

Site Information Sheet

for nomination to join the East Asian-Australasian Shorebird Site Network

Discovery Bay Coastal Park

Part 1

1. Date:

8 October 2004.

2. Country:

Australia.

3. Name of site:

Discovery Bay Shorebird Site, East Asian-Australasian Shorebird Site Network, Victoria.

4. Geographical coordinates:

Centred at latitude 38° 13'S, 141° 17'E. Includes the coastline between: 38° 03'S, 140° 58'E, and 38° 23'S, 141° 35'E.

5. Altitude:

From less than 10 metres above sea level to the low water mark.

6. Area:

10,460 hectares.

7. Overview:

Discovery Bay Coastal Park is internationally important for one species of migratory shorebird (Sanderling, *Calidris alba*). It is also important for one species of endemic shorebird (Hooded Plover, *Thinornis rubricollis*). The site includes the nationally important wetlands of Glenelg Estuary and Long Swamp (Environment Australia, 2001). The shorebird site includes a range of coastal environments including rugged cliffs, extensive beaches, extensive mobile dune fields, wetlands and woodland forest communities (Parks Victoria 2004). The management plan (Parks Victoria 2004) recognises numerous flora and fauna species of conservation value, indigenous cultural values, archaeological sites, education and recreational uses, and impacts such as invasive species and human-use.

The shorebird site includes the whole of Discovery Bay Coastal Park and that part of the Discovery Bay Marine National Park that is between high and low water mark.

8: Justification of Shorebird Site Network criteria:

Discovery Bay is an internationally important non-breeding area for Sanderling (*Calidris alba*) (Watkins 1993, Wetlands International, unpublished). It is the fourth most important site in Australia for Sanderling and has regularly supported more than 1% of the flyway population.

Species common name	Species scientific name	Minimum population estimate for flyway*	1% of minimum population in flyway*	Discovery Bay count	Date	Reference
Sanderling	<i>Calidris alba</i>	22,000	220	232	21/02/1981	AWSG digital database
				560	01/01/1983	AWSG database
				610	06/10/2005	AWSG database

* Flyway population estimates from Wetlands International (2002).

9. Wetland type:

Marine and Coastal Wetlands – E, F, G

E - Sand, shingle or pebble shores; includes sand bars, spits and sandy islets; includes dune systems.

F - Estuarine waters; permanent water of estuaries and estuarine systems of deltas.

G - Intertidal mud, sand or salt flats.

10. Outline map of site:

The following description should be read in conjunction with the site map on Page 3.

The shorebird site includes the whole of Discovery Bay Coastal Park plus that part of the Discovery Bay Marine National Park that is between high and low tide levels. Discovery Bay Coastal Park is proclaimed under the *National Parks Act 1975* and described in Version No. 092 of the Act (incorporating amendments as at 27 May 2004), Schedule three, Part 3.

Discovery Bay Marine National Park is proclaimed under the *National Parks Act 1975* and described in Version No. 092 of the Act (incorporating amendments as at 27 May 2004), Schedule seven, Part 5. Only the area between high and low water mark is included in the shorebird site.

11. Jurisdiction:

Land management: Parks Victoria

State: Victorian State Government

Conservation agency: Department of Sustainability and Environment.

12. Management Authority:

Parks Victoria

8-12 Julia Street

PORTLAND VIC 3305

13. Name and address of the compiler:

Peter Collins

RMB 4009

Cowes, 3922

Australia.

Ph: (03) 5952 1857

Fax: (03) 5952 1857

Email: moonbird@waterfront.net.au

14. General location:

Between the South Australian border and Nelson Bay, 320 kilometres south-west of Melbourne, Victoria. The population of Melbourne was 3.6 million in 2003.

15. Physical features:

The coastal landforms of Discovery Bay Shorebird Site include beaches, coastal cliffs, headlands and dune fields. The coastline is a dynamic high-energy system. The Glenelg River Estuary and Long Swamp in the site are recognised as nationally important wetlands (Environment Australia, 2001). Long Swamp is a shallow freshwater wetland fed by a ground water aquifer in the Discovery Bay dune barrier system. The Glenelg Estuary is a large estuarine system consisting of the main channel of the Glenelg River and a side lagoon called Oxbow Lake (Australian Wetlands Database).

16. Hydrological values:

The Glenelg River Estuary is the only river that discharges into Discovery Bay. The estuary is a modified, wave-dominated estuary (OzEstuaries Database). Smaller streams, such as Johnstones Creek, discharge water into Discovery Bay during periods of high rainfall.

17. Ecological features:

There are three main vegetation types within the Discovery Bay Shorebird Site: coastal dune scrub complexes on sands and limestone headlands, dry and wet heaths and swamps, and mallee and woodland Eucalypt communities.

The invasion of Coastal Tea-tree *Leptospermum laevigatum* and Coastal Wattle *Acacia sophorae* over the last 150 years has greatly impacted the vegetation communities. The major environmental weeds in Discovery Bay Shorebird Site can be found in Appendix 3 of the management plan that covers Discovery Bay Coastal Park (Parks Victoria, 2004). There are some areas of pine forests adjacent to the shorebird site. However, the majority of the land adjacent to the site is agricultural land under exotic pasture for grazing.

18. Noteworthy flora:

Discovery Bay Shorebird Site has some 320 native plant species recorded, with 27 of these threatened (Appendix 1) (Parks Victoria 2004).

19. Noteworthy fauna:

There are records of 64 species of threatened fauna in Discovery Bay Shorebird Site (Appendix 2). There are also records of 25 bird species listed under the Japan-Australia Migratory Birds Agreement (JAMBA) and the China-Australia Migratory Birds Agreement (CAMBA) (see below).

Scientific Name	Common Name	JAMBA	CAMBA
<i>Stercorarius parasiticus</i>	Arctic Jaeger	J	
<i>Limosa lapponica</i>	Bar-tailed Godwit	J	C
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	J	C
<i>Sterna caspia</i>	Caspian Tern	J	C
<i>Tringa nebularia</i>	Common Greenshank	J	C
<i>Actitis hypoleucos</i>	Common Sandpiper	J	C
<i>Calidris ferruginea</i>	Curlew Sandpiper	J	C
<i>Numenius madagascariensis</i>	Eastern Curlew	J	C
<i>Ardea alba</i>	Great Egret	J	C
<i>Pluvialis squatarola</i>	Grey Plover	J	C
<i>Heteroscelus brevipes</i>	Grey-tailed Tattler	J	C
<i>Gallinago hardwickii</i>	Latham's Snipe	J	C
<i>Sterna albifrons</i>	Little Tern	J	C
<i>Tringa stagnatilis</i>	Marsh Sandpiper	J	C
<i>Charadrius veredus</i>	Oriental Plover	J	
<i>Pluvialis fulva</i>	Pacific Golden Plover	J	C
<i>Calidris canutus</i>	Red Knot	J	C
<i>Calidris ruficollis</i>	Red-necked Stint	J	C
<i>Arenaria interpres</i>	Ruddy Turnstone	J	C
<i>Calidris alba</i>	Sanderling	J	C
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	J	C
<i>Puffinus griseus</i>	Sooty Shearwater	J	C
<i>Diomedea exulans</i>	Wandering Albatross	J	
<i>Numenius phaeopus</i>	Whimbrel	J	C
<i>Hirundapus caudacutus</i>	White-throated Needletail	J	C

Discovery Bay Coastal Park is an important breeding area for the endemic Hooded Plover (*Thinornis rubricollis*) and supports more than 1% of the population (Hewish 1989).

Species	Number regularly supported at Discovery Bay	Minimum population estimate for Australia	1% of minimum population
Hooded Plover	60	5,000	50

Shorebirds that nest on the beach include Hooded Plover *Thinornis rubricollis*, Little Tern *Sterna albifrons*, Pied Oystercatcher *Haematopus longirostris* and Red-capped Plover *Charadrius ruficapillus*. Sanderling use the whole of the coastal strip but there are concentrations around the Glenelg River mouth. Endemic breeding species such as Hooded Plover and Pied Oystercatcher breed just above the spring high tide and adjacent sand dunes where suitable sites occur.

Significant shorebirds species at the Discovery Bay Shorebird Site include those listed in the following table.

Species	Threatened in Victoria	Listed under the <i>Flora and Fauna Guarantee Act 1988</i>	Breed in shorebird site	Supports 1% of minimum population: *in flyway #in Australia
Caspian Tern		✓		
Common Sandpiper	✓			
Fairy Tern	✓	✓		
Grey-tailed Tattler	✓	✓		
Gull-billed Tern	✓	✓		
Hooded Plover	✓	✓	✓	✓ #
Little Tern	✓	✓	✓	
Pied Oystercatcher			✓	
Red-capped Plover			✓	
Sanderling				✓ *
Whimbrel	✓			

20. Social and cultural values:

The Discovery Bay Shorebird Site has a long history of Aboriginal use dating back at least 11, 300 years BP. Significant Aboriginal archaeological sites recorded for Discovery Bay include extensive shell middens, earth oven remains and numerous lithic materials such as edge ground axes, basalt grinding stones and flint artefacts. The greatest concentration of middens occurs between the freshwater swamps and the sea at the western end of Discovery Bay. Most sites are within 100m of the beach. Sites near Nelson include ear bones from Mulloway probably taken from the Glenelg River (Parks Victoria, 2004).

Discovery Bay Coastal Park is popular for walking, sightseeing and scenic drives. Numerous recreational activities are undertaken, including: camping, fishing, diving, surfing, water skiing and cycling. There are special areas for dune buggy driving, horse riding and walking dogs on leads.

21. Land tenure/ownership:

Area of the shorebird site	Land status
Discovery Bay Coastal Park	Public land proclaimed under Schedule Three of the <i>National Parks Act 1975</i> .
The part of Discovery Bay Marine National Park between high and low water mark.	Public land proclaimed under Schedule Seven of the <i>National Parks Act 1975</i> .

22. Current land use:

- (a) the site: conservation and recreation.
- (b) the surrounding area: private property used for agriculture and pine forests, public land used for forest products and recreation and Victorian coastal waters.

23. Adverse factors affecting the ecological character of the site:

- Recreational activities require careful management to avoid adverse impacts on shorebird habitat and general disturbance to birds, particularly breeding birds. The use of 4WDs and dune buggies and the presence of horses and dogs are of particular concern.
- Pest animals, particularly cats and foxes, require careful management to reduce their impact on breeding birds.
- The invasion of Coastal Tea-tree and Coastal Wattle over the last 150 years has greatly impacted the natural vegetation communities but has not affected coastal areas of importance to shorebirds.
- Long term changes affecting the Glenelg River Estuary, such as clearing of vegetation and erosion upstream of the site, impact on water quality in the river.

24. Conservation measures taken:

Discovery Bay Coastal Park was first proclaimed under Schedule Three of the *National Parks Act* on 26 April 1979 with an area of 8350 hectares. Additions of land in 1981, 1987 and 1997 have increased its area to 10,460 hectares (Parks Victoria, 2004). Discovery Bay Marine National Park was proclaimed under Schedule Seven of the *National Parks Act* in November 2002.

Discovery Bay Coastal Park and Discovery Bay Marine National Park are managed by Parks Victoria. A management plan for Discovery Bay and other nearby coastal parks was published in 2004 (Parks Victoria 2004). Management plans for marine national parks will be prepared in the near future.

The management plan that covers Discovery Bay outlines an implementation program as follows: 'management programs for the planning area are prepared annually, in accordance with Parks Victoria's Corporate Plan and as a part of statewide prioritised program delivery. The performance of the plan's implementation will be measured and reported on as part of these statewide programs as implemented to June each year'.

The local community is involved in managing the Park with the main groups being: the Friends of the Great South West Walk, the Bridgewater Coast Action Group and the Portland Field Naturalists Club. The local indigenous people are also active in the Park, with the principal groups being: the Gournditch-Mara and the Winda Mara Aboriginal Corporation.

25. Conservation measures proposed but not yet implemented:

The Management Plan for Discovery Bay (Parks Victoria 2004) sets out aims and management strategies in relation to management of: flora and fauna, rivers and wetlands, geological and landform features, fire, pest plants and animals, soil, cultural heritage and visitor recreational activities and facilities. These strategies provided the guideline for developing a set of targeted management actions for shorebird conservation in the Park (see Appendix 3).

26. Current scientific research and facilities:

Volunteers conduct a Little Tern monitoring program with the assistance of Parks Victoria. The Australasian Wader Studies Group conducted summer and winter counts of all shorebirds in the 1980's. Reactivation of this program is being investigated.

27. Current conservation education:

Local schools use the Discovery Bay Coastal Park and are provided with education materials. The Great South West Walk that runs through the Park is used extensively by school groups involved in outdoor education and leadership development training. Notice

boards, nature trails, site-specific and fauna-specific (eg. Hooded Plover) information located throughout the site provides education for park visitors.

28. Current recreation and tourism:

Discovery Bay is popular for walking, sightseeing and scenic drives. Numerous recreational activities can be undertaken, including: camping, fishing, diving, surfing, water skiing and cycling. There are special areas for dune buggy driving, horse riding and dog walking.

29. References:

Australian Wetlands Database. <http://ea.gov.au/water/wetlands/database/>.

Australasian Wader Studies Group (AWSG) and Birds Australia (RAOU) Unpublished Database - from Australian regular count project, 1981-1990. Birds Australia, Melbourne.

Environment Australia (2001). *A Directory of Important Wetlands in Australia. Third Edition.* Environment Australia. Canberra.

Hewish, M. (1989). *Hooded Plovers, Pied Oystercatchers and a windy weekend at Discovery Bay, Victoria. The Stilt* **15**, 24-26.

Murray H.A. & Reside, J. (1994). *Management of the Little Tern in Victoria 1994-95.* Department of Conservation and Natural Resources, Victoria.

OzEstuaries Database. <http://www.ozestuaries.org>. National Land and Water Resources Audit.

Parks Victoria (2004). *Discovery Bay Parks Management Plan.* Parks Victoria, Melbourne.

Watkins, D. (1993). *National plan for shorebird conservation in Australia.* Australasian Wader Studies Group, Royal Australasian Ornithologists Union and World Wide Fund for Nature, RAOU Report no. 90.

Wetlands International (unpublished). *Guidelines for preparation of site nomination documentation for the East Asian-Australasian Shorebird Site Network.* Wetlands International, Oceania, Canberra.
<http://www.deh.gov.au/water/wetlands/mwp/guidelines/index.html>

Wetlands International (2002). *Waterbird Population Estimates – Third Edition.* Wetlands International Global Series No.12, Wageningen, The Netherlands. 226pp.

Appendix 1. Threatened flora for Discovery Bay Coastal Park

SCIENTIFIC NAME	COMMON NAME	STATUS	HABITAT
<i>Acrotriche cordata</i>	Coast Ground-berry	r	CS
<i>Arachnorchis fragrantissima</i> var. <i>fragrantissima</i>	Scented Spider-orchid	R e N	He,HW,EF,CS.
<i>Asperula charophyton</i>	Elongate Woodruff	R k	
<i>Atriplex billardiarei</i>	Glistening Saltbush	x	CS
<i>Austrofestuca littoralis</i>	Coast Fescue	r	
<i>Baumea laxa</i>	Lax Twig-sedge	r	Sw
<i>Corysanthes despectans</i>	Coast Helmet-orchid	v	CS
<i>E. leucoxydon</i> spp. <i>megalocarpa</i>	Yellow Gum variety	e	W
<i>Exocarpus syrticola</i>	Coast Ballart	r	CS, He
<i>Haloragis myriocarpa</i>	Prickly Raspwort	v	CS
<i>Hibbertia pallidiflora</i>	Pale Guinea-flower	r	
<i>Hibbertia spathulata</i>	Rock Guinea-flower	R r	
<i>Ixodia achillaeoides</i> ssp. <i>arenicola</i>	Ixodia	V v	CS,
<i>Lachnagrostis adamsonii</i> *	Adamson's Blown-grass	E v L	
<i>Lachnagrostis rudis</i>	Ruddy Bent	r	
<i>Logania ovata</i>	Oval-leaf Logania	r	CS
<i>Lotus australis</i>	Austral Trefoil	k	
<i>Hydrorchis orbicularis</i>	Swamp Onion-orchid	v	
<i>Prasophyllum frenchii</i>	Maroon Leek-orchid	E e L	Gr,He,GW
<i>Prasophyllum litorale</i>	Sandhill or Coastal Leek-orchid		CS,He,Gr
<i>Prasophyllum parviflorum</i>	Slender Leek-orchid	v	
<i>Pterostylis cucullata</i> *	Leafy Greenhood	V v L	CS,W
<i>Pterostylis tenuissima</i>	Swamp Greenhood	V v	CS, Sw
<i>Pultenaea canaliculata</i>	Coast Bush-pea	r	
<i>Schoenus carsei</i>	Wiry Bog-sedge	r	
<i>Stackhousia spathulata</i>	Coast Stackhousia	k	
<i>Veronica hillebrandii</i>	Coast Speedwell	v	CS, He

Keys:

Threatened status

National threatened status:

E endangered

V vulnerable

R rare

Victorian threatened status:

e endangered

v vulnerable

r rare

k species poorly known

x extinct

FFG Act Flora and Fauna Guarantee Act

L listed under the Act

N nominated under the FFG Act

Habitat:

Be Beach GW Grassy Woodland

CS Coastal Shrubland He Heath

DV Dune Vegetation HW Heathy Woodland

EF Eucalypt Forest Sw Swamp

Es Estuary W Woodland

Gr Grassland

Source: Parks Victoria (2004). *Discovery Bay Parks Management Plan*. Parks Victoria, Melbourne.

Appendix 2. Threatened fauna for Discovery Bay Coastal Park

SCIENTIFIC NAME	COMMON NAME	STATUS	HABITAT
Mammals			
<i>Antechinus minimus</i>	Swamp Antechinus	NT L	DV, He
<i>Arctocephalus pusillus</i>	Australian Fur seal	Vul	CI
<i>Arctocephalus tropicalis</i>	Subantarctic Fur seal	V	CI
<i>Dasyurus maculatus</i>	Spot-tailed Quoll	V End L	
<i>Eubalaena australis</i>	Southern Right Whale	E CEn L	
<i>Mirounga leonina</i>	Southern Elephant Seal	V	
<i>Potorous tridactylus</i>	Long-nosed Potoroo	V End L	CS, W
Birds			
<i>Accipiter novaehollandiae</i>	Grey Goshawk	Vul	W
<i>Actitis hypoleucos</i>	Common Sandpiper	Vul	
<i>Alcedo azurea</i>	Azure Kingfisher	NT	
<i>Anas rhynchos</i>	Australasian Shoveler	Vul	Sw/I
<i>Ardea alba</i>	Great Egret	End L	Sw/L
<i>Ardea intermedia</i>	Intermediate Egret	CEn L	Sw/L
<i>Aythya australis</i>	Hardhead	Vul	Es/L
<i>Biziura lobata</i>	Musk Duck	Vul	Sw/L
<i>Botaurus poiciloptilus</i>	Australasian Bittern	End L	Sw
<i>Burhinus grallarius</i>	Bush Stone-curlew	End L	
<i>Calidris canutus</i>	Red Knot	NT	
<i>Calyptorhynchus banksii</i>	Red-tailed Black-Cockatoo	E End L	EF
<i>Cereopsis novaehollandiae</i>	Cape Barren Goose	NT	
<i>Chlidonias hybridus</i>	Whiskered Tern	NT	
<i>Dasyornis broadbenti</i>	Rufous Bristlebird	NT L	He, CS
<i>Diomedea cauta</i>	Shy Albatross	V Vul L	
<i>Diomedea chrysostoma</i>	Grey-headed Albatross	V Vul L	
<i>Diomedea exulans</i>	Wandering Albatross	V End L	
<i>Egretta garzetta</i>	Little Egret	End L	Sw/L
<i>Falco subniger</i>	Black Falcon	Vul	
<i>Gallinago hardwickii</i>	Latham's Snipe	NT	
<i>Grus rubicundus</i>	Brolga	Vul L	Sw
<i>Haemotopus fuliginosus</i>	Sooty Oystercatcher	NT	
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	End L	Be, CI
<i>Halobaena caerulea</i>	Blue Petrel	V	
<i>Larus pacificus</i>	Pacific Gull	NT	Es, Be
<i>Lophoictinia isura</i>	Square-tailed Kite	Vul L	CS
<i>Macronectes giganteus</i>	Southern Giant-Petrel	E Vul L	Of, Be
<i>Neophema chrysogaster</i>	Orange-bellied Parrot	E CEn L	DV
<i>Numenius madagascariensis</i>	Eastern Curlew	NT	

SCIENTIFIC NAME	COMMON NAME	STATUS	HABITAT
<i>Nycticorax caledonicus</i>	Nankeen Night Heron	NT	
<i>Oxyura australis</i>	Blue-billed Duck	End L	Es, Ss
<i>Pachyptila turtur</i>	Fairy Prion	V Vul	Of, Be
<i>Pelagodroma marina</i>	White-faced Storm-Petrel	NT	
<i>Pelecanoides urinatrix</i>	Common Diving-Petrel	NT	
<i>Pezoporus wallicus</i>	Ground Parrot	End L	Sw
<i>Phalacrocorax fuscescens</i>	Black-faced Cormorant	NT	
<i>Phalacrocorax varius</i>	Pied Cormorant	NT	
<i>Platalea regia</i>	Royal Spoonbill	Vul L	
<i>Pluvialis squatarola</i>	Grey Plover	NT	
<i>Rallus pectoralis</i>	Lewin's Rail	Vul L	Es, Sw, He
<i>Sterna albifrons</i>	Little Tern	Vul L	Es, Be
<i>Sterna caspia</i>	Caspian Tern	NT L	
<i>Sterna nereis</i>	Fairy Tern	End L	Es, Be
<i>Sterna nilotica</i>	Gull-billed Tern	End L	
<i>Sterna striata</i>	White-fronted Tern	NT	
<i>Thinornis rubricollis</i>	Hooded Plover	Vul L	Es,Be
Reptiles and amphibians			
<i>Aprasia striolata</i>	Striped Worm-lizard	NT L	CS, EF
<i>Dermochelys coriacea</i>	Leathery Turtle	V CEn L	
<i>Egernia coventryi</i>	Swamp Skink	Vul L	Sw, He
<i>Hemiernis peroni</i>	Four-toed Skink	NT	CS, DV
<i>Litoria raniformis</i>	Growing Grass Frog	V End L	
Fish			
<i>Galaxiella pusilla</i>	Dwarf Galaxias	V Vul L	Sw/L
<i>Nannopercha obscura</i>	Yarra Pygmy Perch	V NT L	Sw/L
<i>Nannopercha variegata</i>	Variiegated Pygmy Perch	V End L	Sw/L
Invertebrates			
<i>Euastacus bispinosus</i>	Glenelg Spiny Cray	Ins	Esw
<i>Hesperilla flavescensflavescens</i>	Altona Sedge Skipper Butterfly	–	Es, Sw/L

Source: Parks Victoria (2004). *Discovery Bay Parks Management Plan*. Parks Victoria, Melbourne.

Threatened status

National threatened status:

E endangered

V vulnerable

Victorian threatened status:

CEn critically endangered

End endangered

Vul vulnerable

NT near threatened

DD data deficient

FFG Act *Flora and Fauna Guarantee Act* status:

L listed under the Act

N nominated for listing under the Act

Habitat codes:

Be Beach Es Estuary

Cl Cliffs He Heath

CS Coastal Shrubland Of Offshore

W Woodland Sw/L Swamp or Lake

DV Dune Vegetation Sw Swamp

EF Eucalypt Forest L Lake

Appendix 3. Management Strategies for the Discovery Bay Shorebird Site

The following aims and management strategies are included in the Discovery Bay Parks Management Plan (Parks Victoria 2004). Where necessary, additional details are provided below to assist in implementing management strategies.

Section of plan	Management strategy in plan relevant to shorebird conservation	Additional information to assist with implementation for shorebirds
4.2. Rivers and wetlands	Work as a lead agency with the Glenelg Hopkins Catchment Management Authority to prepare a Glenelg River Estuary Management Plan that includes protocols for opening the Glenelg River. Work with the Gournditch-Mara people and Winda-Mara Aboriginal Corporation, and other agencies and community groups as appropriate.	Areas near the mouth of the Glenelg River are important for Sanderling and Little Tern. The needs of shorebirds should be considered when making these plans.
4.4. Fauna and Appendix 2	<p>Manage significant fauna in accordance with approved action statements, recovery plans and other relevant documents (Appendix 2) in co-operation with the Aboriginal Gournditch-Mara community.</p> <ul style="list-style-type: none"> • Implement relevant provisions of Little Tern Management Plan (Murray and Reside 1994). • Discovery Bay is a major stronghold for Hooded Plover. Poor breeding success is due to nest disturbance (walkers, four-wheel-drive beach use) and foxes. Implement Flora and Fauna Guarantee Act 1988 Action Statement (Number 9) for Hooded Plover. 	<p>Significant fauna includes shorebirds, particularly those for which Discovery Bay is recognised as internationally important. It is important to identify key areas of habitat for significant shorebirds and ensure their protection.</p> <p>Sanderling are heavily dependent on the pupa (maggots) of flies which lay their eggs in beach washed rotting seaweed (algae). It is essential therefore that removal of beach washed algae or seaweed be avoided.</p> <p>The actions for Hooded Plover will also help Red-capped Plover, Pied Oystercatcher breeding.</p> <p>Liase with South Australian conservation agencies and volunteer groups as Sanderling also use the beaches between the Glenelg River mouth and the mouth of the Murray.</p>
4.4. Fauna	Encourage and support research, surveys and monitoring of threatened fauna, especially Hooded Plover, to identify their distribution and ecological requirements, and manage accordingly.	Continue surveys of Hooded Plovers and Little Tern. Support for more frequent shorebird surveys is desirable.
4.4. Fauna	<p>Reduce the impact of recreational activities and illegal off-road driving on ground-nesting birds through education, and enforcement as necessary (sections 6.1 and 6.2).</p> <p>Ensure that information, interpretation and education materials highlight the requirement to avoid disturbance to fauna (section 6.1).</p>	<p>These actions are particularly important during the nesting period for Hooded Plover, Red-capped Plover, Pied Oystercatcher.</p> <p>Land yachting and kite surfing are becoming increasingly popular activities on beaches. These activities have the potential to disturb shorebirds and they should be monitored and, if necessary, controlled.</p>
6.1. Information, interpretation and education	<p>Ensure that promotion, and educational and interpretive material:</p> <ul style="list-style-type: none"> • highlights the requirement for walkers to avoid disturbance to fauna, especially ground-nesting shore birds during seasonal breeding periods (section 4.4) and specify major seasonal breeding times; • highlights the impacts of recreational activities such as illegal off-road driving on values, especially ground-nesting birds and Indigenous cultural heritage. 	Ensure fishers are among the visitors targeted by such interpretive material.
6.2. Vehicular access	Prevent illegal off-road vehicle use, especially vehicle use in dune fields, in a working partnership with local police, key user groups and local landowners. Where appropriate, assist landholders to fence the Coastal Park boundary to deter illegal four-wheel-drive and trail-bike access.	

Section of plan	Management strategy in plan relevant to shorebird conservation	Additional information to assist with implementation for shorebirds
4.4. Fauna	Encourage monitoring of fauna species that may be disturbed by visitors, management activities or environmental change, particularly beach-nesting birds and species inhabiting swamps and heaths, in partnerships with volunteers and local naturalists.	Implement Hooded Plover and Little Tern Management Plans, including beach exclosures where appropriate. Partnerships with local volunteers may enable monitoring of nests and visitors.
4.4. Fauna	Ensure all sightings of significant species in the planning area are recorded in the Environmental Information System.	Birds Australia and the Australasian Wader Studies Group can provide information on shorebird sightings
4.7 Pest plants and animals	Continue to develop and implement control programs aimed at major pest plants (appendix 3) and major pest animals (rabbits, foxes and feral cats) and recent introductions that can be eradicated, working in co-operation with the Gournditch-Mara, and with neighbours and other community and Friends groups as appropriate (sections 7.1 and 7.2). The priority will be to control pest species that pose greatest threats to native flora or fauna.	It is important to control both foxes and feral cats to ensure long term survival of beach nesting shorebirds and prevent disturbance at shorebird roost sites.
4.8. Soil conservation	Where practicable, selectively control dune erosion at sites where park or adjacent assets are threatened, or where erosion is clearly resulting from visitor use.	Marram grass has been implicated in the reduction in breeding by Hooded Plover in Tasmania.
4.8. Soil conservation	Manage all vehicle access to the coast across the Bridgewater Bay dunes to protect park values (section 6.2).	Some Hooded Plovers nest in the dunes. Chicks of Hooded Plover and Pied Oystercatcher often shelter in wheel ruts and are run over by vehicles.
4.8. Soil conservation	Restore and manage eroded sites caused by vehicular and beach access at Murrels Beach, Bridgewater Bay dunes south of Nagorckas Road, Shelley Beach, Nobles Rocks, Lake Monibeong Road and other sites as needed and in co-operation with community groups (section 7.1).	A survey of Hooded Plover nest sites should be undertaken before replanting begins. Hooded Plovers often nest in blowouts. Plantings should be restricted to months when birds are not breeding.
4.8. Soil conservation	Work with community interest and user groups to minimise the impacts of walkers, surfers and anglers, particularly along the Great South West Walk and other tracks leading down cliff faces and across the dunes, and take action where necessary to minimise erosion.	Make sure brochures and signs mention ground nesting shorebirds and visiting migratory birds and appropriate behaviour by walkers towards these species, as recommended in Section 6.1 of the plan.
4.8. Soil conservation	Monitor impacts from horse riding, and take appropriate action to ensure horse riding only occurs at approved locations and erosion problems are not created. Encourage riders to assist in restoration programs (section 7.1).	It would be useful to survey horse riding areas to see if Hooded Plover or Pied Oystercatcher nest there.
6.1. Information, interpretation and education	Develop and deliver key messages (themes) through information shelters, display, Park Notes and interpretive programs, and in accordance with table 3 (relevant sections below). <ul style="list-style-type: none"> • Develop and maintain educational signage about regulations in relation to dog access and management for the ocean beach. • Develop and maintain interpretive signage in relation to Little Tern (breeding area) at Glenelg River Estuary and beach. 	Improve recognition of Discovery Bay Coastal Park as a site of international importance for shorebirds and develop appropriate interpretive materials.
6.5. Fishing	Monitor any impacts on park values associated with recreational fishing and fisher access and, if necessary, take appropriate action in consultation with angling groups. Promote practices that are safe, and environmentally and culturally and user-friendly.	Discarded fishing line is a problem for shorebirds especially Pied Oystercatchers as it wraps around and amputates their legs. Bait digging for cockles and worms and collecting from rocks may severely impact Pied and Sooty Oystercatchers by removing their food source.

Section of plan	Management strategy in plan relevant to shorebird conservation	Additional information to assist with implementation for shorebirds
6.8. Horse riding	Management strategies relating to horse-riding.	Areas used for horse riding should be surveyed for their use by shorebirds at different times of the year. Hooded Plover chicks are vulnerable to horse riders as they spend most of their time by the water. They crouch down to avoid detection often in wheel ruts or other depressions and do not run away from a "predator". Too much disturbance lessens the feeding time available and they may die of starvation.
6.9. Dogs	<p>Allow dogs on leashes in Special Management Area–Recreation on Bridgewater Bay Beach and Nelson foreshore, and on tracks leading directly to these areas from nearby carparks (except the access track at the Shelley Beach end of Bridgewater Bay beach). Prohibit dogs in all other areas within the planning area except as specifically authorised under National Parks (Park) Regulations 2003.</p> <p>Undertake frequent education and enforcement activities at sites where dogs are regularly observed and are not permitted.</p>	Areas where dogs are allowed on leashes should be surveyed for their use by shorebirds at different times of the year. Hooded Plover chicks are vulnerable to disturbance. Dogs also eat eggs and chicks and chase flocks of migratory waders.
7.2. Community partnerships	Liaise with neighbours, community groups, institutions, other bodies and government agencies with interests in or concerns with management of the planning area, and encourage them to work together and with Parks Victoria to resolve management issues. Encourage their involvement in projects as appropriate.	Birds Australia, AWSG and VWG will continue to liaise with Parks Victoria regarding shorebird monitoring, research and conservation.