

Small South-East Islands

Draft Management Plan

July 2002



PARKS *and* WILDLIFE
SERVICE TASMANIA

DEPARTMENT *of*
PRIMARY INDUSTRIES,
WATER *and*
ENVIRONMENT

Small South-East Islands Management Plan

This draft management plan covers the following small islands of south-east Tasmania:

Betsey Island – Nature Reserve
Little Betsey Island – Nature Reserve
Sloping Island – part of Lime Bay State Reserve
Hog Island – part of Lime Bay State Reserve
Spectacle Island – Public Reserve
Lachlan Island – Unallocated Crown Land
Wedge Island – Unallocated Crown Land
Isle of Caves – Unallocated Crown Land
Little Spectacle Island – Unallocated Crown Land
Iron Pot – Unallocated Crown Land
Dart Island – Unallocated Crown Land

For the four islands reserved under the *National Parks and Wildlife Act 1970*, this draft management plan has been prepared in accordance with the requirements of Part IV of the Act. With respect to the Public Reserve, the management plan has been prepared in accordance with the *Crown Land Act 1976*. For the remaining islands unallocated crown land islands, this management plan will be used as a policy guide by the Department of Primary Industries, Water and Environment.

Unless otherwise specified, this plan adopts the interpretation of terms given in Section 3 of the *National Parks and Wildlife Act 1970*. The term ‘Minister’ when used in the plan means the Minister administering the Act.

In accordance with Section 23 (2) of the *National Parks and Wildlife Act 1970*, the managing authority for the reserves, in this case the Director of National Parks and Wildlife, shall carry out his or her duties in relation to the islands for the purpose of giving effect to, and in accordance with, the provisions of, this management plan.

This plan may only be varied in accordance with procedures set out in Sections 19 and 20 of the *National Parks and Wildlife Act 1970* and will be reviewed ten years after approval of the plan by the Governor.

ACKNOWLEDGEMENTS

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Research conducted by former Parks and Wildlife Service biologist, Nigel Brothers, forms the basis for much of the information on seabird distribution and abundance presented in the management plan. Representatives from Birds Australia (Tasmania), particularly Dr. William Wakefield, provided additional valuable information. Many other people have assisted in the preparation of this plan by providing comments on earlier drafts. Their time and efforts are gratefully acknowledged.

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Making a Representation - What do you think?

What do you think of the proposals in this draft management plan? This is your chance to have your say on how it is proposed to manage the small south-east islands included in this plan for the next 10 years.

Copies of the draft plan are available at Service Tasmania offices in Hobart and the Hobart office of the Parks and Wildlife Service, Department of Primary Industries, Water and Environment.

Making a Representation

Please make your representation concise and clear. It will help if you refer to the section numbers in the plan. Say whether you agree or disagree with the actions proposed in the areas which interest you. Wherever possible, give reasons and provide sources of information. Suggest alternatives if you disagree. Giving reasons, offering information and alternative suggestions will help improve the plan. Your representation should be addressed to:

Director National Parks and Wildlife
1 Franklin Wharf
Hobart, Tasmania 7000

How is Your Representation Assessed?

As a general guide, and depending on all the circumstances, the draft plan may be amended if a representation:

- provides new information relevant to planning and management;
- indicates proposed policies and actions are misunderstood and need clarification;
- clarifies or proposes policies and actions that would better achieve the management objectives;
- identifies a lack of policies or actions for particular issues; or
- corrects errors, omissions or lack of clarity.

Similarly, the draft plan may not be amended if a representation:

- contradicts planning proposals for which there is widespread support;
- conflicts with government policy;
- is contrary to the intention of relevant legislation or national or international conventions and agreements;
- is among widely divergent viewpoints better handled or balanced by the proposed approach to policies or actions;
- addresses issues beyond the scope of the plan; or
- ignores or contradicts relevant established facts.

Review of Representations by the Resource Planning and Development Commission (RPDC)

Recent amendments to the *National Parks and Wildlife Act 1970* have established a new process for review of public representations involving the RPDC to provide for greater transparency and accountability in finalising management plans.

The Director will review all representations received and prepare a report which includes a summary of all representations, the Director's opinion on the merit of each representation and whether modification of the management plan is required.

The Director will forward copies of all representations received, together with the Director's report, to the RPDC who will advertise the representations and the Director's report for public viewing. The RPDC may hold hearings on the representations. The RPDC will review the representations and the Director's report and the results of any public hearings held and will prepare a report to the Minister. The RPDC's report to the Minister will be published.

Consideration of Representations by the Minister and Approval by the Governor of the Management Plan

The Minister will consider:

- public representations;
- the Director's report on public representations;
- the RPDC report on the Director's report on public representations;
- the National Parks and Wildlife Advisory Committee advice; and
- the purposes of reservation and management objectives for the class of reserved land.

The Minister will make such alterations to the management plan considered appropriate and recommend the final management plan to the Governor for approval.

How Much Time Do You Have?

This draft management plan was released for public comment on August 12, 2002. Your comments should be submitted to the Director by close of business on September 20, 2002.

Confidentiality

Your representation will be made available for public viewing by the RPDC.

Summary

Many of Tasmania's small offshore islands in the south-east region are significant breeding sanctuaries for a diversity of seabird species. Because of their isolation and, in some cases, the absence of mammals, many may also harbour unique or endemic species of flora and fauna that are undergoing evolutionary radiation. Pressures on small islands world-wide, such as fisheries interaction, marine and terrestrial pollution and disturbance to breeding birds and their habitats, highlight the importance and urgency of conserving these global natural assets. Small, isolated, discrete ecosystems are particularly vulnerable to damage and destruction caused by the introduction of feral plant and animal species, fire or direct human disturbance (Salm *et. al* 2000).

This Small South-East Islands Draft Management Plan details information and management aims and prescriptions to ensure that the following significant small islands are managed appropriately for the protection of their natural and cultural values:

Lachlan Island
Wedge Island
Sloping Island State Reserve
Hog Island State Reserve
Isle of Caves
Spectacle Island Public Reserve
Little Spectacle Island
Betsey Island Nature Reserve
Little Betsey Island Nature Reserve
Iron Pot
Dart Island

Other significant small islands in south-east Tasmania are Ile des Phoques south of Schouten Island and Ile du Nord off the north coast of Maria Island which are encompassed by the Maria Island National Park and Ile des Phoques Nature Reserve Management Plan 1998 and Visscher Island, Hippolyte Rocks, The Lanterns, The Thumbs and Tasman Island which are encompassed by the Tasman National Park Management Plan 2001. Barren Island Nature Reserve and Woody Island Nature Reserve are encompassed by the Pittwater and Orielton Lagoon Ramsar Site Management Plan 2001, currently in draft form (see Appendix 2).

Natural Values

Tasmania's small south-east islands have important natural values, particularly as sanctuaries for 13 species of seabirds. Many can also provide baseline information about soils, fauna and flora, which have evolved relatively free from human interference. Some harbour representative samples of vegetation that have been destroyed or substantially modified on adjacent mainland Tasmanian areas.

Management Issues

Because of their proximity to major population centres on mainland Tasmania, many of the small south-east islands are visited during the summer, increasing the risk of feral plant and animal introduction and direct disturbance to nesting birds. When surface-nesting birds are directly disturbed or constantly disrupted by noise or activity, they will desert nests and nesting sites, in some instances, never returning. Their breeding success and productivity can be interrupted for years. Burrow-nesting birds are put at risk by trampling and destruction of their burrows. Breeding seabirds generally forage closer to the shore where, particularly if diving, they can be susceptible to entanglement and drowning in set nets.

Because small islands are important sources of ecological information, a greater emphasis needs to be placed on producing and maintaining geoconservation, flora and fauna inventories.

Cultural Values

Four of the south-east islands have known Aboriginal sites of significance and it is possible that others are similarly significant. The two larger islands, Sloping and Betsey, played an important role in the bay whaling industry of the area between the early 1820s and 1940s and have a long history of agricultural use. Dart Island and Iron Pot were important as strategic navigational sites.

Management Issues

Existing known cultural sites require protection. The cultural values of the islands should be further investigated.

Educational Issues

Some of the islands have the potential to play a role in facilitating understanding of the importance of offshore islands. Some could possibly sustain a degree of tourist activity.

Management Initiatives

This draft management plan recommends the involvement of community groups and industry in an island care network and the development and promotion of minimal impact codes of conduct for visiting sensitive islands. The sea kayaking community has led the way with its code, which can be viewed at www.coastview.com.au. It is hoped that greater community involvement in managing these special remote places will help to ensure their long-term protection.

Until more is known about the level and kind of visitation small offshore islands can sustain, it is prudent to adopt the precautionary approach and discourage visitation if there is any doubt that it may adversely impact on the natural and/or cultural values of the islands. To gain information about island visitor numbers, length of stay and reasons for visits and to ensure that potential visitors understand and respect the islands' values, a system to monitor access and visitation rates will be put in place.

South-east islands' breeding seabirds – global perspective

Most of the seabird species recorded on the south-east islands have a restricted breeding range, usually small isolated islands, which provide them with a refuge relatively free from human activity. The following summary provides an overview of the global distribution and abundance of these species and rates their susceptibility to habitat destruction and direct human disturbance. Burrow-nesting birds are particularly prone to habitat disturbance, while direct disturbance impacts more on the surface-nesting species (See Section 5). The following information has been adapted from Brothers *et. al* (2000).

KEY

ooo	highly susceptible to habitat destruction
oo	moderately susceptible to habitat destruction
o	susceptible in some circumstances to habitat destruction
	rarely susceptible to habitat destruction
***	species highly susceptible to direct disturbance
**	species moderately susceptible to direct disturbance
*	species susceptible to direct disturbance in some circumstances
	rarely susceptible to direct disturbance

Little penguin (*Eudyptula minor*)^{ooo**}

Little penguins breed mainly on islands in temperate seas off the south coast of Australia and around the coast of New Zealand. This species' Australian stronghold is in the Tasmanian region with birds nesting either in burrows or rock crevices on many islands where it is possible for them to gain access to the sea. They are largely extinct from mainland Australia due to the impact from dogs, cats, foxes and coastal development. Threats to their Tasmanian island breeding sites include oil spills, fire and drowning in gill nets.

Short-tailed shearwater (*Puffinus tenuirostris*)^{ooo**}

The most abundant and widespread seabird species in the region, they breed primarily in south-eastern Australia, with Tasmania being their most important stronghold world-wide. They breed on islands with adequate soil depth for burrowing. Livestock grazing and fire are considered their greatest onshore threats, while offshore, vast numbers are likely to be killed in various fisheries particularly in the northern hemisphere during their annual migration to and from the Bering Sea and north Pacific region. They are also at considerable risk from entanglement and drowning in gill nets, particularly in the south-east region of Tasmania where netting is popular.

Fairy prion (*Pachyptila turtur*)^{oo}

Globally, fairy prions breed on subtropical and subantarctic islands and rock stacks in the southern hemisphere. In south-east Tasmania, they breed on Hippolyte Rocks, the Lanterns and Tasman Island, which possibly harbours the largest colony in Tasmania. They seem to favour the more remote, inaccessible islands.

Common diving-petrel (*Pelecanoides urinatrix*)^{oo}

This species breeds usually between 35° and 55° on islands off southern Australia, New Zealand, South America and islands in the Southern Ocean. In the south-east region, common diving-petrels are found on only two islands – Hippolyte Rocks and The Thumbs, both of which have steep vegetated ledges favoured by this species for breeding. The Tasmanian south coast islands are its regional stronghold with very few birds breeding in other places in Australia.

White-faced storm-petrel (*Pelagodroma marina*)^{ooo}

This species breeds on islands in the temperate and subtropical regions of the Atlantic, Indian and south Pacific Oceans, primarily around New Zealand and southern Australia. There are no records of breeding further south than Visscher Island. This species prefers low granite islands with soft sandy soil for easy burrow excavation – a habitat that is fragile and vulnerable to trampling and destruction. They are also susceptible to predation from black rats (I. Skira pers. comm 2002).

Pacific gull (*Larus pacificus*)^{* oo}**

Pacific gulls are endemic to Australia, confined to the south-east and south-west coasts. Bass Strait Islands are their breeding stronghold. Although widespread throughout the Tasmanian region, they usually occur on the south-east islands in one or two pairs. They generally prefer breeding on rocky islands. Despite the perception that they are a widespread species, there are fewer than 1500 breeding pairs in the Tasmanian region, probably fewer at other Australian breeding sites, due to disturbance of habitat. They are easily disturbed by human activity when breeding.

Silver gull (*Larus novaehollandiae*)

Breeding on rock stacks, islands and small peninsulas, silver gulls are the most abundant of the gull species. They often nest in association with crested terns, which seems to be mutually beneficial in that increased colony size provides added protection from predators. They have benefited from their association with human development, their numbers having increased greatly since the 1950s (I. Skira pers. comm. 2002).

Kelp gull (*Larus dominicanus*)

This species arrived in the Tasmanian region in the late 1950s and established breeding sites probably in the early 1960s. Kelp gulls nest colonially and are now well-established and increasing in distribution and abundance, a tribute to their ability to exploit urban food sources. They have increased in abundance and range in the south-east region during the past ten years, which may be causing some displacement of Pacific gulls at nesting sites in the region.

Sooty oystercatcher (*Haematopus fuliginosus*)^{* o}**

Endemic to Australia, this species' breeding stronghold in the Tasmanian region are islands with rocky shorelines. Generally, fewer than 5 pairs nest on most islands, although there are exceptions. In the south-east, sooty oystercatchers breed in very low numbers on Lachlan Island, Sloping Island, Hog Island, Isle of Caves, Spectacle Island and Iron Pot. There are fewer than 750 pairs in total breeding on Tasmania's offshore islands.

Pied oystercatcher (*Haematopus longirostris*)^{*}**

Sandy beaches appear to be a prerequisite for this species to breed. Consequently they tend not to depend on the offshore islands. On the islands, they occur in small numbers, with only a few pairs at any one locality. The south-east islands on which they breed are Sloping Island, Spectacle Island, Little Spectacle Island, Barren Island and Iron Pot, with only one pair on each island. Although not officially listed, this species is potentially "vulnerable" due to its small population base and predilection for sandy beaches prone to disturbance by summer visitors, cats, dogs and horses.

Caspian tern (*Sterna caspia*)^{* o}**

Widespread in North America, Europe, Africa, Asia and Australia, this species has a nesting preference for small isolated islands, where they generally breed in single pairs adjacent to shorelines or on poorly-vegetated areas or bare rock. They remain faithful to nesting sites and defend them noisily and aggressively. There are only approximately 70 pairs breeding on Tasmanian offshore islands. In the south-east their breeding range is restricted to Lachlan

Island, Hog Island, Spectacle Island, Visscher Island, Barren Island, Isle of Caves and Iron Pot.

Crested tern (*Sterna bergii*)* °**

Widespread in East Africa, and the Indian and Pacific Oceans, this species nests in dense colonies and is the most abundant tern species of the region. However, fewer than about 15 breeding colonies exist on Tasmania's offshore islands in any season. In the south-east region, crested terns breed on only six islands – Lachlan Island, Hog Island, Isle of Caves, Little Spectacle Island, Barren Island and Iron Pot, but not all are used in all years. The Furneaux Group is the species' Tasmanian stronghold. In Tasmania, crested terns have generally been recorded forming breeding colonies where there are established silver gull populations.

Black-faced cormorant (*Phalacrocorax fuscescens*)* °°**

Australia's only endemic "oceanic" species of cormorant and confined to the southern Australian coast, it is probable that the Tasmanian region is this species' global stronghold. Colonies are widespread in most parts of the region, but in each area there is generally only up to three nesting sites. In the south-east district breeding occurs on Hippolyte Rocks, Hog Island, The Thumbs, Isle of Caves, Little Betsey Island and Iron Pot. Individuals are sensitive to disturbance and will respond by deserting eggs and chicks. The species is also at considerable risk from entanglement and drowning in gill nets particularly in areas adjacent to population centres where net use is common. Because of their precarious breeding habitats, some nest sites, such as those on Little Betsey Island, are at risk from destruction by high seas.

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Section 1 Overview

1.1 Location and Access

The islands included in this plan are located off the south-east coast of Tasmania in the Glamorgan-Spring Bay, Sorell, Tasman and Clarence City Council municipal areas. (See Appendix 1, Map 1)

The accessibility of the islands is described in greater detail in Section 2.

1.2 Regional Context

Apart from Lachlan Island off the west coast of Maria Island, the islands covered by this plan are located either in Norfolk Bay, Frederick Henry Bay or Storm Bay. Being close to populated areas and accessible by small boats, many of the islands are visited.

1.3 Reservation

The boundaries of reserved islands extend to low water level.

Table 1. Land Classification of the Small South-East Islands

Island	Current land classification	Date of reservation	Land classification comments
Lachlan Island	Unallocated Crown Land	N.A.	The diversity of seabirds and presence of an Aboriginal site justify a more appropriate land classification.
Sloping Island	Part of Lime Bay State Reserve	August 8, 2001	Lime Bay State Reserve was reclassified from Nature Reserve status because the high recreational use of the area was inconsistent with the objectives of Nature Reserves. Because Sloping Island was included in the original Nature Reserve classification, its status was also changed. The classification is appropriate.
Hog Island	State Reserve (part of Lime Bay State Reserve)	August 8, 2001	See above. The classification is appropriate.
Isle of Caves	Unallocated Crown Land	N.A.	The geoconservation values and existence of terns and oystercatchers justify a more appropriate land classification.
Spectacle Island	Public Reserve (part of Carlton Beach Coastal Reserve)	December 31, 2001	Carlton Beach Coastal Reserve became a public reserve as part of the <i>Regional Forest Agreement (Land Classification) Act 1998</i> . Its diversity of seabirds justifies a more appropriate land classification.

Little Spectacle Island	Unallocated Crown Land	N.A.	The existence of terns and oystercatchers justifies a more appropriate land classification.
Betsey Island	Nature Reserve	July 1, 1981	The island was reserved for its representative samples of vegetation of adjacent areas, which have been cleared and its extensive shearwater colonies. The classification is appropriate.
Little Betsey Island	Nature Reserve	July 1, 1981	Part of the Betsey Island Nature Reserve. The classification is appropriate.
Iron Pot	Unallocated Crown Land	N.A.	The diversity of seabirds justifies a more appropriate land classification.

Other significant small islands off the south-east coast of Tasmania are Ile des Phoques, Ile du Nord, Visscher Island, Hippolyte Rocks, The Lanterns, The Thumbs and Tasman Island. Ile du Nord is part of the Maria Island National Park, and with Ile des Phoques Nature Reserve, is encompassed by the Maria Island National Park and Ile des Phoques Nature Reserve Management Plan 1998. The other islands form part of the Tasman National Park and are governed by the Tasman National Park Management Plan 2001. Barren Island and Woody Island form part of the Pittwater Nature Reserve and are included in the Pittwater and Orielton Lagoon Ramsar Site Draft Management Plan 2001. Although not covered by this management plan, information about the values of these islands is included in Appendix 2. Smooth Island, King George Island and Fulham Island are private property.

Section 2 Values and Management Issues of the Islands

Within this section the values and management issues of each island are described, with significant values highlighted under “Special Significance”. The vegetation condition of each island is described under “Condition” with reference to specific island vegetation condition categories listed in Appendix 3. Prescriptions to address the management issues are discussed in Section 4 of the plan. The summary provides further information about the global and national significance of the seabirds breeding on the south-east islands.

Unless otherwise stated, all bird population estimates are based on the work of biologist Nigel Brothers from surveys conducted for the Parks and Wildlife Service between 1985 and 1991. Refer to Appendix 1 for maps of the islands.

2.1 Lachlan Island

Location: 42°39'S, 147°59'E, east of Rheban
Area: 2.5 hectares
Status: Unallocated Crown Land
Access: Orford

Natural Values

The island supports breeding populations of little penguins (200-300 pairs), short-tailed shearwaters (900-1000 pairs), Pacific gulls (20 pairs), kelp gulls (70 pairs), sooty oystercatchers (1 pair) and Caspian terns (1 pair). The existence of 6 or 7 burrows on the cliff tops and along the southern side of the cliffs suggests the presence of white-faced storm-petrels on the island. Cape Barren geese also breed here (W. Wakefield pers. comm. 2002). *Poa poiformis* is the dominant vegetation species.

Cultural Values

The island has an extensive shell midden (Brown 1991). A whaling station lease was granted in 1836 to Richard Radcliff, but remained undeveloped (Evans 1993).

Recreational and Social Values

There is boating and fishing activity, including recreational gill netting, around the island. Recreational diving takes place around the island. Sea kayakers infrequently use the island. A marine farming zone located approximately 200 metres to the south of the island allows for the marine farming of shellfish and seaweeds.

Condition

Grazing by rabbits until the late 1990s caused extensive vegetation damage and erosion on the island. The rabbit population was reduced by shooting and poisoning by Parks and Wildlife staff in 1996/7, but due to lack of resourcing, the eradication program was not maintained. Vegetation has recovered well, however there is still a small rabbit population on the island (G. Atkinson pers. comm. 2002). Without adequate control measures, it is likely to increase, inevitably recommencing the cycle of vegetation denudation and soil erosion. Vegetation category 2 (See Appendix 3).

Special Significance

It is a significant seabird breeding island for the region.

Management Issues

The rabbit population, if unchecked, will increase and have an adverse impact on the vegetation and burrowing seabird habitat. Shearwater poaching occurs. The friable soil is easily eroded. To reflect the value of its Aboriginal site and seabird population, its land classification status needs to be reviewed.

2.2 Wedge Island

Location:	43°08'S, 147°40'E, west of Wedge Bay, Tasman Peninsula
Area:	42.58 hectares
Status:	Unallocated Crown Land
Access:	Nubeena, White Beach

Natural Values

There are breeding populations of little penguins (150 pairs) and short-tailed shearwater (20000-25000 pairs). The island is entirely Jurassic dolerite. Cliffs dominate the western and, to a lesser extent, the south-eastern coast. The east coast has a gentle slope with cobble beaches. This topographic structure creates a wedge-shaped cross-profile. The island is considered to be a representative site of geoconservation significance at the local level (Dixon 1996). Vegetation is dominated by *Poa poiformis* and *Carpobrotus rossii* with patches of *Rhagodia candolleana*. Where areas have been regularly grazed and burnt, cutting grass has replaced the *Poa*. There are a few remnant eucalypts and other scattered trees and shrubs.

Cultural Values

There are isolated Aboriginal artefacts around the island (Brown 1991). Wedge Island was leased for grazing purposes to the Clark family of Nubeena from 1901 until 1990, when the lease was surrendered.

Recreational and Social Values

Recreational diving takes place around the island. Sea kayakers visit the island usually for short stays with little, if any, overnight camping. Surfers regularly use the island, with few, if any, overnight visits. During the summer, day visitors are relatively common.

Condition

Sheep grazed the island until 1986. The island vegetation has been severely burnt over many years. Vegetation category 2 (see Appendix 3).

Special Significance

The island has significant geological and Aboriginal values.

Management Issues

Shearwater poaching, cats and fire are the major threats to the island's ecological values. With the removal of cats, the return of other burrow-nesting species is likely (W. Wakefield pers. comm. 2002). The island's Aboriginal values require appropriate management.

2.3 Sloping Island

Location:	42°57'S, 147°38'E
Area:	117.2 hectares
Status:	State Reserve (part of Lime Bay State Reserve)
Access:	Cremorne, Primrose Sands, Dodges Ferry

Natural Values

The island supports breeding populations of little penguins (2000 pairs), short-tailed shearwaters (7650 pairs), Pacific gulls (1 pair), sooty oystercatchers (1 pair) and pied oystercatchers (1 pair). There are also kelp gulls (2 pairs) and swamp harriers (2 pairs) (W. Wakefield pers. comm. 2002). Ringtail possums and rabbits also inhabit the island. The vegetation of the island consists of eucalyptus woodland (*E. viminalis* and *E. tenuiramis*), sheoak open forest, open and closed heaths dominated by *Banksia marginata*, sagg-dominated herblands, *Poa poiiformis* tussock grasslands, disturbance-induced bracken fields and succulent herbfields dominated by *Tetragonia implexicoma* and *Carpobrotus rossii* (Kirkpatrick 1973). See Appendix 1 for vegetation map.

Cultural values

The island has ten known Aboriginal sites comprising shell middens and artefact scatters (Brown 1991). Bethune and Grant operated a whaling station on the island from 1824 until the late 1820s. From 1828 – 1830 Thomas Lucas also operated a whaling station on the north-east side of the island, land he shared with Bethune and Grant. In 1832, George Meredith applied to rent the island from the government for grazing livestock. Meredith was also a well-known whaling personality and he may have also carried on whaling from Sloping Island, although his application does not mention it. During the 1840s, a probation station to accommodate convicts was established on Sloping Island. In the 1850s the island was leased again for grazing purposes to James Smith (Evans 1993). The lease continued until 1973, when renewal was refused on the grounds that the island was infected with the noxious weed, serrated tussock (*Nassella trichotoma*).

Recreational and Social Values

Although the island is regularly visited by sea kayakers, overnight camping is rare. Recreational diving and fishing occur around the island. Recreational gill netting is common in the area. Visits from the yachting and motor boat communities are frequent during the summer. There is a protected cove with good all-weather access, which provides a safe anchorage for boats. With Coastcare funding, weed control activities occurred during 2002.

Condition

The island has been modified during many years of agricultural use and has not yet recovered. Rabbits have caused severe denudation of the vegetation, which has led to erosion and burrow collapse in shearwater colonies. Some control was attempted in the early 1980s but was unsuccessful. The nationally significant noxious weed, serrated tussock (*N. trichotoma*), occurs on the island, having been transported with infected pea crops in the 1950s and 1960s when the island was actively farmed. Concerted attempts over many years have been made to control it. Other weeds on the island include African boxthorn (*Lycium ferocissimum*), Spanish heath (*Erica lusitanica*), slender thistle (*Carduus tenuiflorus*), dock (*Rumex* sp.), Yorkshire fog-grass (*Holcus lanatus*) and horehound (*Marrubium vulgare*). Vegetation category 2 (see Appendix 3).

Special Significance

The island has particularly significant Aboriginal values and is one of the few islands in the region to have played a significant role in Tasmania's whaling, convict and agricultural history.

Management Issues

Rabbits cause erosion in seabird burrows. Serrated tussock is an ongoing problem. Many other weeds have invaded degraded areas (Smith 2002). Shearwater poaching occurs. The island's seabird diversity and cultural values require appropriate management.

2.4 Hog Island

Location: 42°57'S, 147°39'E
Area: 0.35 hectares
Status: State Reserve (part of Lime Bay State Reserve)
Access: Cremorne, Primrose Sands, Dodges Ferry

Natural Values

There are breeding populations of Pacific gulls (5 pairs), kelp gulls (50 pairs), sooty oystercatcher (1-2 pairs), Caspian terns (1 pair). Black-faced cormorants, crested terns and silver gulls also occasionally breed on the island (W. Wakefield pers. comm. 2002). *Tetragonia implexicoma* is the dominant vegetation with a patch of *Disphyma crassifolium* at the south-western end.

Cultural Values

None known

Condition

African boxthorn (*Lycium ferocissimum*) is present on the island. Vegetation category 2 (see Appendix 3).

Special significance

It is one of Tasmania's larger kelp gull breeding colonies.

Management Issues

African boxthorn can be a conduit for the establishment of starlings and blackbirds on islands, increasing the potential for further weed introduction.

2.5 Isle of Caves

Location: 42°57'S, 147°39'E
Area: 1.4 hectares
Status: Unallocated Crown Land
Access: Dodges Ferry, Lewisham

Natural Values

There are breeding population of little penguins (2 pairs), pied oystercatchers, sooty oystercatchers, silver gulls, kelp gulls, crested terns, Caspian terns and in most years, black-faced cormorants (W. Wakefield pers. comm. 2002). With its numerous joint or small fault-controlled sea caves, the island is considered to be a representative site of geoconservation significance at the local level (Dixon 1996).

Cultural Values

None known

Social and Recreational Values

There is a relatively high level of sea kayaking, fishing and yachting around the island, however landings are rare.

Condition

Vegetation category 1 (see Appendix 3).

Special Significance

The island, with its sea caves, is a site of geoconservation significance (Dixon 1996). It is also significant as a tern and oystercatcher breeding site.

Management Issues

The tern and black-faced cormorant populations are vulnerable to disturbance. The island's unallocated crown land status does not adequately reflect its values.

2.6 Dart Island

Location:	43°02'S, 147°48'E
Area:	12.8 hectares
Status:	Unallocated Crown Land
Access:	Taranna, Pirates Bay

Natural Values

The island has a small population of little penguins (fewer than 10 pairs) which use hollow trees and vegetation as cover. Brown thornbills have colonised the island and it is used by swift parrots as a feeding location (W. Wakefield pers. comm 2002). The predominance of trees and the shallow soils prevent other seabird species using the island. There are extensive stands of *Acacia melanoxylon*, *Allocasuarina* sp. and *Eucalyptus* sp.

Cultural Values

The island is the site of an historic semaphore station. No sites of Aboriginal significance have been recorded.

Social and Recreational Values

Recreational fishing, diving and sea kayaking occur in the area. A marine farming zone, located approximately 50 metres to the south of the island, allows for the marine farming of shellfish and seaweeds.

Condition

Rabbit browsing damage is evident on the island. Vegetation category 2 (see Appendix 3).

Special Significance

It is used as a feeding location for swift parrots, which are listed as endangered under the Tasmanian *Threatened Species Protection Act 1995* and the Commonwealth *Endangered Species Protection Act 1992*.

Management Issues

The rabbit population needs to be eradicated. The effects of the adjacent marine farming activities on the little penguin population should be monitored. The habitat of the swift parrot is important and requires protection.

2.7 Spectacle Island

Location:	42°52'S, 147°36'E
Area:	3.5 hectares
Status:	Public Reserve (part of Carlton Beach Coastal Reserve)
Access:	Seven Mile Beach, Dodges Ferry, Carlton Beach, Lewisham

Natural Values

The island harbours little penguins (600 pairs), short-tailed shearwaters (800 pairs) and pied oystercatchers (1 pair). Kelp gulls, Pacific gulls, silver gulls, Caspian terns and sooty oystercatchers also breed here (W. Wakefield pers. comm. 2002). *Rhagodia candolleana* is the dominant vegetation with scattered *Poa* and *Allocasuarina* species. Small butterflies (species unknown) are common to the island, feeding on a variety of flowering plants (W. Wakefield pers. comm. 2002).

Cultural Values

None known

Social and Recreational Values

Because of its proximity to mainland Tasmania and easy access, boating and fishing activity regularly occurs in the area during the summer months. Day visits to the island are popular. A sandstone ledge provides good snorkelling and diving opportunities.

Condition

Despite the relatively high visitation levels, the island's vegetation remains in good condition. Vegetation category 1 (see Appendix 3).

Special Significance

This island supports a high diversity of seabird species.

Management Issues

The high visitor levels and resultant risk of fire need to be effectively managed. Due to regular human disturbance, the pied oystercatcher population has fallen from 64 pairs twenty years ago to its current population of only one pair (W. Wakefield pers. comm. 2002). The public reserve land classification of the island does not adequately reflect its values.

2.8 Little Spectacle Island

Location: 42°52'S, 147°36'E
Area: 0.62 hectares
Status: Unallocated Crown Land
Access: Seven Mile Beach, Dodges Ferry, Carlton Beach, Lewisham

Natural Values

This small island supports a relatively diverse, abundant seabird population including little penguins (12 pairs), silver gulls (1500 pairs), kelp gulls (1 pair), crested terns (500 pairs) and pied oystercatchers (1 pair). *Rhagodia candolleana* is the dominant vegetation species, with scattered *P. poiformis* and *Allocasuarina* sp.

Cultural Values

None known

Social and Recreational Values

Recreational activity is common in this area during the summer months. Motor boat activity, sea kayaking and yachting are the major boating past-times, and the beach is a popular destination for daytrippers.

Condition

There is vegetation damage by the silver gulls and crested terns. Vegetation category 1 (see Appendix 3).

Special Significance

This island is significant as it provides an alternative crested tern breeding site in the region. Crested terns specifically require islands without trees, already occupied by colonies of silver gulls (W. Wakefield pers. comm. 2002).

Management Issues

The interaction between visitors and the crested tern colony needs to be minimised. The unallocated crown land status of the island does not adequately reflect its values.

2.9 Betsey Island

Location:	43°02'S, 147°29'E
Area:	175.1 hectares
Status:	Nature Reserve
Access:	South Arm, North Bruny Island

Natural Values

The island supports breeding populations of little penguins (15,000 pairs), short-tailed shearwaters (150,000 pairs) and kelp gulls (15+ pairs). A large variety of terrestrial birds, including wedge-tailed eagles and white-bellied sea-eagles also use the island for breeding. Wedge-tailed eagles are listed as endangered under both the Tasmanian *Threatened Species Protection Act 1995* and the Commonwealth *Endangered Species Protection Act 1992*. White-bellied sea eagles are not listed but are considered of high conservation significance (Bryant 1999). The island has two species of skink – White's skink and the she-oak skink. Silver-haired rabbits, introduced to the island as a commercial venture in 1826, still occur. The vegetation at the northern end of the island is dominated by *Eucalyptus globulus* and *Eucalyptus viminalis* forest which continues to the edge of the cliffs to the east while the southern end is kangaroo apple (*Solanum laciniatum*) scrub, sagg-dominated (*Lomandra longifolia*) shrubland, succulent herbfield and *Poa poiformis* grassland (Glazik and Schahinger 2001). The north-western end has large areas of succulent herbfield dominated by *Tetragonia implexicoma*. Refer to Appendix 1 for a vegetation map of the island. Two plant species on the island are listed as rare under Tasmania's *Threatened Species Protection Act 1995* – *Ranunculus sessiliflorus* (small-flower buttercup) and *Poa poiformis* var. *ramifer* (island purple grass).

Cultural Values

There are at least eleven Aboriginal sites of significance on Betsey Island, predominantly middens with some artefact scatters also recorded. Mutton-birding by the Aboriginal community was permitted on the island for three weekends in March 2001 and for 8 days in March 2002 (I. Skira pers. comm. 2002).

The island has a long history of agricultural use, which began in 1826 when a Mr. King successfully obtained the island for the breeding of silver-haired rabbits for the Chinese fur trade. He was thought to have brought in 10,000 rabbits with numbers increasing to as many as 30,000. In 1832 the island was purchased by Sir John and Lady Franklin for £910. Surveyor James Calder noted that "The northernmost end of the island has been cultivated by its first proprietor, and there are two small paddocks on the top of it still fenced in.... The silver-haired rabbits – which by the way are black – appear to be few in number. I did not see more than six or eight" (Calder 1848) In 1852, the island was stripped of timber which was exported to Port Phillip.

George Augustus Robinson noted that Betsey Island was utilised as a lookout by whalers from Bruny Island, writing "The boats as a rule (after a very early breakfast) were sent away to the various lookouts, sometimes over to Yellow Bluff one boat and the other perhaps to Betsey's Island." In 1848, Calder observed "The island seems to me about 400 ft high, having an ironbound coast inaccessible at all points except the usual landing place. It contains between three and four hundred acres. In the days of the old Bay fishery it was one of the chief lookout places of the whalers of Storm Bay" (Calder 1848). It was possibly used as a lookout from the 1820s to the late 1840s (Kostoglou 1995).

Kostoglou recorded a rectangular stacked stone structure on a gently sloping hillside on the north-eastern coast of the island overlooking Storm Bay to the east, suggesting that it was a signalling station for whale watching activities. He rated it of moderate significance as, if it is a whalers' lookout, it is the only substantial one known in Tasmania (Kostoglou 1995).

Social and Recreational Values

The island is relatively regularly visited by sea kayakers, yachtspeople and people in motor boats. Recreational diving and recreational and commercial fishing and netting takes place around the island. Access to the only suitable landing area on the northern shore can be hampered by big swells.

Condition

The vegetation has been partially modified, but the island still supports large areas of *E. globulus* forest to the east and succulent herbfields to the west. It has infestations of Cape Leeuwin wattle (*Paraserianthes lophantha*) and serrated tussock (*Nassella trichotoma*). A Coastcare project to control Cape Leeuwin wattle and other significant weeds was undertaken on the island during 2000-2001 (see Appendix 1 for maps). Rabbits, introduced in 1826, have caused considerable alteration to the island's vegetation, browsing on the tussocks and sedges, which have been replaced in a large part by *Tetragonia implexicoma*. However, although *Tetragonia* is immune to rabbit damage, it does not have the soil-binding capacity of the original vegetation, and when runways are created through it by shearwaters, soil erosion results. Vegetation category 2 (see Appendix 3).

Special Significance

The island's diversity and abundance of fauna is significant for the region. It is also important for its cultural and historical sites. It has a diversity of flora including two plant species that are listed as rare under Tasmania's *Threatened Species Protection Act 1995* – *Ranunculus sessiliflorus* (small-flower buttercup) and *Poa poiiformis* var. *ramifer* (island purple grass).

Management Issues

Soil erosion and weed and rabbit infestation are the major management issues. The island's rare plant species require monitoring and protection. Gill netting in the area can restrict the movement of little penguins to and from the island. Little penguins and short-tailed shearwaters are also at risk of entanglement and drowning when foraging close to breeding colonies.

2.10 Little Betsey Island

Location: 43°02'S, 147°29'E
Area: 0.75 hectares
Status: Nature Reserve
Access: South Arm, North Bruny Island

Natural Values

This small islet is a black-faced cormorant and silver gull breeding site. Storms and wave-washing can adversely affect their breeding.

Cultural Values

The island was used by the Australian Army in the 1940s as a target range for shelling (I. Skira pers. comm. 2002).

Social and Recreational Values

Fishing, sea kayaking and diving takes place around the island. However the island is rarely, if ever, visited as access is difficult. Approach to within 10 metres of the island is common.

Condition

Vegetation category 1 (see Appendix 3).

Special significance

It is a black-faced cormorant and silver gull breeding site.

Management Issues

Gill netting in the area may entangle and drown foraging black-faced cormorants.

2.11 Iron Pot

Location:	43°01'S, 147°25'E
Area:	1.27 hectares
Status:	Unallocated Crown Land
Access:	South Arm, North Bruny Island

Natural Values

This small rock supports little penguins (1 pair) and Pacific gulls (1 pair), silver gulls (350+ pairs), sooty oystercatchers (1 pair), pied oystercatchers (1 pair) and black-faced cormorants (20+ pairs). Caspian terns and crested terns also intermittently breed here (W. Wakefield pers. comm. 2002).

Cultural Values

An automated navigation light is situated on the western side of the island. A ruined house and old winch are remnants of its once-permanent occupation as a light station.

Social and Recreational Values

Sea kayakers regularly paddle around the island and often land. Recreational diving takes place around the island. Day visitors use the island during the summer months, especially as a vantage point for the arrival of the Sydney-to-Hobart yachts.

Condition

The vegetation is dominated by African boxthorn (*Lycium ferocissimum*). Vegetation category 3 (see Appendix 3).

Special Significance

The island has historical significance and is an important black-faced cormorant breeding site for the region. It also plays an important role as an intermittent breeding site for Caspian and crested terns

Management Issues

Weed management is perhaps the major issue. The oystercatchers, terns and black-faced cormorants are particularly vulnerable to disturbance from visitation and noise during their breeding season. The cormorants are also susceptible to being caught and drowned in gill nets. The island's status does not adequately reflect the significance of its seabird population.

Section 3 Management Objectives, Zones and Outcomes

The *National Parks and Wildlife Act 1970* provides for different management objectives for different categories of reserves. Under the Act a nature reserve is an area with unique, important or representative natural values. This class of reserve is deemed to require maximum protection. A state reserve is an area with significant natural and/or cultural sites or features. This class of reserve is deemed to require the protection of the significant natural and/or cultural sites or features while allowing for ecologically sustainable tourism and recreational activity.

3.1 Purposes and Management Objectives of Nature Reserves

Nature reserves are a class of reserved land under the *National Parks and Wildlife Act 1970*. Nature reserves are areas of land that contain natural values that contribute to the natural biological diversity or geological diversity of the area of land or both; and are unique, important or have representative value.

Purposes

The purposes of reservation of nature reserves are the conservation of the natural biological diversity or geological diversity of the area of land, or both, and the conservation of the natural values of that area of land that are unique, important or have representative value.

The Betsey Island Nature Reserve, which includes Betsey Island and Little Betsey Island, is reserved for the purpose of conserving its natural values and biological diversity.

Management Objectives

The management objectives of nature reserves are set out in *the National Parks and Wildlife Act 1970*. All of the objectives below apply to Betsey Island and Little Betsey Island. The management plan as a whole specifies the reasons these objectives apply and the manner in which they are to be achieved. The sections of the management plan which primarily deal with each management objective are shown in brackets below. The management objectives for nature reserves are:

- a) to conserve natural biological diversity (Sections 4.2, 4.3, 5, 6, 7 and 8);
- b) to conserve geological diversity (Sections 4.1 and 7);
- c) to preserve the quality of water and protect catchments;
- d) to conserve sites or areas of cultural significance (Sections 4.4, 4.5, 7 and 8);
- e) to encourage education based on the purposes of reservation and the natural or cultural values of the nature reserve or both (Sections 5, 6 and 8);
- f) to encourage research, particularly that which furthers the purposes of reservation (Sections 5,6, 7 and 8);
- g) to protect the nature reserve against, and rehabilitate the nature reserve following adverse impacts such as those of fire, introduced species, diseases and soil erosion on the nature reserve's natural and cultural values and on assets within and adjacent to the nature reserve (Sections 4, 5, 6, 7 and 8) ; and
- h) to encourage cooperative management programs with Aboriginal people in areas of significance to them in a manner consistent with the purposes of reservation and the other management (Section 4.4, 7 and 8).

3.2 Purposes and Management Objectives of State Reserves

State reserves are a class of reserved land under the *National Parks and Wildlife Act 1970*.

They are areas of land containing any of the following:

- significant natural landscapes;
- natural features;
- sites, objects or places of significance to Aboriginal people.

Purposes

The purposes of reservation of State reserves, as set out in the *National Parks and Wildlife Act 1970*, are the protection and maintenance of any or more of the following:

- a) the natural and cultural values of the area of land;
- b) sites, objects or places of significance to Aboriginal people contained in that area of land;
- c) use of the area of land by Aboriginal people,

while providing for ecologically sustainable recreation consistent with conserving any of the things referred to in paragraph (a), (b) and (c) as applicable.

Sloping Island and Hog Island, part of the Lime Bay State Reserve, are reserved for these purposes.

Management Objectives

The management objectives of state reserves are set out in the *National Parks and Wildlife Act 1970*. The management plan as a whole specifies the reasons these objectives apply and the manner in which they are to be achieved. The sections of the management plan that primarily deal with each management objective are shown in brackets below.

The management objectives of state reserves are:

- a) to conserve natural biological diversity (Sections 4.2, 4.3, 5, 6, 7 and 8);
- b) to conserve geological diversity (Sections 4.1 and 7);
- c) to preserve the quality of water and protect catchments;
- d) to conserve sites or areas of cultural significance (Sections 4.4, 4.5 and 7);
- e) to encourage cooperative management programs with Aboriginal people in areas of significance to them in a manner consistent with the purposes of reservation and the other management objectives (Section 4.4, 7 and 8);
- f) to encourage education based on the purposes of reservation and the natural or cultural values of the State reserve or both (Sections 5, 6 and 8);
- g) to encourage research, particularly that which furthers the purposes of reservation (Sections 5, 6, 7 and 8);
- h) to protect the State reserve against, and rehabilitate the State reserve following adverse impacts such as those of fire, introduced species, diseases and soil erosion on the State reserve's natural and cultural values and on assets within and adjacent to the State reserve (Sections 4, 5, 6, 7 and 8);
- i) to encourage appropriate tourism, recreational use and enjoyment consistent with the conservation of the State reserve's natural and cultural values (Sections 5, 6 and 8).

The above management objectives all apply to Sloping Island and Hog Island.

3.3 Purposes and Management Objectives of Public Reserves

Public reserves are a class of land established under the *Crown Lands Act 1976*. They are areas of Crown land that contain biophysical, natural, cultural or economic values.

Purposes

The purposes of reservation as set out in the *Crown Lands Act 1976* are:

- The protection and maintenance of any natural, cultural or economic values of the area of land;
- The conservation of the natural biological diversity or geological diversity of the area of land or both;
- Public recreation, education, scientific research and tourism consistent with conserving the values of the area of land;
- The sustainable development and use of the natural resources of that area of land while protecting and maintaining the values of that area of land;
- The creation and use of public roads or streets, or other internal communications, whether by land or water.

Spectacle Island, as part of the Carlton Beach Coastal Reserve is reserved for these purposes.

Management Objectives

The management objectives of public reserves are set out in the *Crown Lands Act 1976*. The management plan as a whole specifies the reasons these objectives apply and the manner in which they are to be achieved. The sections of the management plan that primarily deal with each management objective are shown in brackets below.

The following management objectives of public reserves apply to Spectacle Island:

- a) to conserve natural biological diversity (Sections 4.2, 4.3, 5, 6, 7 and 8);
- b) to conserve geological diversity (Sections 4.1 and 7);
- c) to preserve the quality of water and protect catchments;
- d) to conserve sites or areas of cultural significance (Sections 4.4, 4.5 and 7);
- e) to encourage education based on the purposes of reservation and the significance of the public reserve (Sections 5, 6 and 8);
- f) to encourage research, particularly that which furthers the purposes of reservation (Sections 5,6, 7 and 8);
- g) to protect the public reserve against, and rehabilitate the public reserve following, adverse impacts such as those of fire, introduced species, diseases and soil erosion on the public reserve's natural and cultural values and on assets within and adjacent to the public reserve (Sections 4, 5, 6, 7 and 8);
- h) to encourage tourism, recreational use and enjoyment consistent with the conservation of the area's natural and cultural values (Sections 5, 6 and 8);
- i) to encourage cooperative management programs with Aboriginal people in areas of significance to them in a manner consistent with the purposes of reservation and the other management objectives (Section 4.4, 7 and 8);

The following management objectives for public reserves are inappropriate for this part of the Carlton Beach Coastal Reserve and will not apply:

- j) to provide for the taking, on an ecologically sustainable basis of designated game species for commercial or private purposes or both;
- k) to provide for the controlled use of natural resources;

- l) to provide for exploration activities and utilisation of mineral resources;
- m) to allow for private, commercial or industrial uses.

3.3 Purposes and Management Objectives of Unallocated Crown Land Islands

No legislative management objectives exist for unallocated crown land. However, because Lachlan Island, Wedge Island, Isle of Caves, Little Spectacle Island and Iron Pot have significant seabird breeding populations which justify protection and Dart Island has significant flora and historical values, the following objectives for these islands have been developed for the purpose of this management plan.

Objectives

- a) to conserve natural biological diversity (Sections 4.2, 4.3, 5, 6, 7 and 8);
- b) to conserve geological diversity (Sections 4.1 and 7);
- c) to preserve the quality of water and protect catchments;
- d) to conserve sites or areas of cultural significance (Sections 4.4, 4.5 and 7);
- e) to encourage education based on the islands' natural or cultural values (Sections 5, 6 and 8);
- f) to encourage research, particularly that which furthers the protection of their values (Sections 5, 6, 7 and 8);
- a) to protect the islands against, and rehabilitate them following adverse impacts such as those of fire, introduced species, diseases and soil erosion on the islands' natural and cultural values (Sections 4, 5, 6, 7 and 8);
- b) to encourage appropriate tourism, recreational use and enjoyment consistent with the conservation of the area's natural and cultural values (Sections 5, 6 and 8); and
- c) to encourage cooperative management programs with Aboriginal people in areas of significance to them (Section 4.4, 7 and 8).

3.4 Management Zones

Zoning is a tool used in reserve management planning to delineate areas to ensure their most appropriate management. The three commonly used zones in Tasmanian reserve management plans are Visitor Services Zone, Recreation Zone and Natural Zone. In special circumstances other types of zones may be defined.

The aims of zoning are to:

- take account of localised features, conditions and values;
- ensure substantial areas remain undisturbed;
- protect and enhance values by concentrating and directing tourism and recreational development to designated locations; and
- provide a range of recreational and tourism opportunities consistent with reserve values.

Because of their importance as habitat and low levels of use, all but two of the south-east islands fall into the Natural Zone category consistent with the following aims:

- to conserve the natural integrity
- to protect, maintain and monitor the diversity of plant and animal species and communities;
- to conserve heritage values; and
- to maintain the character of naturalness, tranquility and isolation.

Sloping Island and Spectacle Island are zoned “Educational” due to their potential for low level passive ecotourism and recreation. This would provide for future development for educational day use purposes consistent with the management objectives for State Reserves and Public Reserves. The placement of proposed infrastructure would be guided by a comprehensive environmental impact assessment process.

Section 4 Conservation and Protection

4.1 Geodiversity

The geology of Wedge Island and Isle of Caves is considered representative for the local region (Dixon 1996).

From a geological and geomorphological processes perspective, (including marine, aeolian and soil processes) the islands are highly significant because they continue to evolve naturally without any major human influences. The complex nature of soil formation in association with seabird activity, including physical and chemical soil development, is quite different from these processes in other areas. These interrelationships are relatively poorly understood. The reason that no sites of geoconservation significance on islands are listed is that no reconnaissance or systematic surveys have been conducted to identify them. (Dixon 1996 and the Tasmanian Geoconservation Database). See Section 7.1.

Aims

- Significant geological, geomorphological or soil features should be identified, protected, maintained and monitored.

Prescriptions

- Management practices and development will avoid, or otherwise minimise, impacts on the integrity of sites of geoconservation significance.
- Potential adverse impacts on geodiversity and earth processes will be assessed when planning any development or action, including land rehabilitation and stabilisation.
- Scientific research will be conducted in a way which avoids impacts on geodiversity, sites of geoconservation significance or the aesthetics of significant exposures. Geoscientific research must be consistent with the nature conservation values and reservation status of the islands and should be justified within this context.
- The use of coring devices and other mechanical sampling devices for geoscientific research will not be permitted unless special permission is provided by the Parks and Wildlife Service in consultation with the Senior Earth Scientist in the Nature Conservation Branch of DPIWE. Any approval will be strictly controlled and monitored.

4.2 Flora

The vegetation of most of the smaller islands is dominated by the grass *Poa poiiformis* and the succulents *Rhagodia candolleana*, *Carpobrotus rossii* and *Tetragonia implexicoma*. The larger islands such as Wedge Island, Sloping Island and Betsey Island also support stands of sheoaks (*Allocasuarina verticillata*) and eucalypts (*E. globulus* and *E. viminalis* on Betsey Island and *E. viminalis* and *E. tenuiramis* on Sloping Island.) Two plant species on Betsey Island are listed as rare under Tasmania's *Threatened Species Protection Act 1995* – *Ranunculus sessiliflorus* (small-flower buttercup) and *Poa poiiformis* var. *ramifer* (island purple grass).

4.2.1 Introduced Flora

Because of the proximity of many of the south-east islands to populated areas on mainland Tasmania and the agricultural use of several islands, weed infestation is a problem. African boxthorn *Lycium ferocissimum* is present on Hog Island and Iron Pot. The noxious weed, serrated tussock *Nassella trichotoma*, which is a weed of national significance, is present on Betsey Island and Sloping Island and Cape Leeuwin wattle *Paraseriathes lophantha* is a problem on Betsey Island. Refer to Appendix 1 for weed maps of Betsey Island.

4.2.2 Plant Diseases

Phytophthora cinnamomi or 'root-rot' is a microscopic soil-borne fungus that can cause severe dieback and death in many native plant species. Because of the presence of *Phytophthora* at Lime Bay, healthy vegetation on Sloping Island could be at risk if infected soil were inadvertently transported to the island.

Aims

- The aims of flora conservation on the islands are to:
 - conserve and maintain natural diversity and natural ecosystems;
 - conserve and protect threatened flora species;
 - conserve and protect plant communities of high conservation value: and
 - minimise harmful impacts on native vegetation.

Prescriptions

- Disturbance of vegetation will be minimised to protect indigenous flora values and limit the risk of introducing pests, weeds or pathogens.
- Islands most susceptible to weed invasions should be monitored.
- Vegetation surveys will be conducted on all islands to gain important management information.
- If development for agriculture, industry, aquaculture or tourism is proposed for any island, a thorough vegetation survey will be required as part of a comprehensive Environmental Impact Assessment.
- Long-term monitoring programs will be established for threatened species and *phytophthora* and recovery plans, where they exist, will be implemented.
- Where feasible, established weeds and pathogens will be controlled or eradicated, using best practice methods. Recommendations from the "Draft Plan for the Management of Serrated Tussock and other weeds on Sloping Island 2002" and "Weed Control on Betsey Island Nature Reserve Interim Report 2001" should be implemented.
- Only local provenance species will be used in rehabilitation unless approval by the Nature Conservation Branch of DPIWE is given.
- Threatened species will be managed according to the listing statements under the Tasmanian *Threatened Species Protection Act 1995*.
- Before any ex-situ plantings are conducted on islands, thorough fauna, flora and geomorphological surveys need to be conducted and potential impacts assessed.

4.3 Fauna

The south-east islands are nesting localities for 13 species of seabirds (see Table 2). Refer to the summary for more information about the significance of the south-east island seabird species. While breeding, many seabirds are particularly sensitive to disturbance and may desert their nests, leaving eggs or chicks vulnerable to predation or damage by extreme weather conditions. Surface-nesting birds, particularly those with low fidelity to their

breeding sites, are most vulnerable (see Table 3). The breeding seasons and attendance patterns of seabirds using the south-east islands are recorded in Table 3.

4.3.1 Introduced Fauna

Large numbers of rabbits were present on Lachlan Island until the late 1990s when an eradication program succeeded in reducing the population. It is expected that without control measures in place, the population will quickly increase. Rabbits are also particularly problematic on Sloping Island and Betsey Island, where they are responsible for altered vegetation conditions and erosion of seabird habitat. Rabbits cause browsing damage on Dart Island.

Aims

- The aims of fauna conservation on the islands are to:
 - ensure maximum protection of rare and vulnerable fauna species
 - maintain viable populations of indigenous fauna
 - maintain the diversity and viability of seabird populations
 - maintain the integrity of natural habitats of indigenous fauna.

Prescriptions

- Instigate eradication programs for rabbits on Lachlan Island, Sloping Island, Betsey Island and Dart Island, and cats on Wedge Island. Regularly monitor other islands for possible introductions.
- Initiate education programs in an attempt to highlight the dangers of feral animal introduction to islands.
- Develop control programs, where feasible, for introduced bird species, particularly starlings and blackbirds, that have colonised islands. This may involve destroying their nesting habitat.
- Minimise disturbance to breeding seabirds by controlling visitation (see 5.1). Refer to Appendix 4 for guidelines for visiting seabird breeding sites.
- Protect the habitat of breeding seabirds by managing visitation and soil erosion, especially in relation to burrowing birds.
- If development for agriculture, industry, aquaculture or tourism is proposed for any island, a thorough fauna inventory will be required as part of a comprehensive Environmental Impact Assessment.
- Implement the management requirements for the wedge-tailed eagle in the listing statement for the Tasmanian *Threatened Species Protection Act* and the National Action Plan for Birds of Prey.
- Implement management recommendations for the white-bellied sea-eagle and the wedge-tailed eagle listed in the Threatened Fauna Handbook. (Bryant and Jackson 1999 p. 229-30).

Table 2. Seabirds, Reptiles and Mammals Recorded on South-East Islands

Island	Breeding seabird species	Other bird species	Reptiles	Mammals
Lachlan Island	Little penguin, short-tailed shearwater, Pacific gull, kelp gull, sooty oystercatcher, crested tern and Caspian tern	Cape Barren goose, swallow, skylark, silvereeye, swamp harrier	White-lipped whip snake, ocellated skink	Rabbit
Wedge Island	Little penguin, short-tailed shearwater	White-bellied sea-eagle*, Swamp harrier, brown falcon, peregrine falcon, Tasmanian native-hen, forest raven, eastern spinebill, silvereeye, European goldfinch, skylark, common starling .	None	Cat
Sloping Island	Little penguin, short-tailed shearwater, Pacific gull, sooty oystercatcher, pied oystercatcher	White-faced heron, swamp harrier, black currawong, swallow, native hen, sea eagle, forest raven, New Holland honeyeater, crescent honeyeater, spotted pardalote, little pied cormorant, great cormorant, starling, house sparrow, silvereeye, dusky robin, wedge-tailed eagle, brown goshawk	None	Ringtail possum, rabbit
Hog Island	Pacific gull, kelp gull, sooty oystercatcher, Caspian tern	None	None	None
Isle of Caves	Little penguin, pied oystercatcher, sooty oystercatcher, silver gull, kelp gull, crested tern, Caspian tern	Swallow, skylark, forest raven, house sparrow, white-fronted tern	None	
Dart Island	Little penguin	Silver gull, Pacific gull, kelp gull, crested tern, great cormorant, little black cormorant, pied cormorant, black-faced cormorant, swift parrot**	None	Rabbit
Spectacle Island	Little penguin, short-tailed shearwater, silver gull, sooty oystercatcher, pied oystercatcher, Caspian tern	Chestnut teal, silvereeye, black-faced cuckoo shrike, peregrine falcon, brown falcon, swamp harrier	None	None
Little Spectacle Island	Little penguin, silver gull, crested tern, sooty oystercatcher, pied oystercatcher,	Chestnut teal, peregrine falcon, brown falcon, swamp harrier, forest raven, white-fronted tern	None	None
Betsey Island	Little penguin, short-tailed shearwater, kelp gull	Brown quail, white-faced heron, white-bellied sea-eagle*, swamp harrier, brown goshawk, wedge-tailed eagle**, brown falcon, spotted pardalote, noisy miner, yellow-throated honeyeater, black-headed honeyeater, New Holland honeyeater, grey	White's skink, she-oak skink	Silver-haired rabbit

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		butcherbird, forest raven, nankeen kestrel, silvereye, tree martin, house sparrow, starling, blackbird, peregrine falcon, swallow, masked owl		
Little Betsey Island	Black-faced cormorant, silver gull	Crested tern, kelp gull	None	None
Iron Pot	Little penguin, Pacific gull, silver gull, pied oystercatcher, black-faced cormorant	Starling, house sparrow, native hen	None	None

* Considered to be of high conservation significance

** Listed as endangered under both Tasmania's *Threatened Species Protection Act 1995* and the Commonwealth *Endangered Species Protection Act 1992*.

Table 3. Breeding and Attendance Patterns of Seabird Species Recorded on Offshore Islands in South-East Tasmania (Adapted from “The Minimal Impact Sea kayaking Code of Conduct for visiting sensitive coastal areas 2001”)

Seabird species	Nest type	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Little penguin	Burrow	A	B	B	B	B	B	B	B	A	A	A	A
Short-tailed shearwater	Burrow			B	B	B	B	B	B	B	A	A	
Fairy prion	Burrow			B	B	B	B	B	B	B			
Common diving-petrel	Burrow	A	B	B	B	B	B	B	B	A	A	A	A
White-faced storm-petrel	Burrow			B	B	B	B	B	B				
Black-faced cormorant*	Surface	B	B	B	B	B	B	B	B				
Silver gull	Surface		B	B	B	B	B	B	B				
Kelp gull	Surface		B	B	B	B	B	B	B				
Pacific gull	Surface			B	B	B	B	B					
Caspian tern*	Surface		B	B	B	B	B	B					
Crested tern*	Surface		B	B	B	B	B	B					
Pied oystercatcher	Surface			B	B	B	B						
Sooty oystercatcher	Surface				B	B	B	B	B				

A indicates the months when adults attend their nests

B indicates the months when breeding occurs

* species has low fidelity to its breeding site, especially if regularly disturbed

4.4 Aboriginal Heritage

Of the eleven islands covered by this plan, four are known to have evidence of Aboriginal use in the form of either small artefact scatters or shell middens. Several of the islands have never been surveyed, and surveys that have been conducted were often incomplete. It is likely that most of the more accessible south-east islands were used by Aboriginal people. Aboriginal places and landscapes have a strong and continuing significance to the Tasmanian Aboriginal community and require maximum protection. All Aboriginal relics and sites are protected under the *Aboriginal Relics Act 1975*. Aboriginal sites are also protected by law under the *State Coastal Policy 1996*.

Aims

- In cooperation with the Aboriginal community, the aims of Aboriginal heritage management for the islands are:
 - identify and record places of Aboriginal heritage
 - protect and conserve Aboriginal heritage sites

Prescriptions

- Aboriginal heritage values will be assessed in greater detail and protected in accordance with agreed national or state charters or guidelines for Aboriginal places.
- The Aboriginal community will be consulted on any undertaking or development that may impinge on Aboriginal places.
- Aboriginal heritage will not be deliberately disturbed for management, development or research purposes unless the Director determines there is no practicable alternative and a written authority has been issued under the *Aboriginal Relics Act 1975*.

4.5 Historic Heritage

The two larger islands of the region, Sloping Island and Betsey Island, played a significant part in the bay whaling industry of the area between the early 1820s and late 1840s. Sloping Island had two whaling stations and Betsey Island has a stone structure probably used as a whaling lookout for the bay whalers of Bruny Island. A whaling lease was also granted for Lachlan Island, but remained unused.

Sloping Island was used for the grazing of livestock in the 1830s and again in the 1850s. Betsey Island was used for the breeding of silver-haired rabbits from 1826 until 1832, when Sir John and Lady Jane Franklin purchased it. During the 1840s, Sloping Island also accommodated convicts at a probation station established there. Dart Island was the site of a semaphore station and Iron Pot was an occupied light station.

Aims

- The aims of historic management are to:
 - identify and record historic heritage sites
 - protect and conserve all remaining significant heritage features
 - maintain the integrity and authenticity of historic remains
 - where feasible and appropriate, interpret historic heritage.

Prescriptions

- Conservation and management of historic heritage on the islands will adhere to the Burra Charter of Australia ICOMOS (Marquis-Kyle & Walker, 1999) and its associated guidelines.

- A conservation policy statement or conservation plan, including specific assessment of significance, will be prepared before any decisions are made about major works, use, removal or interpretation relating to heritage sites or remains.

Section 5 Visitor and Industry Management

5.1 Visitation - general

Uncontrolled visitation can be very damaging to small islands that are used by breeding seabirds. If nesting seabirds are disturbed, they may desert their nests, leaving their chicks and eggs susceptible to severe weather conditions or to predation from other birds and animals. Some species such as crested terns and black-faced cormorants will readily move in response to disturbance (see Table 3). Terns and oystercatchers are less likely to breed if regularly disturbed. Refer to the summary for more information about seabirds. Habitat destruction and disturbance and resultant long-term ecological change can also result from visitor impacts.

Visitor disturbance can have an adverse impact through:

- direct disruption of seabirds and/or their habitat;
- noise from nearby fishing, diving, jet ski, boating or aircraft activity;
- interference with seabirds' foraging habits through activity in the immediate surrounding marine environment;
- introduction or transfer of weeds, feral pests or pathogens to previously undamaged areas; and
- increased risk of fire.

See Table 3 for the schedule of seabird attendance on islands. Appendix 4 provides guidelines for people visiting seabird breeding islands.

Even though most of the south-east islands are accessible, current visitor levels are generally still relatively low. However, day visitation to many, particularly Wedge Island, Sloping Island, Spectacle Island, Little Spectacle Island and Betsey Island, is common during the summer months. There is little known about the levels of visitation small offshore islands are able to sustain. Aquatic activity is extremely popular in Frederick Henry Bay and Norfolk Bay and both are used by recreational and commercial fishers. All of the islands, apart from Wedge Island, are regularly visited by Birds Tasmania researchers conducting bird counts. Betsey Island and Sloping Island have been the focus of community Coastcare projects for weed removal (1999–2002). Recreational divers use the marine environment around most of the south-east islands but rarely land on the islands. There may be disturbance to bird breeding patterns if boats anchor too close to primary breeding sites. Black-faced cormorants are particularly susceptible. Sea kayakers have paddled around most of the islands, visiting many for short breaks only. There is little camping on the islands.

Aims

- To protect the islands' important natural and cultural values through:
 - community education and awareness-raising activities about their significance,
 - increased involvement of community groups who currently responsibly access the islands and surrounding environment in their management
 - access restrictions for some islands.

Prescriptions

- Monitor and assess impacts of visitation on the natural and cultural values of islands.
- Develop and disseminate educational material and erect signage, where appropriate, to promote:
 - recognition and understanding of the susceptibility of breeding seabirds and their habitats;
 - recognition and understanding of the importance of the north-east islands' seal haul-out sites;
 - recognition and understanding of the islands' other natural values such as significant vegetation, geological features and reptile diversity; and
 - recognition and understanding of the significance of Aboriginal and historical sites on some of the islands.
- Assist recreational and professional groups to develop their own minimal impact codes for visiting islands and their environs.
- Establish an Island Care Network for people who responsibly visit islands and encourage their participation in island management and their contribution to an island care intranet site, which can be used to store relevant information and guide future management decisions.
- Establish a mentoring system between island carers and Parks and Wildlife Service field staff.
- Protect the islands of high conservation value through implementing access restrictions (see below and Appendix 5).

5.2 Access Management

The level and type of access will be the main influence on how well the natural and cultural values of the islands can be maintained in the future. Based on the nature, condition and significance of the islands' values outlined in Section 2, the following different levels of access management are proposed:

- Level 1 – Ecological education model island, where access is based on providing educational experiences and training. Applies to Sloping Island.
- Level 2 – No specific access management arrangements. Promotion of seabird island visitor guidelines (Appendix 4). Applies to Dart Island and Wedge Island.
- Level 3 – Seasonally restricted area with permits required during the seabird breeding seasons – July 1 to March 31 (refer to Table 3). Applies to Hog Island, Betsey Island and Little Betsey Island. Will apply to Lachlan Island, Spectacle Island, Little Spectacle Island, Isle of Caves and Iron Pot subject to their reservation under the *National Parks and Wildlife Act 1970*. See Appendix 5 for access requirements.
- Level 4 – Restricted area with access requirements all year. None.

5.3 Camping

None of the islands in this plan have designated camping areas.

Aims

- To maintain the integrity of the natural and cultural values of significant islands, while allowing for responsible visits.

Prescriptions

- Camping on islands should be avoided. However, if overnight stays are unavoidable, camping will be restricted to areas where burrows, surface nesting sites and Aboriginal and historical heritage sites will not be disturbed.
- The guidelines set out in Appendix 4 will be followed by both day and overnight visitors to islands, on which seabirds breed. See 5.2 Access Management and Appendix 5 for access requirements.

5.4 Diving

Recreational and commercial diving takes place in the marine environment around most of the south-east islands. Divers rarely land on the islands, but there may be disturbance to bird breeding patterns if boats anchor too close to primary breeding sites.

Aims

- To maintain the integrity of the natural and cultural values of significant islands, while allowing for responsible diving around them.

Prescriptions

- Work with the Tasmanian diving community to develop and promote a minimal impact recreational diving code for sensitive areas.
- Encourage the Australian Underwater Federation to take a proactive role in creating a database to which divers can contribute information about underwater flora and fauna and which can be used to inform and guide marine management decisions.

5.5 Sea kayaking

Sea kayaking is an increasingly popular recreational activity, which enables kayakers to visit remote islands. Kayakers, because of the nature of the activity, are more likely to stay overnight on islands than other boat users. To address some of the issues associated with this, a Minimal Impact Sea Kayaking Code has been developed by the sea kayaking community in Tasmania. This can be viewed at www.coastview.com.au. A brochure and map called "Leave No Wake" has also been published and is disseminated via sports and seakayaking networks. Because sea kayakers, along with other responsible island users, are becoming more involved with island management, an island care network will be developed as a way of engaging and focussing interested groups in helping to participate in management and educational strategies to conserve islands. As part of this network, an intranet site is proposed as a means of storing and sharing information gained by island users.

Aims

To maintain the integrity of the natural and cultural values of significant islands, while allowing for responsible sea kayaking around them.

Prescriptions

- Work with the sea kayaking community, both recreational and commercial, to disseminate and promote its Minimal Impact Sea Kayaking Code as widely as possible.
- Encourage the participation of the sea kayaking community in an island care network to assist with island education and management programs.
- Develop and promote an intranet site for the cooperative storage of relevant island information for educational and management purposes.

5.6 Surfing

Surfing takes place off Wedge Island. As many as 30 to 40 surfers may take advantage of good surfing conditions (P. Mooney pers. comm. 2002).

Aims

- To maintain the integrity of the natural and cultural values of Wedge Island, while allowing for responsible surfing activity.

Prescriptions

- Encourage the participation of the surfing community in an island care network to assist with island education and management programs.
- Work with the Surfrider Foundation to develop and promote a minimal impact surfing code for sensitive areas as part of the Surfrider Charter.

5.7 Boating

Boating encompasses yachting and motor boat use. During the summer months many of the accessible islands are visited by coastal holiday makers in motor-powered runabouts, generally for day trips. With Coastcare funding, A Minimal Impact Boating Strategy and brochure "Afloat and Aware" have been developed and disseminated through Marine and Safety Tasmania and Tasmanian yachting associations.

Aims

- To maintain the integrity of the natural and cultural values of significant islands, while allowing for responsible boating around them.

Prescriptions

- Encourage the development of a recreational runabout association or network which operates as a representative body for its members.

- Work with the boating community to widely disseminate and promote the Minimal Impact Boating Strategy and related educational material.
- Encourage the participation of the boating community in an island care network to assist with island education and management programs.
- Develop and promote an intranet site for the cooperative storage of relevant island information for educational and management purposes.
- Support the development and promotion of a Charter Boat Operators Code of Conduct, which incorporates minimal impact principles.

5.8 Recreational and Commercial Scalefishing

Frederick Henry Bay and Norfolk Bay are popular recreational fishing areas, with some commercial fishing also occurring. The most popular forms of scalefishing are line fishing and netting. The *Fisheries Scalefish Rules 2001* r. 95 (1) set out the regulations pertaining to gill netting. The “Recreational Scalefishing (Sea fishing) 2001” brochure available from post offices and Service Tasmania offices provides a map showing areas in which recreational gill netting is allowed. In Frederick Henry Bay and Norfolk Bay, which are declared shark nursery areas, netting is allowed within defined zones around the perimeter of the bays and within 200 metres of low-water mark of the islands. This, in effect, focusses the netting effort around the islands, most of which are significant seabird breeding sanctuaries.

There are four main impacts associated with scalefishing:

- disturbance to seabirds from fishing activity close to their breeding sites,
- incidental capture, entanglement and drowning of foraging seabirds by set nets in their foraging zones,
- set nets restricting little penguins’ runways to and from their breeding sites,
- disturbance to breeding seabirds and other natural and cultural values through visits to the islands by fishers.

Commercial fishing for live wrasse takes place in Mercury Passage around Lachlan Island. Fish are trapped, under licence, all year round and are exported to the Asian market.

Aims

- To maintain the integrity of the natural and cultural values of significant islands, while allowing for responsible fishing around them.

Prescriptions

- Work with the commercial and recreational fishing community and fishcare volunteers to promote education about the significance of offshore islands and appropriate visitor behaviour.
- Encourage the participation of the fishing community in an island care network to assist with island education and management programs.
- Promote and facilitate collaboration between the Recreational Fisheries Advisory Council, the Scalefish Fishery Advisory Committee, industry, DPIWE (Marine Resources, Nature Conservation Branch, Parks and Wildlife Service) and Birds Tasmania to review options and make recommendations to reduce interactions between seabirds and net fishing in response to the information and prescriptions provided in this management

plan. Recommendations from this review will form part of a submission to the 2003 review of the “Tasmanian Scalefish Management Plan August 2001”.

- Promote the DPIWE “Net Smarter December 2000” and “Recreational Scalefishing (Sea fishing) 2001” brochures.

5.9 Aquaculture

A significant percentage of the State’s developing aquaculture industry is located in south-eastern Tasmania. The industry operates within zones specified by marine farming development plans, which are prepared in accordance with *Marine Farming Planning Act 1995*. Three development plans apply to the region covered by this management plan.

The Tasman Peninsula and Norfolk Bay Marine Farming Development Plan October 1996 prescribes marine farming zones within Norfolk Bay, Wedge Bay and Port Arthur that can be used for the farming of finfish, shellfish and seaweeds. The area set aside for marine farming activities is 466.292 hectares.

The Great Oyster Bay and Mercury Passage Marine Farming Development Plan October 1998 prescribes aquaculture zones within the Great Oyster Bay and Mercury Passage for the farming of finfish, shellfish and seaweeds. The area set aside for marine farming activities is 1182 hectares.

The Blackman Bay Marine Farming Development Plan January 2000 prescribes aquaculture zones within the Blackman Bay area for the farming of shellfish and seaweeds. The area set aside for marine farming activities is 214.738 hectares

Aims

To maintain the integrity of the natural and cultural values of islands, including the safeguarding of seabird foraging areas, while allowing for environmentally responsible aquaculture development.

Prescriptions

- Liaise with Marine Resources Division of DPIWE in relation to marine farming planning undertaken in accordance with the *Marine Farming Planning Act 1995* to assess potential impacts on the islands’ natural and cultural values.

5.10 Bird watching

The participation of local bird groups in the monitoring and recording of bird populations and behaviours contributes greatly to the knowledge that informs and guides management decisions. Bird counts have been conducted on most of the south-east islands by Birds Tasmania members, particularly Dr. William Wakefield, who has visited the islands each breeding season since the late 1970s.

Aims

To maintain the integrity and natural and cultural values of significant islands, while encouraging continued monitoring and recording of bird populations by responsible community organisations.

Prescriptions

- Establish mechanisms to enhance the flow of information, such as mentoring programs between such groups as Birds Tasmania and nature conservation and management agencies.
- Encourage the participation of bird enthusiasts in an island care network to assist with island education and management programs.
- Encourage the participation of bird enthusiasts in education programs.

5.11 Education and Interpretation

There is currently very little educational material specifically designed to raise people's understanding of the significance of Tasmania's offshore islands. The Minimal Impact Sea Kayakers Code of Conduct and "Leave No Wake" brochure for sea kayakers visiting sensitive coastal environments in Tasmania are informative and educative tools developed and disseminated by sea kayaking networks. They provide useful information and recommendations for visiting sensitive seabird islands, seal colonies and seal haul-outs. The Minimal Impact Boating Strategy and "Afloat and Aware" brochure developed by Coastcare for small boat users provide information and guidance on ecologically sustainable boating practices.

Aims

- To promote the significance and value of offshore islands and the need for their protection from human disturbance.

Prescriptions

- Develop educational material and appropriate interpretive signage to help people to understand the value of offshore island seabird breeding sites in their area.
- Establish and promote educational training programs for tourist operators and recreational club members to assist them to improve their local knowledge of the diversity and significance of seabirds and marine mammals.
- Consider the most appropriate islands to use as education and training centres for minimal impact recreation and tourism training.

Section 6 Partnerships

6.1 Community and Industry Partnerships

Over the past few years there has been a greater realisation that successful management of natural resources relies on partnerships between management agencies, community and industry. A mutual understanding of and respect for the rationale for conserving our seabird breeding islands and willingness to cooperate with management processes and activities will help to ensure their long-term viability.

Aims

- The aims of fostering community and industry support are to:
 - develop community appreciation of and support for island values;
 - promote a positive image of the islands to the wider community; and
 - encourage government, community and industry partnerships to enhance ownership and resources available for island management and education.

Prescriptions

- Encourage community groups such as Coastcare, Fishcare, Bushcare, Wildcare, diving clubs, surfing clubs and Birds Tasmania to become more actively involved with island education and protection programs.
- Develop an island care network of responsible island users to act in a guardian role to help oversee the management of islands and undertake local education and awareness-raising activities.
- Develop an intranet system whereby island care groups, biologists and managers can exchange information, as a basis for informing and guiding future management decisions.
- Encourage recreational fishers, yachtspeople and divers to develop minimal impact codes of conduct for visiting sensitive coastal areas (see Minimal Impact Seakayaking Code at www.coastview.com.au).
- Promote and support a process that encourages interested stakeholders to have input into the review of the Tasmanian Scalefish Management Plan 2001, the development and review of Marine Farming Development Plans and any other relevant marine resources legislation to ensure that impacts to the natural and cultural values of islands are minimised.
- Establish an on-going partnership between DPIWE (Parks and Wildlife Service and Nature Conservation Branch), Tasmanian University, Tourism Tasmania and the tourism industry to develop a code for ecologically sustainable tourism in Tasmania, particularly regarding the use of islands.
- Encourage nature-based tourism operators to engage in the development and implementation of minimal impact codes of conduct for visiting islands that harbour significant wildlife based on the model of the Minimal Impact Seakayaking Code (www.coastview.com.au) developed by recreational and commercial sea kayaking groups.

- Implement a consultative, comprehensive environmental impact assessment process for any proposed development on an island such as tourist boardwalks or aquaculture infrastructure which may impact on that island's values.

Section 7 Research, Monitoring and Evaluation

7.1 Research

Much of the information in this plan regarding the fauna and flora on the south-east islands is based either on surveys conducted by Parks and Wildlife Service biologists more than 10 years ago or surveys conducted during the past 20 years by Birds Tasmania representatives, primarily Dr. William Wakefield. Geoconservation and Aboriginal inventories are incomplete. Research on the historic heritage of the islands has also been relatively ad hoc and irregular.

Aims

- To enhance the conservation of the islands included in this management plan, by enabling better informed management decisions through:
 - increasing the inventory and understanding of natural and cultural features and processes;
 - improving the knowledge and assessment of rates and magnitudes of change.

Prescriptions

- To ensure the effective management of these islands, more comprehensive and integrated research of their fauna, flora and geodiversity is needed and should be undertaken by the DPIWE Nature Conservation Branch in partnership with other agencies and organisations.
- Current information regarding Aboriginal heritage values on the islands should be reviewed and extended in collaboration with the relevant Tasmanian Aboriginal communities.
- More comprehensive research on the history of the south-east islands should be undertaken to produce a thorough inventory of their historic heritage values.
- All research is to be done within the framework of the formal DPIWE processes.
- Information gained from research is to be disseminated to island interest groups.

7.2 Monitoring and Evaluation

Aims

- To establish an ongoing monitoring program to evaluate the effectiveness of management under the plan. The performance indicators listed in the Implementation Table in Section 8 will form the basis for evaluation.

Section 8 Implementation of Management Actions

Action	Location	Responsibility * indicates lead group	Performance Indicators
Application of access requirements during seabird breeding seasons to monitor and control visitor levels.	Hog Island, Isle of Caves, Little Spectacle Island, Betsey Island, Little Betsey Island and Iron Pot	PWS*, NCB	Reliable records of numbers and types of visitors to islands. Reduction in levels of disturbance on islands.
Formation of island care groups	All islands	PWS*, NCB, Birds Tas, Sea kayak clubs, yacht clubs, diving clubs, fishers, Coastcare groups, Wildcare groups, Marine and Coastal Community Network	The number and activity levels of island care groups in helping with management issues.
Development and implementation of Minimal Impact Codes of Conduct	All islands	Yacht clubs, fishers, Birds Tas, diving clubs, PWS, NCB, ecotourist operators, MCCN.	The number and peer acceptance of user groups' minimal impact codes of conduct.
Development and implementation of educational and mentoring programs focussing on the values of offshore islands.	All islands	PWS, NCB, Island Care groups*, MCCN, Tourism Tas.	Increased awareness and understanding of the values of offshore islands. Number of groups helping with educational and mentoring programs.
Eradication of feral animals	Lachlan Island, Sloping Island, Betsey Island, Dart Island and Wedge Island	PWS*, NCB	Significant reduction in number of feral animals
Monitoring and maintenance of threatened fauna species	Betsey Island	NCB*	Number and viability of wedge-tailed eagles
Control of weeds both on the islands and where possible, at nearby mainland Tasmania seed sources sites.	Sloping Island, Betsey Island, Hog Island, Iron Pot	PWS*, NCB, Coastcare and Wildcare groups	Significant reduction in extent of weeds.

<p>Implementation of recommendations contained within the “Weed Control on Betsey Island Nature Reserve Interim Report” and the “Draft Plan for the Management of Serrated Tussock and other weeds on Sloping Island”.</p>	<p>Sloping Island, Betsey Island</p>	<p>PWS*, NCB, Coastcare and Wildcare groups</p>	<p>Significant reduction in diversity and extent of weeds.</p>
<p>Development of research programs to build on the knowledge of the natural and cultural values of islands.</p>	<p>All islands</p>	<p>NCB*, Cultural Heritage Branch, PWS, Aboriginal communities</p>	<p>Improved information base regarding the natural and cultural values of islands.</p>
<p>Design and when necessary, implementation of a comprehensive environmental impact assessment processes for proposed agriculture, aquaculture, industrial or tourist developments on and adjacent to islands.</p>	<p>All islands</p>	<p>PWS*, TMAG, NCB, Marine Resources, MCCN, Aboriginal communities, Tourism Tas., Island Care groups</p>	<p>Completion of EIA process for potential island developments</p>
<p>Development and shared use of an island care intranet site</p>	<p>All islands</p>	<p>PWS, NCB, MCCN*, Island care groups</p>	<p>Contributions of new information to the site. Number of organisations using the site. Actions emanating from the use of the site.</p>
<p>Promotion and facilitation of collaboration between the Marine Recreational Fisheries Advisory Council, the Scalefish Fishery Advisory Committee, industry, DPIWE (Parks and Wildlife Service, Nature Conservation Branch, Marine Resources) and Birds Tasmania to review options and make recommendations to reduce interactions between seabirds and net fishing in response to the information and prescriptions provided in this management plan. Recommendations from this review will form part of a submission to the 2003 review of the “Tasmanian Scalefish Management Plan August 2001”.</p>	<p>All islands in Frederick Henry Bay and Norfolk Bay</p>	<p>PWS, NCB, Marine Resources*</p>	<p>Changed policy regarding the setting of recreational nets around significant seabird islands.</p>

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<p>Development of appropriate islands as training venues to promote education and training focussing on the significance of Tasmania's offshore islands.</p>	<p>Sloping Island, Spectacle Island</p>	<p>PWS*, TMAG, NCB, Marine Resources, MCCN, Aboriginal communities, Tourism Tas., Island Care groups</p>	<p>Feasibility study into the potential of Sloping Island and Spectacle Island as ecotourist training venues.</p>
<p>Ensuring tenure classification matches conservation significance</p>	<p>Lachlan Island, Spectacle Island, Little Spectacle Island, Isle of Caves and Iron Pot</p>	<p>PWS*</p>	<p>Upgrading of land classification of Lachlan Island, Spectacle Island, Little Spectacle Island, Isle of Caves and Iron Pot to nature reserve.</p>

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Appendix 1 is available in a separate PDF.

Appendix 2

Summary of south-east islands covered by other Management Plans.

Ile des Phoques

Location:	42°25'S, 148°09'E
Area:	8.05 hectares
Tenure:	Nature Reserve (encompassed the Maria Island National Park and Ile des Phoques Nature Reserve Management Plan 1998)
Access:	Little Swanport, Coles Bay

Natural Values

The island supports breeding populations of little penguins (100-150 pairs), short-tailed shearwaters (50-100 pairs), fairy prions (500) and common diving-petrels (3000-5000 pairs). There are also white-faced storm petrels and a pair of sea eagles (W. Wakefield pers. comm. 2002). Australian fur seals haul out on the south-eastern side. The island is thought to have once been a seal breeding site based on evidence of phosphatic flowstone formed from seal excrement and historical reports that suggest a prodigious number of seals covered the island in the early 1800s (Kostoglou 1996). The flowstone and submarine sea caves and tunnels on the island are considered to be of outstanding geoconservation significance at the State level (Dixon 1996)

Cultural Values

The island has an Aboriginal rock shelter. The island was named Ile des Phoques or Island of Seals by crew members of *Naturaliste*, one of Baudin's ships during his 1802 – 03 expedition. There are several records of sealing taking place from 1816 to the early 1820s. By 1826, the island was leased by Mr. George Meredith specifically for the purpose of sealing, the only lease agreement of this type in the history of sealing in Tasmania. In 1828 this lease was cancelled and a licence for guano mining was issued to Mr. Webber. In 1837 Mr E.A. Walpole requested to lease the island as a whaling station. This appears to have remained unrealised as did subsequent proposals to mine the island for guano in the early 1860s. Extensive dry stone structures located on both sides of the island are believed to be remnants of the 19th century sealing which occurred there (Kostoglou 1996).

Social and Recreational Values

Seal watching and diving tours, recreational diving, fishing and kayaking take place around the island.

Ile du Nord

Location:	42°34'S, 148°04'E
Area:	9.65 hectares
Tenure:	Part of Maria Island National Park (encompassed by the Maria Island National Park and Ile des Phoques Nature Reserve Management Plan 1998)
Access:	Orford, Maria Island

Natural Values

The island has breeding populations of little penguins (2000 pairs), and short-tailed shearwaters (3000 pairs). There is also a pair of swamp harriers (W. Wakefield pers. comm. 2002).

Cultural Values

There are five Aboriginal sites.

Social and Recreational Values

Recreational diving, kayaking and fishing take place around the island.

Visscher Island

Location: 42°51'S, 147°58'E
Area: 3.38 hectares
Tenure: Part of Tasman National Park (encompassed by the Tasman National Park Management Plan 2001)
Access: North-east Tasman Peninsula

Natural Values

The island supports little penguins (30 pairs), white-faced storm-petrels (3 pairs), Pacific gulls (60+ pairs), Kelp gulls (150 pairs), Caspian terns (5 pairs) and sooty oystercatchers (1 pair). Black-faced cormorants roost at several sites and occasionally breed here. Infrequently small numbers of Australian fur seals haul out here. Metallic skinks are present. The island of dolerite bedrock is cut by three east-to-west fault-controlled fissures, making it a site of outstanding geoconservation significance at the local level (Dixon 1996).

Cultural Values

The island has not been surveyed.

Recreational and Social Values

Sea kayakers and recreational divers regularly use the marine environment around the island and occasionally land for short periods.

Hippolyte Rocks

Location: 40°27'S, 148°03'E
Area: 5.3 hectares
Tenure: Part of Tasman National Park (encompassed by the Tasman National Park Management Plan 2001)
Access: South-east Tasman Peninsula

Natural Values

The island harbours populations of little penguins (1 pair), short-tailed shearwaters (1000-2000 pairs), sooty shearwaters (1 pair), fairy prions (3000- 5000 pairs), common diving-petrels (10 pairs), silver gulls (60-80 pairs) and black-faced cormorants (405 pairs). Peregrine falcons, sea eagles and kelp gulls also breed here (W. Wakefield pers. comm. 2002). Up to 250 Australian fur seals haul out on the ledges around the island, particularly on the north-east. Metallic skinks inhabit the island. Australasian gannets use this locality as a landing site indicating the possibility of a new breeding site here. Hippolyte Rocks provide the southernmost exposure of the eastern Tasmanian batholith, a pale medium grained granite. The wedge profile of the island is indicative of the predominant south to south-easterly ocean swell. It is considered a representative site of geoconservation significance at the local level (Dixon 1996).

Cultural Values

There have been no surveys conducted.

Recreational and Social Values

Sea kayakers and recreational divers regularly use the marine environment around the island but rarely land due to difficulty of access. Ecotourism ventures circumnavigate the island to view the seals and seabirds.

The Lanterns

Location: 43°13'S, 148°00'E
Area: 5.3 hectares
Tenure: Part of Tasman National Park (encompassed by the Tasman National Park Management Plan 2001)
Access: South-east Tasman Peninsula

Natural Values

Short-tailed shearwaters (2000 pairs) are the primary seabird inhabitants with one pair of fairy prions also recorded. The Lanterns form a spectacular geological feature accentuated by vertical features formed by columnar jointing.

Cultural Values

There have been no surveys conducted.

Recreational and Social Values

Sea kayakers and recreational divers regularly use the marine environment around the rocks but rarely land due to difficulty of access.

The Thumbs

Location: 43°06'S, 147°59'E
Area: 0.45 hectares
Tenure: Part of Tasman National Park (encompassed by the Tasman National Park Management Plan 2001)
Access: South-east Tasman Peninsula

Natural Values

Common diving-petrels (20 pairs) inhabit the western spire and black-faced cormorants are intermittent breeders on the eastern spire. White-bellied sea-eagles were also recorded here. Australian fur seals haul out on the western rock slopes.

Cultural Values

There have been no surveys conducted.

Recreational and Social Values

Sea kayakers and recreational divers regularly use the marine environment around the rocks but rarely land due to difficulty of access.

Tasman Island

Location: 43°06'S, 147°59'E
Area: 120 hectares
Tenure: Part of Tasman National Park (encompassed by the Tasman National Park Management Plan 2001)
Access: South-east Tasman Peninsula

Natural Values

The island has spectacular dolerite cliffs particularly on the western side, which are considered representative and outstanding for Australia (Dixon, 1996). It has breeding

populations of little penguins (300-700 pairs), short-tailed shearwaters (3000-7000 pairs), fairy prions (300,000 - 700,000 pairs) and sooty shearwaters (1000 pairs). It may be the largest breeding site for fairy prions in Australia. Wedge-tailed eagles and white-bellied sea eagles also use the island for breeding. Australian fur seal haul out on ledges at the north-east end adjacent to the landing platform. Metallic skinks, White's skinks, she-oak skinks and ocellated skinks are also found on the island. Cats have a major impact on the island's wildlife, particularly the seabirds.

Cultural Values

An Aboriginal shell midden and artefact scatter have been recorded on the island. An attended lighthouse operated from the 1940s until the 1970s.

Recreational and Social Values

Sea kayakers and recreational divers regularly visit the island. A cat eradication program was conducted on the island between 1978 and 1983, but was not successful.

Barren Island

Location: 42°49'S, 148°01'E
Area: 0.53 hectares
Tenure: Nature Reserve (encompassed by the Pittwater and Orielton Lagoon Ramsar Site Management Plan 2002)
Access: Midway Point, Sorell

Natural Values

There are breeding populations of silver gulls, kelp gulls, Pacific gulls, crested terns, pied oystercatchers and Caspian terns. Bar-tailed godwits use the island as a roost site (W. Wakefield pers. comm 2002).

Cultural Values

The island has not been surveyed.

Recreational and Social Values

Birds Tasmania members conduct surveys of the area.

Woody Island

Location: 42°49'S, 148°01'E
Area: 0.5 hectares
Tenure: Nature Reserve (encompassed by the Pittwater and Orielton Lagoon Ramsar Site Management Plan 2002)
Access: Midway Point, Sorell

Natural Values

Pied oystercatchers have bred here. There is one record of a pair of breeding short-tailed shearwaters. It is also a roosting site for great cormorants, black-faced cormorants and little pied cormorants (W. Wakefield pers. comm. 2002).

Cultural Values

The island has not been surveyed.

Recreational and Social Values

Birds Tasmania members conduct ornithological surveys of the area.

Appendix 3

Categories of vegetation condition for offshore islands*

Category	Description	Protection	Management
1	Mostly or wholly native vegetation undisturbed by human activities. Few or no exotics apart from some species associated with seabird rookeries.	Requires protection from potential adverse impacts such as clearing, grazing, inappropriate fire regimes and the transfer of environmental weeds.	Should be observed and monitored at a low level
2	Mostly native vegetation but with visible, human-induced disturbance.	Requires protection from potential adverse impacts such as clearing, grazing, inappropriate fire regimes and the transfer of environmental weeds.	Should be some active intervention to ensure disturbance does not spread and that impacts are mitigated.
3	Some native plant species, but extensively modified with a high number of exotic plants. There may be remnants of intact native vegetation that may have nature conservation value that need to be considered.	Remnants require protection	May need significant expenditure of resources for protection and monitoring.
4	Few native plant species and extensive habitat modification.	It would be preferable to take targeted action, if resources were available, to prevent the risk of weed invasion to nearby islands. Such a targeted activity may for example include eliminating dense stands of coprosma that may be spread by birds to adjacent islands.	Will need on-going and significant resources.

*Adapted from Harris S. and Lazarus E, 2001 Assessing Condition of Offshore Islands V. 1.

Appendix 4

Guidelines for visiting a seabird colony

When visiting a seabird colony the following actions will minimise your impact on the breeding birds and their habitat:

- Always report your intended visit to the Parks and Wildlife Service and obtain the relevant permit(s).
- Leave your pets at home.
- Plan for a day trip with no overnight camping.
- If an overnight stay is unavoidable, preferably stay on your boat or set up camp as far away as possible from the bird colonies and significant cultural sites.
- Ensure that there are no feral pests such as rats and mice aboard your boat. They could destroy a seabird colony by eating or destroying the eggs and carrying ticks, fleas and other harmful parasites.
- Prior to arrival ashore, thoroughly wash your shoes, tent pegs and other soil-contacted equipment in salty water to avoid transporting *Phytophthora cinnamomi* and potentially damaging weed seeds or fungal spores.
- Where possible, walk on the rocky shoreline to ensure that you do not trample on burrows and nests.
- Be aware of birds displaying disturbed behaviour such as flying in circles or squawking. Ensure that you keep well away, if they are displaying any agitated behaviour.
- Watch out for small nesting birds and their eggs and nests, particularly between October and March. Some, like terns, are often difficult to see, so stay alert.
- Do not light fires. Smoke can distress some birds and there is always a risk of escape, no matter how careful you are. Always carry a fuel stove.
- Avoid setting nets within 500 metres of a seabird colony and in particular along shorelines frequented by penguins. Many diving birds are killed in nets, especially during their breeding season, when they forage closer to their colony.
- Record in as much detail as possible information about dead wildlife and unusual occurrences you may witness during your visit. On your return, report them to the Parks and Wildlife Service and Birds Tasmania.
- Take all your rubbish home with you. Seabirds can be killed by swallowing or becoming entangled in plastic debris.

Appendix 5

Access requirements

In accordance with Section 25 of the *National Parks and Wildlife Act 1970* and by virtue of this Management Plan, Hog Island and Little Betsey Island are declared to be reserves to which the public does not have the right of access during the period July 1 to March 31. (See Section 5.2.) Section 25 of the Act will apply to Lachlan Island, Spectacle Island, Little Spectacle Island, Isle of Caves and Iron Pot subject to their declaration as reserves under the *National Parks and Wildlife Act 1970*. Reserves which are the subject of such a declaration are termed “restricted areas”. Pursuant to Regulation 11 of the *National Parks and Reserved Land Regulations 1999*, these islands should not be visited without the written authority of the Director of Parks and Wildlife Service with the exception that the visitor/s are accompanied by a Ranger or another person authorised by the Director or that the visit is for emergency purposes.

Permission for visitor access to the islands listed above may be granted on the basis that the applicant:

- is an acknowledged researcher who has the approval of the Department of Primary Industries, Water and Environment (DPIWE) Animal Ethics Committee for proposed wildlife research or is an acknowledged researcher in other relevant fields such as botany and geology; or
- belongs to an organisation which has its own minimal impact code.

with the proviso that he/she fulfills the following criteria:

- has read the management plan and is prepared to comply with the conservation strategies within it;
- is prepared to comply with the guidelines for visiting seabird breeding islands or seal haul-outs;
- is prepared to comply with the visitor group size and time constraints which may apply;
- is briefed by the Aboriginal heritage officer of DPIWE, if visiting an island with significant Aboriginal sites;
- is briefed about appropriate visitor behaviour either in writing or verbally by a relevant employee of the Marine Conservation section of the Nature Conservation Branch of DPIWE or is accompanied by a Parks and Wildlife Service guide.

