

Islands of the Port Davey Area

Biodiversity & Oil Spill Response Survey

November 2013

NATURE CONSERVATION REPORT SERIES 13/07

Biodiversity Conservation Branch
Resource Management and Conservation Division
Department Of Primary Industries, Parks, Water and Environment



Citation: Carlyon, K., Philips, A., Rudman, T. and Visoiu, M. (2013) Islands of the Port Davey Area: Biodiversity and Oil Spill Response Survey. Resource Management and Conservation Division, DPIPW, Hobart, Nature Conservation Report Series 13/07

ISBN: 978-0-9922694-9-4 (electronic publication only)

ISSN: 1838-7403

All photographs taken by the authors unless otherwise acknowledged.

© Department of Primary Industries, Parks, Water and Environment, 2013.

This work is copyright. It may be reproduced for study, research or training purposes subject to an acknowledgement of the sources and no commercial use or sale. Requests and enquiries concerning reproduction and rights should be addressed to the Resource Management and Conservation Division, DPIPW.

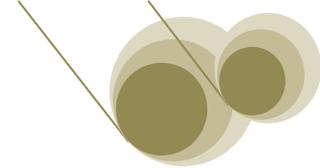


Table of Contents

SUMMARY	I
INTRODUCTION	2
SURVEY PERSONNEL	3
METHODOLOGY	3
Seabird surveys:.....	7
Seal surveys:	7
Surveys for other vertebrate species:	8
Flora Surveys:	9
RESULTS	10
Fauna:.....	10
Flora:	15
RISK FROM AN OIL SPILL	16
At-Risk Fauna:.....	16
At-Risk Flora:	16
LOGISTICS	18
Environmental Conditions	18
Access	18
Communications.....	19
Accommodation	19
Capture of Oiled Wildlife	20
Threatened Plant Collection and Rehabilitation.....	20
Maintenance of Oiled Wildlife	20
Biosecurity.....	21

MUTTONBIRD ISLAND	22
SHANKS ISLANDS	24
LOURAH ISLAND	26
BREAKSEA ISLANDS	28
KATHLEEN ISLAND	30
TRUMPETER ISLETS	32
HOBBS ISLAND	34
GENERAL DISCUSSION	36
ACKNOWLEDGEMENTS	37
REFERENCES	37



Port Davey

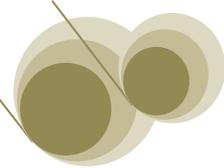
Summary

Islands in the Port Davey area were surveyed in April 2013 by staff from the Biodiversity Conservation Branch to evaluate potential management options should an oil spill occur in the region. Surveys included an assessment of the presence and abundance of seals, seabirds, small mammals and flora as these islands have not been surveyed for over 20 years. Spatial information for species vulnerable to oil spills have been added to the Australian Maritime Safety Authority's Oil Spill Response Atlas and all spatial data added to the Department of Primary Industries, Parks, Water and Environment Natural Values Atlas (NVA).

An assessment of the operational and logistical constraints of dealing with oil and oiled wildlife and flora values in the area included access issues, location and function of penguin traps, housing and maintenance of oiled wildlife prior to removal for rehabilitation and precautionary actions for flora conservation.



This survey was generously funded by the Oil Spill Response Atlas of the Australian Maritime Safety Authority (AMSA).



Introduction

Port Davey is located in the remote far southwest of Tasmania. The area is recognised as being of outstanding universal value and was, as part of the Tasmanian Wilderness World Heritage Area (TWWHA), inscribed by UNESCO on the World Heritage List in 1982. The TWWHA boundary includes the whole of Port Davey including marine areas (and Islands) bounded by North Head and Hilliard Head, and all islands between South West Cape and Wreck Bay above the low water mark. There are dozens of islands and variously vegetated rocks in this area many of which are largely inaccessible from the sea due to the rugged nature of the coastline and high energy seas. The largest offshore island is Muttonbird Island which lies south of Port Davey with a land area of just under 44 ha. The larger accessible islands in Port Davey ranging between 5 and 17 ha are Lourah Island, Breaksea Islands and Kathleen Island. North of Port Davey the largest vegetated islands are Hobbs Island (9.7 ha) and Trumpeter Islets (1 ha) which are only accessible with low swell and seas. All of the islands in this area appear to be in a close to pristine condition; weeds and other pests are largely absent and human visitation is rare.

Vessel traffic is unrestricted in the area and small vessel traffic in Port Davey is rapidly increasing - the deep water and complex coastline offer a safe anchorage to large pleasure and commercial fishing craft at all times of the year. Several cruise ships are known to have visited this area, although this sector appears to have abandoned use of Port Davey in recent years. A biannual circumnavigation cruise of Tasmania periodically brings a large number of yachts into these waters. The harbour's remote location makes monitoring and regulating this traffic a difficult task. The increase in vessel traffic, numerous navigation hazards, high wave energy and strong tidal movements/wind at the entrance, places the unique environment at Port Davey particularly at-risk to an oil spill event.

The statutory agency for responding to oil spill events in Tasmanian waters is the Environment Protection Authority Division (EPA) of the Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE). TasPorts is the designated combat agency for spills within State waters. Under the National Marine Oil Spill Contingency Plan 2011, Tasmania also remains the combat agency when a spill outside Tasmanian State waters impacts or has the potential to impact on Tasmanian coastline. Where necessary, the Resource Management and Conservation Division (RMC) of DPIPWE provides specialist staff, equipment and advice for managing a spill's impact on native fauna and flora.

Management and mitigation of oil spill impacts on local wildlife would be logistically difficult due to the remoteness and exposure of this location. In order to maximise the effectiveness of such a response, the prior collection of up-to-date spatial information detailing the distribution of vulnerable species and potential sites for conducting response operations is essential. As such, the Oil Spill Response Atlas (AMSA) provided funds to survey the area for an update of the atlas and development of this report.

Seabirds represent the fauna assemblage most at-risk from an oil spill, however many of the islands in Port Davey area have not been specifically surveyed for seabirds for over 25 years (see Brothers et al., 2001). Of the seabirds at risk the little penguin (*Eudyptula minor*) is a focus due to its particular vulnerability and the potential to capture and rehabilitate these birds when oiled. Marine mammals in the area, namely seals, were surveyed more recently (DPIPWE, unpublished data), but changes to recovering seal populations and historic information needs to be regularly assessed. This survey provided a much-needed chance to assess the current status and distribution of at-risk fauna and flora in the region. It also offered key DPIPWE personnel valuable familiarisation with the logistical considerations for working in this area.

Due to limited opportunities to access this region, opportunistic documentation of biodiversity values and species occurrence was undertaken where possible. This was especially important for islands where the presence or identity of species was unconfirmed.

The development of an oil spill response strategy for the region was a key recommendation in a report on biodiversity, threats and management options for Port Davey-Bathurst Harbour (Edgar et al. 2007) – these surveys provide information that will be critical to the finalisation of such a plan.

Survey Personnel

Kris Carlyon (Wildlife Biologist, Threatened Species and Marine Section)
Tim Rudman (Senior Vegetation Scientist, Biodiversity Monitoring Section)
Annie Philips (Wildlife Health Officer, Biodiversity Monitoring Section)
Micah Visoiu (Ecologist, Biodiversity Monitoring Section)
Jaimie Cleeland (volunteer seabird ecologist)
Allison Woolley (Section Head, Threatened Species and Marine Section)



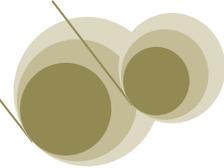
PV Vigilant and Swift, Bramble Cove

Methodology

Survey work was conducted on 17th- 22nd April 2013. Transport to the area was provided by the Tasmanian Police; the police vessel '*Vigilant*' and islands accessed using a low-draft rigid inflatable tender '*Swift*' suitable for nosing up to rocky landings.

Survey work was conducted on the following islands:

- Muttonbird Island
- Shanks Island (north-east islet)
- Lourah Island
- Breaksea Islands (north and south)
- Kathleen Island
- Trumpeter Islets (west)
- Hobbs Island



In addition, boat-based assessments were conducted for the following islands:

- Shanks Island (main island)
- Sugarloaf Rock
- Wendar Island
- Big Caroline Rock
- Swainson Island
- The Coffee Pot
- West Pyramid



Camp, Bramble Cove

A brief timeline of events is outlined below:

17 April:

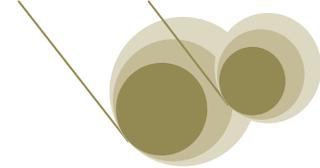
- 06:00 DPIPWE personnel depart Hobart for Cockle Creek.
- 08:00 Rendezvous with PV Vigilant at Cockle Creek, load survey equipment and depart.
- 16:30 Arrive at Bramble Cove, Port Davey. Unload field equipment via Swift and make camp.
- 20:00 Set Elliot traps and camera trap around camp.

18 April:

- 07:30 Clear traps around camp.
- 08:00 Team depart camp in Swift.
- 08:30 KC, AP and JC dropped on Lourah Island, set taps and cameras.
- 08:40 TR and MV dropped in Hannant Inlet to conduct flora surveys.
- 10:00 KC, AP and JC dropped on Breaksea Island to conduct penguin and shearwater surveys
- 16:00 KC, AP and JC picked up from Breaksea Island, head to Lourah.
- 16:30 KC, AP and JC clear traps on Lourah Island.
- 16:40 TR and MV picked up from Hannant Inlet.
- 17:20 Team arrive back at camp.

19 April:

- 08:00 Team depart camp in Swift.
- 08:20 Traps cleared on Lourah Island, flora surveyed.



- 09:00 Team heads to Muttonbird Island, aborted due to heavy swell outside Port Davey.
- 10:00 Land on Shanks Island (north east islet) west Shanks and survey for seabirds and flora,
- 12:00 Land on Kathleen Island, set traps & cameras in NE and survey seabirds and flora on north half.
- 15:20 Depart Kathleen for Lourah Island.
- 15:45 Clear traps on Lourah Island.
- 16:10 Survey team arrives back at camp and meets AW who flew in that afternoon to join the group.

20 April:

- 08:00 Team depart camp in Swift.
- 08:20 AP, TR and MV clear traps and collect traps and cameras on Lourah Island
- 09:15 KC, JC and AW clear traps and collect traps and cameras on Kathleen Island
- 09:35 AP, TR and MV collected from Lourah Island by Swift and return to Kathleen Island
- 11:00 All personnel depart Kathleen Island
- 12:30 Team arrive at Hobbs Island, survey coast for seabirds, flora
- 15:00 Team depart Hobbs Island
- 15:30 Team arrive at Trumpeter Island, survey for seabirds, flora
- 16:20 Team depart Trumpeter Island, check West Pyramid and Coffee Pot for seals
- 17:00 Team arrive back at camp.

21 April:

- 08:15 depart camp in Swift.
- 09:15 Arrive at Muttonbird Island, dropped in NW gulch, survey coast for seabirds, flora.
- 12:40 Depart Muttonbird Island, complete lap of island in Swift.
- 13:00 Complete lap of Sugarloaf Rock and Wendar Island
- 14:15 Drop TR and MV in Hannant Inlet for seed collection, remaining team depart for Melaleuca.
- 15:30 KC, JC, AP and AW arrive at Melaleuca, AW to fly out with Par Avion
- 16:15 KC, JC and AP depart Melaleuca for Hannant Inlet.
- 17:00 Arrive Hannant Inlet, pick up TR and MV.
- 17:20 Team arrive back at camp.

22 April:

- 07:00 Depart Bramble Cove, Port Davey for Cockle Creek
- 15:00 Arrive in Cockle Creek, ferry survey gear to shore in Swift and depart for Hobart.
- 17:00 Arrive in Hobart.



Location of surveyed islands within Port Davey, South West Tasmania

Seabird surveys:

The coastline of each island was surveyed on foot for the presence of penguin 'runways'; high-use areas where penguins congregate and can more easily navigate island slopes. Oil spill response activities can be targeted to these areas, maximising the efficacy of mitigation efforts. Runways and areas favourable for penguin trapping and staging operations were mapped.

Line-transect surveys were initially conducted on Breaksea Island through little penguin and short-tailed shearwater colonies to obtain estimates of burrow density as a measure of abundance, however these were abandoned due to the density and fragility of burrows and the risk of damage. This was also the case for other surveyed islands. As such, the perimeters of colonies were traversed where possible and surveys were generally restricted to the more stable coastline.

While there was evidence of little penguins in all colonies, breeding was finished and only moulting birds were present at the time of surveying. As such, penguin numbers were low. Likewise, adult shearwaters had departed colonies, however chicks were still present. Density of birds was not established due to time constraints, therefore abundance estimates are an estimate only. Burrows were allocated to species based on their shape, entrance size, depth, presence of feathers and faeces (and live birds) and/or soil condition. Colonies and runways were mapped using GPS (GDA94).

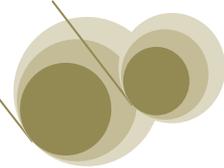
The presence of other seabird species, such as fairy prions (*Pachyptila turtur*) and common diving petrels (*Pelecanoides urinatrix*) was noted; however much of the habitat for these birds in the area lies on less accessible islands and steeper slopes not visited. An accurate abundance estimates for these cryptic species were not possible to obtain in the time-frame.

Seal surveys:

Surveys for fur seals were conducted by circumnavigation of islands by boat. Survey personnel did not land at seal colonies or haul-outs to avoid disturbance.



Trumpeter Island surveys



Surveys for other vertebrate species:

Small mammal fauna surveys were conducted on Lourah and Kathleen Islands due to their complex vegetation and proximity to the mainland. Surveys involved live-capture using collapsible box-traps (Elliot Scientific Equipment) and passive capture using infrared remotely-activated cameras (Scout Guard KG680V).

Elliot traps (n=8) and remote cameras (n=4) were deployed for two consecutive nights on Lourah Island. Traps (n=8) and cameras (n=3) were deployed on Kathleen Island for one night. Two Elliot traps and one camera were deployed at the camp in Bramble Cove for a period of four nights. Trap effort was limited by the constraints associated with visiting multiple islands within the trip timeframe, and with consideration to weather and landing conditions. Traps were cleared as early as possible on the morning following setting with all animals identified, weighed, a tissue sample taken via an ear punch biopsy, and released on site. Traps that were set on Lourah Island for two nights were also checked in the evening prior to the second night, as these were left open during the day. A total of 16, 8 and 4 Elliot trap nights were completed on Lourah Island, Kathleen Island and at Bramble Cove respectively.

Remote cameras were set 1.5 m from and facing a tethered bait canister containing a mixture of peanut butter and tinned tuna juice and programmed to activate 24 hours per day with a thirty-second delay between image capture. Camera images were analysed back in Hobart.

Traps and cameras were set in an array of vegetation types within easily accessible areas conducive to a quick turnaround in trap clearing the following day. Species identification of fauna caught on camera was confirmed by Michael Driessen, Biodiversity Monitoring Section.

Animal sign was also recorded opportunistically when encountered, including incidental sightings of reptiles and observations of forest and grassland birds. General fauna lists and the locations of important species were compiled opportunistically for each island.



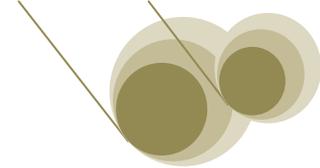
Setting Elliot traps, Lourah Island

Flora Surveys:

An up-to-date flora listing for all islands visited was compiled from observations during this survey and records from the DPIPWE Tasmanian Natural Values Atlas. Islands were traversed as thoroughly as possible on foot for this survey, however significant areas were not feasible to survey on most islands due to risks to rookeries and access difficulties. Examples of rare or unusual plants were collected for herbarium specimens and to confirm species identity. Species nomenclature follows Baker et al. (2012). Observations were made on the TASVEG vegetation communities present using the revised TASVEG 3 categorisation and descriptions (Harris & Kitchener, in prep.). The TASVEG 2.0 mapping was corrected to include in the release of Tasveg 3.0. Cuttings and seed were collected of priority species for the Tasmanian Seedbank.



Surveying Kathleen Island



Results

Fauna:

A complete list of fauna species observed during this survey can be found in Appendix I.

Birds:

A total of 25 bird species were recorded in and around the Port Davey Islands during these surveys. Of particular note were the large numbers of white-bellied sea eagles (*Haliaeetus leucogaster*) sighted in the area; for example, eight individuals (adults and juveniles) were seen flying over Breaksea Island on one occasion. This species is listed as Vulnerable under the *Threatened Species Protection Act 1995*. A peregrine falcon (*Falco peregrinus*) pair was encountered defending a territory in the central gulch of Kathleen Island. This area provides excellent nesting habitat for the species which is known to maintain a territory year-round. The behaviour observed (diving and calling between the pair) is not unusual for a breeding pair in the vicinity of their nest site, even outside of the breeding season, which would be expected to be over at the time of the survey.

One aim of this project was to map seabird colonies and obtain estimates of abundance. This approach was abandoned early on when it was clear that the risk of damaging burrows whilst conducting detailed surveys was unacceptable. As such, we focussed on documenting the presence of seabirds, particularly little penguins (as the species most at risk to oil spill), and mapping the important locations for a management response.

Even though surveys were conducted outside the breeding season, penguins appeared in similar abundance on all islands compared to estimates provided by Brothers *et al.* (2001).

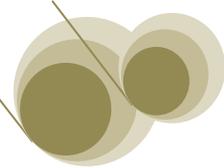
Terrestrial fauna:

Two terrestrial mammal species were recorded by trapping during the surveys. The swamp or velvet-furred rat (*Rattus lutreolus*) and the long-tailed mouse (*Pseudomys higginsii*) were detected on Kathleen Island and at the Bramble Cove camp respectively. This represents the first record of *R. lutreolus* on Kathleen Island. *P. higginsii* has previously been documented on mainland Tasmania in the Port Davey area (NVA, 19/6/13), however record locations are vague. *P. higginsii* is the only species of rodent endemic to Tasmania. Four other native rodents occur in Tasmania including *R. lutreolus*.

Rats were readily captured in Elliot traps when they were present. Trap success on Kathleen Island was 75% (see Table I for trapping results). All baited remote camera results detected rats and reflected high abundance of this species on Kathleen Island. It is unknown whether the swamp rats trapped during these surveys represent the Victorian (*R. l. lutreolus*) or the Tasmanian (*R. l. velutinus*) subspecies. A rat skull was also found on Kathleen Island.

No rodents were detected with traps or cameras on Lourah Island. Whilst further trapping effort would be necessary to confirm species absence with a high degree of confidence, aligned results from Elliot and camera traps support absence findings for these species on Lourah Island.

Evidence of rat trails, likely caused by *R. lutreolus*, was found through vegetation on Trumpeter Island; rodent scats found support their presence on this island.



Punch biopsies taken from all rodents trapped will provide genetic information and should confirm their sub-specific status.

Table 1: Capture results from Elliot trapping surveys for small mammals, Bramble Cove and Kathleen Island. Surveys involved 8 trap nights at both Bramble Cove and Kathleen Island. Note no small mammals were trapped on Lourah Island. Biopsy punches were taken from all animals.

Date	Location	Species	Weight (g)
20/4/2013	Bramble Cove	<i>Pseudomys higginsi</i>	86
20/4/2013	Kathleen Island	<i>Rattus lutreolus</i>	167
20/4/2013	Kathleen Island	<i>Rattus lutreolus</i>	179
20/4/2013	Kathleen Island	<i>Rattus lutreolus</i>	200+
20/4/2013	Kathleen Island	<i>Rattus lutreolus</i>	184
20/4/2013	Kathleen Island	<i>Rattus lutreolus</i>	135
20/4/2013	Kathleen Island	<i>Rattus lutreolus</i>	200+



Long-tailed mouse, Bramble Cove

Remote cameras detected a spotted-tailed quoll (*Dasyurus maculatus*) at the Bramble Cove campsite on two consecutive nights. The spot-pattern on the quoll's pelage confirmed this as the same individual on both occasions, and this animal was also sighted running through camp one evening. This species, listed as Rare under the *Threatened Species Protection Act*, is well documented in the area.



Swamp rat, Kathleen Island



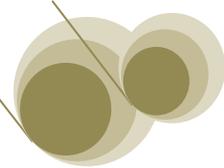
Spotted-tailed quoll, Bramble Cove

Scats found on Lourah Island confirmed the presence of macropods (likely Tasmanian pademelon; *Thylogale billardierii*) that appear to forage at least in part on sedges (browsed sedges were noted on the western slopes of the island). The lack of significant quantities of potential forage, and the lack of macropod detection on camera traps suggests that their density is low on Lourah Island, or they may be irregular visitors, swimming the relatively short distance from the mainland. Alternatively there are anecdotal reports that macropods may have been actively translocated to Lourah Island by Port Davey residents aiming to reduce macropod densities near their homes and gardens.

Rabbits were introduced to the Breaksea Islands in the 19th century by whalers as a food source. Their presence and relatively high density was re-confirmed by significant volumes of rabbit scats spread across the island. Two black rabbits were sighted whilst traversing the southern island.



Macropod scat, Lourah Island



Marine mammals:

Australian fur seals (*Arctocephalus pusillus*) were observed hauled out in large numbers (approx 200 seals) at Wendar Island. Seven pups were observed on the southern islet during separate surveys in February 2013. This continues observations of small numbers of pups at this site in recent years, however this is not yet considered an established breeding colony for the species.



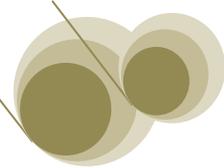
Australian and New Zealand fur seals, Wendar Island. Note bare eroded ground resulting from sustained use of eastern slopes by seals.

Fur seals now use the majority of the accessible area of Wendar Island, and it appears the large short-tailed shearwater colony that was once distributed through tussock-dominated areas of this island has largely been displaced. There is obvious erosion occurring on the main island resulting from intense use by seals.

New Zealand fur seals (*Arctocephalus forsteri*) were also observed hauled out on Wendar Island (approx. 150 seals) and the small rocky islet immediately west of the main Trumpeter Islet (approx. 40 seals, many yearlings). No *A. forsteri* pups have been observed at these haul-outs and they are not classified as breeding colonies. In the case of Trumpeter Islet, this is unlikely to change due to the exposed nature of this site, however accidental births are possible. This species is listed as Rare under the *Threatened Species Protection Act 1995*.



New Zealand fur seals, NW Trumpeter Islet



A large pod of bottlenose dolphins (*Tursiops truncatus*) was observed in northern Port Davey whilst travelling to Hobbs Island on 20 April. The pod contained approximately 50 individuals of varying size and was travelling at speed out of the bay. There was minimal interaction with the Swift. Another large pod was observed north of Hobbs Island travelling south. These appeared to be the larger offshore variant of *T. truncatus*. A dispersed pod of bottlenose dolphins (10-20) were also observed in Bramble cove on the evening of 19 April and were still present the following morning on the eastern side of the Breaksea Islands between the mouth of Hannant Inlet and North Breaksea Island.

Two to three common dolphins (*Delphinus delphis*) were observed from the Vigilant to the north west of Sugarloaf Rock on the afternoon of 17 April when entering Port Davey.



Bottlenose dolphins, northern Port Davey

Reptiles:

Lizards of the genus *Niveoscincus* were observed on several of the islands visited. Although no individuals were captured, identification was possible where sightings were more than a fleeting glance. On Hobbs Island Tasmanian tree skinks (*Niveoscincus pretiosus*) were relatively common on the coastal rocks. This species was also observed in similar habitat on east Trumpeter Islet. Skinks were also observed on Muttonbird Island although only fleeting glimpses were had. Both *N. pretiosus* and Metallic skink (*N. metallicus*) have been recorded from this island previously (Brothers et al., 2001).

Invertebrates:

Invertebrates were not actively surveyed due to limitations of time and expertise. The proximity of these islands to the Tasmanian mainland would suggest that many groups of invertebrates are likely to disperse regularly between these areas.



*Spider burrow (most likely wolf spider, family Lycosidae) and jack jumper ant (*Myrmecia pilosula*) nest on Lourah Island.*

Flora:

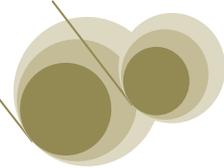
The flora of the islands of the Port Davey region are likely strongly influenced by size, oceanic exposure, soil depth and presence of rookeries. They generally have a small floras typical of small islands with the exception of Lourah Island which has a sheltered aspect and close proximity to mainland Tasmania. A total of 78 native species and one introduced species (*Chenopodium glauca*) were recorded on the islands visited (Appendix 2). Of these, 40 species occurred on only one island and a further 16 species occurred on just two islands.

The islands are characterised by a narrow fringe of predominately rocky shorelines associated with vegetation consistent with the TASVEG type Spray zone coastal complex (SSZ) characterised by *Carpobrotus rossii*, *Sarcocornia quinqueflora*, *Samolus repens*, *Apium prostratum*, *Euchiton litticola*, *Ficinia nodosa*, *Austrostipa stipoides*. Typically this zone is narrow and is not mapped in TASVEG. Spray zone coastal complex vegetation frequently grades into Rookery Halophytic Herbland (SRH) dominated by *Carpobrotus rossii* on steep slopes or shallow soil. Coastal grassland (GHC) dominated by *Poa poiformis* and *Senecio pinnatifolius* occur on deeper sandy soils. At higher elevation and less disturbed sites Coastal scrub (SSC) was frequently present. Dominant and subdominant scrub species varied between the islands and included species such as *Correa backhouseana*, *Leptecophylla abietina*, *Tasmania lanceolata*, *Monotoca glauca*, *Westringia brevifolia*, *Olearia phlogopappa*, *Leptospermum glaucescens* and *Leptospermum scoparium*. Rookeries are strong determinants of the distribution of halophyte herbfields and grasslands, however rookeries were also present under scrub communities where soils were suitable. Rookeries under scrub had a notable absence of understory plant species. Small soaks, drainage lines and pools also provided localised wetland habitat for species such as *Carex appressa*, *Baumea juncea*, *Isolepis cernua*, *Samolus repens* and *Triglochin striatum*.

The risks to terrestrial native vegetation are limited to those areas within the storm tide zone that may be impacted directly by oil washing ashore, and those adjacent areas that may be used by oiled birds or sites that may be indirectly impacted by the activities associated with oil spill control such as camping, oil removal and penguin trapping activities. Direct oiling risks are difficult to manage and may need to be tolerated with the exception of select threatened species where intervention is warranted as a priority. Terrestrial threatened communities present on the islands are most at risk from the indirect impacts and must be considered in planning response activities.



Coastal grassland with fringing Rookery Halophytic Herbland, Muttonbird Island.



Risk from an oil spill

At-Risk Fauna:

Little penguins are recognised as the species most at risk from a local oil spill due to their neritic foraging habits and need to exit the water via the coast where oil can accumulate. Fortunately these behaviours lend themselves to capture, and assist in managing the impacts of an oil spill on this species. Penguins tend to exit the water in concentrated groups and consistently use well defined paths and runways to access colonies. Capture efforts can focus on these areas of concentration, maximising response efficiency. Penguins are also particularly hardy and tolerate capture and cleaning activities relatively well.

Other seabirds most at risk include those birds that spend considerable time on the water surface, namely short-tailed shearwaters, diving petrels, prions and cormorants. Oiling of these species can result from direct contact while foraging or resting on the sea surface, diving through oil suspended in the water column, ingestion of oiled prey or vegetation, and/or contact with oil accumulated on beaches.

Fur seals using haul-outs on Wendar Island or Trumpeter Islets would be at risk from a local spill.

Swamp rats on islands in the Port Davey area are not considered to be at high risk to impacts from an oil spill. Unlike on some of the Bass Strait islands, the steep rocky coastline of the Port Davey islands restricts swamp rat colonies to areas away from the coast beyond the high tide and wave zone.

At-Risk Flora:

Four threatened plant species in the Port Davey area occur at sites where oil inundation or oil spill control operations could adversely impact on the populations, these are; *Crassula moschata* (TSPA 1995 rare), *Veronica novae-hollandiae* (TSPA 1995 vulnerable), *Ranunculus acaulis* (TSPA 1995 rare) and to a lesser extent *Lepidium flexicaule* (TSPA 1995 rare). These risks are present both on some of the islands surveyed and on the Tasmanian mainland shore around the Port Davey area.

Crassula moschata has its primary Tasmanian habitat on sub-Antarctic Macquarie Island. On the Tasmanian mainland coast and its offshore islands it is known from a small number of widely dispersed and very small populations. It has been conjectured to only have itinerant populations north of Macquarie Island, however observations in this survey suggest it is likely to have a permanent population on Hobbs Island. On Hobbs Island it occurs at multiple sites at the storm tide level and on higher ground 5m above sea level. It has also been reported from the Tasmanian mainland shoreline 500 m north of Trumpeter Islets and at Gull Reef in Bathurst Channel. Oil laden storm and spring tides could result in oil inundation at some sites or activities to manage oil spills could impact physically on the population.

Veronica novae-hollandiae is widely distributed in small localised populations on the Tasmanian west coast. The full distribution in the area is unknown however it is recorded at three sites around Payne Bay and at Hannant Inlet. In the Hannant Inlet area *Veronica novae-hollandiae* populations occur on lower energy shoreline berms and the sandy banks of estuaries where oil washed ashore or oil spill response activities could significantly impact on the population.

Ranunculus acaulis is widely distributed coastal obligate in the south west that grows immediately above the strand line on beaches where it would be expected to be impacted by oil with higher tides and storm surges. However, as it is widespread species in the SW that is adapted to high disturbance environment this species is a low priority for preventative intervention in the event of an oil spill.

Lepidium flexicaule has a lesser risk as it occurs in the near littoral zone habitat and lower oiling risk areas and further inland.



Crassula moschata



Ranunculus acaulis



Lepidium flexicaule

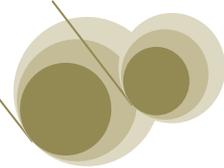


Veronica novae-hollandiae

Mitigation of flora impacts

The following actions may assist with mitigating the impacts of an oil spill and the associated control activities:

- Avoid disturbance to *Crassula moschata* and *Veronica novae-hollandiae* sites.
- Establish land based barriers for *Crassula moschata* and *Veronica novae-hollandiae* where feasible if these sites are at risk of oiling.
- Ex-situ conservation of the most at risk species in the Port Davey area. Cuttings and seed were collected from *Crassula moschata*, *Ranunculus acaulis* and *Veronica novae-hollandiae* and lodged with the Tasmanian Seedbank to allow for potential restoration needs in the event of an oil spill or other disturbance.
- Continue to improve the mapping of the priority threatened species that may be affected by an oil spill on the mainland section of this coast and where data is not available at the time of an oil spill, incorporate threatened plant species surveys of shorelines at risk within the oil spill response plan.



Logistics

Environmental Conditions

An automatic weather station operated by the Australian Bureau of Meteorology (Station ID 97007) is situated at Melaleuca, however available information from this station is incomplete and unreliable. The dataset from the station located to the north at Low Rocky Head is similarly incomplete. The permanent manned weather station on Maatsuyker Island (Station ID 94041) likely provides the most up-to-date statistics for local weather conditions in the region.

Expected operating conditions for the area range between a mean monthly maximum temperature of 19°C in summer down to 11°C in winter with an extreme maximum temperature of 35°C and minimum of 5°C recorded. There is a winter maximum in rainfall with an average of over 220 mm recorded each month from May to August. Low pressure systems drive the heavy rain events and these may occur throughout the year. The heaviest monthly rainfall recorded was 533 mm in July 1970. Wind will be a major determinate of both sea and aerial access to the area.

Weather typically arrives from the south-west and all islands surveyed (except Lourah) are exposed to swell from this direction. Wave action can be intense and debris was observed many metres above mean tide level in most locations.

The tidal range within Port Davey is small, approximately 0.3 m in Bramble Cove (Edgar et al., 2007). Water driven through the heads by waves and currents predominately moves clockwise within the Port; as such, seawater in western Port Davey is little-affected by freshwater runoff from Bathurst Harbour, whereas waters in the north and east are influenced by brackish surface flows entering through Bathurst Channel (Edgar et al., 2010). Currents are particularly strong through the Channel, with huge quantities of water moving in and out with tides and atmospheric changes in barometric pressure. Waters within Port Davey are flushed by the tides and are thought to have a low residency time of 1-4 days.

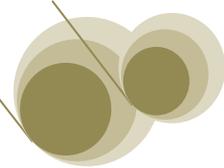
Outside of Port Davey, islands and coastline are predominately exposed to weather and swell from the south-west. Wave action is intense and debris was observed many metres above mean tide level in many locations.

Access

Any response in this area will be boat-based. Vessels will likely need to travel from Hobart, or possibly Strahan, delaying a full response by at least 8 hours. There is potential for crew and equipment to be flown in to Melaleuca on charter flights. Tourism operators have boats permanently based at Melaleuca that could possibly be utilised in an emergency, however none of these boats could operate outside of Breaksea Island, even in calm conditions.

Given the potential for rough conditions in the area, several large vessels would be needed for gear and crew transport, with smaller tenders used to gain access to islands and for boat-based survey work. A well-powered rigid inflatable such as the PV Swift is ideal for the job, as it can be nudged right onto rocks for easy landing and has the power and buoyancy to cope with unpredictable swell. Skilled boat operators would be essential.

Aside from Muttonbird Island, there are few reliable anchorages offshore from any of the islands surveyed. Safe anchorages available within Port Davey/Bathurst Channel include Bramble Cove, Schooner Cove and Spain Bay. Bramble Cove is the obvious choice for a base camp and temporary holding of oiled wildlife (see below); access to this site by tender is straightforward.



Safe access to all islands is entirely weather-dependent. In calm conditions, islands can be approached safely by boat, however conditions can change rapidly. Landing is challenging on the majority of islands due to the steep rocky coast; in most cases the coastal rock is slippery and sharp and there is limited space to land large amounts of gear and equipment.

Whilst there are no established helicopter landing sites on any of the islands, or at the Bramble Cove camping site, helicopter access would be possible on most of the islands surveyed and near the Bramble Cove campsite. Aircraft could be re-fuelled at the Melaleuca airstrip if fuel was brought in for the purpose. There are two approved fuel storage containers on site and it is estimated space for up to twelve 200 Litre drums could be available.

Access options for each island are discussed in more detail in individual island descriptions from page 28.

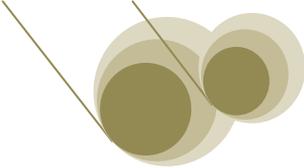
Communications

Mobile phone coverage is not currently available in the Port Davey region. Communications between response personnel would be best achieved via Marine VHF radio, whilst any communications outside of the immediate area would require satellite telephone. Radio communications to Hobart could also be relayed through the Maatsuyker Island caretakers where line of sight is available. A State Disaster plan VHF radio and VHF marine radio are housed in the Parks and Wildlife Service hut at Melaleuca which has communications with Maatsuyker Island.

Accommodation

Bramble Cove, located on the northern side of the entrance to Bathurst Channel, offers potential as a base for staging response activities within close proximity to Port Davey. The following points provide considerations for using Bramble Cove as a response base:

- The campsite is located in a sheltered cove at the entrance to Bathurst Channel, a particularly sensitive and unique marine ecosystem of outstanding international value.
- The site lies within the Tasmanian Wilderness World Heritage Area. As such, the Parks and Wildlife Service will need to be consulted over the nature of any operational base to be established there and the activities to occur.
- Cleaning and effluent disposal will need to be addressed, particularly how this is handled to minimise risk to the sensitive Bathurst Channel area.
- There are no known threatened vegetation species values at risk around the Bramble Cove campsite. Habitat disturbance and damage to vegetation could be locally significant for the short to medium term in the event that an operational base greater than 200 m² in area is required.
- Hardening of the beach end of the track from the beach to the campsite is likely to be required.
- The site is used by recreational and tour groups; activities may impact on other users of the area during or after the occupation due to site disturbance.
- Adequate freshwater is available on site from a raised pipe fed by a potable freshwater stream behind the beach.
- A large operation would not be feasible to be run from this site, however it may act as a staging area.
- Freshwater is available for boats to resupply on the shoreline opposite Bramble Cove.
- Bramble cove experiences wind bullets under windy conditions and boat anchorage will need to take into account the prevailing weather conditions.



Schooner Cove, on the southern side of the entrance to Bathurst Channel, also provides a small sheltered shore-based camping opportunity for up to six people, but has a poorer shallow landing site and no flat operational area. It has freshwater available from a creek beside the camp.

Of the offshore islands, only Hobbs, Trumpeter and Muttonbird Islands are considered appropriate for overnight camping if necessary for trapping or temporary holding of little penguins, however this could only be done under calm weather/swell conditions. There are no freshwater sources on these islands.

Capture of Oiled Wildlife

Recommended methods for capture of oiled wildlife are as follows:

- Little Penguins – major runways are shown on maps for individual islands and these could be targeted for funnel trapping.
- Shearwaters - search of colony at night for birds on ground or in burrows.
- Common diving petrels/fairy prions - mist nets, but trials should be done prior to oil spill.
- Cormorants – throw net.
- Swamp rat – Elliot traps and pitfall traps cleared continuously.
- Fur seals – Furmen net and remote sedation where possible (see below)

However, the majority of the island coastline in the Port Davey region consists of steep rocky cliffs. Access is extremely difficult in most cases and this type of coastline does not lend itself to efficient trapping or corralling of oiled penguins. Very few coastal penguin runways were noted on most islands, suggesting penguins may not congregate consistently to exit the water. The exceptions were Hobbs Island and the main Trumpeter Islet, where access was straightforward and there were suitable locations to trap and camp for extended periods in suitable weather. Regular monitoring of other islands (*i.e.* assessment of coast from vessel) where trapping is not feasible or efficient is recommended, with more rigorous efforts undertaken if oiled birds are sighted.

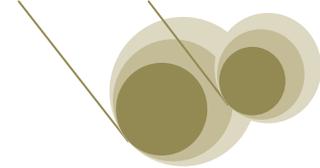
Capture of oiled fur seals on Wendar Island or Trumpeter Islets for treatment would be challenging. The terrain offers little opportunity to ambush animals, and chasing down seals down would be near impossible on the slippery rocks. Capture would therefore be limited to only those animals that were severely compromised, possibly involving remote sedation for safety. Holding seals for an extended period would be impossible on-site. Regular monitoring of the fur seal haul-outs in the event of a nearby spill is recommended.

Threatened Plant Collection and Rehabilitation

Stem cuttings of *Crassula moschata*, *Veronica novae-hollandiae* and *Ranunculus acaulis* all can be readily collected and propagated if kept cool and damp wrapped in absorbent paper prior to transport to Hobart. The Royal Tasmanian Botanical Gardens can provide advice and propagation services. Re-establishment of propagated plants has not been trialled however it is likely to be possible.

Maintenance of Oiled Wildlife

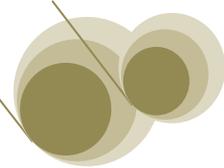
Oiled animals would need to be housed in temporary accommodation then flown to the nearest equipped care facility. Small numbers of penguins could be dealt with in Tasmania, however the nearest facility with dedicated equipment and housing for large numbers of oiled birds is on Philip Island (Victoria); wildlife could be flown there directly from Melaleuca, or to Tidal River or Welshpool and then transported by land.



Temporary housing (e.g. tarp hanger) could be erected in Bramble Cove. Adequate clean fresh water is available for initial cleaning activities, however disposal of effluent at this sensitive site is an issue.

Biosecurity

The PWS Island Biosecurity Guidelines (Appendix 4) will apply to visitation to the islands in the Port Davey region. These islands are notable for the absence of any significant weed species. Only one weed species was recorded during the survey and this occurred only sporadically.



The following pages contain information on specific islands surveyed during this program. Maps show only those species and spatial information located during these surveys. For additional information on species occurrence see Brothers et al., 2001.

Muttonbird Island

Location: ~4 nm southwest of Port Davey, Tasmania (Lat. -43 25, Long. 145 57)

Tenure: Southwest National Park and Tasmanian Wilderness World Heritage Area

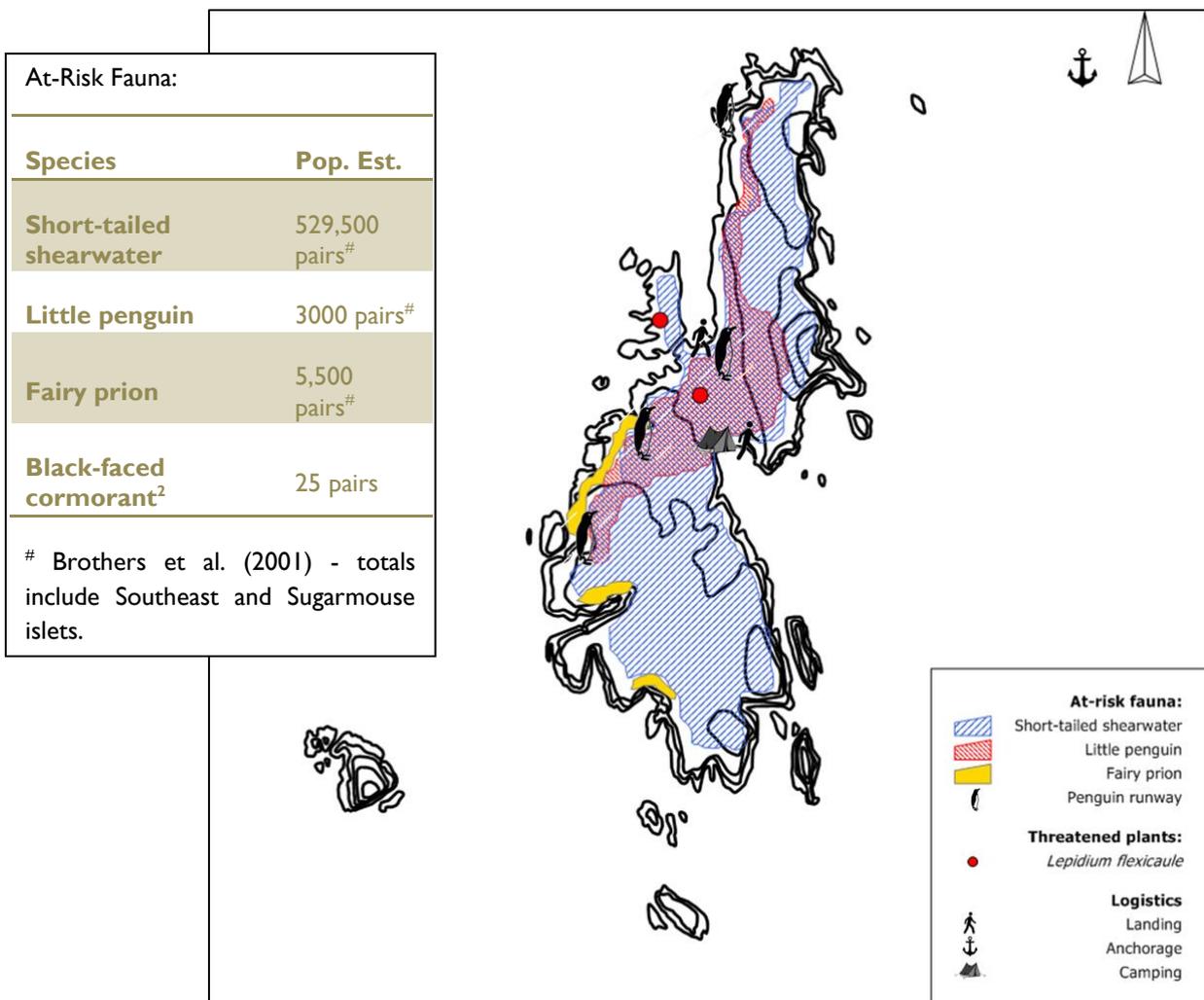
Area: 43.7 ha

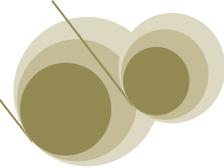
Coast: 8.5 km

Elevation: 40-50 m



Muttonbird Island northeast coastline





Description:

Muttonbird Island has the largest short-tailed shearwater breeding colony of the islands in the Port Davey area and the sixth largest in the State. Whilst estimates of abundance were not possible during these surveys, the high density and almost complete coverage of burrows suggests shearwater numbers remain comparable to estimates made by Brothers et al., (2001). High cliffs on the western side face the southern ocean swells while the more protected north and east coast is guarded by reefs. It has sheltered embayments with cobble beaches and gently sloping rocks on points. The island is seldom visited and retains a high level of natural integrity and environmental condition.

The coast of the southern half of the island was traversed during these surveys. Surveys of the northern half of the island were abandoned due to the unacceptable risk of burrow collapse. The entire coast was circumnavigated by boat. Penguin presence was determined by evidence of moulting birds and faecal matter.

Deep sands on Muttonbird Island are covered by coastal grass and herbfield vegetation (GHC) which is dominated by *Poa poiformis* (coastal tussockgrass). *Tasmannia lanceolata* (native pepperberry) dominated coastal scrub (SSC) occurs on higher or rockier ground and protected drainage lines where pteridophytes were co-dominant. The western coastal scarp is draped in *Carpobrotus rossii* dominated Rookery halophytic herbland (SRH).

The vegetation of Muttonbird Island is of significant State conservation value. Rookery Halophytic Herbland (SRH) and Coastal grassland (GHC) described here equate with the Seabird rookery complex (SRC) that is listed under the *Nature Conservation Act 2002* as a rare community. The rare plant *Lepidium flexicaule* (springy peppercress) listed under the *Threatened Species Protection Act 1995* occurs in gaps and rocky areas in Rookery halophytic herbland (SRH).

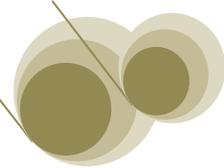
Logistical considerations:

Muttonbird Island is best accessed by the two sheltered embayments and beaches near the centre of the island – one north-facing and the other south-facing. These small bays with sand bottoms provide anchorage options in calm weather. Helicopter access would be possible over much of the island, however the extremely dense shearwater burrows and soft substrate means landing would best be conducted around the more solid margins on rock or pigface vegetation.

Any movement on foot away from the coastal rocks and pigface herbfields incurs a high risk of an unacceptable level of burrow collapse and is strongly discouraged. No natural freshwater sources are available.



Muttonbird Island landing site on beach in north-facing inlet.



Shanks Islands

Location: Port Davey, Tasmania (Lat. -43 21, Long. 145 58)

Tenure: Southwest National Park and Tasmanian Wilderness World Heritage Area

Area: five islands <2 ha each

Coast: 1.7 km (total for all islets)

Elevation: 10-40 m



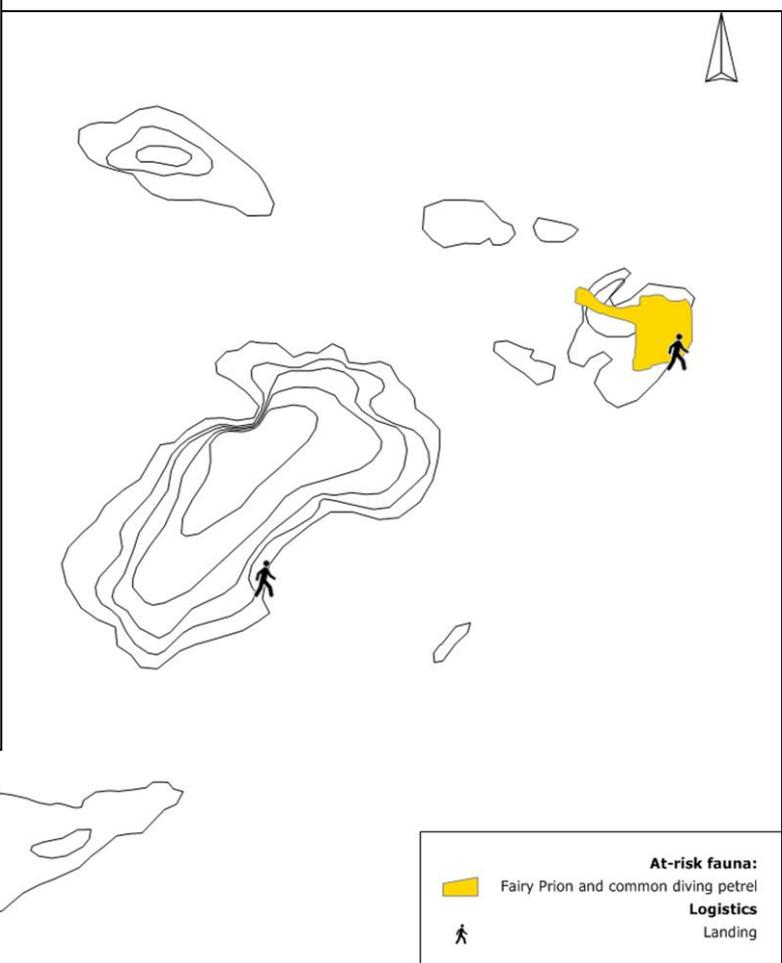
Shanks Islands from the east

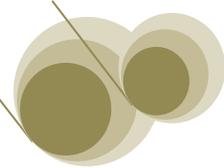
At-Risk Fauna:

Species	Pop. Est.
Short-tailed shearwater	8700 pairs [#]
Little penguin	2 pairs [#]
Common diving petrel	30 pairs [#]
Fairy prion	5,500 pairs [#]

* Brothers et al. (2001)

Rookery mapping has only been completed on the area of island that it was possible to survey during the 2013 visit, it is highly likely that all remaining suitable substrate on the island is also occupied by rookery.





Description:

The Shanks Islands comprise a number of small rocks and two small vegetated islands. Positioned well within Port Davey they are partially sheltered from ocean swells. The larger of the two islands is ringed by cliffs and steep rock slopes with rookery apparent over much of the vegetated area. Rocks slope gently into the sea on the southern side of the smaller island which has a small rookery in the vegetation. It is likely the islands are very seldom visited and they retain a high level of natural integrity.

Large swell dictated that only the northeast island was visited during these surveys. Several small colonies of fairy prion were found within *Carpobrotus rossii* herbland on the eastern and southern slopes. Two wing-sets from common diving petrels were also found, along with a number of burrows in the deeper soil on the eastern slopes.

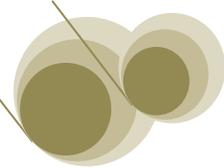
The Shanks Islands are cloaked in *Carpobrotus rossii*-dominated Rookery halophytic herbland (SRH). The largest island has a small area of ephemeral *Senecio pinnatifolius*-dominated vegetation and coastal scrub on shallower soils. The vegetation on these islands equates with the threatened vegetation type Seabird rookery complex (SRC) that is listed under the *Nature Conservation Act 2002* as a rare community.

Logistical considerations:

Access to the main island is best achieved on the more gently sloping rocks on the eastern shore. Access to the northeast island is more straightforward, as it is sheltered somewhat from the southwest swell by the main island and a rock shelf on the eastern side provides a good landing. No freshwater is available on the islands.



Surveying fairy prion colony, northeast Shanks Island



Lourah Island

Location: Mouth of Hannant Inlet, Port Davey, Tasmania (Lat. -43 21, Long. 145 59)

Tenure: Southwest National Park and Tasmanian Wilderness World Heritage Area

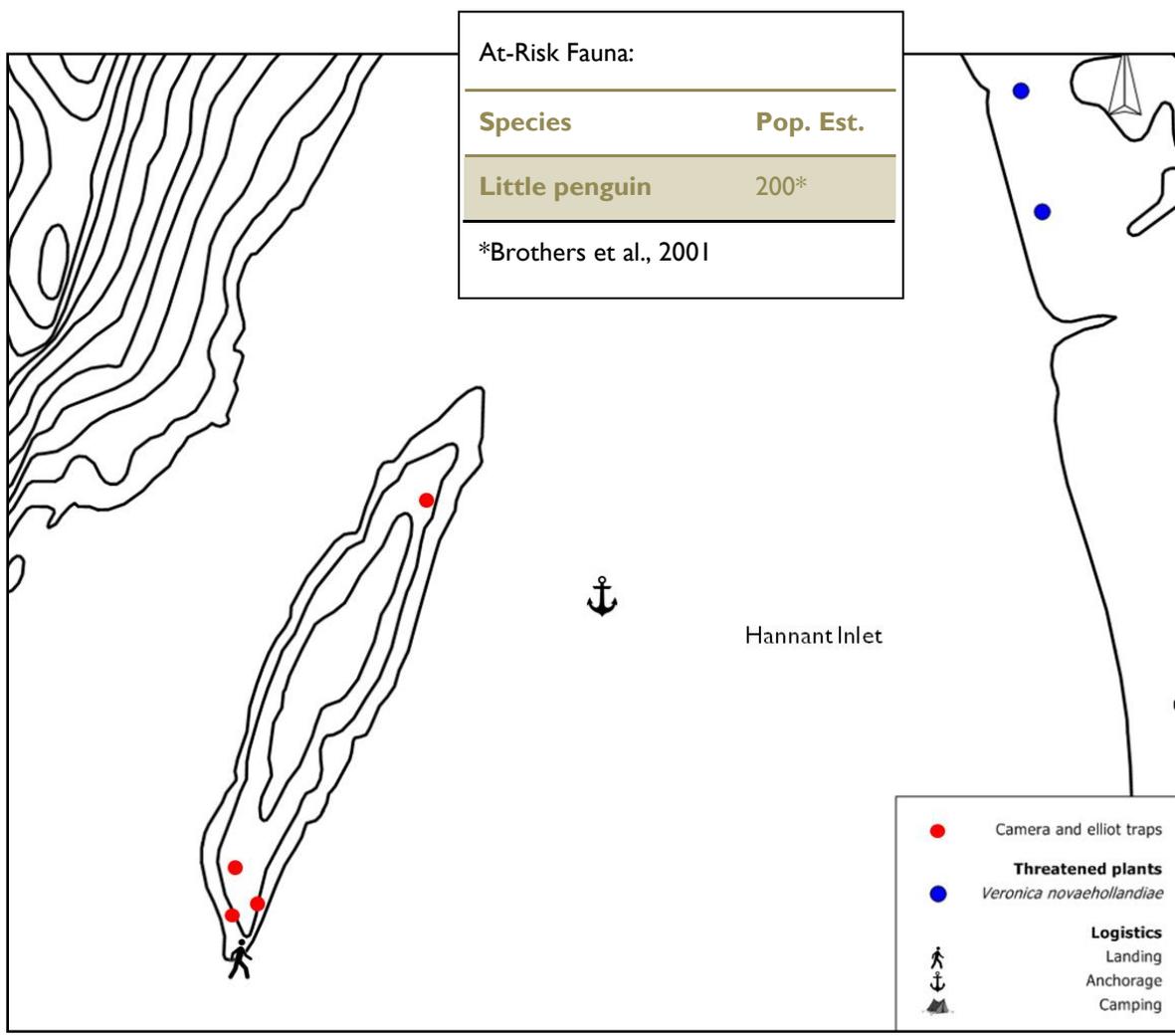
Area: 4.86 ha

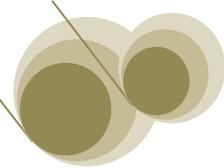
Coast: 1.2 km

Elevation: 20-30 m



Lourah Island, south western approach





Description:

Lying in a sheltered position within Hannant Inlet, Lourah Island is only a few hundred metres offshore giving it an environmental character that is closer to that of the mainland than the ocean-exposed islands in Port Davey. It is strongly elongated with a moderately sloping rocky shoreline on the western side and steeper forested slopes on the east. Although it is one of the most accessible islands in the area, it is unlikely to receive much visitation.

Brothers et al. (2001) recorded a colony of 200-300 little penguins on this island, however no evidence of penguins was found during this survey. No other evidence of nesting seabirds was found.

Lourah Island has comparatively diverse vegetation relative to other Island within Port Davey and offshore. It is strongly influenced by its location and lower intensity of rookery activity permitting greater scrub development. The shallow soils on the island are covered in coastal scrub (SSC) with interspersed elements of moorland vegetation on the shallowest soils. Common shrub species include *Olearia phlogopappa*, *Bauera rubioides*, *Epacris heteronema*, *Epacris impressa*, *Leptecophylla abietina*, *Leptecophylla juniperina*, *Sprengelia propinqua*, *Westringia brevifolia*, *Leptospermum glaucescens*, *Leptospermum scoparium*, *Leptospermum nitidum*, *Correa backhouseana*. A narrow band of *Eucalyptus nitida* forest over *Leptospermum* (WNL) is present along the top of the island which includes the additional species *Drymophila cyanocarpa*, *Blandfordia punicea*, *Olearia persoonioides*, *Microsorium pustulatum* and *Pteridium esculentum*. *Gymnoschoenus sphaerocephalus* is present at the northern end of the island (Brothers et al. 2001).

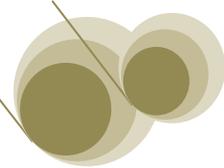
Logistical considerations:

Access to this island is best achieved via the sloping rocks on the southern tip of the island; from here there is a clear path to the central ridge. Landing is possible at most locations around the eastern shoreline, however thick forest makes gaining access to the rest of the island more difficult.

No freshwater sources are available on the island.



Lourah Island, east coast



Breaksea Islands

Location: Port Davey, Tasmania (Lat. -43 20, Long. 145 58)

Tenure: Southwest National Park and Tasmanian Wilderness World Heritage Area

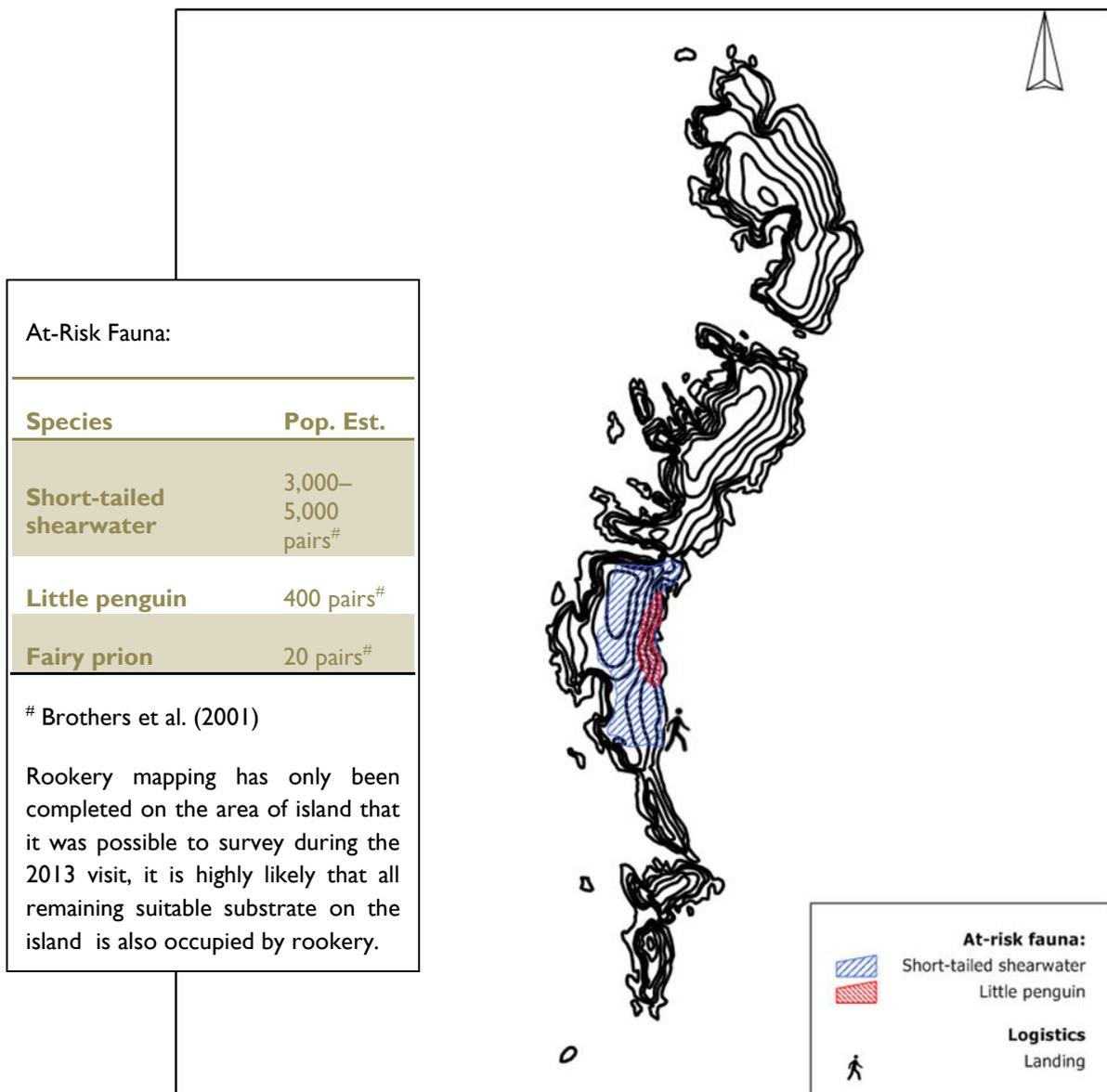
Area: 16.25 ha

Coast: 9.0 km

Elevation: 60-70 m



Breaksea Islands from the northeast





Description:

Breaksea Islands are positioned across the mouth of Bathurst Channel where they play an important role in deflecting oceanic swell, calming the waters in the channel and increasing the capacity to undertake response actions on waters east of this point. Recreational landings occur occasionally depending on sea condition.

Due to time and access constraints, only the main southern island was able to be surveyed. Transects through shearwater rookery on the eastern side were conducted but these were abandoned due to an unacceptable risk of burrow collapse. Preliminary results indicated burrows were in high density (approx. 0.85 burrows per m²), with a chick occupancy level of 27%. Brothers *et al.* (2001) estimated 3-5000 short-tailed shearwaters nested on the islands – the density and extent of burrows observed during this survey suggests that this number is likely to be an order of magnitude greater.

Very limited evidence of penguins was found, with just a few burrows indicating the recent presence of a moulting bird and one carcass found on the eastern slopes. The northern coast of the north island looked more favourable for penguins, however it could not be accessed due to the large swell conditions.

The vegetation of the Breaksea Islands was not surveyed for this report. TASVEG 2.0 vegetation map records Coastal grassland (GHC), Coastal scrub (SSC), Coastal rainforest (RCO) and Seabird rookery complex (SRC). Both Coastal scrub (SSC) and *Poa poiformis* dominated Coastal grassland (GHC) were observed to provide rookery habitat on the island. Seabird rookery complex (SRC) is listed as rare under the *Nature Conservation Act 2002*.

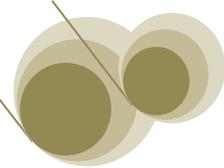
Logistical considerations:

Access by boat is typically only possible on the sheltered eastern shore. The entire coast consists of sharp jagged rock, and there are just a few places where landing is safely achieved. Access to the central ridge would be possible via helicopter under calm weather conditions.

Traversing this island is exceptionally difficult due to the high density of burrows and soft substrate. Any movement on foot away from the coastal rocks and pigface herbfields incurs a high risk of an unacceptable level of burrow collapse and is strongly discouraged. No natural freshwater sources are available.



Looking south from the central ridge, Breaksea Islands



Kathleen Island

Location: Port Davey Tasmania (Lat. -43 31, Long. 145 59)

Tenure: Southwest National Park and Tasmanian Wilderness

World Heritage Area

Area: 11.35 ha

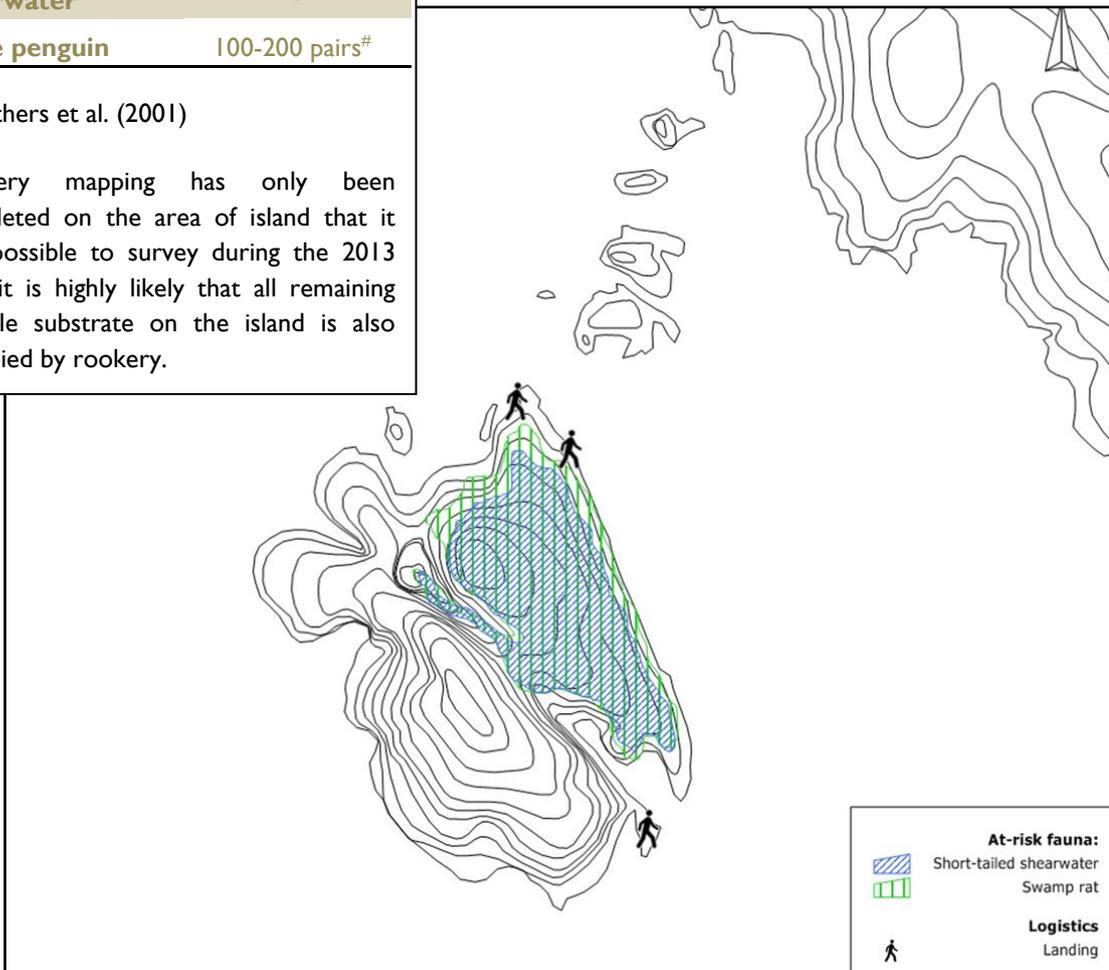
Coast: 2.3 km

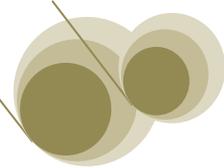
Elevation: 100-110m



Kathleen Island from the southeast

At-Risk Fauna:	
Species	Pop. Est.
Short-tailed shearwater	67,000 pairs [#]
Little penguin	100-200 pairs [#]
[#] Brothers et al. (2001)	
Rookery mapping has only been completed on the area of island that it was possible to survey during the 2013 visit; it is highly likely that all remaining suitable substrate on the island is also occupied by rookery.	





Description:

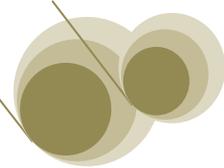
Kathleen Island is largely covered in *Leptospermum glaucescens* heathland and scrub (SLG) with an occasional dead eucalypt emergent. This community may be almost devoid of understory where rookeries are particularly active. A deep cleft between the two peaks harbours more mesic vegetation such as *Dicksonia antarctica*, *Phebalium squamea*, and *Pittosporum bicolor*. The top of the western end of the island is covered in the forest community *Eucalyptus nitida* forest over *Leptospermum* (WNL). Very small patches of *Poa poiformis* - *Senecio pinnatifolius* grassland are present along the edge of the coastal cliffs.

Access Details:

Kathleen Island is most easily accessed from the northern tip where the western or eastern side of the rocky point depending on swell provides a point for leaping ashore. From this point the top of the island is most easily accessed.



Mavourneen Rocks from Kathleen Island



Trumpeter Islets

Location: 2.7 nm north of North Head Port Davey, Tasmania
(Lat. -43 17, Long. 145 48)

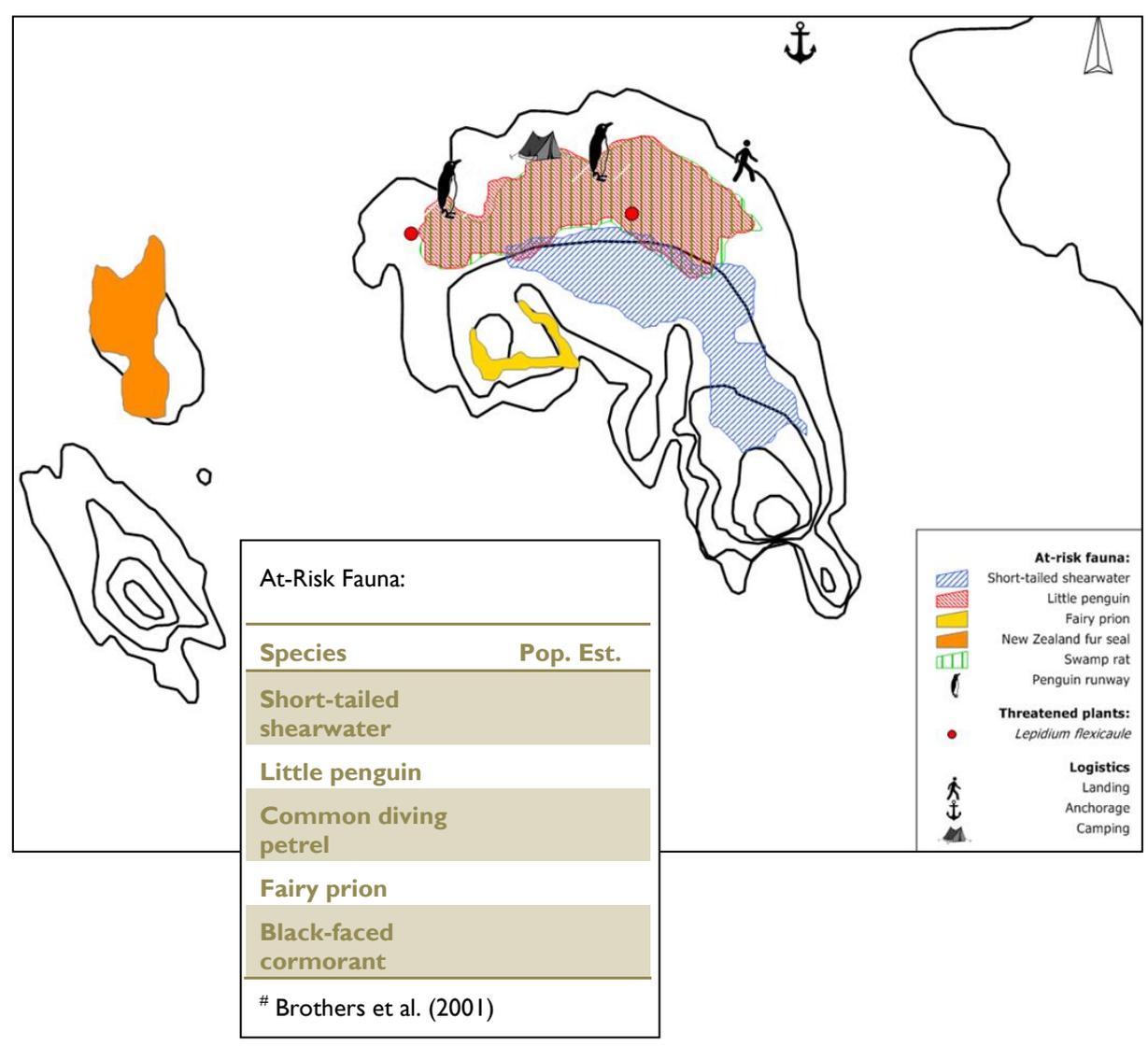
Tenure: Southwest National Park and Tasmanian
Wilderness World Heritage Area

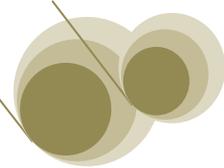
Area: main islet 0.75 ha, smaller western islet 0.29 ha

Coast: 1.8 km (total for all islets)

Elevation: 40-50 m

Trumpeter Islets
from the north-west





Description:

Trumpeter Island is separated from mainland Tasmania by a narrow channel and rocks and reefs are present near its shores. Northern and eastern shorelines rise gently from the sea giving way to a gently rising sandy slopes covered in burrows. Sea cliffs and a steep sided knoll lie exposed to the southwest swells and weather in the south west corner of the island. Visits to Trumpeter Island are likely to be rare and it retains its natural integrity.

The northern low elevation area of Trumpeter Island is covered in Rookery Halophytic Herbland (SRH) which is dominated by *Carpobrotus rossii*. Coastal grassland (GHC) dominated by *Poa poiformis* covers the central south of the island and a small area of coastal scrub (SSC) is present on steep southerly slopes. The western islet is low lying with Spray zone coastal complex (SSZ) observed to extend across the islet.

The vegetation on Trumpeter Island is of State conservation significance. The Rookery Halophytic Herbland (SRH) and Coastal grassland (GHC) described here equate with the rare Sea bird rookery complex (SRC) listed under the Nature Conservation Act 2002. The rare plant species *Lepidium flexicaule* (springy peppercress) which is listed under the *Threatened Species Protection Act 1996* is present in low numbers.

Access Details:

There is a low reef to the north of Trumpeter Island – navigating between the reef and the island must be done carefully. Landing was made on the northern coastline and a number of landing opportunities are available depending on sea state.

The shoreline along the northwest, north and east of the island can be readily traversed.



Looking south east from western end of Trumpeter Island

Hobbs Island

Location: Wreck Bay, 8 nm north of Port Davey, Tasmania (Lat. -43 13, Long. 145 47)

Tenure: Southwest National Park and Tasmanian Wilderness World Heritage Area

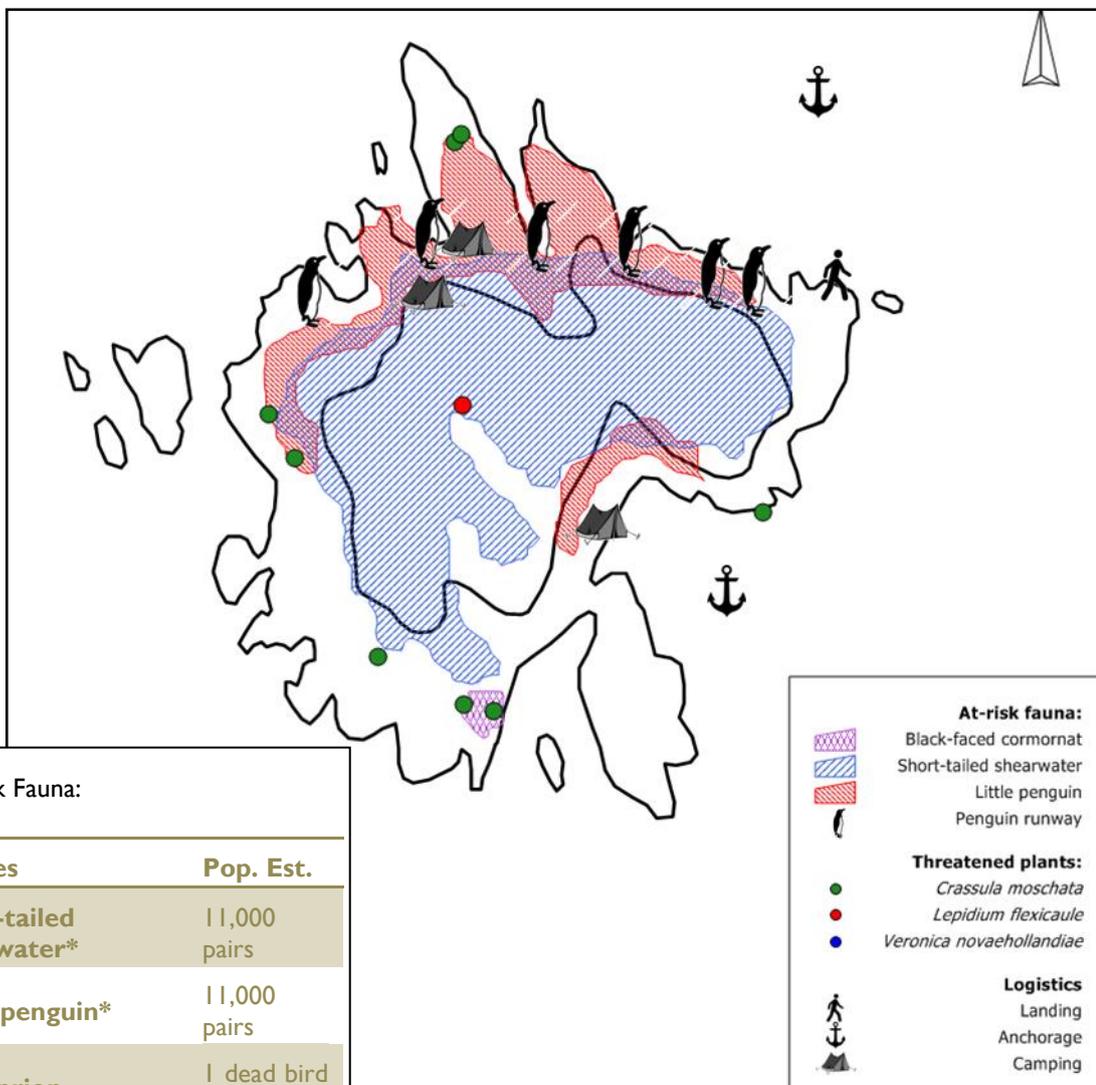
Area: 9.73 ha

Coast: 3.0 km

Elevation: 10-20 m



Northern coastline, Hobbs Island.



At-Risk Fauna:

Species	Pop. Est.
Short-tailed shearwater*	11,000 pairs
Little penguin*	11,000 pairs
Fairy prion	1 dead bird observed
Black-faced cormorant	Nesting habitat

* Brothers et al. (2001)

Description:

Hobbs Island, or Green Island as it is sometime referred to, lies approximately 11 km north of Port Davey offshore from Towterer Beach. It has a low gently undulating profile that rises relatively gently from the ocean on all shorelines to attain only 20m or so in elevation at its highest point. A shallow cove with a cobble beach is present on the southeast facing shore. The island is predominately covered by deep sands fully occupied by seabird rookeries. Trumpeter Island retains a very high degree of natural integrity.

Coastal grassland (GHC) dominated by *Poa poiformis* covers much of the east of the island. Central areas on poorly drained grounds are characterised by coastal scrub vegetation (SSC) that includes *Carex appressa* in the gullies. The scrub intergrades with Rookery Halophytic Herbland (SRH) dominated by *Carpobrotus rossii* and *Senecio pinnatifolius* but may include dense patches of *Asplenium obtusatum* subsp. *northlandicum*. Scrub species present included *Leptecophylla abietina*, *Correa backhouseana* and *Tasmania lanceolata*.

Hobbs Island is significant for the presence of the rare plant *Crassula moschata* which is extremely limited in distribution in Australian territory outside of the subantarctic. The Hobbs Island population appears to be a permanent population in that it is distributed broadly around the surveyed coastal fringe of the island, though the total plant area may be less than 10 m². The majority of the population favoured the spray zone coastal complex vegetation narrowly fringing the island on rocky ground. Associated species include *Samolus repens*, *Apium prostratum*, *Plantago triantha* and *Sarcocornia quinqueflora*. However, a notable exception occurred on a headland on the southwest of the island in a bare sandy gap within a seabird rookery otherwise vegetated by *Poa poiformis*. Additionally, Hobbs Island is of vegetation significance for the presence of the rare threatened species *Lepidium flexicaule* listed under the TSPA 1996 and the rare TASVEG community Seabird Rookery Complex (SRC) listed under the *Nature Conservation Act 2002*.

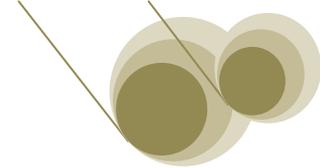
Access Details:

There is a reef to the southwest – the waters between the reef and the island are shallow and best avoided. Landing was made from deeper water against the rocks to the east of the cobble cove. However sea conditions will dictate where landing may best be made and a number of sites around the coast may be possible.

The island is densely covered in burrows, however the coast can be traversed with minimal risk of burrow damage. The south-facing rocky beach on the east of the island has significant amount of kelp – clean-up would be challenging.



Southern cove, Hobbs Island.



General Discussion

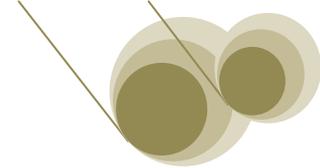
The information contained in this report is designed to assist with planning for and implementing a response to an oil spill impacting on wildlife in the Port Davey area. An effective and efficient response to an oil spill affecting wildlife in the area would include:

- Strategic response from the Tasmanian DPIPWE and EPA
- Consideration of using Bramble Cove as a staging area
- A vessel-based response
- Use of the airstrip at Melaleuca for resupply
- Consideration of using Phillip Island (Victoria) for wildlife rehabilitation

These surveys confirm that undertaking an effective response to oiled wildlife in the event of an oil spill in the Port Davey region would be challenging. Landing on the steep rocky coastline of most islands requires calm weather conditions, and most islands are unsuitable for camping which limits opportunities for trapping oiled wildlife. The scenario of an oil spill affecting vulnerable fauna and washing ashore to impact other natural features is compounded by the isolation of the area and strong local tidal currents and exposure to large oceanic swell. Nevertheless, the high-energy environment may help limit the impact of a spill as oil may be dispersed more quickly. Containment or exclusion of oil is likely to prove impossible in Port Davey itself, with boom-type operations only likely to succeed in more sheltered areas such as Hannant Inlet.

An AMSA Wildlife Oil Spill Response kit is stored at the DPIPWE Taroona wildlife facility. These kits are a valuable resource for rapidly responding to oil spill incidents, although unfortunately they are generally designed to be slung under a helicopter for transportation. If these bulky containers were repackaged (*i.e.* divided in two) they could fit in a light aircraft, providing an alternative option for transport. This option would allow for simultaneous transport of both gear and personnel, something not possible whilst sling loading.

The information presented here is accurate in the short term: in compiling this report the Biodiversity Conservation Branch considers the current distribution and abundance of wildlife in the Port Davey area should accurately reflect wildlife populations up to 20 years hence. In the longer-term, the current distribution and abundance of seabirds is likely to alter in response to climate change. In addition, predictions of oil drift may change as ocean currents vary with warming waters. Caution must be applied to the recommendations in this report in response to these predicted changes.



Acknowledgements

The authors wish to thank the following people for their assistance with this project: Mike Rushton (Tasmanian Environmental Protection Authority) obtained funding for surveys and helped with OSRA data collation; Rob Round and crew (Tasmanian Police) provided boat charter services; Michael Driessen (BCB) assisted with identification of rodents caught on camera-traps; and the Oil Spill Response Atlas (AMSA) provided operational funding for survey work; Paul Fazackerley updated the TASVEG 2.0 mapping for the islands and Lorraine Perrins and James Wood processed plants and seed for seed orchards and seed-banking. Last but not least “Huey” for providing the rare calm sea conditions that made these island visits possible.

References

Baker, M.L. and de Salas, M.F. (2012) *A Census of the Vascular Plants of Tasmania* and index to the *Student's Flora of Tasmania* and the *Flora of Tasmania* online. Tasmanian Herbarium, Hobart.

Brothers, N., Pemberton, D., Pryor, H. and Halley, V. (2001) *Tasmania's Offshore Islands: Seabirds and Other Natural Features*. Tasmanian Museum and Art Gallery, Hobart.

Edgar, G., Last, P., Barrett, N., Gowlett-Holmes, K., Driessen, M. and Mooney, P. (2007) *Marine and estuarine ecosystems in the Port Davey-Bathurst Harbour region: biodiversity, threats and Management options*. A report by Aquenal Pty Ltd to the Department of Primary Industries and Water, Tasmania.

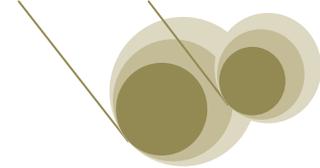
Edgar, G., Last, P., Barrett, N., Gowlett-Holmes, K., Driessen, M. and Mooney, P. (2010) Conservation of natural wilderness values in the Port Davey marine and estuarine protected area, south-western Tasmania. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 20: 297-311.

Harris S. and Kitchener A. (in prep) *From Forest to Fjaeldmark Edition 2: Descriptions of Tasmania's Vegetation*. Department of Primary Industries, Parks, Water and Environment, Hobart.

Appendix I: List of fauna species observed in the area (visited islands and Bramble Cove), compiled from April 2013 survey activities and the NVA. The conservation status is included if listed under Tasmanian (TSP Act 1995) or Commonwealth (EPBC Act 1999) Threatened Species legislation. MI=Muttonbird Island; SI=Shanks Islands; LI=Lourah Island; BI=Breaksea Islands; KI=Kathleen Island; TI=Trumpeter Islets; HI=Hobbs Island; WI=Wendar Island; BC=Bramble Cove; AS=at sea.

BIRDS:

SPECIES	LOCATION	TSP	EPBC
short-tailed shearwater <i>Puffinus tenuirostris</i>	MI, BI, KI, TI, HI, AS		Migratory
little penguin <i>Eudyptula minor</i>	MI, BI, KI, TI, HI		
common diving petrel <i>Pelecanoides urinatrix</i>	SI, MI, AS		
Fairy prion <i>Pachyptila turtur</i>	SI, MI		
Black-faced cormorant <i>Phalacrocorax fuscescens</i>	HI, MI, AS		
Australasian gannet <i>Morus serrator</i>	AS		
Sooty oystercatcher <i>Haematopus fuliginosus</i>	HI, TI, BI		
Fairy tern <i>Sternula nereis nereis</i>	AS	Vulnerable	Vul. Migratory
Caspian tern <i>Sterna caspia</i>	AS		
Shy albatross <i>Thalassarche cauta</i>	AS	Vulnerable	Vulnerable
Buller's albatross <i>Thalassarche bulleri</i>	AS		Vulnerable
Giant petrel <i>Macronectes sp.</i>	AS	Vul. (Sthn) Rare (Nthn)	End. (S) Vul. (N)
Pacific gull <i>Larus pacificus</i>	BI, HI, TI, AS		
Kelp gull <i>Larus dominicanus</i>	BI, AS		
Silver gull <i>Larus novaehollandiae</i>	HI, TI, BI, AS		
White-bellied sea eagle <i>Haliaeetus leucogaster</i>	MI, SI, LI, BI, KI, TI	Vulnerable	
Peregrine falcon <i>Falco peregrinus</i>	KI		
White-faced heron <i>Egretta novaehollandiae</i>	HI, TI, MI		
Forest raven <i>Corvus tasmanicus</i>	BI, KI, BC		
New Holland honeyeater <i>Phylidonyris novaehollandiae</i>	KI		
Pink robin <i>Petroica rodinogaster</i>	KI		
Yellow-throated honeyeater <i>Lichenostomus flavicollis</i>	KI		
Striated fieldwren <i>Calamanthus fuliginosus</i>	HI, TI		
Tasmanian scrubwren <i>Sericornis humilis</i>	KI		
Green rosella <i>Platycercus caledonicus</i>	LI, BC		



MAMMALS:

SPECIES	LOCATION	TSP	EPBC
Long-tailed mouse <i>Pseudomys higginsi</i>	BC		
Swamp rat <i>Rattus lutreolus</i>	KI, TI		
Tasmanian pademelon <i>Thylogale billardierii</i>	LI [#]		
European rabbit <i>Oryctolagus cuniculus</i>	BI		
Australian fur seal <i>Arctocephalus pusillus doriferus</i>	WI		
New Zealand fur seal <i>Arctocephalus forsteri</i>	WI, TI	Rare	
Subantarctic fur seal <i>Arctocephalus tropicalis</i> *	WI	Endangered	Vulnerable
Southern elephant seal <i>Mirounga leonina</i> *	TI	Endangered	Vulnerable
Bottlenose dolphin <i>Tursiops truncatus</i>	AS		
Common dolphin <i>Delphinus delphis</i>	AS		

* Vagrant only; species not observed in this survey, i.e. from prior DPIPWE Natural Values Atlas record. [#]Scat only.

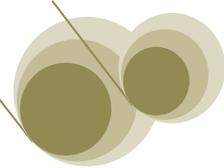
REPTILES:

SPECIES	LOCATION	TSPA	EPBC
Tasmanian tree skink <i>Niveoscincus pretiosus</i>	HI, TI (likely MI)		

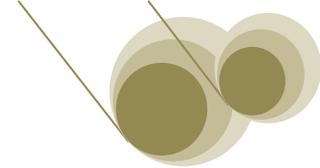
Appendix 2: Terrestrial flora compiled from this survey and NVA records. HI=Hobbs Island, KI=Kathleen Island, LI=Lourah Island, MI=Muttonbird Island, TI=Trumpeter Island, SI=Shanks Islands *species not observed in this survey, i.e. from prior DPIPWE Natural Values Atlas record

Notes: The 2013 survey was limited on all islands visited, a vegetation survey was not undertaken on Breaksea Island.

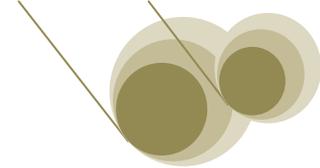
FAMILY	SPECIES	LOCATION	TAS. CONSERVATION STATUS
DICOTYLEDONS			
AIZOACEAE	<i>Carpobrotus rossii</i>	HI, KI, LI, MI, SI, TI	
	<i>Tetragonia tetragonoides</i>	MI	
APIACEAE	<i>Apium prostratum</i>	HI, MI, SI, TI	
	<i>Hydrocotyle hirta</i> *	HI	
	<i>Hydrocotyle sibthorpioides</i>	KI, MI, TI	
	<i>Lilaeopsis polyantha</i>	HI	
ASTERACEAE	<i>Euchiton litticola</i>	KI, LI, MI, TI	
	<i>Olearia persoonioides</i>	KI, LI	
	<i>Olearia phlogopappa</i>	LI, KI, MI	
	<i>Ozothamnus turbinatus</i>	MI, SI	
	<i>Senecio sp.</i>	TI	
	<i>Senecio minimus</i>	KI	
	<i>Senecio pinnatifolius</i>	HI, KI, MI, TI	
BRASSICACEAE	<i>Lepidium flexicaule</i>	HI, MI, TI	Rare
	<i>Lepidium foliosum</i>	HI, MI, TI	
CHENOPODIACEAE	<i>Chenopodium glaucum</i>	HI, TI	
	<i>Rhagodia candolleana</i>	MI	
	<i>Sarcocornia quinqueflora</i>	HI, LI, MI, SI, TI	
COMPANULACEAE	<i>Lobelia anceps</i>	KI, LI, TI	
CRASSULACEAE	<i>Crassula moschata</i>	HI	Rare
	<i>Crassula sieberiana</i>	TI	
CUNONIACEAE	<i>Bauera rubioides</i>	LI	



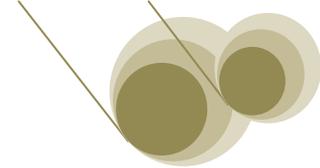
DROSERACEAE	<i>Drosera pygmaea</i>	LI
EPACRIDACEAE	<i>Epacris heteronema</i>	LI
	<i>Epacris impressa</i>	KI, LI
	<i>Leptecophylla abietina</i>	HI, KI, LI, MI, SI, TI
	<i>Leptecophylla juniperina</i>	KI, LI
	<i>Leucopogon collinus</i>	KI, TI
	<i>Leucopogon parviflorus*</i>	HI
	<i>Monotoca elliptica</i>	MI
	<i>Monotoca glauca</i>	KI
	<i>Sprengelia propinqua</i>	KI, LI
FABACEAE	<i>Amperea xiphioclada</i>	KI
	<i>Dillwynia glaberrima</i>	KI, LI
	<i>Pultenaea dentata</i>	LI
LAMIACEAE	<i>Westringia brevifolia</i>	KI, LI, MI, SI
LAURACEAE	<i>Cassytha pubescens</i>	LI
MIMOSACEAE	<i>Acacia verticillata subsp. ovoidea</i>	LI, KI
MYRTACEAE	<i>Eucalyptus nitida</i>	KI, LI
	<i>Leptospermum glaucescens</i>	KI, LI
	<i>Leptospermum nitidum</i>	LI
	<i>Leptospermum scoparium</i>	KI, LI, MI, TI
	<i>Melaleuca squamea</i>	LI
PITTIOSPORACEAE	<i>Billardiera nesophila</i>	LI
	<i>Pittosporum bicolor</i>	KI
PLANTAGINACEAE	<i>Plantago triantha</i>	HI, KI, LI, MI, SI, TI
PRIMULACEAE	<i>Samolus repens</i>	HI, LI, MI, SI, TI
PROTEACEAE	<i>Banksia marginata</i>	KI
	<i>Cenarrhenes nitida</i>	LI
RANUNCULACEAE	<i>Clematis aristata</i>	KI
RUBIACEAE	<i>Opercularia varia</i>	LI



RUTACEAE	<i>Correa backhouseana</i>	HI, KI, LI, MI, SI, TI
	<i>Nematolepis squamea</i>	KI
SANTALACEAE	<i>Exocarpos syrticola</i>	LI, TI
STYLIDIACEAE	<i>Stylidium armeria</i> subsp. <i>armeria</i>	KI, LI, MI
URTICACEAE	<i>Australina pusilla</i> subsp. <i>pusilla</i>	KI
	<i>Utica incisa</i>	MI
WINTERACEAE	<i>Tasmania lanceolata</i>	HI, KI, MI
MONOCOTYLEDONS		
CYPERACEAE	<i>Baumea juncea</i>	LI
	<i>Carex appressa</i>	HI
	<i>Ficinia nodosa</i>	HI, KI, LI, MI, SI, TI
	<i>Gahnia grandis</i>	LI
	<i>Isolepis cernua</i>	HI
	<i>Schoenus nitens</i>	LI, MI
	<i>Uncinia riparia</i>	KI
JUNCAGINACEAE	<i>Triglochin striata</i>	HI
LILACEAE	<i>Blandfordia punicea</i>	KI, LI
	<i>Dianella brevicaulis</i> *	HI
	<i>Dryophila cyanocarpa</i>	LI
ORCHIDACEAE	<i>Thelymitra</i> sp.	KI
POACEAE	<i>Austrostipa stipoides</i>	HI, KI, LI, MI, SI, TI
	<i>Poa poiiformis</i> var. <i>poiiformis</i>	HI, KI, LI, MI, SI, TI
RESTIONACEAE	<i>Eurychorda complanata</i>	LI
PTERIDOPHYTA		
ASPLENIACEAE	<i>Asplenium obtusatum</i> subsp. <i>northlandicum</i>	HI, KI, LI, MI, TI
BLECHNACEAE	<i>Blechnum wattsii</i>	LI
DENNSTAEDTIACEAE	<i>Histiopteris incisa</i>	KI, MI
DENNSTAEDTIACEAE	<i>Pteridium esculentum</i>	LI, MI



DICKSONIACEAE	<i>Dicksonia antarctica</i>	KI
DRYOPTERIDACEAE	<i>Polystichum proliferum</i>	KI
GLEICHENIACEAE	<i>Gleichenia dicarpa</i>	LI
POLYPODIACEAE	<i>Microsorium pustulatum</i>	KI, LI
SCHIZAEACEAE	<i>Schizaea fistulosa</i>	LI



Appendix 2: Tasmanian Parks and Wildlife Service (PWS) Island Biosecurity Guidelines (2012)

The following guidelines have been drafted for PWS and other stakeholders to use for improving biosecurity on islands under PWS management, excluding subantarctic islands.

They are intended to provide a generic approach suitable for all visitors to islands to use. In some circumstances additional specification of biosecurity actions will be required relevant to particular activities or visits to restricted access islands. The guidelines do not replace risk assessments for biosecurity hazards when undertaking island management.

12 steps to preventing pests, weeds and diseases spreading to Tasmania's Islands.

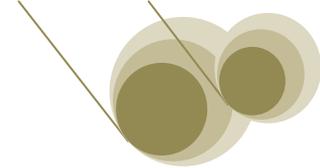
1. For seldom visited and remote islands, if you don't have to land, enjoy it from the water.
2. Ensure all crew and passengers are briefed and are aware of biosecurity requirements and Leave No Trace principles. Sea Kayakers should refer to the Minimal Impact Sea Kayaking Guidelines.
3. Ensure your boat is clean and that all semi-enclosed spaces are sprayed with a residual insecticide. Carry insect spray for control of invertebrates on boats. On larger boats maintain rodent traps or bait (wax based baits are good for wet areas).
4. Check, Clean and Dry all your clothing and equipment before all island visits and when moving directly between islands. Carry a brush and water to facilitate this (see cleaning guidelines below).
5. Where ever possible use packaging and equipment that is free of crevices and hollow sections in which vermin can hide (e.g. wood and cardboard boxes). Simple plastic crates or barrels with well sealed lids are best. Avoid polystyrene packaging as it breaks apart easily and poses an ingestion hazard for seabirds.
6. All fresh vegetables taken to an island must be unpacked from the original packaging, inspected, and resealed ready for the journey (breathable plastic bags are a good option for repackaging fresh vegetables).
7. Ensure that when awaiting transport all packed equipment / food etc is stored in a way that prevents animals accessing it.
8. Carry only bottled, town, or rainwater as natural water from Tasmanian rivers may carry a range of introduced organisms including *Chytrid* fungus.
9. Keep containers sealed. Only open containers for as long as access is needed and seal thereafter to prevent stow-aways. This includes bags, food containers, boat hatches and sea kayak compartments.
10. Store all fishing equipment in pest proof containers.
11. Don't run lines ashore if you can anchor securely offshore.
12. Do not take domestic animals to uninhabited islands

How to Check, Clean and Dry before you depart land

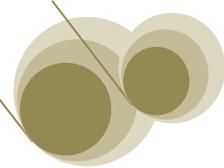
Check, Clean and Dry all footwear, clothing, bags and equipment before leaving home to avoid transporting pests, weed seeds and pathogens. All items including clothing that are used in water bodies or waterways are to be checked, cleaned and dry for 48 hours before departing on a trip as they may harbour microscopic water borne organisms e.g. pest algae, *Chytrid* fungus and *Phytophthora*.

Pay careful attention to:

- Any velcro™ on items as this is prone to carriage of seeds, If possibly avoid taking items with velcro™ attached.
- Pockets in garments, inside tents, shoes, packaging and bags including behind backpack padding and webbing as these frequently are contaminated with seeds or invertebrates, Clothing pockets and bags can be effectively cleaned by vacuuming.



- Your watercraft, or any other containers carried on board for spiders, insects, lizards, mice and other 'freeloaders'. Check all semi enclosed spaces, crevices, hollow sections and places likely to harbour pests.
- Removal of soil from any items in contact with the ground such as tripods, ground sheets, tent poles and pegs,
- Cleaning footwear around the laces and the soles. If you are island hopping please wash your footwear soles free of soil or sand in seawater before stepping onto land as this provides some level of protection against the spread of the plant disease *Phytophthora*. Coastal heath is particularly vulnerable to this disease.



Appendix 4: Records for other significant Port Davey Area Islands. Fauna and vegetation records sourced Brothers et al. (2001) and observations by authors.

West Pyramid Island

Fauna (Brothers et al. 2001): 1,000-2,000 fairy prion nests, <3,000 pairs short-tailed shearwaters. Small numbers of pacific gull, silver gull and sooty oystercatcher.

Vegetation: Spray zone coastal complex (SSZ).



West Pyramid East side

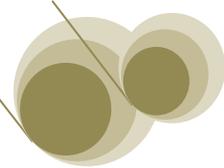
Big Caroline Rock

Fauna (Brothers et al. 2001): 1,000 – 2,000 pairs of fairy prion, 15,000 pairs short-tailed shearwaters.

Vegetation: Rookery halophytic herbland (SRH), (rare, NCA 2002), Coastal scrub (SSC).



Big Caroline Rock, East side.



Mavourneen Rocks

Fauna (Brothers et al. 2001): 20 little penguins.

Vegetation: Coastal scrub (SSC)

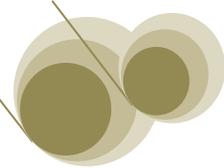


Mavourneen Rocks, from Kathleen Island

Hay Island

Fauna (Brothers et al. 2001): 1,000 – 2,000 fairy prion, 7,500 pairs of short-tailed shearwaters.

Vegetation: Rookery halophytic herbland (SRH), (rare, NCA 2002), Coastal scrub (SSC).



Sugarloaf Rock

Fauna (Brothers et al. 2001): 2,000 fairy prion burrows, 15,000 pairs of short-tailed shearwaters. A small number of seals may use a rocky islet to the north as a haulout.

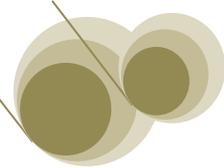
Vegetation: Rookery halophytic herbland (SRH) (rare, NCA 2002), Coastal scrub (SSC)



Sugarloaf Rock, East side



Sugarloaf Rock, North side



Wendar Island

Fauna: Brothers et al. (2001) reported 1,000 pairs of fairy prions on the main island and 500 on adjacent islets, 3,000-4,000 pairs of short-tailed shearwaters and 500 pairs of little penguins mostly located on the east coast, these populations are likely to have been displaced by the increasing use of Wendar Island as a haulout site by Australian and New Zealand fur seals. Significant erosion and destruction of tussock habitat from continued use by fur seals is clearly evident.

Vegetation: Rookery halophytic herbland (SRH)(rare, NCA 2002), Coastal grassland (GHC), Sand, mud (OSM) area denuded of vegetation by seal activity. In 2001, Wendar Island was photographed (Brothers et al. 2001) in a fully vegetated state with Rookery halophytic herbland (SRH), (rare, NCA 2002) and Coastal scrub (SSC) covering much of the now denuded area.



Wendar Island East side

South West Muttonbird Islet

Fauna (Brothers et al. 2001): 200 pairs fairy prions, <1,000 pairs short-tailed shearwaters, apparently no little penguins.

Vegetation: Rookery halophytic herbland (SRH), (rare, NCA 2002)



South West Muttonbird Islet, East side



Tasmania
Explore the possibilities

**Department of Primary Industries,
Parks, Water and Environment**

Biodiversity Conservation Branch
Resource Management and Conservation

GPO Box 44, Hobart 7001
Ph: 1300 368 550
Email: wildlife.enq@dpiwpe.tas.gov.au
Visit: www.dpiwpe.tas.gov.au