can be accessed via several roads, including Browns Road, Truemans Road and Hiscock Road.

Background

Tootgarook Wetland falls within the traditional lands of the Aboriginal territory of the Boon Wurrung clans of the Kulin Nation. Many indigenous archaeological sites are present as the lower-lying flood plains would have provided ample plant foods.

The wetland is fed by groundwater and to a lesser extent Drum Drum Alloc Creek, which flows from the Rosebud Sands to the east and drains into Port Phillip via Chinaman's Creek. It acts as a retarding basin, protecting low-lying residential land between it and Port Phillip Bay.

In the 1870's the wetland was the largest landmark on the southern end of the peninsula, spanning up to 700 hectares between Boneo and West Rosebud. Until more recent times, animals such as Southern Brown Bandicoots, Eastern Quolls and Long-nosed Potoroos could still be found utilising its habitats. Past land management practices supported the extraction of peat from the wetland for use as fertiliser on

nearby farms. Extraction of natural resources, along with extensive drainage and landfill associated with housing development, industry and agriculture, has led to a highly fragmented wetland.

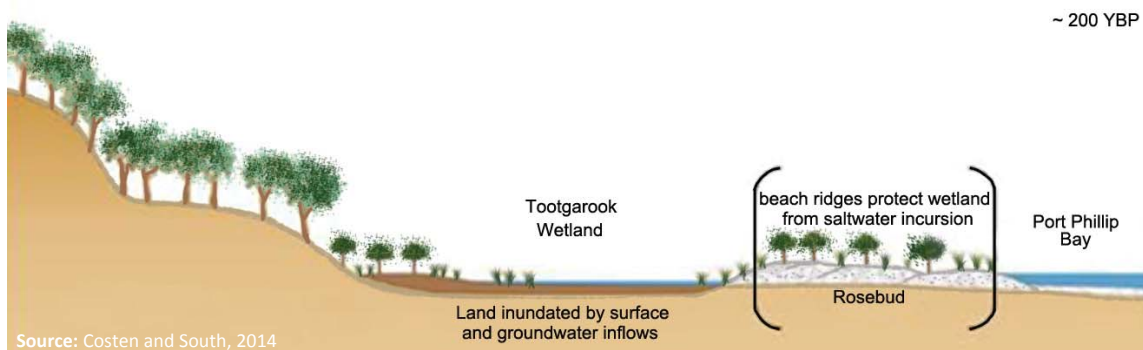
The wetland is now approximately 400 ha in size, and a large proportion of it is privately owned. Nevertheless it retains biodiversity values of national, state and regional significance.

Ecological Vegetation Classes (EVC)

There are numerous existing and evolving EVCs present. Due to the severity of wetland depletion across the Gippsland Plains bioregion, at least nine of these are listed as Endangered and two as Critically Endangered. Some of the lesser EVCs have been omitted from the map (left) as the scale does not allow enough detail to include them. These include: Brackish Grassland (934), Brackish Sedgeland (13), South Gippsland Plains Grassland (132), and Sedge Wetland/Calcareous Wet Herbland Complex (883).

Wetland Ecosystems Services

In summary, these include: flood control; water purification; groundwater replenishment; climate change mitigation and adaptation; sediment and nutrient retention; protection of Port Phillip Bay; Enhancement of cultural and social values; and a haven for a diversity of habitats, flora and fauna.



Source: Costen and South, 2014

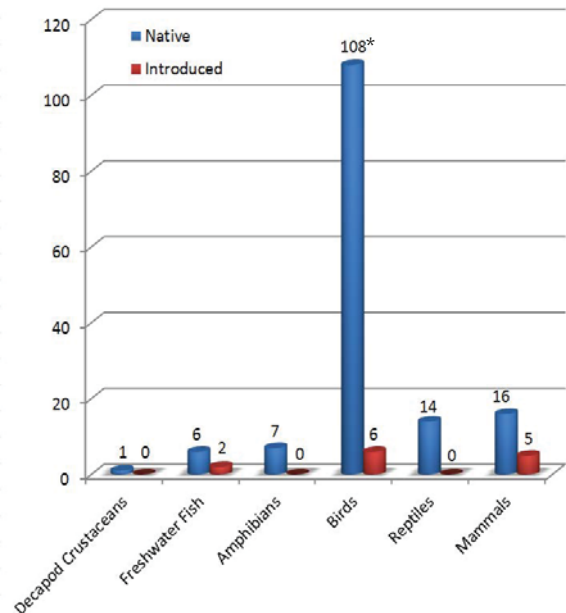
Tootgarook Wetland: Targeted vertebrate fauna study 2013–2014

Invertebrate fauna data was collected from October 2013–May 2014 across seven sites within Tootgarook Wetland:

- 3 Dutton St
- 66 Henry Wilson Dve (MW retarding basin)
- Hiscock Rd Reserve
- 40 Colchester Rd
- Sanctuary Park Bushland Reserve
- Eastern side of Truman's Rd former landfill site
- Tern Avenue Bushland Reserve

One hundred and fifty-two species were identified, with only thirteen of these being introduced. Twenty-one of these were found to be listed under the State's Advisory list of threatened vertebrate fauna, and 10 of the 21 were noted as species listed under Victoria's Flora and Fauna Guarantee Act. One bird species, the Australasian Bittern, is listed as

Endangered under the Environment Protection and Biodiversity Conservation Act 1999.



*Note: Since this study, a number of additional bird species have been identified. The final count will need to be confirmed once the study is complete (Tootgarook Wetland Monitoring, Birdlife Australia 2014-2016).

Australasian Bittern

Botaurus poiciloptilus

The Tootgarook Wetland is home to a partially nocturnal, heavy-set heron known as the Australasian, Australian or Brown Bittern. A bird which is listed as Endangered under both the Federal EPBC Act and Victorian FFG Act. Its distribution includes coastal and sub-coastal areas of south-eastern and south-western mainland Australia, as well as the eastern marshes of Tasmania.

Individuals grow to a length of up to 76 cm, with a wingspan of up to 1180 cm. While the sexes are similar in appearance, males generally weigh up to 1400 g, while the females are smaller and weigh considerably less (up to 900 g). Their upper bodies are brown, dark brown to black, with complex patterns of mottled buff to assist with their concealment in wetland vegetation.



This species tends to be sedentary in permanent habitats, and is generally solitary. It forages mainly at night, usually in dense cover. Its diet includes a wide range of small animals including birds, fish, mammals, frogs, snails, yabbies, spiders and insects.

Habitat: Sedges, rushes, lignum and reedbeds (e.g. Cumbungi) around wetlands and creeks, and occasionally saltmarshes.

*A selection of
wetland habitats
at Tootgarook
Wetland*



Above: Swamp Scrub (EVC 53) at edge of wetland, with Coastal Alkaline Scrub (EVC 858) on dunes above.



Left: Aquatic Herbland (EVC 653)

Right: Sedge Wetland/ Calcareous Wet Herbland Complex (EVC 883), with areas of Plains Grassland (EVC 132) and Tall Marsh (EVC 821)



Left: Tall Marsh (EVC 821), surrounded by Swamp Scrub (EVC 53) and woodland vegetation.

Habitat photographs:
Malcolm Legg

HABITAT SNAPSHOT

Native vegetation mapping

on the Mornington Peninsula

Native vegetation comprises communities of different plant species which are locally native (indigenous) to an area.

Native vegetation is mapped in Victoria using units called Ecological Vegetation Classes (EVCs).

In 2006, the Arthur Rylah Institute (Department of Environment & Primary Industries) undertook a survey of EVCs across the Peninsula (map Page 14), with the exception of some areas containing public conservation reserves and commonwealth land. The Institute is in the process of updating this mapping.

The survey resulted in documenting 45 different EVCs, 12 of which had not previously been mapped on the Peninsula.

An assessment of the extent of each EVC revealed that native vegetation at the time covered 18.5% (13 555 ha) of the Peninsula.

The adjacent table provides the area (ha) of the Peninsula covered by each EVC.

This table also shows some other mapping units; mosaics and floristic communities.

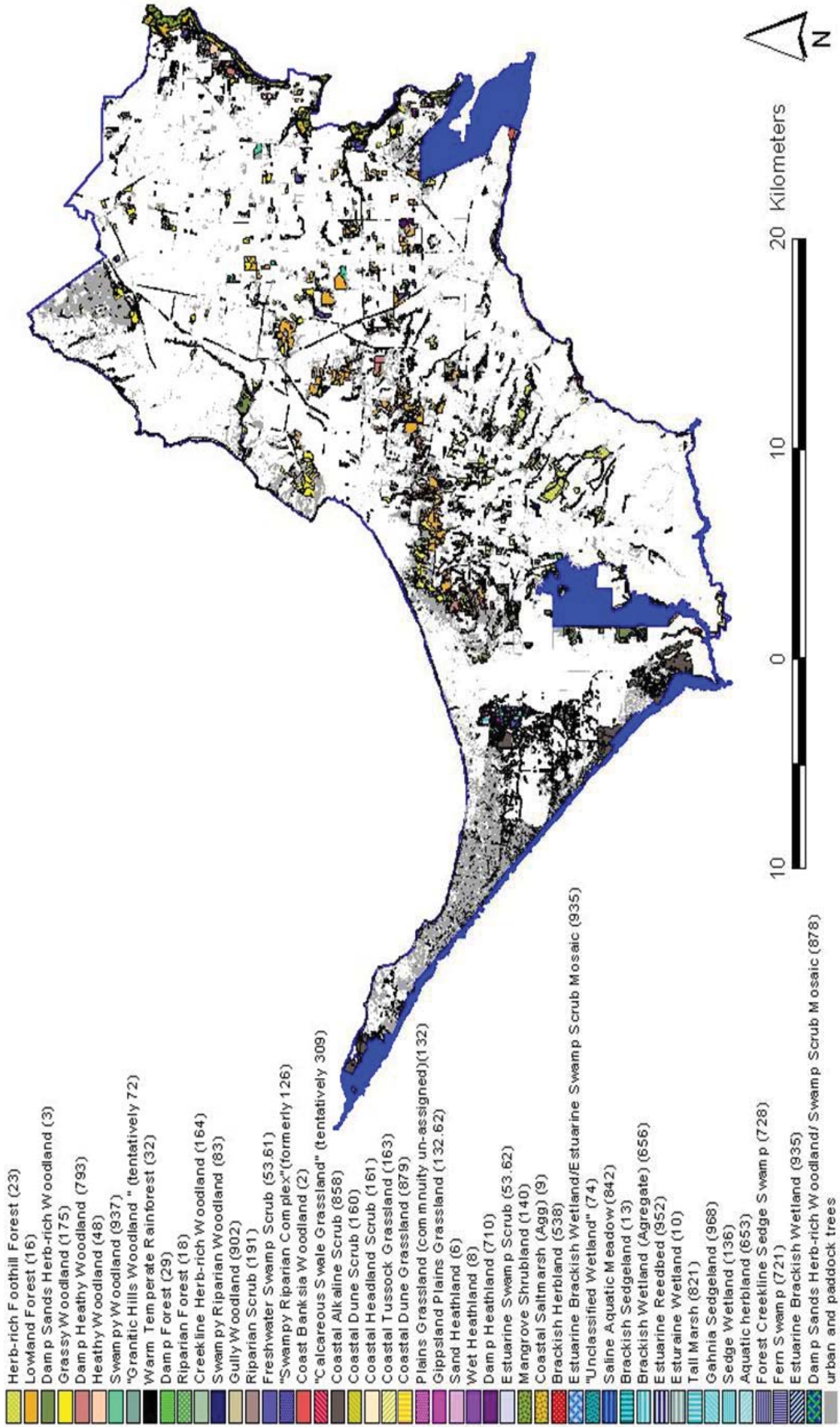


Photo: Linda Bester

Ecological Vegetation Class (EVC)	Extent (ha) of the Peninsula
Coastal Alkaline Scrub (EVC 858)	3014
Lowland Forest (EVC 16)	1397
Grassy Woodland (EVC 175)	1371
Herb-rich Foothill Forest (EVC 23)	894
Freshwater Swamp Scrub (EVC 53_61)	975
Damp-sands Herb-rich Woodland (EVC 3)	1409
Damp Heathy Woodland (EVC 793)	470
Swampy Riparian Woodland (EVC 83)	416
Coastal Saltmarsh (EVC 9)	4641
Mangrove Shrubland (EVC 140)	379
Heathy Woodland (EVC 48)	232
Coast Banksia Woodland (EVC 2)	454
Gully Woodland (EVC 902)	220
Coastal Headland Scrub (EVC 161)	5802
Damp Forest (EVC 29)	122
Riparian Scrub (EVC 191)	133
Tall Marsh (EVC 821)	91
Swampy Woodland (EVC 937)	83
Brackish Wetland (EVC 656)	78
Damp Heathland (EVC 710)	68
Estuarine Swamp Scrub (EVC 53_62)	68
Coastal Dune Scrub (EVC 160)	1623
Granitic Hills Woodland (EVC 72)	50
Plains Grassland (EVC 132)	43
Riparian Forest (EVC 18)	45
Coastal Tussock Grassland (EVC 163)	41
Forest Creekline Sedge-Swamp (EVC 728)	39
Swampy Riparian Complex (EVC 126)	33
Unassigned, Wetland Formation (EVC 74)	29
Creekline Herb-rich Woodland (EVC 164)	24
Sedge Wetland (EVC 136)	31
Gahnia Sedgeland (EVC 968)	19
Coastal Dune Grassland (EVC 879)	9
Sand Heathland (EVC 6)	52.2
Damp-sands Herb-rich Woodland/Swamp Scrub Mosaic (EVC 878)	5
Brackish Wetland (Estuarine) / Swamp Scrub (Estuarine) Mosaic (EVC 935)	25.2
Aquatic Herbland (EVC 653)	3
Wet Heathland (EVC 8)	3
Saline Aquatic Meadow (EVC 842)	2
Fern Swamp (EVC 721)	2
Warm Temperate Rainforest (EVC 32)	2
Brackish Sedgeland (EVC 13)	1
Estuarine Wetland (EVC 10)	<1
Brackish Herbland (EVC 538)	<1
Estuarine Reedbed (EVC 952)	<1
Spray-zone Coastal Shrubland (EVC 876)	<1
Estuarine Flats Grassland (EVC 914)	<1
TOTAL	13,555

The extent of Native vegetation on the Mornington Peninsula by Ecological Vegetation Class

The extent of Native vegetation on the Mornington Peninsula, by EVC



- Herb-rich Foothill Forest (23)
- Lowland Forest (16)
- Damp Sands Herb-rich Woodland (3)
- Grassy Woodland (175)
- Damp Heathy Woodland (793)
- Heathy Woodland (48)
- Swampy Woodland (937)
- "Granitic Hills Woodland" (tentatively 72)
- Warm Temperate Rainforest (32)
- Damp Forest (29)
- Riparian Forest (18)
- Creekline Herb-rich Woodland (164)
- Swampy Riparian Woodland (83)
- Gully Woodland (902)
- Riparian Scrub (191)
- Freshwater Swamp Scrub (53.61)
- "Swampy Riparian Complex" (formerly 126)
- Coast Banksia Woodland (2)
- "Calcareous Swale Grassland" (tentatively 309)
- Coastal Alkaline Scrub (858)
- Coastal Dune Scrub (160)
- Coastal Headland Scrub (161)
- Coastal Tussock Grassland (163)
- Coastal Dune Grassland (879)
- Plains Grassland (community un-assigned) (132)
- Gippsland Plains Grassland (132.62)
- Sand Heathland (6)
- Wet Heathland (8)
- Damp Heathland (710)
- Estuarine Swamp Scrub (53.62)
- Mangrove Shrubland (140)
- Coastal Saltmarsh (Agg) (9)
- Brackish Hermland (538)
- Estuarine Brackish Wetland/Estuarine Swamp Scrub Mosaic (935)
- "Unclassified Wetland" (74)
- Saline Aquatic Meadow (842)
- Brackish Sedgeland (13)
- Brackish Wetland (Aggregate) (656)
- Estuarine Reedbed (952)
- Estuarine Wetland (10)
- Tall Marsh (821)
- Gahnia Sedgeland (968)
- Sedge Wetland (136)
- Aquatic herbland (653)
- Forest Creekline Sedge Swamp (728)
- Fern Swamp (721)
- Estuarine Brackish Wetland (935)
- Damp Sands Herb-rich Woodland/Swamp Scrub Mosaic (878)
- urban and paddock trees

Source: Sinclair et al., 2006

NATIVE VEGETATION

A snapshot of EVCs on the Peninsula

NATIVE VEGETATION

Ecological Vegetation Classes on the Peninsula are diverse and varied in the species which occupy them, as well as their structure and requirements for water. Some of this diversity is illustrated in the following examples.

Plains Grassland 1

Location: Tootgarook and Safety Beach.

Identification: Treeless and dominated by native grasses.

Status: Naturally restricted and otherwise largely cleared. Considered endangered within the Gippsland Plain. Includes the FFG Act listed Plains Grassland (South Gippsland) Community, for which an Action Statement exists.

Threats: Weeds, absence of fire, grazing by stock/ pest animals and clearing.



Tall Marsh j

Location: Scattered e.g. The Briars, Tootgarook Wetland.

Identification: Reed-bed usually dominated by Tall Reed *Phragmites australis*.

Status: Naturally restricted (91 ha).

Threats: Changes to drainage / water supply, spread of weeds and clearing.

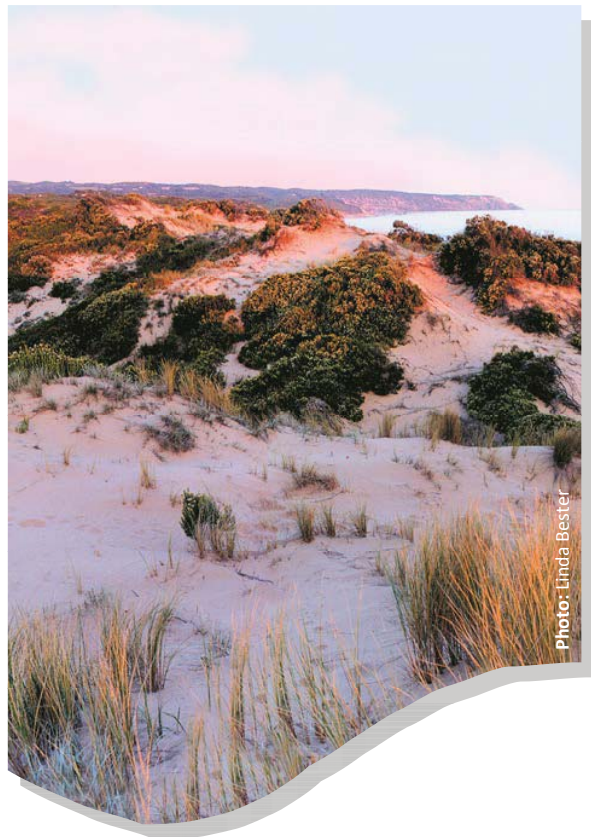
Coastal Dune Scrub 1

Location: Sand dunes near ocean shores.

Identification: Closed shrubland on primary and secondary, coastal dunes.

Status: Decline minimal, mostly reserved and subject to little development.

Threats: Introduction of several weed species, erosion by rabbits, trampling by visitors.



Grassy Woodland

Location: Grassy Woodland is distributed in patches throughout the central and north peninsula. It occupied roadsides, private property and public reserves. Example locations occur along the Moorooduc Hwy at Moorooduc, at Mt Martha Public Park and The Briars.

Identification: Grassy Woodland has a naturally open ground flora which is dominated by grasses, other grass-like plants, lilies, orchids and small shrubs. Larger shrubs and canopy trees are typically sparse although this varies depending on site disturbance history. Coast Manna-gum and White Sallee are characteristic eucalypts for this EVC on the peninsula.

Status: This EVC is represented across a number of sites on the Peninsula (1371 ha in total) although it was much greater in extent at European settlement. It is endangered within the Gippsland Plain bioregion.

Threats: A significant component of plant diversity and fauna habitat in this EVC is represented on the ground. As such, clearing of understorey, removal of logs and introduction of weeds are all major threatening processes. Grassy weeds in particular compete with native species and are difficult to control when established amongst native grasses.

Plant recruitment relies on periodic fire and exclusion of fire can lead to long term loss of species.

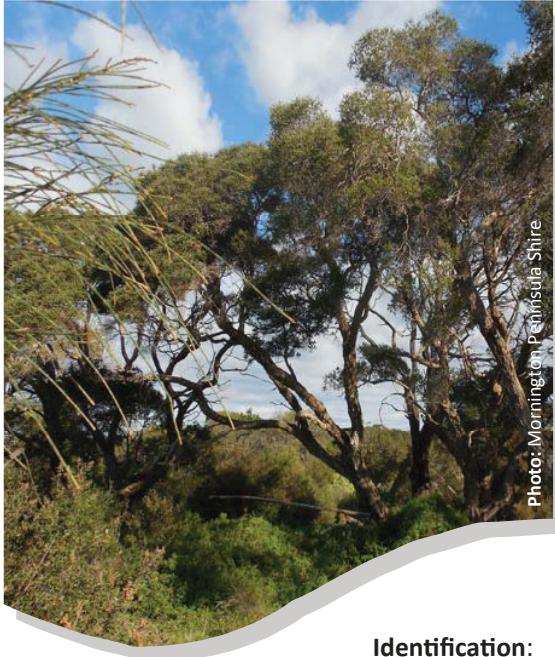
Some stock grazing regimes contribute to negative impacts, as does grazing from pest animals. A selection of flora species are shown below.

Plant Photos: Matt Dell. Left to right: Golden Wattle, Sweet Bursaria, Chocolate Lily, Nodding Greenhood, Early Nancy, Coast Manna-gum



Coastal Alkaline Scrub

Location: Coastal Alkaline Scrub is the dominant EVC on the Nepean Peninsula and is largely confined to that area. Example locations include Point Nepean National Park and Mornington Peninsula National Park.



Identification:

Coastal Alkaline Scrub occurs on calcarenite. It is a closed woodland or shrubland and includes examples with taller Moonah (*Melaleuca lanceolata*) over shrubs to areas of dense, low (3–4 m) scrub.

The ground may be dominated by grasses, succulent shrubs or have only scattered plants with abundant leaf litter.

Status: The peninsula supports significant areas (3014 ha) of retained Coastal Alkaline Scrub for the state. Most of its clearing has been undertaken for housing and, to a lesser extent, agriculture. Its calcarenite geology gives it a naturally restricted distribution. It is regarded as vulnerable within the Gippsland Plain.

A floristic community of this EVC, Coastal Moonah Woodland, is listed as threatened under the state FFG Act. An Action Statement exists for this.

Threats: This EVC is occasionally cleared to improve views. It is also subject to removal of shrubs from the understorey in residential areas.

Apart from clearing, weed invasion is probably the most threatening process to this EVC. There are a number of well established weeds in Coastal Alkaline Scrub on the peninsula which require considerable effort to control e.g. Myrtle-leaf Milkwort (**Polygala myrtifolia*).



Plant Photos: Matt Dell. Left to right (above): Leafy Greenhood, Coast Tea-tree, Drooping Sheoak. Clockwise from top left (below): Cranberry Heath, Silver Banksia, Slender Twine-rush and Slender Yellow Eye.

Damp Heathland

Location: Mostly on acidic sands around Westernport.

Identification: Dense, closed shrubland 0.5–2 m tall and seasonally wet.

Status: Naturally restricted (68 ha).

Threats: Weeds, absence of fire, grazing by stock/pest animals, clearing.



Significant FLORA on the Mornington Peninsula

Rare or threatened species

Some native plant species on the peninsula are considered significant due to their conservation status.

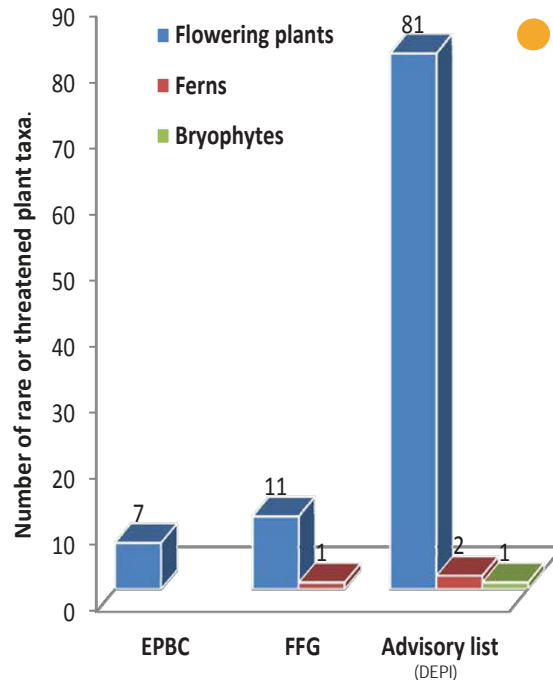
Plants are considered nationally significant if they are listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). They are considered state significant if listed as threatened under the *Flora and Fauna Guarantee Act 1988* (FFG Act) or listed in the state Advisory List of Rare or Threatened Plants in Victoria (DSE 2005a).

On the peninsula, the two plant groups with the most number of state rare or threatened species, sub-species, varieties or hybrids are orchids (28) and grasses (10). Within orchids, five are nationally threatened, 18 are state threatened, five are state rare and four are poorly known although suspected to be threatened. Within grasses, one is nationally threatened, one is state threatened, six are state rare and two are poorly known although suspected to be threatened.

Threats to significant species

There are a large number of threats to significant plant species. Some of the major threats are:

- « **Spread of weeds** - There are 664 introduced species, sub-species or varieties of naturalised plants on the peninsula. These weeds directly compete for resources with significant plants.
- « **Illegal collecting** - Threatened orchids and other significant species are sometimes subject to illegal collecting from the wild.
- « **Vegetation clearing** - The removal of native vegetation which contains threatened species results in loss of individuals. Lack of survey for



Acts and Regulations which govern the rare or threatened plant taxa.

threatened species prior to clearing contributes to such losses.

- « **Inappropriate fire regime** - many threatened plant species have some requirement for fire to stimulate recruitment. Fire frequency and intensity are important factors.
- « **Changes to hydrology** - threatened wetland species in particular are impacted by changes to wetland drainage and water supply. Such changes alter dispersal and recruitment success.



Photo: Linda Bester

SIGNIFICANT FLORA

A snapshot of SIGNIFICANT FLORA on the

FLORA SNAPSHOTS

Leafy Greenhood

Pterostylis cucullata (coastal form)

Description: Leafy Greenhood is a colony forming ground orchid with a reddish-green flower held upright on a short stem. Each plant has a rosette of several leaves at its base which re-shoot from an underground tuberoid prior to flower



Photo: Matt Dell

development in spring to summer. Some colonies have several hundred plants while others only have a very small number.

Conservation status: EPBC Act

listed as vulnerable. FFG Act listed as threatened. State advisory listed as vulnerable (DSE 2005a). Both an Action Statement and a Recovery Plan exists for this threatened species.

Habitat: Coastal Alkaline Scrub or related vegetation under dense tea-tree or sometimes in more open grassy areas. Plants may be found in sites with lots of leaf litter or persist amongst introduced grasses and other weeds.

Threats: Vegetation clearing, spread of weeds, snails, rabbits and collecting.

Distribution: Colonies may be found anywhere in suitable vegetation on the peninsula west of Cape Schanck. The range of known populations includes areas around Rye, Tootgarook, Cape Schanck and St Andrews Beach.

Frankston Spider-orchid

Caladenia robinsonii

Description: Frankston Spider-orchid grows to 30 cm tall and has 1–2 relatively large flowers. Each flower has a modified central red petal (labellum) which is surrounded by five white petals and sepals. Each plant has a single narrow leaf, and the leaf and flower stems are noticeably hairy.



Photo: Russell Mawson

Conservation status: EPBC Act listed as endangered. FFG Act listed as threatened. State advisory listed as endangered (DSE 2005a). Both an Action

Statement and a Recovery Plan exists for this threatened species.

Habitat: Typical habitat comprises heathy woodland with a canopy of Coast Manna-gum *Eucalyptus viminalis* subsp. *pryoriana* and some other eucalypt species. A number of narrow-leaved shrub species occur around populations.

Threats: Due to the very small number of known populations and the ornamental value of this species, it is threatened by illegal collecting. Spider-orchids do not survive collection from the wild. Other threats include grazing by rabbits, habitat removal and lack of suitable fire regime.

Distribution: This species occurs in one known location on the peninsula and is known from only five other locations elsewhere. Its global distribution is within Victoria from the peninsula to Frankston North, with a historical collection from the Eltham area in Melbourne's northeast.

Mornington Peninsula

Purple Eyebright

Euphrasia collina subsp. *muelleri*

Description: Purple Eyebright is a herb which grows to 40 cm tall. Flowers are seen mostly in spring, are purple to white and arranged in long spikes on an unbranched stem. Its leaves are relatively short, toothed and attached directed to each stem within the lower half of the plant. Each leaf pair alternates at right angles with the pair above or below.

Conservation status: EPBC Act listed as endangered. FFG Act listed as threatened. State advisory listed as endangered. Both an Action Statement and a Recovery Plan exists for this threatened species.

Habitat: This subspecies is associated with both



grassy and heathy vegetation types.

The natural disturbance regime of sites (e.g. fire history) is important in defining its habitat.

Threats: Most sites containing this subspecies are secure in national park or other public land with some conservation management objective. Threats elsewhere include vegetation clearing and inadequate fire regime.

Distribution: This species occurs mostly around Greens Bush (Mornington Peninsula National Park) and Arthurs Seat. Other records occur near Merricks North and St Andrews Beach.

Mt Martha Bundy

Eucalyptus carolanae (syn. *Eucalyptus* aff. *cypellocarpa* (Mornington Peninsula))

Description: Mt Martha Bundy is a tree to 20 m tall with rough fibrous bark in the lower half of the tree and smooth white bark on the upper trunk and branches. It has similarities with two other species that are common within Victoria; Bundy *Eucalyptus goniocalyx* and Mountain Grey-gum *Eucalyptus cypellocarpa*. This species flowers in summer.

Conservation status: This species is currently only known from the Mornington Peninsula. It is estimated that there are around 500 individuals and it is listed under the state advisory list as endangered.

Habitat: In gully vegetation and occurring with Narrow-leaf Peppermint *Eucalyptus radiata*,

Manna Gum *Eucalyptus viminalis* and Swamp Gum *Eucalyptus ovata*.

Threats: Most trees occur nearby houses and, as such, are threatened by changes to hydrology, damage to roots and removal for safety considerations (e.g. fire). Other threats to eucalypts include dieback from insect attack and infection by pathogens such as the introduced Myrtle Rust.

Distribution: All known individuals occur within the Mt Martha area, including Northfolk-Hopetoun Reserve.



OTHER ORGANISMS

Studies of biodiversity routinely occur on larger, more visible species, and the focus of Council surveys is no exception. Nevertheless the role of other less visible organisms is no less important in maintaining ecological functions of the natural world.

Science tells us that the organisms identified below can contribute the most number of species in any given ecosystem, and are critical for its function.

MICRO-INVERTEBRATES

refers to spineless animals of microscopic size e.g. daphnia and mosquito larva.

MACRO-INVERTEBRATES

refers to spineless animals that are large enough to be seen without the use of a microscope e.g. worms, insects, snails, nymphs, and so on.

BRYOPHYTES

refers to non-vascular plants which include mosses, liverworts and hornworts.

ALGAE

are single or multi-cellular organisms that have no roots, stems or leaves and are often found in water e.g. seaweed.

LICHEN

refers to complex organisms that are comprised of a fungus and an alga or cyanobacterium. The most common forms are crustose, foliose and fruticose.

FUNGI

are spore-producing organisms that are important for the decomposition of organic matter, however some are parasites that attack living things and cause disease. Examples include mildews, mushrooms, molds, smuts, toadstools, and yeasts.

Examples of the above categories in identical order, from top to bottom. Photo credits: Celine Yap, Linda Bester, Matt Dell, Bruce Fuhrer, Matt Dell, Linda Bester



Council policy and current projects

for the PROTECTION of the

NATURAL ENVIRONMENT

The Shire's Strategic Plan 2013-2017 commits the organisation to be a leader in advancing knowledge and community engagement, in climate change and the protection of biodiversity.

RECENT, CURRENT & ONGOING COUNCIL PRIORITY PROJECTS

Targeted Predator Control Program

is carried out focusing on some of the Peninsula's biodiversity flagship areas on public and private land.

Vegetation Dieback Investigations

are carried out to assess the causes, extent and impacts of native vegetation dieback at targeted locations.

Management of Conservation Reserves

which includes approximately 2000 hectares of Council and Crown land across the Peninsula.

Tootgarook Wetland Bird Monitoring Project 2014-2016

seeks to undertake targeted field monitoring, data collation, and reporting by Birdlife Australia of seven sites across Peninsula land tenure.

Fox Tracking Project

seeks to plot and quantify the movement patterns of foxes at sites on the urban-rural fringe using collars that log GPS data and transmit via the mobile phone network. The results will inform Shire predator control programs.

Western Port Biosphere Reserve: Growing Connections Project

(inclusive of Targeted Carbon Plantings and development of a Biosphere Wide Action Plan with support from the Mornington Peninsula Shire) is supported by a Commonwealth Clean Energy Future Grant 2012-2017.

Shire Biodiversity Conservation Plan 2015-2016

(under development) will be a key policy and action plan to enhance the resilience of biodiversity under changing climates.

Native Vegetation Offsetting Projects

are being implemented in accordance with Town Planning permits to improve the condition and extent of native vegetation across the Shire.

Habitat and Biodiversity Monitoring

is carried out with assistance from the community and external grants.

Fire Risk Management Program

is carried out by the Shire on Council managed land and private land. It seeks to protect built assets and biodiversity in conjunction with other public land managers.

MORNINGTON PENINSULA SHIRE COMMUNITY INITIATIVES

Community Natural Systems Awareness Activities

e.g. through publications, interpretational signage and the Shire's website.

Stakeholder Engagement

by resourcing and working with those who help to look after the Mornington Peninsula's natural values, in association with local Landcare & Friends Networks and residents.



Photo: Linda Beyer

GLOSSARY

Action Statements for Threatened Species:

are State level reports that set out the management actions to protect threatened species and communities and manage threatening processes.

AVW:

Atlas of Victorian Wildlife.

EPBC Act:

refers to the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

FFG Act:

refers to the Victorian Flora and Fauna Guarantee Act 1988.

Local significance:

is applied to many native species within urban areas due to typically high levels of habitat alteration. For both flora and fauna the category relates largely to species that are considered rare, threatened or uncommon within the local area (5km radius from the study area) by Mornington Peninsula Shire (2013).

National significance:

and related protection is determined for flora and fauna by the Federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). For flora, additional species listed as rare by Mornington Peninsula Shire (2013) are included in this definition.

Recovery Plans for Threatened Species:

are Federal and sometimes Regional plans that set out conservation requirements and recovery actions for the species, and outline the people and organisations that will carry out these actions.

Regional significance:

is often difficult to determine.

For fauna it relates to three categories set by Mornington Peninsula Shire (2013):

1. Regarding birds, those listed as Regional by Radford & Bennett (2005), and those listed under migratory bird agreements.
2. Species defined as Regional by Mornington Peninsula Shire (2013).
3. Species listed as data deficient or near threatened by DSE (2007).

For flora it also relates to three categories set by Mornington Peninsula Shire (2013):

1. Species recorded by DSE (2005b) and reviewed by Practical Ecology as being present in <5 % of all quadrats, defined areas and incidental records in a given bioregion.
2. Species listed as poorly known by DSE (2005a).
3. Species considered limited in distribution, uncommon or on the edge of the natural range within a given bioregion or area by Mornington Peninsula Shire (2013).

State significance:

and related protection is determined for flora and fauna by Victoria's Flora & Fauna Guarantee Act 1988 (FFG Act).

Regarding fauna, additional species considered extinct, critically endangered, endangered or vulnerable by DSE (2007) have been included.

Regarding flora, additional species listed as extinct, endangered, vulnerable, rare in Victoria by DSE (2005a) have been included.

FURTHER INFORMATION & ADDITIONAL REFERENCES

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WILDLIFE EMERGENCY CONTACTS

Animalia shelter — Portsea to Brighton

Carer network and rescue service.
www.animaliawildlife.org.au
Ph: 0435 822 699 (all hours)

AWARE — Frankston and surrounds

(Australian Wildlife Assistance Rescue and Education) www.awarewildlife.org.au
Ph: 0412 433 727 (all hours)

Crystal ocean wildlife shelter — Dromana

Ph: 0407 787 770
crystal_ocean2003@yahoo.com.au

Help for Wildlife — Victoria

www.helpforwildlife.com
Ph: 0417 380 687 (all hours)

Peninsula RSPCA — Mornington Peninsula

1030 Robinsons Rd Pearcedale, VIC 3912
http://www.rspcavic.org/
Ph: 5978 6706

RACV wildlife — Victoria

Ph: 13 11 11 (all hours)

The Snake Catcher — Victoria

Caught and relocated - 24 hours (fees may apply)
Ph: Barry or Karen - 0408067062 or 0359750481

WHOMP — Mornington Peninsula

(Wildlife Help on the Mornington Peninsula)
Ph: 0417 380 687 or 0417 395 883 (all hours)

Wildlife Victoria — State wide

www.wildlifelifevictoria.org.au
Ph: 13 000 94535 or 13000Wildlife (all hours)

WRIN — Victoria

(Wildlife Rescue and Information Network)
Volunteers welcome. www.wrin.asn.au
Ph: 0419 356 433

