

Melaleuca-Port Davey

Area Plan

2003



PARKS *and* WILDLIFE
SERVICE TASMANIA

DEPARTMENT
of TOURISM,
PARKS, HERITAGE
and the ARTS

Melaleuca – Port Davey Area Plan 2003

This plan contains specific management provisions in relation to the Melaleuca – Port Davey area.

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APPROVAL

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Contents

	Page
1. Introduction	1
1.1 An Overview of the Area	1
1.1.1 Location and Regional Context	1
1.1.2 Importance of the Area	1
1.2 Land Tenure and Status	1
1.2.1 Southwest National Park	1
1.2.2 Southwest Conservation Area	2
1.3 Leases and Licences	2
1.3.1 Mining	2
1.3.2 Residential	2
1.3.3 Commercial Tourism	2
1.4 Relationship to the World Heritage Area Management Plan	3
1.5 History of Planning for the Area	3
1.6 Implementation and Review	3
1.7 Statutory Powers and Management Responsibilities	4
1.7.1 Department of Tourism, Parks, Heritage and the Arts	4
1.7.2 Department of Primary Industries, Water and Environment	4
1.7.3 Mineral Resources Tasmania (MRT)	4
1.7.4 Marine and Safety Authority of Tasmania (MAST) and Australian Maritime Safety Authority (AMSA)	5
1.7.5 Department of Premier and Cabinet (DPAC)	5
2. Vision and Objectives for the Area	6
2.1 Vision	6
2.2 Objectives	6
2.3 Key Desired Outcomes	6
2.4 Management Zones	8
2.5 Priority Policies and Actions for Implementation	10
3 Identification, Conservation, Protection and Rehabilitation	11
3.1 Climate	11
3.2 Geodiversity and Geoconservation	12
3.3 Landscape Management and Wilderness	14
3.3.1 Landscape Management	14
3.3.2 Wilderness	14
3.4 Port Davey – Bathurst Harbour Marine Ecosystems	15
3.4.1 Research	15
3.4.2 Physical Environment	15
3.4.3 Biological Environment	16
3.5 Flora	19
3.5.1 Buttongrass Moorland	20
3.5.2 Scrub	20
3.5.3 Wet Eucalypt Forest	20
3.5.4 Mixed Forest and Rainforest	20
3.5.5 Coastal Vegetation	21
3.5.6 Wetland Vegetation	21
3.5.7 Alpine Vegetation	22

3.6	Fauna	23
3.6.1	Mammals	23
3.6.2	Birds	23
3.6.3	Reptiles and Amphibians	24
3.6.4	Fish	24
3.6.5	Invertebrates	24
3.6.6	Threatened Fauna	25
3.6.7	Threatened Fauna Species: The Orange-bellied Parrot	25
3.7	Heritage and Landscape	27
3.7.1	Aboriginal Heritage and Landscape	27
3.7.2	Aboriginal Landscape Management	29
3.7.3	Historic Heritage and Landscape	30
3.8	Fire Management	36
3.8.1	Legislative Responsibilities	36
3.8.2	Present Burning Regime	36
3.8.3	Fuel Stoves	36
3.9	Introduced Pests and Diseases	38
3.9.1	Introduced Terrestrial Pests	38
3.9.2	Plant Diseases	40
3.9.3	Introduced Marine Pests	41
3.10	Soil Conservation, Erosion Control and Rehabilitation	43
3.10.1	Streambank Erosion	43
3.10.2	Facilities and Services	44
3.10.3	Rehabilitation of Mining Areas	44
3.11	Environmental Quality	45
3.11.1	Air Quality	45
3.11.2	Water Quality	46
3.11.3	Noise	48
3.11.4	Waste	49
3.11.5	Dangerous Goods	50
3.12	Scientific Research and Monitoring	51
4. Tourism and Recreation		54
4.1	Visitor Services Policy	54
4.2	Visitor Use	54
4.2.1	Visitor Profile and Research	54
4.2.2	Visitor Use	55
4.2.3	Characteristics of Visitors	56
4.3	Information, Interpretation and Education	57
4.4	Access	59
4.4.1	Air Access	59
4.4.2	Boating and Diving Access	60
4.4.3	Walking Access	63
4.5	Facilities and Services	64
4.5.1	General	64
4.5.2	Wilderness Zone	65
4.5.3	Recreation Zone	65
4.5.4	Melaleuca Visitor Services Site	72
4.6	Commercial Tourism Operations	76
4.7	Assessment of Use and Development Proposals	78

5. Primary Production	80
5.1 Mineral Exploration and Mining	80
5.2 Marine Farming	81
5.3 Commercial and Recreational Fishing	81
5.3.1 Commercial Fishing	81
5.3.2 Recreational Fishing	81
6. Involving the Community	83
7 Administrative Matters	84
7.1 Public Safety and Risk Management	84
7.2 Staffing	84
Glossary and Abbreviations	86
References	88
Appendices	90
Appendix 1: Introduced Terrestrial Flora	90
Appendix 2: Fly Neighbourly Advice Tasmanian World Heritage Area and Mt Field National Park	91
Appendix 3: Walking Track Management Strategy - Track Classification Categories	94
Maps	At Rear of Plan
Map 1: Location of Melaleuca – Port Davey Area	
Map 2: Melaleuca – Port Davey Planning Area	
Map 3: Melaleuca – Port Davey Management Zones	
Map 4: Melaleuca Visitor Services Site	
Tables	Page
Table 1: Management Zones for Melaleuca – Port Davey Area	9
Table 2: Average Rainfall Data 1946-2000, Port Davey Station	11
Table 3: Historic Heritage Sites	33

1. Introduction

1.1 An Overview of the Area

1.1.1 Location and Regional Context

The Melaleuca – Port Davey area is situated in South West Tasmania (Map 1). The plan area is illustrated on Map 2. This area includes the developed Melaleuca Visitor Services Site (Map 4), Melaleuca Lagoon and Melaleuca Inlet, Bathurst Harbour, Bathurst Narrows, Bathurst Channel and Port Davey. It excludes the corridor south of Melaleuca to Cox Bight.

The plan area extends landward to 100 metres beyond mean high water mark. This is to include site features such as the historic Critchley Parker grave site and Piners Point, the shelter at Bond Bay and Deep Water Landing. The plan area also includes the seabed, the body of water and surface waters within the plan boundaries.

The plan covers the Celery Top Islands and Turnbull Island and gives brief mention to North Breaksea Island. Other islands in the Port Davey area with significant natural and/or cultural values will be included in the Southern Islands Management Statement, currently under preparation.

Much of the area covered by this plan is situated within the Tasmanian Wilderness World Heritage Area (TWWHA). The TWWHA and 21 additional areas around the TWWHA are collectively known as the World Heritage Area (*Tasmanian Wilderness World Heritage Area Management Plan, 1999, 2*). The World Heritage Area is referred to as the WHA in this plan.

1.1.2 Importance of the Area

The area possesses important world heritage and human use values. Specifically, these include:

- The key breeding zone for the endangered orange-bellied parrot.
- Unique marine species and habitats.
- Natural diversity.
- Creation landscape and living landscape from Aboriginal occupation.
- Alluvial tin mining, fishing, pining and whaling, with associated historic heritage sites.
- Historic starting point for bushwalkers for most South West walks.
- Boat cruising, sailing, motor boating and kayaking.
- Light aircraft accessibility.

1.2 Land Tenure and Status

Land tenure represented in this plan falls into two categories; the Southwest National Park (SWNP) and the Southwest Conservation Area (SWCA) (Map 2). The purposes and objectives for SWNP are stated in the *Tasmanian Wilderness World Heritage Area Management Plan, 1999* (referred to as the WHAMP, 1999 in this plan). The purposes and objectives for conservation areas are stated in the *National Parks and Wildlife Act (NPWA) 1970*. In conservation areas, they include "to provide for exploration activities and utilisation of mineral resources."

1.2.1 Southwest National Park

Land and water associated with Port Davey, Bathurst Harbour, Melaleuca Inlet and Melaleuca Lagoon lie within the SWNP and WHA (Map 2).

The area covered by this plan was proclaimed a Foreshore Scenic Reserve in 1951. The islands of the area were added to the reserve in 1962, with Melaleuca –

Port Davey becoming part of the SWNP in 1976. The SWNP now covers 608,298 hectares.

It is classified as an IUCN Category II - National Park, and is fully protected under the *National Parks and Wildlife Act 1970*. In 1977 UNESCO under its Man and the Biosphere Program declared the National Park a Biosphere Reserve.

The WHA was inscribed on the World Heritage listing in 1982 and expanded in 1989. It covers an area of 1.38 million hectares. The WHA meets all four natural criteria for World Heritage listing and three of the seven cultural criteria for listing.

1.2.2 Southwest Conservation Area

The SWCA, initially proclaimed in April 1966, covers 151,300 hectares. As a Conservation Area, it is protected under the *National Parks and Wildlife Act 1970* and classified as IUCN Category VI.

The Melaleuca to Cox Bight corridor (3,700 hectares), including the Melaleuca Visitor Services Site, is part of the SWCA (Map 2). The corridor was excluded from the WHA because of the established tin mining operations and mineral potential of the area.

The boundary between SWNP and SWCA is situated 30.48 metres from the high water mark of Melaleuca Lagoon and Melaleuca Inlet (see Map 2). The Parks and Wildlife Service manage both the SWNP and SWCA.

1.3 Leases and Licences

1.3.1 Mining

In 1992 six contiguous mineral leases held by Rallinga Mine Pty Ltd under the *Mining Act 1929* (repealed and replaced by the *Mineral Resources Development Act 1995*) were consolidated into a single lease. The area of the lease is 128 hectares, located to the south of Melaleuca Lagoon and Melaleuca Inlet (see Map 4).

The term of the lease is 11 years, commencing 1 August 1992. The Company's lease requires it to conduct mining operations and surface activities on the leased land in accordance with the Rallinga Mine Development Proposal and Environmental Management Plan, 1991. See Mineral Exploration and Mining (Section 5.1) for further details.

The Rallinga Mine lease, located within the SWCA, is outside of this plan area. Its relationship with the adjacent Melaleuca Visitor Services Site is, however, important enough for the lease area to receive mention in this plan.

1.3.2 Residential

A 20-year lease was issued under the *Crown Lands Act 1976* to Janet Fenton and Mary King, daughters of the late Charles Denison (Deny) King, commencing 1 December 1991 for the residential use of 2.4 hectares near the Bathurst Harbour Landing Area (see Map 4). The lease requires compliance with the *National Parks and Wildlife Act 1970*, and the prior approval of the Director Parks and Wildlife Service for the erection of additional buildings or structures. A right to maintain mooring facilities in Melaleuca Inlet is also provided for in the lease.

A second residential lease at Melaleuca, issued under the *Crown Lands Act 1976*, is held by Peter and Barbara Willson. The Willsons work the Rallinga Mine lease area. The lease covers 1.25 hectares. The term of this lease co-incides with the term of the Rallinga Mine P/L lease under the *Mineral Resources Development Act*.

See Mineral Exploration and Mining (Section 5.1) for further discussion and Policy on the Rallinga Mine lease and Willson's residential lease.

1.3.3 Commercial Tourism

A number of commercial operators are licensed to operate in the Melaleuca – Port Davey Area. All licensed operators are required to have ministerial approval to

operate. For specific information on commercial tourism operations, see Commercial Tourism Operations (Section 4.6).

1.4 Relationship to the World Heritage Area Management Plan

This plan covers that part of the World Heritage Area which is governed by the *Tasmanian Wilderness World Heritage Area Management Plan, 1999*, and part of the Southwest Conservation Area which is not covered by a statutory management plan. For the World Heritage Area portion of the plan area, this plan is a subsidiary document to the *Tasmanian Wilderness World Heritage Area Management Plan, 1999*, and for the SWCA portion this plan acts as a non-statutory plan.

This plan must also seek to foster management practices in lands adjacent to the WHA that are sympathetic to the objectives of management of the WHA (WHAMP, 1999, 203).

Whilst the area around the Melaleuca landing area (officially known as the Bathurst Harbour Landing Area) is not part of the WHA, the WHAMP, 1999 designates Melaleuca as a Visitor Services Site. These sites, located near the margins of the WHA, are areas where the majority of visitor facilities are located and where the majority of visitors will experience the WHA.

1.5 History of Planning for the Area

The *Tasmanian Wilderness World Heritage Area Management Plan 1992* made recommendations for the management of the Melaleuca area.

The former Melaleuca Advisory Committee (MAC) was formed in 1993 to facilitate communications between the PWS, residents and users of the area. The

major task of the MAC was to provide advice and assistance on the preparation of a *Melaleuca Site Plan*. A Draft Plan was produced in 1995, and public submissions analysed with amendments made as appropriate to the document. The *Melaleuca Site Plan* was not finalised due to Government changes. The extensive work of the former MAC is gratefully acknowledged.

The WHAMP, 1999 called for the finalisation of a site plan for Melaleuca (1999, 171).

At its 54th Meeting held on 10-13 March 2000 the World Heritage Area Consultative Committee recommended:

"that a planning document be produced covering the land and marine environment in the Port Davey/Bathurst/Melaleuca area. The document should cover cruise boat policy and should also incorporate the current draft Melaleuca Site Plan, and a recreation zone plan for the Port Davey/Bathurst Harbour area and should be linked to any management plan for the proposed Marine Park in the area."

The Melaleuca – Port Davey Advisory Committee was established in late 2000 to assist with the preparation of this plan. The Committee's name and function reflects an expansion of the area covered in this revised planning document.

1.6 Implementation and Review

This plan has a proposed ten-year life. During this period reviews or changes to policy and actions may be carried out subject to community consultation.

A full review of this plan will be conducted at the completion of ten years following its approval.

Given current resources available it is anticipated that full implementation will not be possible within the ten year period. Accordingly, priority policies and actions

for implementation have been identified in this plan and together are listed in Section 2.5.

1.7 Statutory Powers and Management Responsibilities

1.7.1 Department of Tourism, Parks, Heritage and the Arts

Parks and Wildlife Service (PWS)

The PWS Division of the Department of Primary Industries, Water and Environment (DPIWE) is responsible for enforcing the provisions of the *National Parks and Wildlife Act 1970* and Regulations, the *Aboriginal Relics Act 1975* and Regulations, relevant parts of the *Fire Service Act 1979* and the *Crown Lands Act 1976* and its Regulations. Staff may be authorised to enforce provisions of the *Marine and Safety Authority Act 1997* and associated bylaws.

The PWS includes Planning and Visitor Services and Districts. The Southern District, PWS has primary responsibility for the management of the plan area.

Tasmania Heritage Office (THO)

This Division has responsibilities under the *Aboriginal Relics Act 1975* and *Historic Cultural Heritage Act 1995*. Its role in WHA management is to provide specialist advice and assistance in Aboriginal and historic heritage management, establish conservation standards and set heritage conservation priorities.

1.7.2. Department of Primary Industries, Water and Environment

Environment

This Division provides strategic planning, protection and enhancement of the Tasmanian environment by ensuring

development proposals meet environmental guidelines; providing environmental advice; and measuring and reporting on indicators of environmental performance. It administers, amongst other Acts, the *Environmental Management and Pollution Control Act (EMPCA) 1994*.

Resource Management and Conservation (RMC)

This Division provides advice on the conservation and management of Tasmania's natural resources including national parks and reserves; land and water resources; flora, fauna, wildlife enforcement and geoheritage. RMC administers a range of Acts and Regulations relating to its functions. It comprises seven Branches, including Nature Conservation (NCB) and Integrated Policies and Strategies.

Food, Agriculture and Fisheries (FAF)

This Division provides a range of services to Tasmania's agricultural, marine farming and marine fisheries industries, including quarantine responsibilities.

Within the division, Marine Resources is responsible for the implementation of the *Living Marine Resources Management Act 1995* and the *Marine Farming Planning Act 1995*. Marine Resources is responsible for marine habitat and all marine fish (which is defined by the Act to include all marine flora and fauna from bacteria, all invertebrates, marine plants, fish and sharks and marine reptiles). A major function of Marine Resources is the licencing of commercial and recreational fishing, and marine farming in the State.

1.7.3 Mineral Resources Tasmania (MRT)

MRT is a Division of the Department of Infrastructure, Energy and Resources. MRT gives effect to government policy in relation to minerals and petroleum resources, and provides information for land management in Tasmania. Amongst

its responsibilities is the regulation and environmental monitoring of the Tasmanian mineral exploration and mining industry.

The Industrial Minerals, Environment and Land Management Branch of MRT administers the *Mineral Resources Development Act 1995* and regulations, including the issuing of legal titles to mining tenements.

A consolidated mineral lease under the former *Mining Act 1929* was issued in 1992 to Rallinga Mine Pty. Ltd. for its operations at Melaleuca.

1.7.4 Marine and Safety Authority of Tasmania (MAST) and Australian Maritime Safety Authority (AMSA)

MAST and AMSA are responsible for navigation aids and structures in the area. Further details of their statutory powers are stated in the WHAMP, 1999, 191-196.

Port Davey is a gazetted port under the *Marine and Safety (Pilotage and Navigation) Regulations 1977* (as amended). It is under the control of MAST.

1.7.5 Department of Premier and Cabinet (DPAC)

DPAC administers the *State Policies and Projects Act 1993* that sets out the process for development, modification, gazetting and review of State Policies. The *State Policy on Water Quality Management 1997* was developed under this Act. Prime responsibility for the administration of this Policy lies with the Environment Division, DPIWE.

2. Vision and Objectives for the Area

2.1 Vision

The vision for future management of the Melaleuca – Port Davey area provides the basis from which more detailed objectives, policies and actions stated in this plan are derived.

As this plan is a subsidiary document to the WHAMP, 1999, it is useful to quote the overall objective of management contained in the WHAMP.

"To identify, protect, conserve, present and, where appropriate, rehabilitate the World Heritage and other natural and cultural values of the WHA, and to transmit that heritage to future generations in as good or better condition than at present."
(WHAMP, 1999, 31)

The vision for the management of the Melaleuca – Port Davey area, consistent with the above statement, is:

To provide appropriate recreational opportunities and facilities for visitors consistent with the protection of wilderness quality and the natural and cultural values of the area.

2.2 Objectives

To achieve the above-mentioned vision, specific objectives for the area, consistent with the WHAMP, 1999 are set out below. These objectives are fundamental to the long-term protection of the area. They underpin sustainable recreational and tourism use. The objectives are not listed in any order or priority.

Objectives: Melaleuca – Port Davey

- **Ensure the Melaleuca – Port Davey area is managed in ways that are**

consistent with the objectives of management of the WHA.

- **Protect, maintain and monitor geodiversity and sites of geoconservation significance.**
- **Maintain, and where necessary restore, wilderness, scenic, aesthetic and remote qualities that are unique to the area.**
- **Protect, maintain and monitor the marine and estuarine ecosystems.**
- **Protect, maintain and monitor the natural diversity and integrity of flora and fauna species and communities.**
- **Conserve, protect, and where appropriate present cultural heritage values, including Aboriginal and historic values.**
- **Provide appropriate recreational and tourism opportunities in a wilderness landscape.**
- **Enhance visitor understanding, appreciation and enjoyment through education and interpretation.**
- **Recognise the interests of the existing lessees within the area.**

2.3 Key Desired Outcomes

Key Desired Outcomes and their associated performance indicators enable PWS to know whether management of the area is achieving its stated objectives.

KDO 1. The wilderness quality of the area is protected. (Section 3.3)

KDO 2. The marine and estuarine ecosystems of Port Davey – Bathurst Harbour are maintained and protected. (Sections 3.4, 3.9, 3.11.2)

Performance Indicator 2.1: A marine protected area has been established in the Port Davey – Bathurst Harbour area.

Performance Indicator 2.2: Monitoring and evaluation of significant marine ecosystems show no human induced damage or degradation.

Performance Indicator 2.3: Water quality monitoring programmes show no increase in the very low nutrient levels of Bathurst Harbour and Bathurst Channel has occurred over the management period.

Performance Indicator 2.4: A marine monitoring programme has been initiated.

Performance Indicator 2.5: Any marine pests are identified and where practical are eradicated.

KDO 3. Favourable habitat for the critically endangered orange-bellied parrot at Melaleuca has been maintained. (Section 3.6.7)

Performance Indicator 3.1: Habitat management burns at Melaleuca have been undertaken in accordance with the OBP Recovery Plan.

KDO 4. Aboriginal values are being managed and maintained in partnership with the Aboriginal community. (Sections 3.7.1, 3.7.2)

Performance Indicator 4.1: Plans and prescriptions to protect and conserve Aboriginal heritage have been developed in consultation with the Aboriginal community.

KDO 5. Significant historic heritage sites in the area have been identified and are being conserved. (Section 3.7.3)

Performance Indicator 5.1: A survey of the area has been completed to identify the condition of significant historic heritage

sites and to establish what conservation actions and protection measures are required.

Performance Indicator 5.2: Statements of cultural significance have been prepared for important historic heritage sites, particularly Bramble Cove, Claytons and Settlement Point.

Performance Indicator 5.3: The condition of identified significant historic heritage sites has been maintained or improved over the management period.

KDO 6. Fire management regimes in approved fire management plans have been achieved. (Section 3.8)

Performance Indicator 6.1: The number and area burnt by escaped planned fires over the management period has decreased.

KDO 7. The eradication or control of introduced plant species, which are not of cultural significance, wherever practical, has succeeded in maintaining the integrity of native vegetation. (Sections 3.9.1, 3.9.2)

Performance Indicator 7.1: *Phytophthora cinnamomi* has not spread into areas unaffected at the commencement of the management period, and the rate of infestation has reduced.

Performance Indicator 7.2: The Celery Top Islands have remained free of *Phytophthora cinnamomi*.

KDO 8. Visitor numbers and use of the area are being sustainably managed to prevent damage or degradation to the unique or sensitive values, including World Heritage values.

Performance Indicator 7.1: A comprehensive picture of visitor use, impacts and potential threats has been established through monitoring programmes and visitor surveys.

Performance Indicator 7.2: Strategies are in place to ensure sustainable numbers and types of visitation in the area.

Performance Indicator 7.3: No damage or incremental degradation to the outstanding and/or sensitive environmental values of the area has occurred over the management period as a result of visitor use.

2.4 Management Zones

To aid consistency with the WHAMP, 1999, this plan uses the same Wilderness Zone, Recreation Zone, Melaleuca Visitor Services Site and Motorised Boating Area names and general provisions, as they relate to the Melaleuca – Port Davey Area.

A summary of these management zones, taken from the WHAMP, 1999, is given in Table 1. Tourism and recreation facilities and services to be provided in each zone are mentioned in Section 4 of this plan.

As shown in the WHAMP, 1999, and repeated in this plan, overlaying part of the Recreation Zone - covering Port Davey, Bathurst Harbour, Melaleuca Inlet and Melaleuca Lagoon - is a Motorised Boating Area (see Map 3).

The objective of the Motorised Boating Area is “to allow for mechanised boating access consistent with the protection of the World Heritage and other natural and cultural values of the WHA and recreational values” (WHAMP, 1999, 60).

This overlay indicates where motorised boats may be used. Motorised boats are boats with engines. They do not include floatplanes or other aerial craft that can land on water. The general policies that apply to the overlay area are usually as specified in the underlying zone.

For information on streambank erosion see Soil Conservation, Erosion Control and Rehabilitation (Section 3.10).

Policies and Actions

- **Three management zones are designated for the Melaleuca – Port Davey area, as described in the WHAMP, 1999 (see Map 3). They are:**
 - **Wilderness Zone**
 - **Recreation Zone**
 - **Melaleuca Visitor Services Site**
- **A Motorised Boating Area, as described in the WHAMP, 1999, applies to the waters of Port Davey – Bathurst Harbour.**

Table 1 Management Zones for Melaleuca – Port Davey Area

	WILDERNESS	RECREATION	MELALEUCA VISITOR SERVICES SITE
	Wild country – limited recreation	Major walking and boating areas	High use area and access point
Facilities	No new facilities will be provided.	Limited facilities for recreational and environmental purposes.	Maintain facilities for recreation and presentation of WHA.
Walking tracks	No new walking tracks.	Potential for limited new walking tracks subject to impact assessment.	Potential for limited new short walking tracks. High use walking tracks.
Motorised Boating Access	No access, except for management purposes.	Motorised Boating Area only accessible (see Map 3).	Restrictions on motorised boating access and use of facilities on Melaleuca Creek (public) and Moth Creek (private lease).
Structures	Allow to decay or remove except where cultural, recreational or management values outweigh impact on wilderness.	Remote infrastructure, eg. huts, toilets, can be upgraded and replaced in accord with environmental prescriptions.	High use area, facilities provided may include toilets, huts, interpretation structures, storage facilities, and jetties/pontoons.
Promotion	No promotion of use.	Promote major walking and boating access corridors.	Promote and facilitate use subject to carrying capacity of the facilities.
Aircraft Access	Adopt flight guidelines and appropriate routes that may by-pass this zone. No landings except for search and rescue and management.	Adopt flight guidelines and appropriate routes.	Adopt flight guidelines and appropriate routes.
Signs	Strictly for management and environmental protection purposes only.	Yes, in highly serviced areas in association with facilities.	Yes.
Interpretation	No.	Yes, in highly serviced areas in association with facilities and management.	Yes.
Special Events	No.	Yes.	Yes.

SOURCE: Based on *Tasmanian Wilderness WHA Management Plan, 1999, 56.*

2.5 Priority Policies and Actions for Implementation

NB: These policies and actions are repeated from Sections 3-7 of this plan. The corresponding Section is noted in brackets. No ranking is implied in the list.

- As a priority, designate the Celery Top Islands as a Scientific Area to protect their natural and scientific values. (3.5)
- The PWS, in association with THO, will assess the conservation and maintenance requirements of all significant historic heritage sites in the area as a priority, develop maintenance schedules and implement appropriate protection and management measures. (3.7.3)
- Prepare a statement of cultural significance and a conservation report for Claytons site as a priority. (3.7.3)
- As a priority, liaise with Mineral Resources Tasmania in the preparation and implementation of a revised environmental management plan for the Rallinga Mine lease area. (3.10.3, 5.1)
- As a high priority, in consultation with DPIWE, assess the need for a contingency plan for dealing with a major marine pollution incident in Port Davey – Bathurst Harbour, and respond accordingly. (WHAMP, 1999, 113) (3.11.2)
- The safe storage of dangerous goods at Melaleuca is a priority. (3.11.5)
- As a high priority, implement the recommendations of the *Bathurst Harbour Landing Area Operational Report*, March 2001 as appropriate, subject to requirements set out in Assessment of Use and Development Proposals (Section 4.7). (4.5.4)
- As a high priority, improve toilet facilities in the Melaleuca Visitor Services Site to meet environmental health requirements. (4.5.4)
- As a high priority, review all licenses held by commercial tourism operators operating in the area and ensure consistency of licence conditions. This includes updating of aircraft operator licenses in line with the recommendations of the *Bathurst Harbour Landing Area Operational Report*, 2001, Airports Plus Pty. Ltd. (4.6)
- As a priority, investigate ways of staffing Melaleuca full-time during the summer period. (7.2)

3 Identification, Conservation, Protection and Rehabilitation

3.1 Climate

The climate of the Southwest is characterised by a high annual rainfall, high incidence of cloud cover (and a consequent low occurrence of clear days) and strong wind patterns.

Summer (Dec – Feb) is characterised by a minimum of rainfall and cloud cover with a consequent increase in temperature. Winds become more variable with a tendency for northerly winds. It is not uncommon, however, for extended periods of cloud, rain and wind.

In autumn (Mar – May) there is a gradual decrease in temperatures, increased precipitation and a return to westerly wind conditions.

Winter (Jun – Aug) conditions are typified by strong prevailing westerly winds, low temperatures, frosts, high rainfall and high numbers of cloudy days.

Spring (Sep – Nov) sees a slight increase in temperature, a greater predominance of south-westerly winds, a decrease in wind strength, less rainfall and less frequent frosts.

The inhospitable climate and inaccessibility of the South West have contributed to the paucity of climatic information about the area. Incomplete records of rainfall, clear, cloudy, fog, frost and hail days, and temperature are available from 1946 to 1970. The last recorded maximum temperature reading available from the Bureau of Meteorology is from 1979. Prior to 1991, however, Deny King took weather recordings at Melaleuca. When Peter and Barbara Willson are in residence at Melaleuca, they collect rainfall data, which helps to

provide a useful picture of average rainfall conditions over the past 55 years.

Table 2 Average Rainfall Data 1946-2000, Port Davey Station (mm)

MONTH	RAINFALL (mm)
January	130
February	131
March	157
April	220
May	243
June	209
July	247
August	241
September	201
October	203
November	165
December	154
Annual Total	2,213 ¹

¹Based on only 13 years of complete 12-month recordings.

SOURCE: Bureau of Meteorology

Weather observations and recordings from fishers give a good indication of adverse conditions, particularly during winter, in Port Davey – Bathurst Harbour. Average windspeeds well over 35 knots, swells 5-8 metres and torrential west coast rains are experienced. The already saturated forest and plain catchments bring high levels of nutrients down the Davey, Spring, North and Old Rivers, and create high flows causing rivers to extent out onto their floodplains. In such conditions, Bathurst Channel becomes a high turbulence, high nutrient and high energy area. Bathurst Harbour experiences storm force winds several times a year.

Management Issues

Climatic conditions dramatically impact upon the level and frequency of visitor use, as major forms of access to the area are restricted in adverse weather conditions. Strong winds and heavy swells restrict boats departing for Port Davey and Bathurst Harbour or force boats in the near vicinity to seek shelter in the protected waters of the Harbour. Similarly, aircraft access is severely hampered by strong winds and low cloud cover. A significant proportion of intending aircraft flights to Melaleuca are abandoned due to adverse weather conditions. A consistent and regular flight service is limited to periods of fine weather conditions.

Given the sometimes inclement and unpredictable weather conditions and limited shelter facilities on site, it is essential that prior to arrival all visitors are aware of, and are well prepared for, the climatic conditions, which may be experienced in the area. This advice should apply to all people visiting or working in the area, including DTPHA and DPIWE staff, volunteers and commercial operators.

Policies and Actions – Climate

- **To ensure a safe and enjoyable experience, people visiting or working in the area must be aware of, and be well prepared for, changes in weather conditions.**
- **Boating and aircraft tour operators accessing and using the area are strongly urged to ensure their clients are fully informed, and are well prepared for, the climatic conditions which are experienced in the area.**

3.2 Geodiversity and Geoconservation

The Melaleuca – Port Davey area, like a considerable part of the Southwest, is

underlain by some of the oldest rock formations in Tasmania. These date from the Precambrian period and may be as old as 1,100 million years. They consist predominantly of quartzite, phyllites and schists, rocks that were originally deposited as sediments in shallow seas and were subsequently metamorphosed during two major tectonic events. Sedimentary structures ascribed to the original deposition of these rocks such as ripple marks, crossbedding and mudcracks occur at Bramble Cove and around Port Davey. Slightly younger and comparatively unmetamorphosed sequences occur along a fault- controlled belt including prominent peaks such as Mt Rugby and Mount Berry.

Much younger (less than 2 million years old) Quaternary deposits occur in the valleys, bays and inlets with some of the deepest including the 3-16 metre thick sands and gravels in the Melaleuca valley. The lowest deposits consist of fairly compacted sands, which are thought to have marine origins. These were most likely deposited when sea levels were higher than at present with a narrow bay extending up the Moth Creek valley. These are overlain by fresh water (stream) deposits including deltas, fans and gravels. Fossil flora with rainforest elements and sclerophyllous species that currently occur in the area have been found in some of these beds. Radiocarbon dates suggest an age range of up to 39,000 years. This is a site of geoconservation significance and is listed on the Tasmanian Geoconservation Database.

At estuary and river mouths fine, flocculated muddy sediments occur. These are deposited when freshwater meets salty water. These extensive "muddy" banks occur in Manwoneer Inlet, Hannant Inlet, Horseshoe Inlet and Melaleuca Lagoon. A raised beach deposit at Hannant Inlet with an associated possible interdune swamp deposit is probably of last interglacial age (120,000 years old).

Bay head dunes occur at Spain Bay, Bramble Cove and Payne Bay, while well

developed subtidal deltas occur at the mouth of James Kelly Basin. All of these landforms have formed over the last 6,000 years; a time of relatively stable sea level - after which the Port Davey – Bathurst Harbour valley was drowned by post-glacial rising sea level to produce an excellent example of a drowned river valley known as a ria. The entire embayment (approximately 130 km²) is listed on the Tasmanian Geoconservation Database.

The broad physiography of the Port Davey – Bathurst Harbour estuarine basin has been inherited from earlier periods of landscape development while the extensive assemblage of low altitude landforms have developed in response to Holocene sea level rise. At the height of the last glaciation, 20,000 years ago, the valley would have been exposed and a large river, the "Bathurst River", would have flowed out to the ocean about 10 km beyond the current entrance to Port Davey. As sea levels rose the tributaries of the "Bathurst River" were left flowing into small bays. Bradbury (2000) has suggested that these could be considered as estuaries within an estuary.

Bradbury (2000) has also suggested that the area has important geoconservation values as there is very little landform or geomorphic process disturbance, and there is a range of localised landform variations including distinctive intricately embayed estuarine banks. In summary, the rivers flowing into the ria have important geoconservation values and this should be considered in the protection and management of the area.

The catchments around the Melaleuca – Port Davey area are covered extensively by blanket bogs, which are organosols or peats, that drape the landscape in response to a wet, humid climate with low evaporation (Pemberton, 1989). Most of these have formed over the last 6,000 years. These blanket bogs, formed under buttongrass moorlands, are unique in Australia although fairly widespread in the Southwest.

They have other landform/soil features, which are considered significant at a world level. These include peat mounds, which are considered unique in the Southern Hemisphere with the only other reported occurrence from Scotland (Macphail *et al*, 1999). These distinctive features occur in a number of lowland locations in the southwest. Clusters of peat mounds are located within one kilometre south and southwest of the landing area at Melaleuca (Tasmanian Geoconservation Database). A number of possible origins have been suggested, including differential expansion and contraction of the peat that may initiate the development of these enigmatic landforms.

Objectives – Geodiversity and Geoconservation

- Conserve geodiversity and sites of geoconservation significance, including fossil deposits, raised coastal deposits, the ria (or drowned river valley), Port Davey – Bathurst Harbour, the rivers flowing into the ria and their associated landforms, the blanket bogs (national significance) and peat mounds (international significance) covering the area.
- Prevent or minimise harmful impacts on geoconservation values.

Policies and Actions

- **Impacts on geodiversity and sites of geoconservation significance will be avoided or minimised when planning and carrying out any use, development or works, including land rehabilitation and stabilisation.**
- **Monitor impacts on geodiversity and earth processes including, streambank stability, burning regimes and tourism and recreation activities.**

See also Fire Management (Section 3.8), Soil Conservation, Erosion Control and Rehabilitation (Section 3.10) and Access (Section 4.4).

3.3 Landscape Management and Wilderness

3.3.1 Landscape Management

The broad scale physical landscape of the area is dominated by extensive lowland buttongrass plains and expanses of water surrounded by the mountains and ranges of the SWNP. The area has a high degree of natural scenic beauty. This is one of the area's principal attributes in motivating people to visit. The natural beauty of the area is largely derived from the diversity and spatial relationship of landform, waterways and vegetation. Visitor reaction to the landscape is influenced by its outstanding natural character, the degree of its scenic variety and the visual effect of the relative lack of introduced changes.

The area also encompasses cultural landscapes, containing evidence of Aboriginal and historic periods of use of the land. The evidence of this past and present use is interwoven with the natural landscape qualities of the area. See Heritage and Landscape (Section 3.7).

3.3.2 Wilderness

The Tasmanian Wilderness World Heritage Area (WHA) is one of only three large temperate wilderness areas in the Southern Hemisphere. In a national context, the WHA contains the largest tracts of high quality wilderness remaining in southeastern Australia.

The commonly recognised qualities of wilderness are generally regarded as naturalness (substantially undisturbed by colonial and modern technological society) and remoteness (remote at its core from points of mechanised access and other evidence of colonial and modern technological society) (WHAMP, 1999, 91-92).

Management Issues

Management considerations regarding landscape and scenery are mainly

concerned with viewfield management. The potential for visual impact is an important consideration in the assessment of any proposal or development, especially given the high scenic quality of the area.

As the main arrival and departure point for visitors, views to and from the Melaleuca Visitor Services Site have considerable visual impact on visitors. These include the juxtaposition between the Melaleuca and Bathurst Ranges with the visually dominant white quartzite landing area, historic and current mining operations, and several small-scale buildings. Signs, walking tracks, toilets and other facilities also have the potential for visual impact in the area.

Many members of the Tasmanian Aboriginal community have concerns about the use of the word "wilderness", as in their view it has been used to limit Indigenous rights.

The long-term retention of wilderness quality requires active management, consistent with the recognition of cultural values.

Objectives – Landscape Management and Wilderness

- To protect and maintain the area's landscape values, including scenic, visual and cultural landscape values.
- To maintain and enhance wilderness quality in the area.
- To maintain and enhance the quality of the wilderness recreational experience for visitors to the area.

Policies and Actions

- **Minimise the visual intrusiveness of new structures and developments through sensitive building practices.**
- **Minimise human impact on scenic quality.**

- **Manage the land surrounding Port Davey – Bathurst Harbour – Melaleuca Inlet as wilderness, in accordance with the WHAMP, 1999. (See Map 3.)**
- **Management decisions regarding future activities or actions must recognise the degree to which these actions will adversely impact on, or alternatively enhance, wilderness quality, and give preference to those, which maintain or enhance wilderness quality.**
- **Protect people's wilderness recreational experiences by actively managing the physical condition of the area, and other recreational facilities and activities.**

3.4 Port Davey – Bathurst Harbour Marine Ecosystems

The Port Davey – Bathurst Harbour area includes unique marine and estuarine habitats. They are reminiscent of what you would expect in tropical Queensland. Port Davey – Bathurst Harbour is highly important being the only large estuarine system in southern Australia, which has not experienced significant human impact.

This area is being considered for nomination as a Ramsar Site under the Ramsar Convention (Convention on Wetlands of International Importance).

Bathurst Harbour and Payne Bay have been classified as estuaries of critical conservation significance (Class A) by Edgar *et al* (1999), among only 10 areas in Tasmania to be classified as such.

3.4.1 Research

Until recently the isolation of the Port Davey – Bathurst Harbour area meant that very little was known about its ecology. Prior to 1984, the only information on the estuarine and marine biota of the area was

anecdotal information on occasional sightings of fishes, molluscs and crustaceans, one report on fish and copepod species, an inventory of 19 species of mollusc and some locality data for beach-seined fish.

Between 1984 and 1998, surveys were undertaken to describe the marine plants and animals, to assess the potential of the area as a marine reserve, to investigate the hydrology and to map the benthic communities. A previously unknown species of skate was found during the survey of 1988. The delicate and fragile nature of many of the sedentary benthic species was not recognised till the study of 1993 (University of Tasmania, CSIRO, South Australia Museum, PWS and RMC).

3.4.2 Physical Environment

Port Davey, Bathurst Channel and Bathurst Harbour together form a large estuarine and coastal embayment complex on the southwest coast of Tasmania. Port Davey is the only large sheltered inlet between Macquarie Harbour on the west coast and Recherche Bay on the southeast coast, a distance of 250 km of coastline.

Port Davey contains a wide variety of habitats, including cliffs, rocky shores, sandy beaches and sheltered bays and inlets with seagrass and seaweed beds and mudflats. Bathurst Channel is a relatively deep and narrow drowned river valley, 12 km long and heavily indented, which connects Bathurst Harbour with Port Davey. Bathurst Harbour is a large basin surrounded on all sides by hills, and was thought to have been a large buttongrass plain in the past. See also Geodiversity and Geoconservation (Section 3.2).

The bathymetry of the ecosystem is characterised by deep narrow channels; large sheltered shallow tidal flats and steep gradients. Bathurst Harbour consists of a submerged plain and varies from 5 m to 7 m in depth. In the central region of Bathurst Channel, and in Bathurst Harbour near the eastern entrance to the Channel, depths can range between 15 m and 40 m.

A shallow sill of 12 m depth separates the western end of the Channel from the deeper waters of Port Davey.

Unusual hydrographic conditions prevail, most importantly perhaps, the halocline, ie. that part of the water column where the salinity changes very rapidly. This change is usually from freshwater or low salinity to marine water or high salinity, with increasing depth. The importance of a halocline is that freshwater is lying over full marine waters, with very little mixing (only in the few metres of the actual halocline). In addition to poor mixing within the system (ie. between the freshwater and saltwater layers), there is also poor mixing across the system.

Some plants and animals rely on the layering of salt-water and freshwater that naturally occurs in an area. The sudden mixing of these waters caused by wake from boats may harm these species.

The Bathurst Harbour system is one of only three large estuaries in Australia where the waters are highly stratified for long periods, with a dark tannin-stained brackish surface water layer overlying clear marine water. The dark brackish water, stained from the peat soils of the catchments, comes from several major river systems, including the Old River. This layer is at its maximum depth of 4 m during winter when rainfall is highest, and extends throughout Bathurst Harbour and Bathurst Channel.

The dark stained surface water limits light penetration, allowing plant communities to be replaced by invertebrate assemblages in shallow waters, a process not known to occur on the same scale elsewhere around Australia.

Nutrient levels are also extremely low in the Bathurst Harbour and Bathurst Channel. They are believed to be the lowest nutrient levels in Australia. This is due to several factors including the nature of the geology, nutrient-poor soils, the ecology of the plankton communities and the lack of human pollution in the catchment.

It must be noted however, that following winter rainfalls, the four large rivers flowing into the system provide high levels of nutrients to the area, such that outer Port Davey still remains one of the most lucrative fishing areas in the southwest.

Salinity levels in surface waters, and to a lesser extent bottom waters, decrease from the Breaksea Islands eastwards to Bathurst Harbour. This is influenced by seasonal rainfall, with salinity being lower in winter (~15 permil) when rainfall is high, than in summer (25-29 permil).

The estuarine influence of the Bathurst Harbour/Bathurst Channel system decreases to the west beyond the Breaksea Islands, as the dark-stained water enters Port Davey from Bathurst Harbour. Ocean currents and wave motion then disperse the dark waters. In northern Port Davey the Davey River empties large volumes of tannin-stained fresh water into Payne Bay. The waters of Payne Bay in northern Port Davey are shallow and influenced by wave action.

3.4.3 Biological Environment

The Bathurst Channel and Bathurst Harbour estuary system is biologically extremely unusual and has some unique features. Its nearest equivalents are Terra del Fuego (Patagonia) and Milford Sound (New Zealand). Relict fauna, from 80 million years ago when Gondwana split, is a feature of the aquatic fauna of this area. Ice age elements are present, which are extinct elsewhere. There are several different community zones in the estuary, each having different faunal bands, and each faunal band could contain 300-400 different animals. Much of the aquatic biota is very delicate and very localised.

Due to the limited penetration of light, marine plants are restricted. "A primary characteristic of the Bathurst Harbour estuary is the very low diversity of planktonic taxa with a few species thriving in extremely high densities." (Edgar and Cresswell, 1999.)

Benthic animal communities (living on and in the seabed) include sponges, lace corals, sea squirts, and anemones and bryozoans. From the southern side of Turnbull Island¹ along the Bathurst Channel to, and including, Munday Island, this area hosts a rich and diverse invertebrate population, including plate and encrusting sponges, bryozoans, solitary ascidians and soft corals. Sea pens are also common, for example, off Forrester Point and extending about one kilometre eastwards.

More notably, the marine communities in this area, particularly on the steep sides of the narrow channel, are ecologically unique and of national significance.

A bryozoan band (lace and fan bryozoans and soft corals) or a tubeworm band (Galeolarians, soft corals, and hydroids) may dominate the bottom of the Bathurst Narrows.

Bryozoans are dominant in Port Davey sediments. Very sensitive bryozoan beds exist around Woody Island. An endemic species of gorgonian sea fan is unique to Port Davey.

The fish community in Bathurst Harbour and Bathurst Channel is unusual, as the normal assemblage of shallow-water species is not present. Sharks and skates are the most common fish in Bathurst Channel and Bathurst Harbour. Other fish include gummy shark, elephant fish, white-spotted dogfish, red gurnard and red cod. A new genus of ice fish has been found in Port Davey, with links to New Zealand and Patagonia. This assemblage of fishes has characteristics more typical of deep waters than of estuaries.

Of significance is the recent finding of a new species of skate (*Dipturus* sp.) in

Bathurst Harbour. It is considered to be a relict Gondwanan species now restricted to Bathurst Harbour and Macquarie Harbour. Its closest relatives are found in waters 1,000 metres deep in New Zealand and South America.

The *Dipturus* sp. has been listed by the IUCN as potentially endangered. The Tasmanian Scientific Advisory Committee, in December 2001, provisionally recommended the skate for listing as Endangered under the *Threatened Species Protection Act* (Neville Barrett, TAFI, pers. comm.).

The area between Turnbull Island and Schooner Cove has a much higher diversity of plants and animals than areas further up the Channel or in Port Davey because of the diversity of habitats. From Turnbull Island to the Breaksea Islands there is a shallow-water zone of seaweeds and associated marine animals, and below this are spectacular communities of benthic animals. Not much is known about these animal communities, and already several new species and species groups have been discovered.

James Kelly Basin and Hannant Inlet, the two main sheltered inlets in Port Davey, support areas of the seagrass *Heterozostera tasmanica*. James Kelly Basin has a wide range of habitats, including seagrass beds, seaweed beds which appear to be unique, sandflats and muddy habitats and areas of high mollusc density. The seaweed beds are subtidal and consist of a possibly undescribed species of *Caulerpa*, a green seaweed. In contrast, Hannant Inlet has very few different habitats. James Kelly Basin also supports a relatively high species diversity of fish compared to other habitats of Port Davey, probably in association with the seagrass.

Management Issues

Processes which could threaten the natural systems of Port Davey – Bathurst Harbour – Melaleuca Inlet include:

- introduced pests (eg. *Asterias*, *Undaria*),

¹ The Nomenclature Board of Tasmania officially named Turnbull Island, to the southeast of Bramble Cove, off Hixson Point, as such in 1960. It is, however, also locally known as Sarah Island, which appears to have been its previous name. In historic times, it was also known as Tonguers Island.

- mechanical damage – diving, anchors, propellers,
- disturbance to the halocline,
- turbidity, and
- nutrient input (grey water and waste).

There is a critical need to avoid the risk of introduced pests via boating - see Introduced Pests and Diseases, particularly Introduced Marine Pests (Section 3.9.3). There is also a need to protect key unique species from the effects of fishing (see marine reserve comments below).

The unusual bathymetry of the area, i.e. steep gradients, narrow passages and large sheltered shallow areas, means that boating and navigation has to be well managed to protect the seabed communities from possible boating impacts such as vessel groundings, disruption of the halocline, boating accidents or anchor damage. Importantly, some of the more significant underwater assemblages are on the walls of the narrow Bathurst Channel.

The benthic communities of Bathurst Channel contain many sedentary species that are delicate and fragile and are vulnerable to mechanical damage from divers or by nets and anchors. Vulnerable fauna include sea pens, bryozoans, soft corals and sea whips.

The maintenance of the halocline is a critical management issue, indicating that some restrictions on vessel access may be required. Disruption of the halocline can lead to the loss of both pelagic and benthic communities.

Although not entirely unprecedented, the regular operation of large vessels in the waters of Port Davey is a relatively recent proposal. The area is known to host significant pristine marine ecosystems reliant upon unusual hydrographic conditions. Stratified waters and soft sediments are both potentially prone to disturbance by the passage of vessels, especially in sheltered, shallow and/or narrow passages.

See Boating and Diving Access (Section 4.4.2) for information on navigable areas, boating speeds, cruise vessels and preferred dive sites. See Facilities and Services – Recreation Zone (Section 4.5.3) and Appendix 4: “Guidelines for the Preparation of Licenses for Commercial Vessel Operations in Port Davey-Bathurst Harbour” for information on designated boat anchorage and shore landing sites.

The very low nutrient system of Bathurst Harbour and Bathurst Channel is a significant factor in the distribution and survival of the colonial invertebrates. Any increase in nutrients would adversely impact on natural values.

The seabed and waters of Bathurst Harbour and Port Davey out to North Head and Hilliard Head are protected under the *National Parks and Wildlife Act (NPWA) 1970*, as the area is within the SWNP. The marine life (with the exception of seals and whales) are not protected under this Act, but are managed under the *Living Marine Resources Management Act 1995*. Cetaceans are protected under the *Whale Protection Act 1988*, and seabirds and seals under the *NPWA*.

Due to its conservation significance, it is State government policy to investigate the possibility of a marine protected area in the Port Davey - Bathurst Harbour area. At present the conservation status of the SWNP protects the habitat of the marine environment but not its marine life. Declaring a marine protected area will assist in providing protection of the entire ecosystem.

The State Government has adopted the *Tasmanian Marine Protected Areas Strategy (2001)* report. It gave a Reference to the Resource Planning and Development Commission (RPDC) to conduct an inquiry and make recommendations on the establishment of a marine protected area within the Davey Bioregion. The RPDC’s Draft Recommendations Report is due out for public comment in late 2002.

The unique nature of the benthic ecosystems of Port Davey – Bathurst Harbour, particularly the invertebrates and fish, its extremely fragile nature and its outstanding conservation values require sensitive management strategies to be put in place. Management strategies should be adapted as knowledge on the area’s natural values and the impacts from various human activities is enhanced.

Objective – Port Davey – Bathurst Harbour Marine Ecosystems

- To protect, maintain and monitor the marine and estuarine ecosystems within Port Davey – Bathurst Harbour.

Policies and Actions

- **Support a Government proposal for a marine protected area in Port Davey – Bathurst Harbour to conserve the rare, unique and sensitive marine and estuarine ecosystems.**
- **Protect the area’s critical hydrological features and processes, such as the halocline, by controlling boating and diving in Bathurst Channel and Bathurst Harbour.** See Policies and Actions under Boating and Diving Access (Section 4.4.2), Recreation Zone (Section 4.5.3) and Appendix 4.
- **Protect the sensitive and fragile benthic and pelagic communities of the area from adverse impacts of boating activities.**
- **Conserve rare and endemic marine flora and fauna in Port Davey-Bathurst Harbour, including the unique *Caulerpa* algal beds in James Kelly Basin and the skate *Dipturus sp.***
- **Maintain the very low nutrient system in Bathurst Harbour and Bathurst Channel.**

- **Develop an education programme on the significance of Port Davey – Bathurst Harbour.**
- **Carry out and support continued research into the identification and protection of unique marine and estuarine habitats, species and communities in Port Davey – Bathurst Harbour – Bathurst Channel.**
- **Due to the conservation significance of the Port Davey – Bathurst Harbour area and the present uncertainty regarding the potential impacts of vessel navigation and human activities, the “precautionary principle” will be adopted when devising management prescriptions for the area until such time as there is clear evidence that various activities do not cause environmental harm.**

3.5 Flora

The Melaleuca – Port Davey area is a major centre of plant endemism and plant diversity. At least 375 native vascular plant taxa from 84 families have been recorded in this area. This represents nearly 20% of the vascular flora in Tasmania. About 118 of these plants are endemic to Tasmania and six plants are listed as rare or threatened. King's lomatia (*Lomatia tasmanica*) is listed as endangered, whilst the others, Even blown grass (*Agrostis aequata*), Musky crassula (*Crassula moschata*), Springy peppergrass (*Lepidium flexicaule*), Moscal's geebung (*Persoonia moscalii*) and Dune buttercup (*Ranunculus acaulis*) are listed as rare.

Less is known about the non-vascular flora. However, at least 128 bryophyte taxa (of which six are endemic) have been recorded. This represents about 20% of the total bryophyte flora in Tasmania. Eight species of bryophytes have been listed in a preliminary conservation assessment as vulnerable, endangered or critically endangered.

There is a mosaic of vegetation types in the area including terrestrial, wetland and aquatic. Terrestrial and wetland vegetation types are described below, whilst aquatic vegetation types are described in Port Davey – Bathurst Harbour Marine Ecosystems (Section 3.4).

3.5.1 Buttongrass Moorland

Buttongrass moorland is the most extensive vegetation in the area and elsewhere in Southwest Tasmania. The characteristic species of this moorland vegetation is the plant buttongrass (*Gymnoschoenus sphaerocephalus*), a tussock forming sedge. This vegetation blankets the landscape, occurring on frequently burned flats, slopes, ridges and plateaux. It is associated with organic "peat" soils that may form depths in excess of one metre although shallower depths are more common. See Geodiversity and Geoconservation (Section 3.2).

The present distribution of buttongrass moorland reflects a history of thousands of years of Aboriginal burning and thus is a cultural landscape of heritage significance. In the complete absence of fire it is believed that the majority of the landscape would be occupied by cool temperate rainforest.

At least 10 of the 20 described blanket moorland communities are represented within the Melaleuca – Port Davey area, all of which are well reserved and common within the SWNP. About a third of the endemic plant species that occur in the area are moorland plants. Moorland is also an important habitat for a range of significant fauna species, including heathland bird and mammal complexes, and provides the feeding habitat for orange-bellied parrots.

3.5.2 Scrub

Scrub is tree-dominated vegetation less than 8 m tall. Typically *Leptospermum* species or *Melaleuca* species dominate this vegetation with a sparse and emergent

canopy of the west-coast peppermint *Eucalyptus nitida*.

Little is known about the conservation status of scrub communities, although most are likely to be well represented within the SWNP. One exception is the heathy scrub community dominated by *Eucalyptus tenuiramis* that has a very restricted distribution within the wider region.

3.5.3 Wet Eucalypt Forest

An open canopy of the West Coast peppermint *Eucalyptus nitida* generally dominates wet forest in the area. The understorey is composed of trees common in scrub as well as other sclerophyllous species such as lancewood (*Nematolepis squamea*) and cheese wood (*Pittosporum bicolor*). Rainforest species may also be present in the understorey. The ground layer is generally heavily covered with leaf and branch litter but shrubs, ferns (*Pteridium esculentum*) and sedges (*Gahnia grandis*) are also sparsely distributed.

The forests are restricted to fire protected gullies and southeasterly aspects that afford sufficient fire protection to ensure the survival of this fire sensitive vegetation. Occasional fires are required to enable the regeneration of the eucalypts and other shade intolerant sclerophyllous species. The communities present within the area are generally widespread and well conserved with the exception of *Eucalyptus globulus* dominated forest at Port Davey. This community is well outside its normal geographic range and is therefore considered to be of conservation significance.

3.5.4 Mixed Forest and Rainforest

Cool temperate rainforest is the climax vegetation type in the area. It is comprised of species that do not require fire for their perpetuation. These species are easily eliminated from the vegetation by short intervals between fire. Consequently, this vegetation is restricted to the most fire protected situations, occupying only small

relict patches and is vulnerable to any increase in the frequency of summer wildfires. Mixed forest is essentially rainforest with an emergent eucalypt canopy that has had a history of infrequent burning.

The rainforests and rainforest understoreys of mixed forest of this area are of two sorts – implicate (tangled low, open and scrubby rainforest) and thamnisc (rainforest with a distinctive shrub layer). Most are well reserved but their distributions are restricted. They are composed of a high proportion of endemic species and are the habitat for a number of the less common species including the endangered species *Lomatia tasmanica*. Riparian rainforests dominated by the Huon pine (*Lagarostrobos franklinii*) occur in the area and are considered to be of conservation significance.

The Celery Top Islands in Bathurst Harbour provide a good example of a fire-protected niche providing protection for rainforests. They are particularly important for their unusual natural mix of Celery tops, eucalypts and myrtles. They support unusual red fibrous peat soils.

The uncommon species *Persoonia muelleri* var. *densifolia* is known from these islands where a special *Phytophthora cinnamomi* management area has been established for its protection from the disease - see Plant Diseases (Section 3.9.2).

P. cinnamomi does not typically occur in rainforest but can occur around the edges where *Persoonia muelleri* is located. If rainforest is burnt the disease can become active killing sensitive species within the vegetation.

The Celery Top Islands are also considered by the Aboriginal community as highly sensitive and significant in terms of their Aboriginal cultural and landscape values (Greg Lehman, PWS, pers. comm.). The Aboriginal community desire that there is an absolute minimum of disturbance and visitation to the islands.

3.5.5 Coastal Vegetation

Coastal vegetation consists of a range of structural types including heathlands, shrublands, wetlands and herbfields. The integrity of the coastal vegetation is presently good but it is a vegetation type that is particularly vulnerable to weed invasion and erosion from trampling. The establishment of weeds presently rare in the area could lead to major changes in the geomorphic processes and the ecology of the communities. Most of the rare species listed for the area, *Agrostis aequata*, *Crassula moschata*, *Lepidium flexicaule* and *Ranunculus acaulis* occur in coastal vegetation. Weeds of particular concern are sea spurge (*Euphorbia paralias*) and marram grass (*Ammophila arenaria*). See Introduced Terrestrial Pests (Section 3.9.1).

All communities present in the area are considered to be well reserved.

3.5.6 Wetland Vegetation

Wetland vegetation in the Melaleuca area occurs as tidal salt marsh, shallow estuarine waters and fresh deep-water marsh. Salt marsh is common on the banks in sheltered coves along Melaleuca Inlet and is dominated by a mixture of herbs common in similar vegetation on the south coast of Tasmania. The marshy areas surrounding the creeks and lagoons are typically dominated by tea-tree, which forms a shallow freshwater scrub.

Leptocarpus tenax rushlands occur in more permanently wet situations that are common around the edges of Melaleuca Lagoon and where sediment has built up along Melaleuca Inlet.

Wetland communities are generally well reserved in Tasmania but it is unclear how the swamp communities at Melaleuca relate to those occurring elsewhere, and the tea-tree swamp community has a fairly distinctive structural composition. The salt marsh community is relatively uncommon and restricted in its distribution and is considered of conservation significance.

3.5.7 Alpine Vegetation

The Melaleuca – Port Davey area does not contain any true alpine areas, however alpine vegetation communities do occur at higher altitudes on mountain slopes such as Mt Rugby. This region is a stronghold for the listed alpine species *Persoonia moscalii*.

Management Issues

High burning frequencies and intensities that cause the erosion and removal of peat can degrade Buttongrass moorland. Ongoing research and monitoring of species responses to burning is necessary to define the ideal fire management regime to maintain peat soils, and species diversity and habitat for rare and endemic species in moorlands. Long-term monitoring sites have been established and should not be interfered with.

An even more significant threat than fire to the integrity of buttongrass moorlands is the infection by the root rot fungus *Phytophthora cinnamomi* - see Plant Diseases (Section 3.9.2).

Fire intervals are critical to the maintenance of scrub. Scrub vegetation may be eliminated by several short intervals between fires but may expand into moorland if the time interval between fires is long enough to enable the production of large quantities of seed. The root rot fungus may impact on the scrub edge but is not likely to affect species beneath the closed canopy of undisturbed scrub vegetation.

All alpine areas and forests (particularly rainforests) are to be given a high priority for protection from fire. Fire management regimes should be planned to promote the expansion of tree dominated communities whilst ensuring that the diversity within buttongrass moorlands is maintained.

See also Fire Management (Section 3.8).

The WHAMP, 1999 makes provision for the designation of three types of Scientific Area within the WHA; Reference Areas, Benchmark Areas and Sites of Special

Significance. There is merit in designating the Celery Top Islands as a Scientific Area.

Commercial tourism operators currently use the unnamed second island from the west (Grid Ref: 977308 on Melaleuca 1:25,000 map). Evidence of localised vegetation damage, ground compaction and informal track development on this island is of concern and should be monitored. Visitor access should be permitted to this island only, subject to monitoring of site impacts and measures put in place to minimise the spread of *Phytophthora cinnamomi*.

Objective - Flora

- To conserve natural flora diversity, rare or threatened flora species, and plant species and communities of conservation significance.

Policies and Actions

- **As a priority, designate the Celery Top Islands as a Scientific Area to protect their natural, cultural and scientific values.**
- **Public use of all islands, except the unnamed second island from the west (Grid Ref: 977308 on Melaleuca 1:25,000 map), of the Celery Top Islands is discouraged to protect and maintain their natural and cultural values.**
- **Investigate, and implement if approved, declaring some areas on the unnamed second island from the west of the Celery Top Islands as limited access under the *National Parks & Reserved Land Regulations 1999*.**
- **Public use of the unnamed second island from the west of the Celery Top Islands is subject to hygiene measures being applied before going ashore to prevent the introduction of *Phytophthora cinnamomi* - see Plant Diseases (Section 3.9.2). This**

arrangement will be monitored to ensure natural and cultural values are being protected and maintained, and changes made if necessary.

- **Avoid development of and access to areas where plant species and communities of conservation significance exist.**
- **Support and facilitate research and monitoring of the impact of fire on plant species and communities within the area.**
- **Support and facilitate surveys, monitoring and research of rare or threatened plants and communities.**
- **Maintain facilities to assist and support research activities within the area.**

See also Policies and Actions under Fire Management (Section 3.8).

3.6 Fauna

The fauna of the Melaleuca area is predominantly determined by the available habitats. Buttongrass moorland and wetlands are the dominant habitats with pockets of rainforest, wet forest and tea-tree scrub.

In general terms, buttongrass moorlands do not support as high a diversity of fauna as other habitats, e.g. eucalypt forest. Nevertheless, they do contain a unique community of fauna. Peat mounds within the buttongrass moorlands provide important nesting habitat and shelter for a range of species as they are well drained and provide greater cover than the surrounding moorlands.

The waters of Bathurst Channel contain an outstanding marine invertebrate community of major scientific significance - see Port Davey–Bathurst Harbour Marine Ecosystems (Section 3.4).

For information on introduced fauna species, see Introduced Pests and Diseases – Introduced Terrestrial Pests (Section 3.9.1) and Introduced Marine Pests (Section 3.9.3).

3.6.1 Mammals

Twenty-one of Tasmania's 34 native terrestrial mammal species occur in the Melaleuca area, including three of Tasmania's five endemic species – the eastern quoll, Tasmanian pademelon and long-tailed mouse. Buttongrass moorland provides habitat for wallabies, wombats, quolls, swamp rats, swamp antechinus and the rare broad-toothed mouse. The forest and tea-tree scrub provide habitat for a number of other mammals including possums, pygmy possums, long-tailed mice and some bat species. Platypuses and water rats occur in aquatic habitats.

3.6.2 Birds

Over 110 species of Tasmania's 191 regularly occurring native bird species have been recorded near Melaleuca, including eight of the 11 Tasmanian endemics – the green rosella, dusky robin, Tasmanian thornbill, scrubtit, yellow-throated honeyeater, strong-billed honeyeater, yellow wattlebird and black currawong.

Although buttongrass moorland has a relatively low diversity of bird species, it does provide habitat for two species with high conservation value - namely the orange-bellied parrot and ground parrot. The orange-bellied parrot (“OBP”) forages in low-lying moorland habitat but nests in the isolated pockets of forest. The ground parrot, which is listed as threatened on mainland Australia but not in Tasmania, is relatively common at Melaleuca. Other common moorland species are the striated field-wren and southern emu-wren.

Melaleuca is probably the best place in Tasmania to observe the firetail finch, which visits the Bird Hide feed table in large numbers.

The rivers, lagoons, bays and associated wetlands are habitat for several species of duck, black swan, white-faced great heron, cormorant, Caspian tern, gull and sooty oystercatcher, among others. They also act as important breeding and nursery areas.

Refer to Threatened Fauna (Section 3.6.6).

3.6.3 Reptiles and Amphibians

Seven of Tasmania's 21 reptile species and four of its 11 frog species are found in the area. This includes three endemic reptiles – the Tasmanian tree skink, ocellated skink and the sheoak skink, and three endemic frogs – the Tasmanian tree frog, Tasmanian froglet and the recently discovered moss froglet. The metallic skink and white-lipped snake and brown froglet are common in the area, particularly in buttongrass moorlands. Melaleuca is also a good place to hear the Tasmanian tree frog, which occurs in deep moorland pools.

3.6.4 Fish

Eight of Tasmania's 25 native freshwater fish have been recorded from the rivers flowing into Bathurst Harbour and Port Davey. The climbing galaxias is the most common freshwater fish species. The most significant feature of the freshwater community in this area is the current absence of introduced trout. Thus this aquatic system has very high conservation value, as there are very few freshwater/estuarine systems in Australia where introduced fish species have not been recorded.

See Port Davey – Bathurst Harbour Marine Ecosystems (Section 3.4) for information on marine fishes.

3.6.5 Invertebrates

Compared to other parts of Tasmania, a considerable amount of invertebrate survey work has been conducted at Melaleuca as part of the Wilderness Ecosystem Baseline Studies. These studies involved scientists from around

Australia visiting the area to improve our knowledge of fauna, particularly invertebrates. Over 100 species of invertebrates representing 12 major insect groups have been collected from the area. Considerably more survey work is required to gain a full assessment of the invertebrate biodiversity.

Buttongrass moorland at Melaleuca is dominated by species belonging to the Diptera (flies), Collembolla (springtails), Acarina (mites), Areneae (spiders) and Hemiptera (bugs).

A significant feature of buttongrass moorlands in the area is the numerous burrowing crayfish holes. Burrowing crayfish have been described as a keystone species. Their burrows provided habitat for a range of aquatic species and they provide a source of water when the moorlands dry out over summer. At least 14 species of burrowing crayfish are currently being described for Tasmania. One species, currently described as *Parastacoides tasmanica insignis*, is the most common burrowing crayfish in the area. Another species of burrowing crayfish, currently known as *Parastacoides tasmanica inermis*, has a restricted distribution in the area (but is more common elsewhere in Tasmania) as it only occurs in a few isolated patches of remnant rainforest. These remnant patches of rainforest provide habitat for a range of invertebrate species including velvet worms and a primitive species of moth, *Sabatinca*. Unlike most other moths, *Sabatinca* has jaw-like mouthparts for chewing on the spores on the undersides of ferns.

Many of the invertebrate taxa of buttongrass moorlands as well as other habitats at Melaleuca tend to belong to Gondwana groups or older (Pangaea) and have affinities to New Zealand and/or South America.

A pilot survey of Bathurst Channel has revealed the presence of a distinct assemblage of marine invertebrates of major scientific significance - see Port

Davey – Bathurst Harbour Marine Ecosystems (Section 3.4).

3.6.6 Threatened Fauna

There are presently five vertebrate species listed on the Schedules of the Tasmanian *Threatened Species Protection Act 1995*, which occur within the Melaleuca – Port Davey area.

Endangered: orange-bellied parrot, wedge-tailed eagle, grey goshawk.

Rare: fairy tern, New Zealand fur seal.

The wedge-tailed eagle is quite rare at Melaleuca and probably nests in forest habitat. The rare grey goshawk has also been recorded in the area.

Fairy terns breed in the James Kelly Basin area.

The New Zealand fur seal is probably not a common visitor to Bathurst Harbour but has been recorded in Port Davey. It is believed there is a haul out site near Port Davey Head. They breed on Maatsuyker Island.

3.6.7 Threatened Fauna Species: The Orange-bellied Parrot

Melaleuca is the principal breeding location for the critically endangered orange-bellied parrot (*Neophema chrysogaster*). It is estimated that as much as 90% of the wild breeding population of this parrot occurs within 10 kilometres of the Melaleuca landing area (Mark Holdsworth, NCB, pers. comm.). This high percentage is thought to be due largely to a favourable fire regime adopted historically at this site, where regular burning has produced a mosaic of moorland age classes, which favour this ground feeding bird. The population is estimated to be no more than 200 adults.

During the summer, the orange-bellied parrot (OBP) lives on the open coastal plains of Southwest Tasmania. It feeds in these buttongrass plains on the seeds of a range of vegetation types including *Lepyrodia tasmanica*, *Restio complanatus*,

Boronia citriodora, *Boronia parvifolia*, *Xyris marginata*, *Actinotus bellidioides*, and *Helichrysum pumilum*.

The OBP breeds in hollows in trees either along the margins of rivers and bays or on the edge of woodlands on hill slopes, mainly to the east of the Melaleuca valley.

The OBP is an obligate migratory species, departing its breeding locations in March and April, wintering in the coastal salt marshes of southern Victoria and South Australia, and returning to Tasmania in early October.

Concern for the survival of the OBP has been considerable. A National Recovery Program and Recovery Plan for the species have been prepared. The governments of Victoria, South Australia and Tasmania, the Commonwealth Government, Healesville Sanctuary (Vic.), Birds Australia (formerly the Royal Australasian Ornithologists Union) and World Wide Fund for Nature have joined forces in an effort to save the parrot from extinction.

Part of this program involves summer volunteers monitoring the Melaleuca population of the OBP. A program of supplementary feeding and the provision of artificial nest boxes is also being used as a management tool to assist with the recovery of the species.

Management Issues – Fauna

Fire management is required to provide a range of habitat types and ages in the Melaleuca area. Areas should be set aside from burning to enable species that require older stage vegetation to survive. The NCB is currently investigating the impacts of fire on fauna with the aim of developing management prescriptions to protect biodiversity.

The continuation of Melaleuca for wilderness ecosystem baseline studies is important. This arrangement could be formalised by making the site a Scientific Area. See Scientific Research and Monitoring (Section 3.12).

Management Issues – Threatened Fauna

Funding provided through the Natural Heritage Trust (NHT) program for the Orange-bellied Parrot Recovery Program was significantly reduced for 2000/2001. Similar funding cuts have been experienced for many national Endangered Species Programs. The Program Co-ordinator recognises that it is important to seek other funding sources. See Facilities and Services – Melaleuca Visitor Services Site (Section 4.5.4).

The maintenance of quality OBP habitat is critical to their survival. They require secure breeding and roosting sites. Tree hollows in mature trees are used for nesting, tall dense scrub is used for roosting and moorland is used for feeding.

The OBP prefers feeding on the new shoots and seeds of the buttongrass, which grow after fire. It has been suggested that the OBP have become scarce since regular burning of the Melaleuca area, as practiced by the Aborigines, has stopped (Green & Painter, 1997, unpub. report). Further research on the relationship between the Aborigines and the OBP, perhaps as part of the OBP Recovery Program, is desirable. See Aboriginal Landscape Management (Section 3.7.2).

See Introduced Terrestrial Pests (Section 3.9.1) for threats to the OBP from introduced species such as feral cats and starlings.

Ecology Australia Pty. Ltd. was contracted by PWS to examine the effects of human, aircraft and helicopter disturbance on the OBP at Melaleuca. Fieldwork was conducted in January 2000 (human and aircraft activities) and in January 2001 (helicopter activities).

The Report, *Aircraft and Human Activity at Melaleuca and the Orange-bellied Parrot (Neophema Chrysogaster)*, May 2000 suggested that OBPs are relatively habituated to the regular approach and exit flight paths, noise levels, size and shape of small fixed wing aircraft (Cessna 172, 182

and 206). Slight variations in regular aircraft activity may occasionally cause wary individuals to cease feeding or take flight. OBPs at the feed table were shown to have a ranging level of tolerance to people visiting the bird hide. They are sensitive and react to sudden or sharp noises or movements.

It cannot be assumed, however, that the increase in aircraft and human activity at Melaleuca over the last decade has not had any impacts on breeding success or population size. Unfortunately, the scarcity of the OBP combined with the inaccessibility of the WHA does not allow for these results to be compared with a control population that has no human disturbance. A precautionary approach to management decision-making is therefore warranted.

The second report (draft), *Aircraft and Human Activity at Melaleuca and the Orange-bellied Parrot (Neophema Chrysogaster): The Effects of Helicopters*, April 2001 concluded that OBPs at the feed table have a lower tolerance to helicopters than to fixed-wing aircraft which currently visit Melaleuca. The disturbance levels tested with the helicopter were insufficient to cause OBPs to leave the feed table, but were sufficient to cause most birds to cease feeding. Frequent helicopter use may affect energy budgets. The behaviour of OBPs away from the feed table with respect to helicopter disturbance was not investigated. Human disturbance in the form of people in or near the bird hide or on the access track during the helicopter disturbance can cause OBPs to leave the feed table (2001, 19).

Recommendations from these reports included the following statements.

- PWS instigate precautionary measures to control human and aircraft visitation before disturbance increases to a level where demonstrable impacts occur (e.g. monitoring aircraft, boating and human visitation).

- If there is any evidence of a decline in orange-bellied parrot numbers, recruitment, etc., PWS should introduce permit and quota systems and have greater control over the number of people, boats and aircraft visiting Melaleuca.
 - PWS initiate annual workshops with commercial aircraft and helicopter companies operating at Melaleuca and a representative for private aircraft to discuss the Fly Neighbourly Advice (FNA) guidelines – including the formulation of new FNA guidelines for helicopter pilots, importance of Melaleuca to the OBP, optimal flight paths, pilot education and the recording of visitors.
 - Any proposed development at Melaleuca that potentially involves direct or indirect impacts on the OBPs (e.g. landing area extension, increase in helicopter activity, accommodation) should be subject to an environmental impact assessment.
 - Visitor disturbance around the hide and feed table could be minimised through use of signs, appropriate clothing for visitors and sound buffering in the hide.
- **Implement the management recommendations contained in the two reports prepared by Ecology Australia for PWS on the effects of aircraft, helicopter and human disturbances on the orange-bellied parrot, as appropriate.**
 - **Support the continuation of the *Orange-Bellied Parrot Recovery Program*.**
 - **Develop a joint research project between PWS, NCB and the Aboriginal community to investigate the relationship between the Aboriginal community and the orange-bellied parrots. Information from this project should be considered for inclusion in the display at the bird hide.**
 - **Encourage and facilitate fauna surveys that will improve our understanding of biodiversity values and ecosystem processes in the area.**
 - **Assess the value of peat mounds for fauna conservation.**
 - **Conduct research into the impacts of human-induced noise on fauna in the area.**
 - **Increase the area of habitat for the broad-toothed mouse in the Melaleuca area through the establishment of an appropriate fire regime.**

Aside from the above reports focussing on the OBP, the impacts of human-induced noise on other fauna species in the area has not been researched. See Environmental Quality – Noise (Section 3.11.3).

See also Policies and Actions under Fire Management (Section 3.8).

Objectives – Fauna

- To minimise impacts on native fauna and their habitats from human activities.
- To conserve threatened fauna species, in particular the orange-bellied parrot.

Policies and Actions

3.7 Heritage and Landscape

3.7.1 Aboriginal Heritage and Landscape

The Early Aboriginal Landscape

Evidence shows that Aboriginal people have lived in Tasmania continuously from

at least 35,000 years ago. There were nine tribes in Aboriginal Tasmania, each comprising from five or six to 15 bands, with possibly 40-50 people in each band (Rhys Jones, in Ryan, 1996, 14).

The Port Davey and Cox Bight areas were the territory of the Ninene and Needwonnee bands respectively, who belonged to the South West tribe. The total population for the South West people was between 200 and 300 (Rhys Jones, in Ryan, 1996, 38).

The Aboriginal community consider the area of Melaleuca – Cox Bight to be a "creation landscape" and therefore of great significance. G. A. Robinson recorded some details of creation stories associated with this area (the Moinee story) in 1831 (Plomley, 1966, 376). The story told by Woorrady accounts for the creation of the first Tasmanian Aboriginal man, who was made from a kangaroo.

Lyndall Ryan, in her book, *The Aboriginal Tasmanians*, 1996, provides us with a very good insight into the lives of the South West people.

"The economy of the South West people was focussed on the seashore and the coastal plain immediately behind it. Major foods were shellfish, crayfish, seals, wombats and macropods. Vegetable foods were less abundant and thus not as important in the diet as they were elsewhere in Tasmania... (They) lived in local "villages" of beehive-shaped huts situated close to fresh water and food-collecting areas. Movement was mostly parallel to the coast along well-defined footpaths... Rivers and harbours were crossed by catamarans... They moved towards Macquarie Harbour or Port Davey (during the egg season in late winter). They obtained ochre at Cox Bight... The South West people had access north across Macquarie Harbour or east along the coast past South East Cape to Recherche Bay... They visited the Maatsuyker and De Witt Islands during the summer to hunt seals... In winter, they sometimes visited the South East people at Bruny Island. (Ryan, 1996, 38-39).

European Contact and Invasion

From around 1804 whalers and timbercutters paid seasonal visits to the territory of the South West tribe. By 1830 the Aboriginal population had declined from several hundred to about 60, many reported to have died from influenza and European diseases, to which they had little resistance (Ryan, 1996, 131). From the many reports of Aborigines observed to be injured by gunshots, it is clear that direct attacks on Aboriginal people were also occurring.

On 1 December 1829, Lieutenant-Governor George Arthur gave George Augustus Robinson permission to undertake an expedition to Port Davey "for the purpose of endeavouring to effect an amicable understanding with the aborigines (sic) in that quarter, and through them, with the tribes in the interior." (Plomley, in Ryan, 1996, 129.)

It appears Robinson initially sought the "voluntary surrender" of all Aborigines in Tasmania to save them from extinction and civilise them in an area away from the settlers' guns (Ryan, 1996, 134). Unfortunately, the period of "voluntary surrender" was short. In urgency to complete his task of "bringing the Aboriginal people in", force was used during Robinson's second expedition of May-August 1833 into the area of the South West people.

Sixteen Aborigines residing south of Macquarie Harbour were captured on 12 July and taken by ship to Flinders Island (Ryan, 1996, 168-169). Aborigines from around the west and southwest were taken to Sarah Island, where they were abused by convicts caged one floor above in the new penitentiary (Strahan Visitor Information Centre – display).

3.7.2 Aboriginal Landscape Management

The area is important to today's Aboriginal community for:

- its creation landscape value,
- its protection of Aboriginal sites through the World Heritage Area listing, and
- management of the landscape – fire was one of the major influences on the area.

Aboriginal cultural heritage is much broader than isolated physical sites or features; it includes the use and management of plants, animals and other resources, and the rights and obligations of the Aboriginal people to care for and control their heritage. Traditional landscapes represent an important Aboriginal value.

In 1996 the Tasmanian Aboriginal Land Council (TALC) produced a report titled *Aboriginal Management in the Tasmanian World Heritage Area*, on contract from the Parks and Wildlife Service.

The report identified the following as areas of interest to the Aboriginal community: burial grounds, caves, traditional animals, plants and minerals (eg. ochres), fire, sites (landscapes), interpretation, native forests and tracks. This list is not exhaustive.

The report also stressed the need for a survey of the valley between Cox Bight and Melaleuca (within the Southwest Conservation Area). The results of the survey were produced in the report *A Survey for Aboriginal Values at Cox Bight and Melaleuca: A Report to the Tasmanian Aboriginal Land Council and the Parks and Wildlife Service*, 1997, by Chris Green and Ruth Painter. This report noted:

That the Cox Bight-Melaleuca area is highly significant to the Aboriginal community and that the area contains spiritual associations and traditional

resources which are used by the present-day Aboriginal community. The Aboriginal community see it as a priority to keep cultural links to the land through Aboriginal land management and the continuation of traditional practices. (Green & Painter, 1997, vi)

Recommendations made in the Cox Bight-Melaleuca report include:

- development of a strategy for Aboriginal involvement in fire management;
- development of a research project on the history and techniques of Aboriginal fire management;
- investigation into the relationship between the Aboriginal community and the Orange-bellied parrot;
- development of guidelines for the protection of Aboriginal values for user groups (eg. fishers, bushwalkers); and
- protection of Aboriginal sites.

A detailed case study of Aboriginal values at Melaleuca, building on from the 1997 report and planned as a joint project between TALC, PWS and THO, has been deferred for the time being.

The WHAMP, 1999 declares that the PWS recognises the special relationship that exists between the Tasmanian Aboriginal community and the World Heritage Area – which includes Melaleuca – Port Davey area.

The Objectives and Key Focus Areas in the WHAMP, 1999 together speak of co-management and a partnership between the Aboriginal community and the PWS in the management of issues and values of the WHA.

Management Issues

Management actions and policies need to recognise that a special relationship exists between the Aboriginal community and the WHA. The Aboriginal community wishes to progressively increase their involvement in the management of the area of this plan, comprising the WHA, adjacent Melaleuca Visitor Services Site

and the SWCA Melaleuca – Cox Bight corridor.

Melaleuca has been identified as a significant site for Aboriginal interpretation. See Information, Interpretation and Education (Section 4.3).

Objectives – Aboriginal Heritage and Landscape, Aboriginal Landscape Management

- To foster the development of a close and co-operative working relationship between PWS and the Aboriginal community in the management of the area.
- In partnership with the Tasmanian Aboriginal community, to research, conserve and, where appropriate, present Aboriginal cultural heritage places, landscapes and values.

Policies and Actions

- **Management of the area's Aboriginal heritage will be undertaken in partnership with the Aboriginal community.**
- **Continue to identify priorities for the management of Aboriginal values in the area in consultation with the Aboriginal community.**
- **Support and encourage research into Aboriginal cultural knowledge to assist in land management, and to inform the protection of Aboriginal values.**
See also Flora (Section 3.5.4), Threatened Fauna Species: The Orange-bellied Parrot (Section 3.6.7), Fire Management (Section 3.8) and Information, Interpretation and Education (Section 4.3).

3.7.3 Historic Heritage and Landscape

Whaling

Whaling was a significant industry in Tasmania during the first half of the 19th century. The main quarry was the southern right or 'black' whale, which passed close to the Tasmanian coast during its annual migration north from Antarctica during the winter months (Evans, 1993).

In circa 1828, Mr W Bethune was granted leave to send a whaling party to Port Davey. His was the earliest known application to whale the waters of Port Davey and the surrounding southwest coastline. Two new whaling leases were taken out in the late 1850s; Mr James Smith for a whaling station site at Bramble Cove in 1856, and Mr William Durt for the same in 1859. A separate application to occupy islands in the vicinity, possibly Turnbull Island and North Breaksea Island, was made by Dr Crowther in 1858 (Kostoglou, 1995).

The settlement at Bramble Cove during the late 1850s consisted of several houses, a cemetery and tryworks. The cemetery had evidently consisted of a number of timber grave markers, though by the mid 1870s, only two of these markers remained *in situ* (ibid).

Three whaling station sites existed in the Bramble Cove vicinity, two of which are better known. Smith's Bramble Cove whaling station was active till the early 1870s, when whaling along the southwest coast of Tasmania had almost ceased. Site features include fireplaces (all but destroyed through subsequent human impact), quartzite stones, a scatter of whalebone and artefacts. Durt's Bramble Cove whaling station had been abandoned at the end of the 1860s. Historic features associated with this site include artefacts, a well-preserved dry stacked chimney base and several stone structures.

Located on the rocky headland at the eastern end of Bramble Cove beach is a

rock shelter site. It consists of friable sandstone. This site may be whaling related.

Pining

Shortly after 1815 a Dr Thomas William Birch was granted a year's concession to cut Huon pine at Port Davey and Macquarie Harbour. In the late 1830s stands of Huon pine forests were found at the headwaters of the Spring and Davey Rivers. A village at Settlement Point at the mouth of the Davey River once had 50 people living there. Remnants of old pine pens, sawpits and chimney mounds still exist. On the opposite side of the river from Settlement Point was a second village known as Piners Point. Pining continued at Port Davey on a diminishing scale until the late 1870s, when most of the easily accessible and suitably sized stands of trees were almost cut out, and the settlements abandoned. Large numbers of very big trees that could not be handled by piners of that period still remain.

Commercial Fishing

The history of the commercial fishing industry of the area dates back a century or more (see Harry O'May's book '*Shipwrecks in Tasmanian Waters*'). On 5 November 1904, the barque, *Brier Holme*, was wrecked on a reef approximately 20 kilometres north of Port Davey. The sole survivor, Oscar Larsen, was washed ashore and his subsequent survival was due to fishers working at Port Davey.

Clyde Clayton was a commercial fisher in the area. He built his second house and associated buildings where he did (Claytons Corner) because of his work and livelihood as a fisher. Claytons house has great significance to the fishing community. Some fishers have at their own cost put a great deal of energy and time into restoring and maintaining Claytons and other infrastructure in the area.

Exploration and Mining

A reward lease for antimony (a mineral deposit) existed in 1897-1912 at Joe Page Bay. A second similar lease at the same location was held and worked by King and Clayton during the 1970s (Gee & Fenton, 1983, 229).

Cassiterite (tin oxide) was discovered in the bank above Melaleuca Creek in 1935. Following this discovery, the New Harbour Company was set up. Production started in 1936 with a labour force of 19 people. Accommodation was built at what is now Deny King's garden. The company was disbanded in 1937. The lease was sold to Eric Brock who continued to work the mine over the next two years.

Charles George King took over the mining lease in 1941 and was joined in 1945 by his daughter, Win, and son, Deny, who worked the mine until 1985 when he was 76. Several other leases in the Melaleuca area were worked on and off mostly on a small scale. These included Qintex Ltd., which carried out exploration work and set up a pilot plant at Melaleuca in 1974 but never started any serious mining.

Peter and Barbara Willson arrived at Melaleuca in 1974. They bought the lease from Charles' daughter, Win, acquired by forfeiture further leases from Qintex, and continue to mine the tin oxide to the present day.

Deny King lived at Melaleuca with his wife Margaret and their children Janet and Mary. They built the house at Moth Creek in 1946, developed a garden, constructed several structures associated with the tin mine.

In the period 1955-1957, Deny King built the Melaleuca landing area with a grant from the former Mines Department. It was initially a private landing area for the use of miners and their families, but was taken over by the Government in 1977. The landing area was extended in the late 1970s. Responsibility for the maintenance of the landing area was transferred to the Department of Roads and Transport. In

1991, the Parks and Wildlife Service assumed responsibility for the landing area.

Deny King also built the two walkers huts at Melaleuca with the help of the Launceston and Hobart Walking Clubs. The Charles King Memorial Hut (one of the two huts) was built in 1960 as a memorial to his father and to accommodate walkers. Of Nissan Style construction, it was built from corrugated iron with bush timber frames and a wooden floor. Several walking clubs contributed to the costs of some furnishings. See the following section on historic heritage sites for a statement of the significance of this hut.

Deny and members of the Launceston Walking Club built a second walkers hut in 1979-1981. It is of similar construction to the Charles King hut. The second walker hut is of probable social heritage and recreational value, and may have historic heritage values.

Deny King was a keen observer of the weather, plants and animals and a keen painter. He was a popular figure and is a significant focus of historic interest in the Melaleuca area. After the cessation of his mining activities he continued to live at Melaleuca until his death in 1991.

Win King married fisher Clyde Clayton and they lived initially at Bond Bay and later at Claytons. Located on the northern bank of Forest Lagoon, Claytons contains a jetty, house, shed, boathouse site and garden.

Win was a keen gardener, and her garden plants, such as the rhododendron, continue to provide a tangible link to the Clayton's occupancy of this site.

The house was built in 1964, and sold to the National Parks and Wildlife Service in 1976. Today, the value of the site lies in its association with the King and Fenton families and with its social heritage and amenity value for the fishing and boating communities, visitors and bushwalkers.

The South Coast Track extends between Cackle Creek and Melaleuca. It is likely the track follows the same route as that used by Aborigines in the past (Green & Painter, 1997).

The Old Port Davey Track (also known locally and unofficially as the Port Davey Track) was surveyed in 1898. It was soon upgraded to packhorse standard. It linked the South Gordon Track to the Port Davey area. The section of the old track between Lower Spring River and Joe Page Bay was bypassed in the 1960s when a new section of track was built between Lower Spring River and Bathurst Narrows.

Original benching and other remains of the old trackwork still survive along parts of the Old Port Davey Track.

Historic Heritage Sites

A number of historic heritage sites in the Melaleuca – Port Davey area have been identified as potentially culturally significant (Table 3).

Much of the developed parts of Melaleuca can be considered as an historic landscape associated with remote 19th and 20th century settlements in wilderness areas. Such landscapes and their specific heritage elements are under-represented in Tasmanian historic sites and Melaleuca is considered to be of State significance in terms of its settlement and small-scale mining operations.

Table 3 Historic Heritage Sites

LOCATION	FEATURE	SIGNIFICANCE
Settlement Point, Davey River	Extensive remains (mostly wood)	Historic value - 19 th century Huon pinning industry
Piners Point, Davey River	Remains of domestic structures	Historic value – 19 th century Huon pinning industry
Davey River	Carver's Boat Yard – sawpits	Historic value – 19 th century Huon pinning industry
Bond Bay	Claytons Old House Site – garden	Historic association – Clayton & King families
Turnbull (Sarah/Tonguers) Island, Bathurst Channel	Station/Settlement – stone built fireplace, whale bone fragments	Historic value – early 19 th century whaling industry
Bramble Cove Beach 1, Bathurst Channel	Whalers Cemetery – timber grave markers	Historic value – early 19 th century whaling industry
Bramble Cove Beach 2, Bathurst Channel	Barrel Site – wooden staves of a barrel	Historic value – early 19 th century whaling industry
Bramble Cove, Bathurst Channel	Smith's Whaling Station – fireplaces, camping area, artefact scatter, whale bone scatter	Historic value – early 19 th century whaling industry
Bramble Cove, Bathurst Channel	Durt's Whaling Station – stone chimney bases	Historic value – early 19 th century whaling industry
Bramble Cove, Bathurst Channel	Rock Shelter – shelter, stone wall, excavation	Historic value – early 19 th century whaling industry
Hixson Point, Bathurst Channel	Observatory – concrete slabs and pit	Probable exploration and scientific endeavour value
Parker Bay, Bathurst Channel	Critchley Parker's Grave – headstone, grave, wooden cross	Social value
Joe Page Bay, Bathurst Channel	Mine Site – pits and trenches	Probable historic value – early 20 th century antimony mining industry
Joe Page Bay, Bathurst Channel	Post, Pick and Pit – wooden post, "Cornish" pick, pit	Possible value – part of King's & Clayton's mining activities in the 1950s
Spring River, Bathurst Channel	Settlement – schist fireplace, depression, pine and artefact scatter	Probable historic value – 19 th century Huon pinning industry
Spring River, Bathurst Channel	Pine Pens	Probable historic value – 19 th century Huon pinning industry
Clytie Cove, Bathurst Narrows	Benchmark – HMAS <i>Geranium</i> 1922 – Royal Navy maritime survey (AUS Chart 176)	Scientific value – 20 th century maritime
Bathurst Narrows	Lindsay Hill Shafts – possible shaft and trench	Probable historic value associated with early 20 th century antimony mining industry, cultural landscape

LOCATION	FEATURE	SIGNIFICANCE
		value
Old River, Bathurst Harbour	Stone Store – slabs of schist, stone floor	Probable historic value
Forest Lagoon	Claytons – house, shed/garages/workshops, garden	Historic association with Clayton & King families, social association with recreational user groups
Melaleuca Inlet	Channel Markers – branches, beer cans	Form and route of markers likely to be of cultural value associated with the King family
Melaleuca	Charles King Memorial Hut	Historic value and association with Deny King, social value for King & Fenton families and bushwalkers
Melaleuca	Second bushwalkers hut	Probable social value
Melaleuca	King's Residence – house, workshop, Karina's hut, bird feeding hut, CDK hut, studio, peat shed, boatshed, woodshed, dinghies (Scamp & Nifty), wind vane, children's swing frame, wind generator, anemometer, chook house, garden and jetty	Association with King & Fenton families
Melaleuca	Airstrip Nearby earlier corduroy airstrip (physical remains) Nearby peat-drying site	Historic association with Deny King Historic value – King family subsistence activities
Melaleuca	Mine Site – welding shed, vehicle shed, caterpillar shed, trommel, jig, streaming flume, D2 shed, switch room, sluice gate, Southern Cross shed, derrick & winch, lift platform, pump shed	Historic association with King family and previous mining interests
Cockle Creek – Melaleuca	South Coast Track	Historic, cultural and social value as a route
Melaleuca – Scotts Peak	Old Port Davey Track	Historic and cultural value as a route

Management Issues

A number of the above historic heritage sites are either unassessed, in poor condition or lack conservation plans. Without knowing the condition and vulnerability of known historic heritage sites, a loss of historic values may occur with uncontrolled access to and use of such sites. Particular concern is held for the Bramble Cove whaling sites and the Settlement Point site.

The condition of the fragile and vulnerable historic sites at Bramble Cove has been deteriorating for some years. The Smith's whaling station site has suffered considerable disturbance and merits protective action to prevent further damage. Similarly, Durt's whaling station site should be left undisturbed (Kostoglou, 1995).

The Turnbull (Sarah) Island station/settlement represents the final phase of the whaling industry, and therefore should be protected. This site's fragile nature does not lend itself to public interpretation (Kostoglou, 1995).

The Clayton's house site and garden at Forest Lagoon are in poor condition and require ongoing maintenance to keep them in a satisfactory condition. A Friends of Claytons Group has recently been established to carry out this task.

The historic Huon pinning site at Settlement Point is one of the key historic heritage sites in the WHA. It is in a vulnerable and deteriorating condition. The nature of the remains – mostly wood, is such that foot trampling – either intentional or unintentional – will easily damage the site in its current unprotected state. The site requires stabilisation before visitors can be directed or encouraged to the site.

Assessment of these sites is urgently needed and appropriate site protection works (eg. stabilisation and hardening works, directing public access) put in place. Only after this has been done, should controlled visitor use and commercial tours be permitted to the

unassessed or vulnerable historic heritage sites in the area.

Objective – Historic Heritage and Landscape

- To conserve, and where practicable interpret historic heritage sites and places of potential and recognised cultural significance in the area, subject to cultural sensitivities.

Policies and Actions

- **The PWS, in association with THO, will assess the conservation and maintenance requirements of all significant historic heritage sites in the area as a priority, develop maintenance schedules and implement appropriate protection and management measures.** See Involving the Community (Section 6).
- **Until the condition and vulnerability of some of the known historic heritage sites (in particular the Bramble Cove whaling sites, Turnbull (Sarah) Island station/settlement and Settlement Point huon pinning site) has been assessed, visitor sustainability of sites determined and appropriate site protection measures are in place, visitor use will not be encouraged and the sites will not be promoted.**
- **Removal of structures and exotic plants associated with historic garden sites, and rehabilitation of disturbance will occur only after prior assessment of cultural significance and the risks of exotic plants escaping have been determined.** See Introduced Flora (Section 3.9.1).
- **Research on historic heritage places will be carried out.**
- **Prepare a statement of cultural significance and a conservation**

report for Claytons site as a priority.

- **Continue to support the Friends of Clayton Group.**
See Involving the Community (Section 6).

3.8 Fire Management

3.8.1 Legislative Responsibilities

The PWS is responsible for fire management on all land administered under the *National Parks and Wildlife Act 1970*. It is responsible for preventing the spread of fire from lands vested under its control under the *Fire Service Act 1979*.

Under the *Mining Act 1929*, the holders of mining leases are responsible for fire prevention within their lease. The holders of mining and residential leases are considered "occupiers" of their lease under the *Fire Service Act 1979* and are responsible for preventing the spread of fire from their lease.

3.8.2 Present Burning Regime

Fire management in the area, set out in the *Melaleuca – Southwest Cape Fire Management Plan*, (PWS 1997) aims to:

- Protect people from fire.
- Prevent wildfires ignited in the Melaleuca area from spreading to the surrounding area.
- Conserve natural and cultural values, in particular maintaining Orange-bellied parrot habitat.
- Protect built structures from fire.

Over the past decade a series of hazard-reduction burns have been conducted in the vicinity of the Melaleuca landing area and the Rallinga Mine lease area. The aim of these burns has been to protect infrastructure associated with the two bushwalkers huts, the PWS staff residence, King's lease and Rallinga Mine lease.

The Orange-bellied Parrot Recovery Plan 1998-2002 prescribes the use of fire to

maintain habitat for the OBP. OBP's prefer to feed in areas that are regularly burnt every 3-12 years.

3.8.3 Fuel Stoves

Due to the environment's sensitivity to fire and the localised degradation around campsites due to fuel wood gathering, the entire WHA in 1998 was declared a Fuel Stove Only Area (FSOA). A FSOA is an area where visitors must only use portable cooking stoves designed to burn methylated spirits, kerosene, shellite or gas-based fuels. A FSOA has also been declared over the entire South Coast Track.

The exceptions to this are the constructed fireplaces in the Charles King Memorial Hut at Melaleuca and in Claytons house and two designated campsites on the South Coast Track (Surprise Bay and Deadmans Bay). Fireplaces exist also in the two residential houses at Melaleuca.

The WHAMP, 1999 provides for the continuation of this regime.

Management Issues

In 1999 the PWS initiated a strategy, called the Fire and Ecosystem Management Project. It aims to manage the very extensive areas of buttongrass moorland in the WHA and related areas for their ecological values (ecosystem-management burning) whilst also reducing the risk of wildfires burning fire-sensitive rainforests, alpine areas and subalpine areas (hazard-reduction burning). In consultation with PWS, NCB of DPIWE are presently investigating the role fire plays in affecting ecological values.

The project aims to develop a burning programme that will increase the diversity of vegetation ages across the landscape. This may be possible by implementing a mosaic arrangement of patch burning. Marsden-Smedley and Kirkpatrick (2000) have argued that small patch burning is more akin to Indigenous burning patterns that have led to the formation of the present landscape in the region. The

impacts and response of native species and geomorphology to this management approach will be investigated as the technique is developed and tested.

The hazard-reduction burns at Melaleuca are to be conducted on about a ten-year rotation. The prescribed burning exercise conducted in spring 2000, which became an unplanned wildfire, may, however, necessitate changes in the area's fire management programme.

Many of the significant values of the area are susceptible to degradation by inappropriate fire regimes, for example, relict forest areas and peat soils. Peat soils, which take thousands of years to accumulate, underlie both fire sensitive and fire dependent communities. The protection of the blanket bogs and peat soils from adverse impacts caused by wildfires is critical to maintaining the natural and cultural value of the area. This is best achieved by ensuring that fires only occur when peats are saturated.

See Geodiversity and Geoconservation (Section 3.2) for further information on blanket bogs and peat mounds. See Fauna (Section 3.6) for further information on the relationship between fauna habitat and fire.

With the current re-examination of traditional burning practices, Aboriginal involvement in future fire management is considered critical.

An assessment of the Fuel Stove Only Areas (FSOA) policy may be necessary for Melaleuca and Claytons. At present, the constructed fireplaces at Claytons and the two bushwalker huts at Melaleuca are exempted from the FSOA policy. Damage to local vegetation and a depletion of ground-storey vegetation is occurring. The fireplaces appear to be, however, important for warmth and drying out gear during bad weather conditions. They are also of potential cultural significance.

The WHAMP, 1999 provides for an assessment of the safety and sustainability of fuel supply for fireplaces in active use

in huts throughout the WHA in association with any users that have an interest in these huts (WHAMP, 1999, 109). Such an assessment should be carried out at Claytons and the bushwalker huts at Melaleuca and include issues of sustainability of wood supply, fuel supply, cultural heritage, structure safety, alternative forms of heating and human safety.

Objective – Fire Management

- To ensure fire management is undertaken in accordance with the current fire management plan for the area.

Policies and Actions

- **Protect people, built structures and facilities, and neighbouring properties from fire.**
- **Prevent wildfires ignited in the Melaleuca area from unintentionally spreading to the surrounding area.**
- **Adopt appropriate fire regimes to conserve the natural and cultural values of the area, in particular maintaining OBP habitat, but also including:**
 - **native flora communities and species (particularly rare or threatened species, scrub, alpine areas, forest and rainforest vegetation),**
 - **native fauna habitats and fauna biodiversity (including buttongrass moorlands),**
 - **geodiversity (particularly blanket bogs and associated peat mounds),**
 - **wilderness quality,**
 - **scenic quality,**
 - **Aboriginal heritage and landscapes, historic heritage features, and**
 - **water quality.**

- **Continue to work with the Aboriginal community to involve Aboriginal people in fire management in the area.**
- **Continue to support and assist ecological and fire management research and incorporate the findings, where practicable, into future burning regimes.**
- **Carry out an assessment of the safety and sustainability of fuel supply for fireplaces at Claytons house and the walkers' huts at Melaleuca. Review and modify if necessary the current FSOA policy when the results of this assessment are available.**
- **Continue to promote the use of fuel stoves instead of campfires in the WHA and SWCA to minimise environmental impact.**

3.9 Introduced Pests and Diseases

Melaleuca – Port Davey is free of many introduced pests and diseases. However, because of the unique nature of the marine and estuarine habitats of Port Davey – Bathurst Harbour and important buttongrass habitats at Melaleuca for the OBP, care must be taken to keep introduced pests and diseases out of the area as much as possible. In addition, the limited research and survey work done into introduced pests in Port Davey and Bathurst Harbour indicates a degree of uncertainty about the current position.

All Ship Captains must abide by the *Quarantine Act 1997*, which requires overseas vessels to apply for permission to call at Port Davey.

3.9.1 Introduced Terrestrial Pests

At least 162 introduced flora species have been recorded in the region, but the majority of these records are of plants

within gardens associated with Claytons, the King's and the Willson's house sites.

The number of introduced species occurring within native vegetation is limited to the disturbed environments surrounding the bushwalking huts and gardens at Melaleuca/Forest Lag, and coastal habitats. Weeds so far recorded in native vegetation are listed in Appendix 1.

A WHA Weed Management Plan has been prepared which establishes weed control priorities for 2000-2003. The Weed Management Plan only applies to the WHA portion of this area plan, and does not assess or direct actions within the SWCA at Melaleuca. NCB and PWS recognise that the leaseholders at Melaleuca are responsible for weeds on their residential leases.

The Nature Conservation Branch of DPIWE has prepared an "Introduced Animal Management Strategy for the World Heritage Area (2002)." It contains a number of recommendations for Melaleuca.

A population of the Spanish blue rabbit lives on the Breaksea Islands. A survey of the impact of these rabbits has been completed and photographic monitoring of erosion established.

Feral cats have been occasionally observed in the area and represent a threat to the OBP. Other impacts of cats may be competition with other predators and the spread of the disease, *Toxoplasmosis*. This disease can be transmitted to native animals, birds, insects and people. Cat control by shooting and trapping has occurred throughout the WHA in response to sightings.

Black rats have been recorded in the past but are not currently known to occur in the area.

Only three introduced bird species have been recorded at Melaleuca - the Common blackbird, European goldfinch and the European starling. Regular shootings of small numbers of starlings within the

habitat of the OBP occurs as they occupy the parrot's nest sites.

No introduced frogs or reptiles are known to occur at Melaleuca.

Several introduced invertebrate species have been recorded from Melaleuca, including European wasps, honeybees, bumblebees and earthworms. Feral bees have been recorded occupying OBP nest boxes.

Management Issues

Some of the introduced flora species recorded within the lease areas at Melaleuca have been assessed as having a high risk of invading native vegetation (see Appendix 1). The main concern is introduced species that are bird dispersed.

Due to the heritage value of the rhododendron species (hybrids) associated with garden sites, however, none of these should be removed without consultation with THO to ensure that only the target species is/are effected by control measures. Those without heritage significance should be considered for removal.

If marram grass (*Ammophila arenaria*) is found, this should be removed.

There is clear evidence that the rabbits have altered the vegetation community on Breaksea Islands. Some very palatable plant species are restricted to cliff edges where they cannot be grazed, and other plant species cannot regenerate because their seedlings are eaten. Eradication of these rabbits from Breaksea Islands is necessary.

There is a potential for black rats to be re-introduced into the area, transported in larger aircraft or in boats.

Objectives – Introduced Terrestrial Pests

- To prevent, as far as possible, further introductions of exotic terrestrial

species.

- To eradicate introduced terrestrial species that pose a high risk to the integrity of the native flora and fauna and are not of identified cultural significance, where this is feasible.
- To control and manage introduced terrestrial species where eradication is not practicable or warranted.
- To minimise the impacts of introduced terrestrial species on natural values and visitor enjoyment.
- To prevent, as far as possible, further introductions of exotic fauna species.

Policies and Actions

- **Carry out the weed control priorities for the area as identified in the WHA Weed Management Plan 2000-2003, in consultation and co-operation with leaseholders at Melaleuca where appropriate. These are:**
 - Claytons - remove *Cotoneaster* species and monitor for the reappearance of this and other species removed previously from the site.
 - Investigate the presence of blackberry infestations at Bramble Cove.
- **Monitor and manage the introduction of new plants to the area.**
- **Within the residential and mining leases at Melaleuca, introductions of plant species that have potential to become invasive and are not of cultural significance will not be permitted in accordance with the existing leases.**
See Historic Heritage and Landscape (Section 3.7.3).

- **Encourage the removal of existing garden species having a high risk of invasion and which are not of heritage significance.**
See Appendix 1: Introduced Terrestrial Flora.
- **Implement introduced animal management priorities for the area as identified in the Introduced Animal Management Strategy for the World Heritage Area, 2001-2004. Notify leaseholders at Melaleuca of the existence of introduced animals and proposed control programmes where appropriate.**
 - **Control starlings within OBP breeding areas.**
 - **Monitor for the presence of cats and eradicate if detected.**
 - **Develop a programme to eradicate rabbits from Breaksea Island and implement once Strathgordon rabbits have been eradicated.**
 - **Eradicate wasp nests near the visitor site to reduce impact of wasps on visitor enjoyment.**
 - **Control introduced rodents at visitor services sites.**
 - **Eradicate honeybee nests near visitor sites to reduce impact of honeybees on visitor enjoyment.**
- **Monitor and remove if established marram grass (*Ammophila arenaria*) to protect coastal values.**

3.9.2 Plant Diseases

Phytophthora cinnamomi is an introduced microscopic water mould (formerly referred to as a fungus), which can cause disease in moorlands and open scrub in the plan area. It may also cause disease in forest environments following wildfire or clearing during the early stages of regeneration prior to canopy closure.

Although *Phytophthora cinnamomi* can spread by natural means, it is spread more rapidly and over greater areas by human

activity. It can be spread in infected soil carried on boots or tent pegs, by animals that scratch or dig in the soil or be carried along by water. Once an area is infected there is no known practical means to eliminate it. The best that can be expected is to slow the rate of infestation.

This water mould is very widely distributed in the area. Most places where people have commonly visited show clear evidence of infection. Land-based sites significantly infected include Melaleuca Inlet, Claytons Corner, The Narrows, Mt Rugby, Mt Milner and the hills behind the beach at Schooner Cove. It also occurs along the Old Port Davey Track and the South Coast Track west of the Ironbound Range. This information reflects only the present state of knowledge rather than the true distribution. However, it is known that sections of walking tracks from Windowpane Bay to Hidden Bay are free of infestation.

A long-term study site was established in the moorlands surrounding Claytons in 1979. The impact of the water mould in this location has been much greater than the impact of fire. A number of species have had devastating reductions in their populations including *Agastachys odorata* (white waratah) and *Blandfordia punicea* (Christmas bells). Other species that have also reduced in abundance include *Banksia marginata* (silver banksia, honeysuckle), *Baeckea leptocaulis* (slender baeckea), *Epacris corymbiflora* and *Monotoca submutica* (round leaved *monotoca*).

Long-term monitoring plots have also been established at Schooner Cove and Branson's Point.

Management Issues

As described above, *Phytophthora cinnamomi* is a threat to the integrity of moorland vegetation communities and may cause permanent alteration to the floristics and structure of moorlands in the Melaleuca area. Consequently it may also pose a serious threat to the fauna of the area, particularly invertebrates dependent on nectar from the susceptible plant

species. The most apparent indicator of its presence to casual observers is the loss of the sea of early summer flowers in moorlands leaving a drab moorland landscape in comparison.

Phytophthora cinnamomi also affects Aboriginal plant resources in the area, including many plants, which are still used by the Aboriginal community today (eg. banksia). Management strategies for the control of *Phytophthora* should therefore involve Aboriginal people (Green and Painter, 1997).

There is concern about the management of the Celery Top Islands that are *Phytophthora* free, although being located within a larger infected area. These islands have been made a *Phytophthora cinnamomi* management area by DPIWE for the protection of the uncommon *Persoonia muelleri* var. *densiflora*. See Mixed Forest and Rainforest (Section 3.5.4) and Policies and Actions on Flora (Section 3.5).

Commercial tours access the second island from the west (unnamed) of the Celery Top Islands. No disinfection procedures are in place. This increases significantly the risk of introducing *Phytophthora cinnamomi* to the islands.

A permanent boot-washing or similar facility on the islands is considered not practicable due to the impact of additional infrastructure on wilderness values of the area and the possibility of *Phytophthora cinnamomi* spillage from such a facility. The preferred approach is a simple tub or tray, filled with saltwater, and a scrubbing brush, provided by commercial tour operators on their vessels for visitors to wash all soil-contacted equipment before going ashore on the second island from the west. Independent visitors to this island are required to follow the same procedures for the protection of the natural values of the island.

Objectives – Plant Diseases

- To protect populations of threatened species that are susceptible to

Phytophthora cinnamomi.

- To limit or at least slow down the spread of *Phytophthora cinnamomi* and other plant pathogens in the area.

Policies and Actions

- **All practicable steps will be taken to prevent the spread of *Phytophthora cinnamomi* or other plant pathogens into large *Phytophthora*-free areas where efforts to exclude disease are warranted by the values at risk.**
- **All soil-contacted equipment should be washed thoroughly in saltwater before visitors go ashore on the unnamed second island from the west (Grid Ref: 977308 on Melaleuca 1:25,000 map) of the Celery Top Islands. Commercial operators wishing to continue accessing this island are required to provide such facilities on board their vessels for their clients' use. See also Flora – Policies and Actions (Section 3.5).**
- **Inform visitors of plant disease threats to the area and educate them in disease prevention hygiene measures.**
- **Limit development and recreation activity to those areas already infected or of low priority for disease exclusion.**
- **The development and maintenance of new tracks or re-routing of existing tracks must adequately address the possible introduction and spread of *Phytophthora cinnamomi*.**

3.9.3 Introduced Marine Pests

Introduced marine species known from Port Davey are the Blue mussel (*Mytilus edulis*), “Pie-crust” crab (*Cancer novaezelandiae*) and Pill box crab (*Halicarcinus innominatus*). The number of introduced marine species in the area is

surprisingly low (though, see Management Issues below) and this adds to the high conservation value of the area.

A State equivalent of the Australian Emergency Marine Pest Plan (1999) is currently in draft form. It will cover the needs of all areas in the State, however sensitive, and action will be taken if it is feasible to attempt eradication/control of an introduced species.

The aquatic system associated with Port Davey – Bathurst Harbour has very high conservation value, as there are very few freshwater/estuarine systems in Australia where introduced fish species do not occur.

Management Issues

Although not currently known to be present in Port Davey – Bathurst Harbour, the Japanese kelp (*Undaria pinnatifida*) is considered a potential introduction, according to the Centre for Research on Introduced Marine Pests (CRIMP), CSIRO. It is common in southeastern Tasmania and could cause major problems in Bathurst Harbour. Experience in Tasmania and New Zealand suggests that this species can be readily transferred by small craft, both commercial and recreational. The kelp has been shown to have a significant impact on understory species and can seasonally dominate hard subtidal surfaces.

Another pest species of potential concern is the broccoli weed (*Codium fragile tomentosoides*). It is potentially transferable by vessels carrying "contaminated" fishing gear (Richard Martin, CRIMP, pers. comm.)

Aside from the Blue mussel and crab species already known from Port Davey, there may be some other exotic species (fauna or flora) in the area, particularly some of the fouling species that are fairly widespread in southern Australian coastal waters.

The invasive northern Pacific seastar (*Asterias amurensis*) is common in southeastern Tasmania and would be expected to have a major impact on native fauna in Port Davey/Bathurst Harbour if it was introduced, according to CRIMP specialists. Predictive distribution modelling indicates it is unlikely to be transported to the area through natural currents, though as with some other species, transportation via the hulls of boats is possible.

Another pest species that is also present in southern Tasmanian waters of potential concern is the New Zealand screw shell (*Maoricolpus roseus*). This species could significantly alter the structure and biodiversity of soft bottom communities in the area. It is potentially transferable by vessels carrying "contaminated" fishing gear.

Research into existing and potential marine pests in Port Davey is scheduled for late 2002, in a joint project between PWS and CRIMP.

Advice from AQIS suggests there is no programme in place for controlling hull-fouling organisms on domestic or international vessels that enter Port Davey – Bathurst Harbour. Dry dock facilities in Hobart only cater for smaller (eg. fishing) vessels not cruise ship-size vessels.

Objectives – Introduced Marine Pests

- To prevent, as far as possible, further introductions of marine pests, and seek to control existing introduced species where they are a threat to the natural values of the area.

Policies and Actions

- **Implement introduced animal management priorities for the area as identified in the Introduced Animal Management Strategy for the World Heritage Area, 2001-2004. Notify leaseholders at Melaleuca of the existence of**

introduced animals and proposed control programmes where appropriate.

- **Prohibit visiting sea vessels from discharging ballast water in Bathurst Harbour and/or Port Davey to prevent further introductions of marine pests.**
- **Survey the waters of Port Davey – Bathurst Harbour for introduced animals and develop an ongoing monitoring programme. When an introduced marine species is detected, report the sighting to Marine Environment Section of DPIWE to explore management options.**
- **Survey the waters of Port Davey – Bathurst Harbour for known and potential introduced marine pests and develop an ongoing monitoring programme.**
- **Identify potential vectors that could introduce marine pests into the area, including vessels from overseas, interstate and Tasmanian commercial and recreational vessels, and assess their risk.**
- **Develop plans, or conditions on commercial vessel licences (NPWA), to minimise the risk of marine introductions for each vector category. These may include:**
 - **educating fishing and commercial vessel operators of the potential risks associated with their activities and ways in which these risks can be minimised (eg. checking anchors and fishing gear),**
 - **prohibiting ballast water exchange,**
 - **ensuring that vessels entering the area have been cleaned and anti-fouled regularly,**
 - **ensuring all cooling water systems are flushed before entering the area.**

Implement the Emergency Marine Pest Response Plan for new incursions of marine pests in the area if appropriate.

3.10 Soil Conservation, Erosion Control and Rehabilitation

Soil conservation is about looking after the natural soil resource and processes. Erosion control is concerned with conducting works or implementing other measures designed to prevent soil loss. Once the soil or related natural resources have been degraded rehabilitation may be necessary. Rehabilitation aims to restore the natural and, in some cases, cultural values of degraded areas where this is appropriate, practical and sustainable.

3.10.1 Streambank Erosion

An initial streambank stability assessment was conducted and an erosion monitoring programme set up along Melaleuca Inlet and Melaleuca Creek in 1992 by the former Department of Environment and Land Management (DELM). Follow-up measurements and further assessments were conducted in 1993 and 1995, with a five-knot speed limit introduced in early 1995. Remeasurements along Melaleuca Inlet were taken in 1997, and mapping and erosion monitoring was extended to the navigable stretches of the Spring, North, Old and Davey Rivers. In mid January 2000 all erosion monitoring sites were remeasured.

Unpublished reports by staff of DPIWE (e.g. Dixon, 1997b, Bradbury, 2000c) suggest that active bank erosion is occurring on Melaleuca Inlet. This is of most concern on the inside of river bends. Under natural conditions it is more likely to occur on outside bends. Exposed roots, small embayments and ragged undercut banks provide further evidence for active bank erosion. The rate of erosion declined with the introduction of the five-knot speed limit in 1995, but has increased at times since then, possibly as a result of

increased traffic or craft exceeding the five-knot limit.

Between 1992 – 1997 the monitoring sites along Melaleuca Creek indicated measurable erosion had not occurred, either upstream or immediately downstream of the pontoon. Erosion collapses, however, can be seen along Melaleuca Creek.

There is little clear evidence to suggest active erosion by the wake waves of river traffic for the Spring, Davey, Old and North Rivers. Virtually all of the banks lining the navigable parts of these rivers, however, are susceptible to erosion by the wash from motorised boats due to the presence of "soft" unconsolidated sediments deposited under conditions of very low wave power. This is particularly relevant for the North and Spring Rivers, due in part to their narrow river channels.

Management Issues – Streambank Erosion

The Melaleuca – Port Davey area is a relatively undisturbed and scientifically undescribed natural area. Reconnaissance studies indicate that most bank types occurring on those rivers navigable by smaller vessels are susceptible to erosion by the wave wake generated by river traffic. Although thresholds to erosion are likely to be low, these have not yet been quantified. It appears likely that only low levels of low wake river traffic would be sustainable.

The potentially most effective management tools for control of navigation-induced erosion are the application of appropriate speed limits and access limits on motorised vessels.

Limits on motorised vessels accessing the Davey, Spring, North and Old Rivers (as required by the WHAMP, 1999) are set out in Boating and Diving Access (Section 4.4.2). Access to Melaleuca Lagoon is restricted to PWS and residents' vessels. A five-knot speed limit is in place for part of Melaleuca Inlet – see Boating and Diving Access (Section 4.4.2). Anecdotal

reports suggest that this limit is often not complied with (Dixon, 1997b). Enforcement and education are needed.

3.10.2 Facilities and Services

Management Issues – Facilities and Services

Trampling easily degrades walking tracks in areas covered by peat. The peat is largely held together by the plants' root mat. Once this is broken the peat can be dislodged by trampling and may wash away. Track degradation is a widespread problem in the southwest due to disturbance of the extensive cover of peat bogs.

Monitoring of track conditions by PWS indicates active erosion is occurring along tracks, particularly Mt Rugby and Clyde's Hill, at campsites (eg. Forest Lagoon) and on banks on the landward side of beaches (eg. Bramble Cove and Balmoral Beach). The latter may be due to natural causes.

3.10.3 Rehabilitation of Mining Areas

For information on mining at Melaleuca see Mineral Exploration and Mining (Section 5.1).

Rehabilitation requirements for the current Rallinga Mine operations are set out in the Company's *Draft Development Proposal and Environmental Management Plan* (1991).

Rallinga Mines Pty Ltd has carried out rehabilitation works on the former Qintex mining site and tailings fan. Rehabilitation of Deny King's old mine workings continues.

Management Issues – Rehabilitation of Mining Areas

There are a number of areas beyond the current tin mining workings on the Rallinga Mine area where rehabilitation work is still required. This relates to old workings and disturbances associated with past mining operations.

The Rehabilitation of Mining Lands Trust Fund, in conjunction with MRT and DPIWE, conducted rehabilitation in the summer of 2002 of areas previously worked by the New Harbour Mining Company. DPIWE staff agreed that no further work should be done on the former Qintex mining site.

Rallinga Mine Co. Ltd. is presently revising their Environmental Management Plan in consultation with MRT and DPIWE. The revised plan will address the following issues: establishment of buffer zones around peat mounds, water quality monitoring, OH&S standards, revegetation patterns and the rehabilitation bond.

Objectives – Soil Conservation, Erosion Control and Rehabilitation

- To protect as far as possible the soil resource and soil processes to assist naturally functioning ecosystems.

Policies and Actions

- **Rehabilitate areas where disturbance or erosion is impacting on conservation, aesthetic or cultural values.**
- **Requirements for land rehabilitation will be considered when planning any future developments or works and a rehabilitation plan will be developed prior to works.**

Streambank Erosion

- **Continue monitoring and investigating the geomorphology and bank sediments of the various rivers in the Port Davey – Bathurst Harbour area.**
- **Minimise bank erosion caused or accelerated by human activities.**

Facilities and Services

- **Monitor the condition of peat mounds, walking tracks, campsites and camping areas.**
- **Ensure walking tracks are well located, used and maintained to minimise erosion and sedimentation and reduce the need for rehabilitation.**
- **Assess requirements for rehabilitation of former and current tracks and carry out works as necessary.**

Rehabilitation of Mining Areas

- **Encourage rehabilitation of exposed gravel areas resulting from past mining activity.**
- **As a priority, liaise with Mineral Resources Tasmania in the preparation and implementation of a revised environmental management plan for the Rallinga Mine lease area.**

See also Mineral Exploration and Mining (Section 5.1).

3.11 Environmental Quality

The following sections deal with air quality, water quality, noise, waste and dangerous goods.

3.11.1 Air Quality

The WHAMP, 1999 declares air quality in the WHA is generally very high with adverse impacts usually minor and very localised. It is considered this situation also prevails in the adjacent Melaleuca area. Wildfires can have a local or widespread impact on air quality.

Objective – Air Quality

- To maintain the natural air quality of the area.

3.11.2 Water Quality

The preservation of the quality of water and protection of catchments is a management objective of national parks and conservation areas under the *National Parks and Wildlife Act 1970*.

In accordance with the *State Policy on Water Quality Management 1997*, Protected Environmental Values (PEV's) are being set for surface waters of the Huon Valley catchments, including those in the plan area.

PEV's are the values and uses for which it has been determined that a given area of the environment should be protected. For the plan area they are:

1. Waters in Bathurst Harbour, Bathurst Channel and Port Davey (Southwest National Park).

A: Protection of Aquatic Ecosystems:

- (i) Pristine or nearly pristine ecosystems

having regard for the management objectives for national parks, state reserves, nature reserves and historic sites outlined in Schedule 4 of the *National Parks and Wildlife Act 1970*, and the management objectives of the World Heritage Area Management Plan for surface waters within Tasmania's Wilderness World Heritage Area.

B: Recreational Water Quality & Aesthetics

- (i) Primary contact water quality (where permitted)
- (ii) Secondary contact water quality
- (iii) Aesthetic water quality

2. Surface Waters in the Southwest Conservation Area

A: Protection of Aquatic Ecosystems

- (i) Pristine or nearly pristine ecosystems

having regard for the management objectives for nature recreation areas, conservation areas, game reserves and regional reserves outlined in Schedule 4 of the *National Parks and Wildlife Act 1970*.

B: Recreational Water Quality & Aesthetics

- (i) Primary contact water quality (where permitted)
- (ii) Secondary contact water quality
- (iii) Aesthetic water quality

E: Industrial Water Supply (Rallinga Mine at Melaleuca)

Marine Pollution

The Port Davey – Bathurst Harbour area is the largest undisturbed estuarine ecosystem in southern Australia, with very low nutrient levels in Bathurst Harbour and Bathurst Channel. These waters are potentially extremely vulnerable to pollution.

Marine pollution from ships is managed under the *Tasmanian Pollution of Waters by Oil and Noxious Substances Act 1987* that gives effect to the *International Convention for the Prevention of Pollution from Ships*, known as the MARPOL Convention. Annexes I (oil), II (noxious liquid substances), III (packaged harmful substances) and V (garbage) are in force in Tasmania's coastal waters.

The Environment Division of DPIWE has co-ordinated the production of a contingency plan to respond to spills from ships in Tasmania's coastal waters. This plan is known as the *Tasmanian Marine Oil Pollution Contingency Plan (TasPlan)*, Nov. 2001.

The WHAMP, 1999 recommends the development of an action plan for dealing with a major pollution incident off the coast, on rivers or lakes or on land within the WHA in liaison with relevant authorities.” (WHAMP, 1999, 113).

There is no contingency or action plan for dealing with marine pollution in Port Davey – Bathurst Harbour. The uniqueness and vulnerability of this area would suggest such a plan is a priority. It should be consistent with the *Tasmanian Marine Oil Pollution Contingency Plan*, and with State, Federal and international

legislation. It should also help implement the provisions of the WHAMP.

The Environment Division of DPIWE is also responsible for administering the *Environmental Management and Pollution Control Act 1994*, which imposes certain controls on pollution of Tasmanian waters.

Water Quality Monitoring

A water quality monitoring programme for standard bacterial and inorganic parameters was carried out at Melaleuca in 1995/96 to increase understanding of possible impacts on human and environmental health in the WHA. The same monitoring programme was repeated in 2001.

Results from the two monitoring sessions demonstrated water quality at Melaleuca was very high, and nutrient levels were low when compared with other estuarine areas around Tasmania. Turbidity also exhibited low levels. The total phosphorous and nitrate/nitrite levels of 2001 were however, consistently higher than in 1995/96, and should be subject to continual monitoring. (Mike Driessen, NCB, pers. comm.)

Management Issues

Section 41 of the *State Policy on Water Quality Management 1997* refers to disposal of sewage and other wastes from ships and boats. It recommends prohibiting the disposal of raw sewage and other waste from any commercial and recreational vessel where the PEV's for an area are the protection of pristine or nearly pristine aquatic ecosystems and primary contact recreational activities.

Under Commonwealth legislation, all international vessels have to manage their ballast waters. It is planned to extend this to domestic vessels, however no timeframe is set.

Advice from the Marine Resources Division of DPIWE suggests it is unlikely that very much ballast water will be discharged into Port Davey. However, as

a precaution to protect the environment, the discharge of ballast water into Port Davey, Bathurst Channel and Bathurst Harbour will be prohibited from commercial tourism and recreation operation vessels controlled under the *National Parks and Wildlife Act 1970*.

Section 43 (2) of the *State Policy on Water Quality Management* (1997) declares that in accordance with the National Coastal Ballast Water Guidelines, responsible authorities within three years of the State Policy coming into operation, must prepare Port Management Plans for all Tasmanian ports receiving coastal shipping. A plan for coastal waters in the wider Hobart region has not yet been prepared.

Monitoring the effects of the management and use of the area on water quality should comply with the requirements of the State water quality monitoring strategy (under the *State Policy on Water Quality Management* (1997)). Monitoring of water quality should be undertaken where an activity is likely to prejudice the PEV of a particular water body.

The University of Tasmania, on behalf of the CRC for Sustainable Tourism Pty Ltd., is presently (2001) engaged in a project to look at the impact of camps and hut sites on water quality and soil condition. Melaleuca Visitor Services Site is one of four sites chosen in and around the WHA. The project involves determining the presence and source of faecal contamination, to help identify areas of possible public health risk and improve visitor management. The project will tie in closely with water quality monitoring work being conducted at Melaleuca by DPIWE (see above). Findings are due out in 2003.

For information on marine introduced species and hull fouling, see *Introduced Pests and Diseases - Introduced Marine Pests* (Section 3.9.3).

Objective – Water Quality

- To maintain or enhance the quality of the area's surface waters (including coastal waters) and ground waters.

Policies and Actions

- **Protected Environmental Values for the area will be applied in accordance with the requirements of the *State Policy on Water Quality Management 1997*.**
- **In accordance with the WHAMP, 1999, facilitate research into water circulation patterns and water chemistry in Bathurst Harbour – Bathurst Channel to assist in predicting the cause and effects of any pollutants (WHAMP, 1999, 113).**
- **The discharge of ballast water into Port Davey, Bathurst Channel, Bathurst Harbour, Melaleuca Inlet and associated waterways is prohibited in order to protect the marine and estuarine ecosystems.**
- **Vessels in the area must comply with the *Tasmanian Pollution of Waters by Oil and Noxious Substances Act 1987* and *Environmental Management and Pollution Control Act 1994* (EMPCA).**
- **As a high priority, in consultation with DPIWE, assess the need for a contingency plan for dealing with a major marine pollution incident in Port Davey – Bathurst Harbour and respond accordingly.**
- **Promote a rapid and effective response in the event of an environmental accident or polluting event (WHAMP, 1999, 112).**
- **Encourage the use of alternatives to petrol driven outboards, such as kayaks and electric-powered boats.**

- **Maintain the existing water quality monitoring programme and as resources permit expand the programme.**

3.11.3 Noise

Excess noise compromises wilderness recreational experiences and may disturb wildlife. Sources of noise in the area include the low flying or landing/take-off actions of aircraft and helicopters, and motorised vessels in enclosed waterways. See also Threatened Fauna for recent research into the effects of aircraft, helicopter and human disturbance on the OBPs (Section 3.6.6).

To reduce the impacts of noise a "Fly Neighbourly Advice" for the area (1999) has been developed. These guidelines request aircraft to fly at a minimum overfly altitude of 4,000FT AMSL, terrain permitting, to help minimise the impact of noise. Additional conditions apply to Melaleuca during the nesting season of the OBP. See Appendix 2.

Potential sources of noise include mechanised maintenance, facility construction and possibly mining operations at Melaleuca.

It would be useful for PWS to arrange an initial noise survey of the area to determine background noise levels. This would provide baseline information for establishing acoustic environment standards and for comparative purposes in future years. Further monitoring of background noise levels and noise levels from human activity would be appropriate, coupled with research into the impact of noise on visitors and wildlife.

Objective – Noise

- To protect the natural wilderness qualities of the area through avoiding or minimising noise pollution created by human activities.

Policies and Actions

- **Encourage aircraft operators to comply with the Fly Neighbourly Advice guidelines for the Melaleuca area to help minimise the impact of noise on visitors, residents and OBPs.**
- **Encourage aircraft operators to apply noise reduction techniques over sensitive areas and utilise aircraft with best practicable technology to reduce noise (WHAMP, 1999, 134).**
- **In consultation with the Environment Division of DPIWE, undertake an initial noise survey and design and implement a long-term noise monitoring programme to determine noise levels and their impact on visitors and wildlife.**
- **Noise assessments should be prepared for any changes to the Bathurst Harbour Landing Area, proposed new helicopter landing sites or other significant facility developments in the Melaleuca Visitor Services Site.**

3.11.4 Waste

The production of waste products is inevitable where human access and use occurs. Waste is currently created in the Melaleuca Visitor Services Site by visitors, commercial operators and land managers alike, and includes rubbish at Deep Water Landing and the PWS staff quarters, effluent from the toilets and unwanted foods or supplies stacked in the shelter adjacent to the landing area.

The disposal of plastics, etc. at sea within 3 nautical miles is illegal under the *Tasmanian Pollution of Waters by Oil and Noxious Substances Act 1987*.

Management Issues – Waste

Concerns have been expressed to the PWS that users of the area are leaving rubbish at

Melaleuca. Due to the area's remoteness and environmental sensitivity, there are no rubbish facilities provided in the area. The PWS encourages visitors and other users of the area, including management staff and volunteers, to be responsible for their own rubbish.

The septic tank (uncontained overflow) toilets at the Melaleuca Visitor Services Site require urgent upgrading. Issues of concern relate to odour, cleanliness, visual quality, screening and possible impacts on water quality. Options being considered are vault (waste flown out when full) and compost (requires constant management). See Facilities and Services – Melaleuca Visitor Services Site (Section 3.11.2).

Plastic and other waste generated by boaters, fishers and other area users may pollute the waters and shorelines of Port Davey – Bathurst Harbour, and can be hazardous to marine animals and birds. See also comments on the MARPOL Convention in Water Quality – Marine Pollution (Section 3.11.2).

Although there is still a problem with marine debris around the shorelines of Port Davey – Bathurst Channel, it is acknowledged that fishing and boating interests have made significant progress in reducing the amount of debris, particularly non-biodegradable debris, that is disposed of at sea. The promotion by the fishing industry of proper storage and disposal of garbage is fully supported by PWS. See also Recreation Zone (Section 4.5.3).

Objective – Waste

- To minimise the generation and accumulation of waste in the area.

Policies and Actions

- **Visitors, commercial tour operators, boat operators, park management staff and leasees are to be responsible for taking their own rubbish out of the area when they leave the area.**

- **Locate and manage toilets in the area in such a way that adjacent water bodies are protected.**
- **Monitor the marine debris along the shorelines of Port Davey and Bathurst Harbour and establish a clean-up programme for the removal of marine debris from coastal sites. Consider strategies such as fishers/boaters "adopting a beach".**
- **Investigate possible controls on effluent discharge from vessels in Port Davey – Bathurst Harbour (WHAMP, 1999, 138). In the interim, PWS will encourage through education all vessel users to reduce or eliminate their effluent discharge in the area.**

3.11.5 Dangerous Goods

In 1993, the Parks and Wildlife Service was granted approval under the *Dangerous Goods Act 1976* for a period of one year for the construction of premises for keeping dangerous goods, at a site near Moth Creek, Melaleuca. The site comprises a fenced enclosure and contains a small number of gas cylinders.

Some fuel is presently stored in the shelter adjacent to the Melaleuca landing area as well as in a locked cage attached to the exterior of the building. This includes methylated spirits and shellite in 20 litre drums, outboard fuel and Aviation gas and diesel for area management and commercial tourism operations.

At the PWS staff quarters, LPG, outboard fuel, methylated spirits, leaded petrol for the generator, 2-stroke oil and fuel for the brushcutter/chainsaw are stored for PWS area management purposes.

Diesel and petrol is stored on a residential lease area for domestic purposes.

Fuel is also stored at the Deep Water Landing site, on the west bank of

Melaleuca Inlet. This includes Jet A1 and super.

Management Issues

The transport, storage and handling of flammable and combustible liquids at Melaleuca are issues requiring urgent attention.

All non-resident fuel storage sites are not banded satisfactorily and pose an environmental risk should a spill occur.

Consideration of the Deep Water Landing fuel containment facility has led to a re-assessment of fuel storage possibilities within the boundaries of the Melaleuca Visitor Services Site at Melaleuca. This assessment has looked at alternative sites in terms of impacts on wilderness recreational experience, operational impacts, risk to the environment from spills, risk of unbanded fuel, residents' concerns, management implications and cost of establishing and maintaining fuel storage facilities. The safe and secure storage of flammable and combustible liquids at a single site and an appropriate fuel handling facility that would minimise environmental and health and safety risks is urgently needed.

Approval has been given for Rotor-Lift Helicopters to store fuel in a container at the Bathurst Harbour Landing Area for a period of six months from placement date. (The container was placed on site in September 2002.) The fuel is only to be used for emergency services operations. This arrangement is temporary pending the determination of a longterm fuel storage facility at Melaleuca.

Objective – Dangerous Goods

- To minimise risk to the environment from the transportation, storage and handling of flammable and combustible liquids at Melaleuca.

Policies and Actions

- **Dangerous goods will be stored (and separated), used and**

transported in accordance with the *Dangerous Goods Act 1998*, the *Dangerous Goods (General) Regulations 1998* and the AS 1940-1993 “The storage and handling of flammable and combustible liquids”.

- A "risk minimisation" approach should be taken for activities that use, transport or store significant quantities of materials that could cause serious or material harm to soils or waters if released.
- Fuel, grease, oils, paints, solvents, poisons and other potentially harmful substances will be stored in a location or manner (appropriately bunded or contained) where inadvertent leaks will not enter watercourses, wetlands or other waters either directly or indirectly.
- PWS will reduce all non-resident fuel storage at Melaleuca to the minimum required to maintain current area operations.
- The existing dangerous goods enclosure near Moth Creek will be dismantled and the site rehabilitated as necessary in consultation with Mineral Resources Tasmania and the Willsons.
- Fuel storage at Deep Water Landing will cease and the existing incomplete fuel storage facility dismantled and removed from the site. All current fuel supplies will be removed as soon as practical. Where these fuel supplies are still required to be stored at Melaleuca, a temporary bunded and signed facility will be put in place until a long-term bunded and signed facility is operational.

A single, long-term, bunded and signed fuel storage facility for PWS and commercial use will be established near

the Bathurst Harbour Landing Area within the boundary of the MVSS. Its final location will be dependent on the prior preparation of a Melaleuca precinct site design and on receiving the appropriate approvals. See Policies and Actions – Melaleuca Visitor Services Site (Section 4.5.4).

3.12 Scientific Research and Monitoring

Over the past 15 years the Melaleuca area has been a focus for scientific research into World Heritage values. This focus is likely to continue.

The *Directed Wildlife Research (DWR)* programme was conducted in 1987-89 when a number of studies involving Melaleuca were undertaken. The *Wilderness Ecosystem Baseline Study (WEBS)* conducted in 1990-92 involved a field-based, systematic survey of flora and fauna of coastal moorlands at Melaleuca.

Studies were undertaken between 1984 and 1998 into the marine flora and fauna and their ecosystems, of the Port Davey – Bathurst Harbour area. See Section 3.4.1.

Two sites at Schooner Cove used for *Phytophthora cinnamomi* research and monitoring, and a site on Clyde's Hill, Claytons used for fire research and monitoring, are currently referred to by DPIWE staff as "scientific reference areas".

Management Issues

Research is essential to identify and understand natural processes and the impacts of management, development and use of the area on these processes. Research activities may, however, also cause degradation or depletion (eg. the collection of samples or species, or the compaction of sensitive sites).

Objective – Scientific Research and Monitoring

- To undertake, support and encourage scientific research and monitoring that provides information which is relevant to understanding, interpreting and managing the area, and complies with the vision and objectives of this plan.

Policies and Actions

- **The highest priority will be given to research and monitoring programmes able to provide information on mitigating the impacts of human activities, developments and practices on the natural and cultural values of the area.**
- **Research will be encouraged which improves the inventory and understanding of:**
 - **environmental features and processes of the area (eg. OBPs, marine ecosystems, fire, erosion);**
 - **Aboriginal and historic heritage and landscape;**
 - **visitors, including needs and attractions, experience;**
 - **the operation of cruise vessels in Port Davey and their effects on the marine ecosystems of the area.**
- **All proposed research and monitoring which may have an impact on the area will require written approval from DPIWE and PWS. Scientific permits, issued by the NCB Branch of DPIWE, are required to take, disturb, etc. wildlife including plants. Permits for research on marine flora and fauna are required under the *Living Marine Resources Management Act 1995*.**
- **The approval of the Tasmanian Aboriginal community must be obtained for any research involving**

Aboriginal heritage.

- **Co-operative research within and between agencies, institutions, interest groups and individuals will be encouraged.**
- **Formalise Scientific Area status (as per WHAMP, 1999) for Schooner Cove, Claytons and other longterm research and monitoring sites established by DPIWE in the area.**
- **Continue to use Melaleuca as a wilderness ecosystem baseline site, and investigate designating it a Benchmark Area (a type of Scientific Area as provided for in the WHAMP, 1999) provided it meets criteria currently being developed for Scientific Areas.**

4. Tourism and Recreation

4.1 Visitor Services Policy

In August 2000, the PWS released its report, *Strategic Framework for Visitor Services in Tasmania's Parks and Reserves*. This report sets the direction for the future management of visitor services across the State. It outlines policies and actions on planning, presentation, visitor service, infrastructure and business performance.

To guide the implementation of the policies and actions outlined in the Framework, the PWS is developing district-based implementation guides. These will incorporate aspects of the Strategy for Tourism and Recreation (STAR) for the WHA, as required by the WHAMP, 1999.

Over the life of this plan, it is likely that Melaleuca will become more popular with the comfort (day and multi-day) and getaway day visitor, flying in to utilise the boating/walk options. (See Glossary and Abbreviations for an explanation of visitor terminology.) Future visitor management developments and/or issues likely to emerge over the life of this plan include the following.

- Increasing popularity of the South Coast Track when promoted as one of the 8 Great Bushwalks as part of the Tasmanian Walking Tracks Strategy.
- Increasing interest in Port Davey – Bathurst Harbour as a cruise ship wilderness destination.
- Increased pressure to provide more recreation opportunities in the Port Davey – Bathurst Harbour waterways.
- Improvements to the Melaleuca landing area will be required for increased air traffic and user safety.

Objective – Visitor Services Policy

- To provide a sound strategic policy framework for the future management of visitor services in the area.

Policies and Actions

- **Ensure visitor services policies for the area aim to conserve the natural and cultural heritage and provide for public access.**

4.2 Visitor Use

4.2.1 Visitor Profile and Research

Visitor use of Melaleuca – Port Davey is diverse and widely dispersed throughout the area. Currently, it is of low volume, reflected by the fact that access to the area is difficult – either a one-hour plane flight or a multi-day trip by sea or on foot. These factors present an interesting challenge for those trying to monitor visitor use.

Sources of visitor use information include a plane-landing diary maintained by Barbara Willson, resident of Melaleuca and a datalogger to record plane take-offs; a record of hut, camp site and plane occupancies and landings taken by the OBP Recovery Program volunteers and a network of Walker Registration Books. Logbooks are located and maintained at Melaleuca shelter, Cox Bight, New Harbour and Claytons. Additional sources of information include visitor surveys conducted in the study area in 1993 and 2001, returns from licensed tourist operators, marine radio networks and local knowledge.

4.2.2 Visitor Use

In 2000, an estimated 4,000-5,000 people visited the Melaleuca – Port Davey area. Between 3,000 and 4,000 of these flew into Melaleuca, while 500 walked in. The remainder arrived by sea.

Private records of plane landings at Melaleuca were kept prior to 1992 by Deny King. Since 1992, public data show total landings have varied between 700 and 1,100 annually, with 60-70% of the annual total during the months January-May. According to the OBP volunteers, 13 planes landed on the busiest day during summer 2001.

Of the people arriving by plane on commercial tours (estimated at 2,000-3,000), the majority are on half-day scenic flights that include a two-hour ground and boat tour of Melaleuca. The remainder are either on day or multi-day trips. The options for the multi-day trips include staying in the Forest Lag camp, on board the *Southern Explorer* or sea-kayaking.

The actual number of boat-based visitors is not known, however, during 2000, 270 people signed in the Claytons logbook as having arrived in the area by sea kayak or from Port Davey by boat. Between 1994 and 2000 there had been between 313 and 460 registrations of people, and between 56 and 74 craft made in the logbook at Claytons.

The majority of vessels and people registered in the book are on cruising holidays in private boats. Many of the fishers spent some time undertaking maintenance of the house, as do some of the recreational boat enthusiasts.

Tasmanian Coast Radio confirms 88 recreational boating craft in Port Davey radioed through their presence during January 1999 - March 2001. This figure excludes boats that do not have HF radio, are fishing craft or people who choose not to call in. The majority of calls were received between Christmas and Easter (Jeff Boyes, Tasmanian Coast Radio, April 2001, pers. comm.).

The busiest time of the year is January, when many of the fleets of the Sydney to Hobart and the Melbourne to Hobart yacht races call in to Claytons. Large passenger vessels have been visiting the area since 1998 and visits have averaged approximately one per year.

Between 75-80% of the 777 walkers who register a walk starting at Melaleuca undertake the South Coast Track to Cockle Creek. These walkers also represent the majority of walkers who visit Melaleuca, and their numbers have been increasing by an average of 6% annually.

The trend in the remaining three main walking routes is not as obvious as for those walking out on the South Coast. There are about 200 walkers each either undertaking circuit walks from Melaleuca, walking through Melaleuca as part of a combined Old Port Davey Track and South Coast Track walk, or walking to Melaleuca, either on the Old Port Davey Track or, more frequently, the South Coast Track from Cockle Creek. For the through walkers, Melaleuca is a convenient rest spot and depot for food drops.

Most walkers who undertake circuits beginning and ending at Melaleuca are walking in the South West Cape area. These include walkers with Noyhener Beach, Spain Bay, Stephens Bay and Hilliard Head in their itinerary.

The number of walkers undertaking routes outside of these walking corridors is very small. Less than a dozen parties a year register for off-track walks in the area. It is very likely therefore that visitors to the bays and mountains surrounding Port Davey – Bathurst Harbour, such as Mts. Stokes, Berry, Rugby, Milner are more likely to be boat-based than land-based.

According to the OBP volunteers, the capacity of the two walkers' huts and campground at Melaleuca was rarely, if ever, exceeded during the summer of 2000/01.

4.2.3 Characteristics of Visitors

Of the 94% of boat-based entries who identified their origin in the Claytons registration book in 2000 (total = 460), 72% were Tasmanian, 19% from interstate and 9% from overseas. Of the 92% of bushwalker parties who identified their origin, 32% were from Tasmania, 49% from interstate and 19% from overseas. Of those from overseas, 70% were from Europe including the British Isles.

In order to more fully understand the characteristics of visitors to the area a visitor survey was conducted between January and April 2001. The main objective of the survey was to explore the range of visitor opinions on the present and future management of the area.

Findings are based on a convenience sample of 210 individuals; approximately half were scenic flight or commercial tour passengers, 19% were walkers or kayakers and 23% were boat-based visitors who had called in at Claytons. Given that this is a convenience sample, findings only apply to the sample, and should not be extrapolated further.

The origins of the survey sample for boaters and walkers are in broad agreement with what is known from the registration books.

Over three quarters (77%) of the sample were on their first visit, the majority (97%) of whom were on commercial scenic flights or tours. When asked what attracted them to the area, 62% respondents replied "wilderness" (includes isolation, remoteness, wildness, pristine-ness), 32% said "scenery", 15% said "flora and fauna" (including the OBP) and 13% each for "uniqueness of the area/WHA listing" and "recreational opportunities". The scenic flight/commercial tour passengers were just as likely to be attracted by "wilderness" as the walkers and boaters. Expectations of the area were met for all but four respondents, and exceeded for 72%.

When asked for their opinion as to the desired facility and service provision they would like to see in the area in five years time, the majority (71%) wanted the area to stay exactly as it was now. Eleven percent desired more maintenance or upgrades of existing facilities, in particular the toilets at Melaleuca. Little was said on accommodation. Current users requested adequate maintenance of the walkers' huts at Melaleuca (eg. heating, tilley lamps, sink) and Claytons house (eg. shower, toilet, remove asbestos stove). Two people could not find the camp site and one person sought better accommodation. A handful of respondents requested an on-site ranger service in peak season, more information about the area and communications on site (particularly when there is no on-site ranger). One person mentioned a longer airstrip.

Management Issues

Although use of areas such as Melaleuca, Claytons and the walking routes is reasonably well understood, little information exists for boat-based visitor use of Port Davey and Bathurst Harbour. Improved information on boat-based visitors is needed to help gain a better picture of overall visitor volume and predict visitor impact on the area.

The results of the Melaleuca – Port Davey Visitor Survey 2001 indicate area management should aim to protect the wilderness/isolation, scenic, flora and fauna, and WHA values of the area, for it is these characteristics which attract and satisfy the majority of visitors to the area.

It is also of interest that with respect to facilities and services, the majority of survey respondents wanted the area to stay exactly as it is. Maintenance of existing facilities, in particular the toilets at Melaleuca, is an important issue for area management to address. See Facilities and Services – Melaleuca Visitor Services Site (Section 4.5.4).

Objective – Visitor Use

- To more fully understand visitor use, numbers, characteristics, behaviour, needs and expectations to provide for effective visitor management and improve the quality of visitor experience.

Policy and Actions

- **The present methods to monitor visitor use (including aircraft and boats) to the area will be refined and implemented.**
- **Monitor aircraft visitor use to Melaleuca.**
- **Investigate, and if feasible conduct, an aerial-based survey to determine and monitor boat numbers and use on the area's waterways.**
- **Continue to monitor visitor numbers at Melaleuca and Claytons as required for management purposes. In particular, monitor growth in numbers and assess the effects of this on the values of the area and visitor experience.**
- **Monitor visitor impact on heritage and other vulnerable sites to help determine site protection and management.**

4.3 Information, Interpretation and Education

Information, interpretation and education are critical to the delivery of quality experiences, as well as fostering an appreciation of, and caring attitude towards the area.

The main themes for interpretation and education of the Melaleuca – Port Davey area are considered to be:

- Geoconservation – peat mounds, blanket bogs, drowned river valley
- Fire and ecology
- Fauna – orange-bellied parrot, ground parrot, invertebrates
- Flora – especially buttongrass
- Port Davey – Bathurst Harbour marine ecosystems
- Human use and management – Aboriginal, pinning, whaling, commercial fishing, mining

Much of the on-site interpretation for the area is located at the Melaleuca shelter (adjacent to the landing area), the bird hide and at Claytons house. A small amount of information is also provided in the two walkers' huts.

The Melaleuca shelter is also the registration point for walkers and has information on walking tracks, Minimum Impact Bushwalking, a map of Melaleuca and general interpretation material on the natural values of the area.

The Deny King Bird Observation Hide contains a substantial amount of interpretive material on the orange-bellied parrot, other fauna and supporting ecosystems.

Claytons house has substantial information on the Port Davey – Bathurst Harbour marine ecosystems.

The Willson, Fenton and King families have provided an occasional informal interpretation service on the history and operations of the tin mining at Melaleuca and Cox Bight.

Some orientation and directional information is provided, in keeping with the zoning provisions relating to the WHA and adjacent SWCA.

On-site information is supplemented by note-sheets on fauna, the orange-bellied parrot, boating in the SWNP - Port Davey/Bathurst Harbour and walking the South Coast Track and Old Port Davey Track (including the South Coast Walks Tasmapp). Maps and books have been produced. Boating Guidelines are

available for private boat-based visitors. Articles on the area have appeared in the *Australian Geographic*.

Parts of the PWS web-site contain information on Melaleuca, for example, SWCA, OBP's – see www.parks.tas.gov.au/wha/whahome.

Management Issues

There is a recognised need to improve information and interpretation at Melaleuca. A “Melaleuca Interpretation Action Plan” has been prepared for PWS (August 2002). It examines existing interpretation at Melaleuca, assesses its performance and recommends any changes, improvements or additions. This includes on-site information at the shelter, bird hird, walkers huts, Claytons site and in the surrounding environment (eg. interpretation of mining), and off-site written material or web sites.

Building on from the themes identified in the WHA Aboriginal Interpretation Strategy, a proposal for Indigenous interpretation at Melaleuca has been developed by PWS. It involves a short looped walk along which two themes are interpreted: the flow of elements (earth, water, fire and air) and a landscape in use.

PWS is currently (2002) developing interpretation and training materials for commercial tour operators under its Environmental Tourism Interpretive Information Resource Project. This material will be developed on a regional basis and will cover Melaleuca – Port Davey. Materials and training will be available by February 2003. Visitors on commercial boat tours and cruises should benefit from the preparation of this material.

Some attention to orientation and directional information may be needed both for maintenance and clarity of message purposes. The use of signs, however, will be kept to a minimum in the less visited parts of the area, and will be in accordance with the WHAMP policy on signage (WHAMP, 1999, 161). See also

Table 1 – Management Zones for Melaleuca – Port Davey Area.

Objective – Information, Interpretation and Education

- To enhance visitor understanding and appreciation of the natural and cultural values of the area, assist visitor benefit and enjoyment, and promote public understanding of management policies and programmes for the area.

Policies and Actions

- **Implement recommendations of the Melaleuca Interpretation Action Plan, 2002, using stated levels of priority in the plan.**
-
- **Develop, in consultation with the Aboriginal community, guidelines for visitors and commercial operators for the protection of Aboriginal heritage and landscape values.**
- **In consultation with TALC, investigate and, subject to approvals, construct an interpretive circuit track at Melaleuca, presenting Aboriginal and non-Aboriginal information on the management of the area.**
- **As part of the PWS' Environmental Tourism Interpretive Information Resource Project, provide a Melaleuca – Port Davey information and interpretation training package for commercial tours and cruises.**
- **Interpretation and education will aim to ensure the public is well informed of safety issues and impacts on the environment associated with their activities.**

See Facilities and Services – General (Section 4.5.1) for Policies and Actions on signs.

4.4 Access

The Melaleuca – Port Davey area is only accessible by air, boat or on foot.

4.4.1 Air Access

Melaleuca landing area is accessible for four and six seater aircraft (e.g. Cessna 172, 182 and 206), and larger aircraft with short landing capabilities. The landing area is used for commercial, charter and some private flights. It only allows for a short take-off and landing. During the peak summer period commercial flights are usually offered on a per seat basis, but during the off-peak season flights are often operated on a charter basis.

Fixed-wing aircraft are used for recreational flights (eg. transporting bushwalkers to and/or from Melaleuca), scenic flights and part of a land/air/sea tour package, as well as for management works by the DPIWE. Port Davey – Bathurst Harbour and the South Coast are regarded as popular scenic flight attractions.

The WHAMP, 1999 permits floatplanes or other aerial craft that land on water for recreational purposes to land on Port Davey and selected parts of Bathurst Harbour (WHAMP, 1999, 135). To date, no requests have been made to the PWS for the landing of floatplanes or other aerial craft in these areas, and no sites on Bathurst Harbour have been "selected". However, staff have made several sightings of floatplanes on Bathurst Harbour in the past three years.

The use of aircraft to gain access to remote parts of the area is generally incompatible with the recreation experiences sought by on-ground visitors to such areas. For this reason, as well as concern to avoid vegetation disturbance, track formation and disease introduction in remote areas, landings within the area are strictly controlled.

Helicopter landings are currently irregular and reflect the need for remote PWS

maintenance work (e.g. transport of materials and supplies for tracks), police search and rescue operations, fire management and for the OBP Recovery Program. Most of the materials and supplies are unloaded at a helipad at Deep Water Landing. Annual visits range from one to seven at either Deep Water Landing or Bathurst Harbour Landing Area (Melaleuca) (Ecology Australia, 2000).

The WHAMP, 1999 allows for an investigation of up to three additional commercial floatplane or helicopter landing sites in the WHA, including Port Davey – Bathurst Harbour. Conditions set on the additional landing sites include:

- a maximum of three additional sites,
- nil or very little conflict between proposed commercial users and others users of the site, and
- nil or minimal impact on values.

See WHAMP, 1999, 135 for full set of conditions.

A proposal for an additional landing site on Mt Milner, near Bathurst Channel (in the Recreation Zone) was investigated in 2000. This has since lapsed and no further proposals have been put forward. However, the process for investigating additional landing sites in the WHA remains open.

A number of measures have recently been put in place to alleviate public concerns about aircraft activity intruding on visitor experience.

The "Fly Neighbourly Advice" (FNA) statement, amended 2001, is an understanding between locally-based scenic flight and charter operators and the PWS to operate above the TWWHA and Mt. Field National Park in an agreed responsible manner (see Appendix 2). It provides for Melaleuca Area Zones (see map included in Appendix 2) where additional conditions apply on aircraft during the nesting season of the orange-bellied parrot. Specifically:

"from 15 September to 30 April, pilots are requested to avoid:

- (i) *repeated passes or circuits above the (Melaleuca Area) zones;*
- (ii) *landing helicopters within the zones; and*
- (iii) *hovering helicopters above forested areas within the zones."*

(Published by Airservices Australia in their *Aeronautical Information Publication – Enroute Supplement, Australia*)

Management Issues

The need to maintain wilderness settings and reduce visual impact in the area has cast doubt on the continuing use of Deep Water Landing, Melaleuca Inlet as a helicopter landing. See Facilities and Services - Recreation Zone (Deep Water Landing) (Section 4.5.3) for further discussion and resolution.

The provision of on-ground facilities associated with aircraft, including the landing area, apron area, shelter and the Deep Water Landing helipad, is discussed in Facilities and Services – Melaleuca Visitor Services Site (Section 4.5.4).

Helicopter use in the area is necessary for search and rescue and remote area management purposes. Pressure is bound to increase however, for additional commercial helicopter operations. The WHAMP, 1999, pages 133-135 provides guidance for existing and proposed helicopter and floatplane activities in the WHA.

Objective – Air Access

- To continue to provide for air access to Melaleuca – Port Davey, whilst protecting the conservation values and visitor experiences within the area.

Policies and Actions

- **Aircraft use for management purposes will be carried out in ways that minimise disturbance to visitors and wildlife.**
- **Locally based scenic flight and charter operators are strongly**

encouraged to follow the “Fly Neighbourly Advice” (Appendix 2) when operating in the area.

- **Liaise with commercial and private aircraft operators to ensure that their operations cause minimal disturbance to the orange-bellied parrots. See also Fauna (Section 3.6).**
- **To help minimise noise and visual disturbance impacts on OBP’s around their nesting and feeding sites:**
 - **entry and exit for helicopters wishing to use the Bathurst Harbour Landing Area should be via the north-west, and**
 - **helicopters should fly at a lower limit of 800m when flying over OBP areas.**
- **Identify and assess the parts of Bathurst Harbour that could be made available for floatplanes or other aerial craft that land on water for recreational purposes.**
- **Additional helicopter landing sites should be permitted only when provisions for the protection of site values from the impacts of visitors have been put in place and the environmental assessments required under the WHAMP, 1999 have been carried out.**

4.4.2 Boating and Diving Access

A range of motorised and non-motorised boating craft uses the area. These include sea kayaks, canoes, dinghies, yachts, motor-boats, fishing vessels and cruise vessels. See Visitor Volumes (Section 4.2.2) and Commercial and Recreational Fishing (Section 5.3) for numbers of boating craft visiting the area by sea.

The shallow waters of Melaleuca Lagoon are only navigable by dinghies or small vessels and entry must be authorised by the PWS. Yachts and large motorised craft are restricted to mooring and turning

at the confluence of Melaleuca Lagoon, Melaleuca Inlet and Melaleuca Creek. Navigation up the Melaleuca Inlet can be difficult for deep draft vessels during periods of low tide caused by high barometric pressure and low rainfall.

Port Davey is one of only a few safe and accessible places around the west coast of Tasmania for shelter for vessels during adverse weather conditions.

Port Davey is under the control of MAST and is a gazetted port under the *Marine and Safety (Pilotage and Navigation) Regulations 1977* (as amended). This arrangement allows some degree of control over vessel operations and requires that all vessels over 35 metres in length carry a pilot or exempt Master.

The publicity attached to the recent discovery of unusual benthic communities and fish within Bathurst Harbour and Bathurst Channel has led to greatly increased interest in recreational diving in the area (WHAMP, 1999, 145). Despite the area's isolation and the requirement for night-diving techniques and equipment (due to the darkly stained upper water layer), the rewards are considerable. At present the level of recreational diving is relatively low but an increase in usage and visitor numbers can be envisaged in the future. This includes the possibility of commercial operators targeting recreational divers.

In 1995 a 5 knots speed limit was introduced for boats in Melaleuca Inlet for safety reasons and to minimise bank erosion. See Soil Conservation, Erosion Control and Rehabilitation – Streambank Erosion (Section 3.10.1).

Subsequent legislation provides further guidance for recreational vessels in the area. It is an offence under the *Marine and Safety (Motor Boats and Licences) Bylaws 1998*, Section 28 (3) (b) to travel at a speed faster than 5 knots within 60 metres of:

- (i) any shoreline, river bank, diving platform or marine facility; or

- (ii) any boat under way, at anchor, moored, or engaged in fishing or in rowing ...

Management Issues

Some boating activities have led to concern about their possible impacts on the environment. For example, inappropriate anchorages, erosion of river banks in the Port Davey – Bathurst Harbour area and along the banks of the Melaleuca Inlet, the effect of effluent release in sensitive environments such as Bathurst Channel and Bathurst Harbour, disturbance to wildlife and impacts on historic heritage sites.

Some of the benthic communities in Bathurst Channel, particularly gorgonians, sea pens near Forrester Point in Schooner Cove and extending eastwards for about 1 km, and hard bryozoans on the ends of all points extending as reef slopes into the channel, are extremely vulnerable to damage (accidental or deliberate) by divers and from drifting anchors and chains.

Loss of wilderness experience by visitors to the area through motor vessel noise must also be considered.

See also Port Davey – Bathurst Harbour Marine Ecosystems (Section 3.4) for Policies and Actions on protection of the marine values. See Facilities and Services – Recreation Zone (Section 4.5.3) and Appendix 4 for vessel anchorages and dive sites in Bathurst Harbour – Bathurst Channel – Melaleuca Inlet. See Environmental Quality – Water Quality (Section 3.11.2) for information on waste disposal.

In the past few years specialists have discussed the merits of a 5 knots versus 3 knots speed limit for the Melaleuca Inlet, particularly after evidence of increasing erosion since the five knot limit was introduced in 1995 (Dixon, 1997b, Bradbury, 2000). Evidence suggests that a 5 knot speed limit is generally sufficient, *if* it is actively enforced including user education. It is however, critical that

monitoring of speed limits in the Melaleuca waterways continues.

It is important for boats travelling in very sheltered waters (eg. upper Melaleuca Inlet) and navigable rivers to keep their keel parallel to the surface of the water, in minimising wake impact on shorelines. Large wake induced waves could also have serious impacts on the subtidal invertebrate communities of Bathurst Channel.

The demand for large vessel access to Tasmania's World Heritage Area is only at a formative stage, yet Port Davey experienced two visits from cruise vessels – the *Norwegian Star* and *Oceanic Odyssey* in the space of four days during February 1999. These two ships hosted a total of 758 passengers (Harrison, 1999, unpub. paper for Tourism Tasmania).

Three further visits occurred during the summer of 2001/02 – two trips by the *Akademik Shokaleskiy* and one by the *Clipper Odyssey*. Passenger numbers varied between 40 and 200.

All visits were licensed and had conditions set on their operations.

Guidelines for the preparation of licenses for commercial vessel operations (Parks and Wildlife Service 2002), including cruise vessels, in Port Davey – Bathurst Harbour have been developed and are reviewed regularly. These guidelines seek to provide for protection of the values of this relatively undisturbed and scientifically undescribed natural area whilst allowing for controlled tourism access. The guidelines appear as Appendix 4 to this plan.

Objective – Boating and Diving Access

- To continue to provide access for boating craft within Port Davey – Bathurst Harbour, whilst protecting and conserving the waterways and adjacent environments, sites and values.

Policies and Actions

- **Continue to recognise Port Davey as a vital bad weather shelter area for small vessels on the west and south coasts, and provide for safe anchorages for such vessels.**
- **In accordance with the WHAMP, 1999, a Motorised Boating Area for the waters of Port Davey – Bathurst Harbour – Melaleuca Inlet has been adopted in this area plan (see Map 3).**
- **Operators of motorised boats must comply with the limits on motorised boats within the Davey River, Spring River, North River and Old River, and note waters that are generally not available to motorised boats, as stated in the WHAMP, 1999, p. 61 & 138 respectively.**
- **Licenses for commercial operations in the Port Davey – Bathurst Harbour area are to be prepared in accordance with the "Guidelines for the Preparation of Licences for Commercial Vessel Operations in Port Davey – Bathurst Harbour" (Parks and Wildlife Service, 2002)**
- **Maintain the 5 knots speed limit in Melaleuca Inlet. Modify if necessary, depending on results of enforcement (including user education) and regular monitoring of its effectiveness.**
- **Authorise and encourage PWS staff to enforce compliance with the *Marine and Safety (Motor Boats and Licences) Bylaws 1998* in the area's waterways.**
- **Encourage small boat operators to minimise wake impact on shorelines when travelling in very sheltered waters and navigable rivers by keeping their boat keel parallel to the surface of the water and not operating at planing speed.**

- **Vessels will not be permitted to anchor on the reef slopes of the Bathurst Channel wall, particularly on the ends of all points extending into the channel, and near Forrester Point in Schooner Cove, to protect the sensitive marine environment.**
- **Develop a programme to monitor the impacts of divers on the benthic community of Bathurst Channel (and elsewhere if necessary). The introduction of additional measures or conditions related to diving as required to protect the values of the area, including dive-free areas, diving permits or registration of dive tour operators, may be carried out if necessary.**
- **Develop a Diving Code of Practice for Bathurst Channel and Bathurst Harbour in consultation with the diving community.**
- **Develop a Sea Kayaking Code of Practice for the area in consultation with the community.**
- **Develop and implement an information and education programme for boating and diving interests to increase their awareness of environmental issues in the Bathurst Harbour - Port Davey area and inform them of any restrictions and conditions that may apply.**
- **Continue to restrict access to Melaleuca Lagoon to the PWS and local residents' vessels to protect shallow seabeds.**

4.4.3 Walking Access

The *Walking Track Management Strategy* (PWS 1994) is a strategy developed by the PWS for the management of walking tracks and walkers in and adjacent to the WHA. It has been the key document for guiding track management in the area.

Walking tracks referred to in this plan are classified using the six classes detailed AS

2156 Walking Tracks Part 1 Classification and Signage. The WHA classification is used to supplement the Australian Standard where necessary. See Appendix 4 for WHA track classification categories.

As a result of the Track Assessment Group (TAG) process, parts of the WHA Walking Track Management Strategy, in particular the section dealing with quotas and permits (WHAMP, 1999, 174), is likely to change. At this stage, it is not envisaged these changes will impact on track work within the area over the next few years.

Melaleuca can be reached on foot using either the South Coast Track (T2) or Old Port Davey Track (T3). (The Old Port Davey Track is also referred to as the Port Davey Track, though the former is recognised by the Nomenclature Board of Tasmania as its official name.)

The South Coast Track is internationally renowned. It covers a distance of 80 km between Cockle Creek and Melaleuca. It is suggested walkers allow themselves about 6-8 days to complete the walk. The only huts on the South Coast Track and Old Port Davey Track are located at Melaleuca.

The 54 km Old Port Davey Track is used by walkers between Scotts Peak and Melaleuca. It is suggested walkers allow themselves 5-6 days to complete this walk.

Melaleuca is also the usual start and finish point for walkers visiting SW Cape. Walkers spend 2-5 days on a return walk along the coast towards the Cape.

For information on day walking opportunities and shorter tracks within the Melaleuca – Port Davey area, see Facilities and Services – Recreation Zone (Section 4.5.3). See Information, Interpretation and Education (Section 4.3) for proposals for a loop walk at Melaleuca.

Management Issues

A future management issue is the likely continued increase in popularity of the

South Coast Track - see Visitor Services Policy (Section 4.1).

Objective – Walking Access

- To achieve sustainable management of walking tracks and walkers throughout the area.

Policies and Actions

- **To continue to promote and maintain the South Coast Track and Old Port Davey Track as the primary walking access points to Melaleuca.**
- **The South Coast Track will continue to be promoted as one of the 8 Great Bushwalks of the State as part of the Tasmanian Walking Tracks Strategy and Marketing Plan.**
- **Continue to develop and implement a walker education campaign with emphasis on Minimum Impact Bushwalking practices.**

There are presently no facilities for people with special needs ("disabled").

Walking opportunities for comfort and getaway day visitors are limited. It is expected the area will become more popular with these visitor types, and therefore suitable walking opportunities should be examined. See Information, Interpretation and Education (Section 4.3) for proposals for a loop walk at Melaleuca.

Unplanned or poorly planned facility development, including tracks, is a concern in the area due to the potential for visual impacts on the wilderness recreational setting. Management of the area should seek to avoid or minimise visual intrusion.

The funding of facilities and services, including tracks and track maintenance, where such facilities are used by commercial tourism operators is an issue. Consideration should be given to incorporating a "user pays" component in the lease/licence agreements of commercial tourism operations. See Commercial Tourism Operations (Section 4.6).

4.5 Facilities and Services

4.5.1 General

Facilities and services currently provided include interpretation sites (eg. Claytons, Bird Observation Hide, airstrip shelter), signs, an aircraft landing area, marked walking tracks, camp sites, huts, toilets, water taps and rainwater collection tanks, pontoon and jetties.

Management Issues

The *Draft Melaleuca Site Plan*, (PWS 1995) declared that facilities would be maintained at the existing low-key scale and design to complement the surrounding natural and historic environment. Any increase in the level of development must retain the essential natural character and ambience of the area.

Objective – Facilities and Services

- To provide appropriate visitor facilities and services in a remote wilderness setting, taking into account the area's natural and cultural values.

Policies and Actions

- **Provide facilities and services that assist presentation of the area and foster environmentally sustainable tourism and recreational use of the area.**
- **Protect visitor experience and environmental quality through the appropriate location, nature, scale and design of visitor facilities and services.**

- **Locate facilities in accordance with Table 1: Management Zones for Melaleuca – Port Davey Area (Section 2.3).**
- **Review current signage in the area, and prepare and implement a sign plan in accordance with Table 1 – Management Zones for Melaleuca – Port Davey Area (Section 2.3) and AS 2156 Walking Tracks Part 1 Classification and Signage.**

4.5.2 Wilderness Zone

A class 2 track (W2) extends from Parker Bay to Critchley Parker's gravesite. For information on this heritage site, see Historic Heritage and Landscape (Section 3.7.3).

In general, structures in wilderness zones are incompatible with the objectives of this zone.

A small covered shelter and two water tanks is located back from the beach at Bond Bay, within the Wilderness Zone of the WHA. This structure was constructed in the early 1990s using salvaged materials from a previous house built on a site some 250 metres to the north in the 1950s (the Claytons old house site). It is believed government staff stayed in the house whilst carrying out geological mapping in the local area. This old house site is recognised as a historic heritage site (see Table 3).

The existing structure is used by people fishing or boating in the area for the collection of freshwater and for shelter during harsh weather conditions.

Management Issues

The class 4 walking track (T4) from Spain Bay to Stephens Bay is susceptible to track widening and mud formation. Commercially guided use of this track does occur. Monitoring of the environmental condition of the track is necessary. Some erosion control works may be necessary in accordance with the

Track Management Strategy. This area also possesses Aboriginal heritage values.

The WHAMP, 1999 states prescribes that existing structures in the Wilderness Zone are progressively assessed and allowed to decay or be removed unless they are of sufficient heritage, recreational or management importance to outweigh their impact on wilderness values (WHAMP, 1999, 57). The historic heritage significance of the Bond Bay structure is uncertain.

Human impacts on the site of the Bond Bay structure and its surrounds are of concern. These impacts include fires, rubbish (including sheets of tin and an old bath tub) and sawn off trees limbs.

Objective – Wilderness Zone

- To retain a challenging unmodified natural setting that suitably experienced and equipped people can visit for wilderness recreation and for its intrinsic values.

Policies and Actions

- **In accordance with the WHAMP, 1999, no new facilities or tracks will be provided in the Wilderness Zone. Existing walking tracks will be managed in accordance with the Walking Track Management Strategy.**
- **In accordance with the WHAMP, 1999, the Bond Bay structure will be assessed in consultation with the fishing industry and allowed to decay or removed unless it is of sufficient heritage, recreational or management importance to outweigh its impact on wilderness values.**

4.5.3 Recreation Zone

The Recreation Zone encompassing Port Davey – Bathurst Harbour – Melaleuca Inlet (excluding Melaleuca itself – see Section 4.5.4) is becoming increasingly popular with visitors. The provision of

limited facilities for recreational and environmental purposes with associated signs, and new walking opportunities to better provide for day visitors, may be appropriate in this zone.

The Recreation Zone includes the beach/shoreline area around Port Davey – Bathurst Harbour – Melaleuca Inlet. Further inland is the Wilderness Zone (Map 3).

Management Issues

The following is a list of specific localities within the Recreation Zone, their current and potential facilities and associated management issues. It includes facilities and services within the Motorised Boating Area, an overlay covering part of the Recreation Zone.

Spain Bay

Spain Bay has a sandy beach, good anchorage and shelter, and the beach is relatively robust. It is used by fishing boats, yachts, cruise boats, sea kayaks and some walkers. The coastal area including Spain Bay and Stephens Bay possesses Aboriginal heritage values. Controlled guided use (by commercial licence) is permitted on the Spain Bay to Stephens Bay track, otherwise access is discouraged.

Monitoring of informal camping and marine debris washed up or dumped on the beach should be carried out. See Waste (Section 3.11.4) for further information on marine debris in Port Davey – Bathurst Channel.

Bond Bay

The remains of the Old Claytons house, a shelter and tap are situated in the adjacent Wilderness Zone behind the beach. See Facilities and Services -Wilderness Zone (Section 4.5.2). Bond Bay was a key area of occupation for the Port Davey tribe, and continues to have a connection with the Tasmanian Aborigines.

Nearby James Kelly Basin with its seabirds, waders and seagrass communities is a vulnerable area.

Local human-induced impacts on the beach (Recreation Zone) and hinterland (Wilderness Zone) include campfires, rubbish and evidence of vegetation damage and removal.

Settlement Point

An historic heritage site at the mouth of the Davey River with remnants of the former local Huon pinning industry. The site requires stabilisation before visitors can be directed or encouraged to the site. See Historic Heritage and Landscape (Section 3.7.3).

Schooner Cove – Watering Bay

Schooner Cove has a beach, campsite and freshwater supply. It is visited by fishing and boating enthusiasts, and on a less regular basis, kayakers. Walkers are occasionally transported here by Par Avion to commence their walk to Noyhener and SW Cape.

Unplanned track formation is occurring as people climb the hills in the Wilderness Zone behind Schooner Cove. Inland access is discouraged to protect identified vulnerable Aboriginal values and DPIWE long-term flora monitoring sites. Appropriate protection measures are urgently needed.

Freshwater is available in Watering Bay, near Schooner Cove, from a waterfall flowing down into Bathurst Channel. An important sea pen colony has been identified beneath the waterfall. An anchor point attached to the bank for boats to tie up to as they collect freshwater has been constructed.

Bramble Cove

This site includes a beach, informal access track and campsite with freshwater supply. It is currently used by fishing boats, yachts and kayaks, and would be suitable for

cruise boat passengers to land, picnic and swim.

The access track to the campsite is eroding the foredune, the campsite is ill defined and there is evidence of vegetation damage and removal and ground compaction.

Fragile and vulnerable historic sites associated with the whaling industry are readily accessible from the campsite and track. Their protection is critical. See Historic Heritage and Landscape (Section 3.7.3).

A track (R) extends from Bramble Cove to Toogelow Beach, passing through the Wilderness Zone.

Mt Milner

Mt Milner is a high hill with good views of the outer Port Davey area. Access to the top is via a class 4 walking track (T4) from a small beach in west Bramble Cove.

The current track pad is likely to erode and be highly visible. Upgrading the track to a higher standard (T2) would cater for current and future use by boat-based visitors but would create a highly visible scar. Alternatively, opportunities exist to re-route the track to reduce grades, minimise visual impacts and retain as a class 4 (T4), but at considerable cost. If use is to increase substantially then the re-route option should be undertaken.

Balmoral Beach

Balmoral Beach is a steep beach with a narrow marshy isthmus to Horseshoe Inlet behind the beach. The inlet supports wildlife. The bank off the beach is vulnerable to erosion and trampling. Kayakers use the beach on an irregular basis for camping.

It is possible increased visitation may increase bank erosion, create pads through to the inlet and disturb wildlife.

The beach immediately east of Balmoral Beach has less sensitive hinterland and

could be a landing site for cruise boat passengers for the purposes of swimming and picnicking., but should be closely monitored before and after visits are conducted. Access inland is discouraged.

Any access from Balmoral Beach to Balmoral Hill is a concern as the route would be steep and be at risk of eroding.

Balmoral Hill

Balmoral Hill rises steeply behind Balmoral Beach. A class 4 track (T4) leads up the hill from Horseshoe Inlet. This track is relatively well graded and does not impact on the visual amenity of the area.

Mt Rugby

A class 4 walking track (T4) up Mt Rugby starts from Bathurst Channel, 1 km east of Starvation Bay. Boat-based visitors mostly use this track.

The steepness and location of this track poses significant management problems. The entire track is likely to erode to expose the white gravel, resulting in significant visual impact particularly on the lower half of the track.

Unplanned track formations are also apparent from Starvation Bay.

An alternative western route from Ila Bay up Mt Rugby has been investigated but would also result in major visual scarring. The lack of pad development suggests there is little demand from Old Port Davey Track walkers to climb Mt Rugby. An old pad is naturally revegetating, and there are no signs of recent access through thick scrub between Old Port Davey Track and the head of Ila Bay.

Subsequently, an investigation of a track from Eds Cove to Mt Rugby has been undertaken. There is a practical route that would join the present Southern Route at the “Halfway Saddle”. This route would have significantly less chance of visual scarring when viewed from the waterways as much of it is in forest and scrub.

Commercial use of Mt Rugby should be discouraged until the route from Eds Cove is developed.

Bathurst Narrows

The camping sites at Farrell Point and Joan Point, on the north side and south side respectively of the Bathurst Narrows, are maintained for the use of bushwalkers on the Old Port Davey Track. Farrell Point is also a preferred camping site for kayakers. Freshwater is available at Farrell Point.

Fibreglass rowing dinghies are supplied by the PWS at Farrell Point and Joan Point to assist bushwalkers on the Old Port Davey Track cross the Bathurst Narrows. Wind and tide conditions sometimes make crossings and landings difficult.

Facilities provided at Joan Point and Farrell Point for bushwalkers crossing the Bathurst Narrows do not include lifejackets, bailers or operational instruction signs. There is no legislative requirement to provide lifejackets and PWS consider it would be difficult to maintain.

Claytons

Claytons, located near the mouth of the Melaleuca Inlet, is accessed by boat. The site includes a jetty, house - with interpretation panels covering the marine environment, OBPs, anchorages, marine debris, bilge and sullage water, history of site, vegetation and the WHA - a shed and garden. Freshwater is collected off the house roof, stored in tanks and piped to the jetty for public use. The house, of cultural heritage value, is maintained by fishing and boating interests and the PWS. Commercial tour operators, as well as bushwalkers, fishers and boat operators frequently visit the site.

Given that the area is zoned recreation, has a range of activities available (see also following sections on Clyde's Hill and Mt Beattie) and a reasonable level of infrastructure in place, it may be suitable as a landing, interpretation and key visitor

experience site. However, with increasing visitor use of Claytons and nearby tracks, the provision of a toilet facility may have to be considered.

See Historic Heritage and Landscape (Section 3.7.3) for information on the heritage values and proposed conservation and community management of Claytons site.

Clyde's Hill

A 200m walk up onto a knoll to the east of Claytons house will take visitors up Clyde's Hill (sometimes referred to as TV Hill). Good views are gained of the Celery Top Islands, Bathurst Harbour, Mt Rugby and the Arthur Ranges. The site has potential for interpretation of these features, particularly the Celery Top Islands.

Erosion is occurring on a pad being formed to a farther knoll, from which there are no better views. Erosion has also been occurring on the 200m section of track to Clyde's Hill.

Mt Beattie

Mt Beattie is a 276m peak behind Claytons. It provides a very good viewpoint at the eastern end of Bathurst Channel. Pads up Mt Beattie suggest the peak is being visited from Bathurst Harbour (referred to locally as "Kings Point") and bushwalkers from the Old Port Davey Track. The pad from Bathurst Harbour is very steep and unsuitable as a location for a track.

An investigation of a track from Claytons to Mt Beattie has been undertaken. There is a practical route that would have significantly less visual scarring than the existing pad. It is also feasible for this track to be part of a subsequent reroute of the Old Port Davey Track, avoiding a boggy section recommended for rerouting in the *Old Port Davey Track Plan* and *WHA Walking Track Management Strategy*.

Melaleuca Inlet and Melaleuca Lagoon

Channel markers are located along Melaleuca Inlet and in Melaleuca Lagoon. They assist vessels in navigating the often-shallow water, and are of some cultural value being associated with the King family. The Melaleuca Inlet and Lagoon is not seen as a "major recreational navigational area", and there are no safety standards for navigation markers in such a location, according to Marine and Safety Tasmania (MAST).

Two land-based private moorings are located at the entrance to Melaleuca Lagoon. They are part of the residential and mining leases for the King/Fenton residence and Rallinga Mines respectively. An historic timber boat shed and jetty on Moth Creek is also part of the King/Fenton residential lease.

Visual evidence suggests boats are tying up to trees on the bank adjacent to the mooring site used by the *Rallinga* and *Southern Explorer*, Melaleuca Inlet. The installation of a more permanent post at this site may be useful to assist boat owners and protect the environment.

Mooring space for larger vessels is extremely limited in Melaleuca Inlet and Melaleuca Lagoon. The location of the public mooring on Melaleuca Creek from Melaleuca Inlet is not clearly defined.

The practice of vessels mooring alongside the private facilities of the King, Fenton and Willson families can create problems of access for the lessees. These private facilities are designed for single vessel use and may be structurally overloaded with additional vessels, especially in windy conditions.

Private boat-based visitors may often not be aware of the public jetty and mooring facilities available for smaller craft in the Melaleuca Creek precinct.

The provision of additional mooring facilities on Melaleuca Inlet may help to solve present demand. It will also cause problems of visual intrusion and generate

further demand for facilities in an area that is geographically confined by its shallow waters, has sensitive shoreline vegetation and nearby wilderness value.

See following section on Melaleuca Visitor Services Site for water-based and land-based facilities and services associated with Melaleuca Creek, Moth Creek and Melaleuca itself.

Forest Lagoon

The Forest Lagoon Camp is located on the southern shore of Forest Lagoon adjacent to Melaleuca Inlet. It is operated as a commercial venture, under a licence held by Aerotechnology Ltd. The camp consists of a partially enclosed, central structure with kitchen, dining and heating facilities; water storage tank; camping area including tents (on wooden platforms), some bush furniture, toilet, shower, storage shed; unformed tracks to the beach and through the camp, and a board-walk track between the camp and Melaleuca Inlet. See Commercial Tourism Operations (Section 4.6) for further discussions on the camp.

Kayakers have camped several times up from the beach.

There is no public boat landing facility near Forest Lagoon Camp. Small vessels either land on the sandy beach, moor alongside a rocky headland which visitors then walk over to reach the beach, or tie up to a tree at the base of the wooden steps. A small patch of salt marsh occurs on the headland. The salt marsh is highly susceptible to trampling and will deteriorate with continued use. Damage to vegetation and bank erosion may occur as vessels tie up to trees.

Deep Water Landing

Deep Water Landing is located on the west bank of Melaleuca Inlet, approximately 1 kilometre northwest of Melaleuca. The site presently serves as a heavy landing area for boat-borne goods, as a landing site for helicopters (a wooden walkway leads to a helipad) and a storage area for track

materials and fuel supplies. *Phytophthora* wash baths are used while sling-loading track materials by helicopter.

Helicopter landing facilities were only established at Deep Water Landing to be able to refuel, and to collect and drop off supplies.

An assessment of alternative sites, including Deep Water Landing, for fuel storage, helicopter landings and track materials storage has been conducted.

The site is clearly visible from Melaleuca Inlet and its use as a storage site detracts from the wilderness values of the surrounding area. There is no vegetation screening of the site from the water. Damage to vegetation and erosion of the inlet bank is evident as boats tie up to trees and people access the site for management purposes.

The Deep Water Landing site is not suitable as a fuel storage site or as a site to stockpile materials due to the potential contamination risks to the waterway, and visual impact and potential environmental impacts. See Environmental Quality – Dangerous Goods (Section 3.11.5) for policies on fuel storage at Melaleuca.

There is no further need for any storage of a large quantity of track materials.

A better location for a helicopter- landing site would be in proximity to the Bathurst Harbour Landing Area, in conjunction with a smaller fuel storage facility. However, any impacts from increased helicopter activity on the orange-bellied parrot must be addressed. See Management Issues – Threatened Fauna (Section 3.6.6) for further information on the two reports concerning helicopters and aircraft impact on the OBPs.

Objective – Recreation Zone

- To provide a range of recreational experiences in a moderately challenging, largely natural setting for suitably equipped people.

Policies and Actions

- **The following low-impact camping sites in the Recreation Zone will be promoted and maintained, and limited facilities (such as a Fuel Stove Only Area sign, water supply, and shore access tracks) may be provided in order to protect the environment. Site protection and stabilisation works are required prior to further promotion at Bramble Cove and Schooner Cove – see Historic Heritage and Landscape (Section 3.7.3). Where poor weather conditions prevail, camping at other sites may be permitted.**
 - **Forest Lagoon**
 - **Farrell Point**
 - **Joan Point**
 - **Bramble Cove**
 - **Balmoral Beach – inland access from Balmoral Beach to Horseshoe Inlet is discouraged, inland access from beach immediately east of Balmoral Beach is discouraged.**
 - **Schooner Cove – inland access is discouraged.**
 - **Bond Bay**
 - **Spain Bay – inland access is discouraged.**
 - **Fulton Cove (suggested sea kayak use)**
- **Campsite inventories will be prepared for camping sites within the Recreation Zone to assist monitoring environmental conditions and human impact.**
- **Regularly review operational instructions and facilities for walkers using the boat crossing at Bathurst Narrows.**
- **Manage existing tracks in the Recreation Zone as follows.**

from the waterfall.

- **Divers are urged to use the recommended dive sites shown on Map 5 in Appendix 4 that demonstrate the unique benthic communities of the area.**
- **Remove the informal channel markers from Manwoneer Inlet to discourage motorised boating access.**
- **The channel markers in Melaleuca Inlet and Melaleuca Lagoon will be maintained to aid navigation and to protect their cultural value.**
- **No additional mooring facilities will be constructed in Melaleuca Inlet.**
- **A sign will be erected to advise the public not to use the private moorings of the Willson and King families located at the entrance to Melaleuca Lagoon.**
- **Install posts to discourage trees being used at mooring sites used by the *Rallinga* and *Southern Explorer*.**
- **The PWS and commercial operator for Forest Lagoon Camp will co-operate to ensure camp facilities, services and operations pose minimal impact on the environment.**
- **Cruise operators will be required to use either the beach access at Forest Lagoon and avoid trampling over the headland salt-marsh, or tie up at the base of the steps on Melaleuca Inlet.**
- **Activities at Deep Water Landing will discontinue, materials removed, structures dismantled and the site rehabilitated. The helipad will be relocated to the vicinity of the Bathurst Harbour Landing Area. The storage of non-residents' fuel supplies will be located near the Bathurst Harbour Landing Area. The exact location for these facilities**

will be determined in a Melaleuca precinct site design - See Melaleuca Visitor Services Site (Section 4.5.4).

4.5.4 Melaleuca Visitor Services Site

The Melaleuca Visitor Services Site (Map 4) provides the focus for visitor facilities and services for the wider area.

The Melaleuca landing area (known officially as the Bathurst Harbour Landing Area) is a private airfield, as distinct from a licensed airport such as Hobart International or Cambridge that must be available for conditional public use. It is owned and maintained by the PWS. Private landing areas are the same as private property for which all users must have the owners' prior permission.

Adjacent to the landing area is an aircraft apron area and shelter. The shelter structure caters for bushwalkers, commercial operators, PWS management and the Orange-bellied Parrot National Recovery Program. A septic tank (with uncontained overflow) toilet is located close by.

The Deny King Bird Observation Hide, close to the landing area, was built in 1990-91 by PWS. It provides a key visitor experience at Melaleuca, is a valuable interpretation resource for visitors to Melaleuca and provides shelter.

The Charles King Memorial Hut, a second walker's hut and the Melaleuca camping site provide accommodation for visitors and users of the wider area. A small informal camping site is located between the Charles King hut and Melaleuca Lagoon. A septic tank toilet is close by. Freshwater is available from water tanks.

The Melaleuca camping site is the principal camping area in the Melaleuca Visitor Services Site. It is mainly used by bushwalkers and as overflow from the two huts.

The Old Port Davey Track and South Coast Track converge at the Melaleuca Visitor Services Site. Smaller tracks

provide visitor access between the airstrip, bird hide, walkers' huts and campsite, toilet and pontoon on Melaleuca Creek. Access to the bird hide also serves as the vehicle access to the King's and Fenton's private residence and lease area further up the track.

The public pontoon facility at Melaleuca Creek currently provides for several small craft. The facility is used by PWS for management purposes, Par Avion for their wilderness tours and members of the public.

A small jetty is located at the mouth of Melaleuca Creek. It was used by Par Avion for mooring their vessels prior to the construction of the public pontoon upstream.

Management Issues

The development of facilities and services in the Melaleuca Visitor Services Site should seek to maintain or enhance the uniqueness and special qualities inherent in the area. These include its wild and remote nature, high natural scenic values, threatened fauna (notably the OBP) and gateway to experience WHA values including the unique marine flora and fauna associated with Port Davey – Bathurst Harbour. It is these characteristics which attract and satisfy the majority of visitors to the area. They set the Melaleuca Visitor Services Site apart from other WHA visitor destinations.

The maintenance of existing facilities at Melaleuca, including the toilets and walkers' huts should be complemented with attention being given to visitor safety. Occupational health and safety issues are also a concern.

Facilities and services developed should cater in particular for the comfort (day and multi-day) visitor and the getaway visitor. These people seek natural settings, being with family and friends, and opportunities for adventure or challenge.

The WHAMP, 1999 provides policy guidance on the Bathurst Harbour Landing Area.

“Allow the extension of the existing airstrip, providing that it does not intrude to within 30 metres of Moth or Melaleuca creeks and maintains the same alignment as the present airstrip. [This decision is based on safety grounds to allow the safe operation of aircraft that currently use the strip, not to allow faster or larger aircraft.]”
(WHAMP, 1999, 205)

In early 2001, the PWS commissioned a consultant to carry out an inspection of the Bathurst Harbour Landing Area to ensure it complies with the requirements of *Civil Aviation Advisory Publication No. 92-1(1)* (the "CAAP") for day operations by all aircraft with a Maximum Take-off Weight not greater than 5,700 kg. (Airports Plus Pty. Ltd. for PWS, 2001). The consultant's report, *Bathurst Harbour Landing Area Operational Report*, made 13 recommendations to improve the safety of operations at the landing area. These included the:

- establishment of clearways at either end of the runway,
- provision of a 450m runway with the full length being of prepared runway pavement,
- removal of the embankments on either side of the runway strip,
- enlargement of the apron area to accommodate additional aircraft,
- appropriate signing of the landing area to protect walkers and aircraft, and
- development of an Emergency Response Plan to ensure a controlled rescue and recovery response in the event of an accident.

(Airports Plus Pty. Ltd., 2001, 4-5)

The present apron area is adequate for two aircraft. However, observations indicate there are often more than two aircraft on the ground at any one time, with up to six aircraft during peak summer periods. The above report suggests that the

recommended enlarged apron area could accommodate a total of six aircraft.

The report by Ecology Australia, *Aircraft and Human Activity at Melaleuca and the Orange-bellied Parrot (Neophema chrysogaster)*, 2000, recommends "any proposed development at Melaleuca that potentially involves direct or indirect impacts to the OBP should be subject to an environmental impact assessment." (2000, 42). An extension of the landing area, introduction of twin engine aircraft to Melaleuca and increased helicopter activities at Melaleuca are listed as development proposals that would require specific assessment.

Upgrade of the toilet near the landing area is urgently required. The report by Airports Plus Pty. Ltd considered that although the toilet is not regarded as a hazard to aircraft, it is difficult to maintain, is not user friendly and poses issues of environmental quality.

The shelter near the landing area is currently being used for the storage of a wide range of items related to the management and use of facilities at Melaleuca. Bushwalker supplies (including food and fuel for cooking stoves), rubbish, food for the OBP Recovery Programme, the Walker Registration Book, a mailbox, interpretation material and fuel for commercial aircraft are all currently stored in the shelter. A metal cage outside the shelter is used for the storage of additional fuel and is not banded. This situation is considered a health and safety issue needing attention.

The storage of sea-kayaking equipment for commercial tours on a long-term basis needs to be determined.

The future of the Bird Observation Hide needs consideration. With recent investigations into the impacts of aircraft, helicopters and visitors on the OBP, the location of the Hide may become an issue. Alternative funding sources to the NHT Program should also be explored.

Site inspections have revealed issues relating to the huts, camping area and toilet. These include occasional overcrowding of the huts in summer, loss of vegetation cover, firewood collection and campsite expansion, unmarked routes between the campsite and Melaleuca Inlet and the unfavourable condition of the toilets.

Public safety is at risk as current alignments of the tracks in the MVSS require visitors to cross the Bathurst Harbour Landing Area to access various facilities and services and to pass through an operational tin mine. Parts of the South Coast Track and Old Port Davey Track utilise official mining roads on the Rallinga Mine lease area.

As the current mine operators have expressed their intention to explore and mine tin in the northeast portion of their lease in the next few years, it is proposed to realign part of the South Coast Track to remove it from the mining lease area. It will also pass around the perimeter of the Bathurst Harbour Landing Area, removing the current need to cross the landing area (see Map 4).

Issues of public liability, where walkers continue to use the mining access roads, are being discussed.

The banks of Melaleuca Creek adjacent to the pontoon are being denuded and eroded by ropes as dinghies and other craft are tying up to vegetation and the stanchion rather than to the pontoon. It is uncertain whether or not the site can physically sustain improvements to the pontoon facility.

The jetty at the mouth of Melaleuca Creek is deteriorating. Its use has declined with the construction and use of the public pontoon 500 metres upstream on the Melaleuca Creek.

PWS encourages continued use of the public pontoon facility and adjacent formalised boardwalk access to/from the landing area by visitors. It also seeks to avoid a proliferation of structures along

the waterways in consideration of visual and aesthetic values of the area.

A gravel reef, or bar, exists at the mouth of Melaleuca Creek. Yachts venturing into the Creek have become stuck on the reef in the past. There is no buoy or signage to warn boating craft of this feature and the resulting shallow waters.

Objective – Melaleuca Visitor Services Site

- To provide a range of appropriate low-key visitor facilities and services at the Melaleuca Visitor Services Site to complement the area's unique natural and cultural values.

Policies and Actions

- **As a high priority, implement the recommendations of the *Bathurst Harbour Landing Area Operational Report*, March 2001 as appropriate, subject to requirements set out in Assessment of Use and Development Proposals (Section 4.7).**
- **Develop a proposal for the introduction of a landing fee to offset proposed changes to the Bathurst Harbour Landing Area and ongoing maintenance costs, in consultation with commercial aircraft operators.**
- **As a high priority improve toilet facilities in the Melaleuca Visitor Services Site to meet environmental health requirements.**
- **A Melaleuca precinct site design will be prepared for proposed developments and activities in the Melaleuca Visitor Services Site, including:**
 - **alterations to the landing area and adjacent aircraft apron area,**
 - **commercial and visitor storage needs and facilities,**
 - **upgrade of toilets,**
 - **helicopter landing site,**

- **a fuel storage facility,**
- **realignment of parts of the South Coast Track and Old Port Davey Track, and**
- **interpretation and education (including signs).**

See Environmental Quality – Dangerous Goods (Section 3.11.5) for information on the storage of fuels and other dangerous goods at Melaleuca. See Recreation Zone (Section 4.5.3) for information on Deep Water Landing.

- **Maintain the existing bushwalkers huts at Melaleuca at essentially their present standard. If appropriate, undertake minor improvements.**
- **An inventory of the Melaleuca camping site will be prepared and maintained to assist monitoring environmental conditions and human impact.**
- **The Melaleuca camping site will be contained within its present boundaries.**
- **Maintain signage to remind visitors to respect the privacy of the Fenton and King families and not enter their residential lease area adjacent to the bird hide.**
- **Monitor environmental and visitor impact on and around the public pontoon facility, Melaleuca Creek and, if necessary, improve the facility.**
- **The jetty at the mouth of Melaleuca Creek will be removed and the site rehabilitated.**
- **Improve existing signs at the mouth of Melaleuca Creek to indicate shallow waters and the presence of a gravel reef or bar.**

4.6 Commercial Tourism Operations

Commercial tourism operations refer to those operations that provide commercial visitor services within areas managed by the PWS. These were formerly known as concessions.

Commercial operations in the area include:

- guided tours - sea kayaking, bushwalking (South Coast Track, Old Port Davey Track and other tracks) and cruise boat tours;
- scenic flights;
- Forest Lag camp;
- special events eg. yachting

The *National Parks and Wildlife Act 1970* requires all commercial operators to obtain a lease or licence from the Minister for all areas covered by the Act. The payment of a fee is required. Licenses are presently granted to seven commercial operators to occupy land and/or operate in the Melaleuca – Port Davey Area.

The WHAMP, 1999 provides guidance for commercial tourism operations in the WHA and in nearby Visitor Services Zones and Sites. Briefly, this includes a preference for facilities and services outside the WHA, private capital investment in Visitor Services Zones and Sites, high quality interpretation, monitoring and regular inspections of operations, support for a range of guided tours and accreditation for guided tour operations.

For information on the PWS Strategic Framework for Visitor Services, see Visitor Services Policy (Section 4.1).

Forest Lagoon Camp

The camp at Forest Lagoon in the Southwest National Park has been in existence for some time prior to WHA listing in 1982. It did not, however, become "semi-permanent" till the early 1990s. It is used year round as a lunch stop for day tours and for camping.

In January 1995, the PWS prepared a draft *Temporary Standing Camp Policy*, which was to be reviewed three years later, and if revised, to be approved by the Director of PWS. A temporary standing camp (TSC) was defined as having the following features.

- It must be constructed of materials that will demount easily and which are in keeping with the environment – tent-based structures are appropriate – a TSC is not a hut.
- May include sleeping tents, kitchen/dining shelter, and toilet areas.
- Disturbance of the ground surface must be minimised.
- The site is not to be used permanently. It may be occupied seasonally. All materials and facilities must be removed from the site when it is not in use.
- The TSC's are to be kept as small as possible. (Maximum sizes considered to be desirable are stated in the draft Policy.)

The WHAMP, 1999 recognises the facilities of the Forest Lagoon camp as including a landing, walkways, a cooking shelter, toilet, shower and accommodation tents. It states that the camp site is to be generally operated in accordance with the PWS's *Temporary Standing Camp Policy*, however the above noted facilities may remain year round (WHAMP, 1999, 181).

Management Issues

A number of the commercial tourism licenses to operate in the area are currently under review. Their renewed approval will take into account as far as possible current and future management issues for the area. This will include compliance with the WHAMP and this plan. It is intended the affected licenses are reviewed and/or renewed as soon as possible.

The use of commercial tourism licence fees to assist with area management warrants consideration. Licence fees could contribute to site protection,

stabilisation works and conservation of species (eg. tracks, heritage sites and OBP's), particularly in areas used by commercial tourism operators and where they may gain a commercial advantage.

Proposals have been put forward in the past to develop private lodge accommodation at Melaleuca. These proposals have generally been opposed by bushwalkers and conservationists who believe that such developments would impact upon their traditional use and the remote tranquil nature of the area (Melaleuca Visitor Survey, 1993).

With respect to the provision of facilities and services in general, the majority (71%) of respondents to the Melaleuca – Port Davey Survey 2001 wanted the area to stay exactly as it was. Little was mentioned on accommodation. Maintenance of the present walkers' huts at Melaleuca and Claytons house was considered important.

A PWS Ranger or Site Officer should accompany or be able to meet large cruise vessels, organised fleets of yachts and larger vessels for special events, and smaller guided tours. Their role is to educate visitors on WHA values, monitor area usage and impact, and promote appropriate boating practices. Cruise companies often request a Ranger as part of their visit and are prepared to pay for the service.

The PWS' Temporary Standing Camp Policy should be finalised.

Objective – Commercial Tourism Operations

- To manage commercial tourism operations in the area in a sustainable manner so as to maintain and enhance the natural and cultural values of the area and the quality of visitor experience, and in a manner which is responsive to market demands.

Policies and Actions

- **As a high priority, review all licenses held by commercial tourism operators operating in the area and ensure consistency of licence conditions. This includes updating of aircraft operator licenses in line with the recommendations of the Bathurst Harbour Landing Area Operational Report, 2001, Airports Plus Pty. Ltd.**
- **Review commercial licence fees levied for approved operations which have a high environmental impact, require specific monitoring, require expenditure by the Crown specifically for the benefits of that approval (e.g. jetties), have a risk that rehabilitation or restoration works may be required and require exclusive use of a particular site (lease).**
- **Establish a system for the regular monitoring of commercial activities for compliance with licence arrangements and acceptable industry standards.**
- **Forest Lagoon camp will continue to be recognised as a "temporary" camp in accordance with the WHAMP, 1999 and the Temporary Standing Camp Policy. PWS will ensure management techniques are adopted to minimise impacts of the camp on the surrounding environment and provide for a quality visitor experience.**
- **A meeting should be held at least once a year between the PWS and commercial tour operators or their representatives to discuss issues of concern and future proposed works for the area.**
- **All commercial licensees are encouraged to have training in interpretation and become accredited with the National Ecotourism Association of**

Australia.

- All existing commercial visitor service operators are required to have a Commercial Visitor Service Licence.
- Encourage commercial operators and their staff to be well informed of the area's values and climatic conditions prior to visiting the area for recreation or management purposes. The PWS and DPIWE will assist with training where practicable.
- Aboriginal heritage guidelines for boat-based visitors should be developed by PWS in consultation with the Aboriginal community, Tasmanian Heritage Office and commercial tourism operators.
- Encourage the provision of commercial facilities and services to be developed or located within the Melaleuca Visitor Services Site in preference to the adjacent WHA.
- The PWS' *Guidelines for the Preparation of Licences for Commercial Vessel Operations in Port Davey – Bathurst Harbour (2002)* will be used when preparing such licences.
- All large vessels and fleets of vessels visiting the area or participating in an organised event in the area are encouraged to have a Ranger on board or accompanying all shore visits for education and interpretation purposes at the expense of the company involved.
- Tracks suitable for commercial operator use are:
 - South Coast Track (including SW Cape Track)
 - Old Port Davey Track
 - Mt Milner (from west Bramble Cove)
 - Balmoral Hill (from entrance of Horseshoe Inlet)

- Mt Beattie (once a track is constructed from Claytons)
- Mt Rugby (after the construction of a route from Eds Cove)
- Clyde's Hill
- Spain Bay to Stephens Bay

4.7 Assessment of Use and Development Proposals

The WHAMP, 1999 sets out a process for considering new proposals, including new developments, activities and management actions in the WHA (WHAMP, 1999, 67). It also seeks that adjoining areas be managed in ways that are sympathetic to the objectives of management of the WHA.

The Ministerial Council, which provides advice under the WHA's New Proposals and Impact Assessment (NPIA) process, is not legally responsible for the adjacent SWCA (including Melaleuca), therefore the use of the NPIA process outside the WHA is inappropriate.

Development proposals in parks and reserves will soon come under the *Land Use Planning & Approvals Act XXXX*.

PWS is currently reviewing its internal Project Proposal assessment system for works in parks and reserves. The revised system will be applicable to use and development proposals at Melaleuca.

Management Issues

Where a proposed use or development is to be located in an area which is part WHA and part SWCA, the various assessment processes will need to be integrated.

Objective – Assessment of Development Proposals

- Proposed uses and developments are assessed to ensure any adverse, cumulative or potential impacts of the

use or development on the natural or cultural environment are minimised.

Policies and Actions

- **Any new development or activity in the WHA portion of the plan area will be assessed in accordance with the WHAMP, 1999, “New Proposals and Impact Assessment” process and relevant Federal and State legislation.**
- **Future use and development proposals in the SWCA will be assessed in accordance with PWS policy and any relevant Federal and State legislation.**
- **An integrated assessment process, meeting WHAMP, Federal and State legislation requirements, will be carried out for future use and development proposals that affect the WHA and SWCA.**

5. Primary Production

5.1 Mineral Exploration and Mining

For information on the current consolidated mineral lease see Introduction – Leases and Licences (Section 1.3.1). For information on mining rehabilitation, see Rehabilitation of Mining Areas (Section 3.10.3). Map 4 – Melaleuca Visitor Services Site shows the lease area of Rallinga Mine Pty. Ltd.

The mines at Melaleuca were developed to exploit reserves of cassiterite (tin oxide) discovered in 1935. Cassiterite is the mineral from which nearly all tin metal is obtained.

Rallinga Mine Pty. Ltd. has operated an alluvial tin mine at Melaleuca continuously for 27 years. The tin is a very pure form, which is rare, and is easy to smelt.

The mine produces approximately 5-6 tonnes per year of cassiterite. Peter and Barbara Willson, who presently work the mine, set up Rallinga Mine Pty. Ltd. in 1974. They make 2-3 trips a year to Hobart in their boat “Rallinga” to freight concentrates and buy spare parts and stores for the mine and household. The concentrates are then shipped to Brisbane for smelting. A very small amount of gold is also mined.

The estimated cassiterite resource is sufficient to sustain a further 15 years (from 2002) of mining at the current rate (Dennis Burgess, MRT, pers. comm.). There are no plans to increase production.

The scale of mining is predominantly “lifestyle” (i.e. small-scale, done for enjoyment of living in the area and suits the nature of the area). The remote location, difficulty of access (only small boat access) and harsh climatic conditions,

combined with the size and distribution of the resource preclude large-scale mining.

The method of mining is strip mining and rehabilitation. A series of strips, 6m wide and approximately 100m long, are created as proven payable areas are systematically worked over. The peat overburden and vegetation are removed and placed alongside the strip. Gravels, containing the cassiterite, are dug up, trucked to the plant and processed. Tailings are returned to the empty strips, and the overburden and vegetation from the next strip are replaced on the tailings. In this manner, rehabilitation of worked areas is carried out continuously as part of the mining process.

The current lease requires Rallinga Mine Pty. Ltd. (the “lessee”) “to conduct all mining operations and surface activities on the leased land in accordance with the Rallinga Mine Development Proposal and Environmental Management Plan dated 9 February 1991.” The lease expires 1 August 2003.

Melaleuca has a rich mining history. Its historic values continue to attract tourists.

Management Issues

Sensitive area management practices are required for mining at Melaleuca. Issues of concern to PWS and DPIWE relating to mining operations at Melaleuca include: the impact of mining on the unique peat mounds of the area, water quality monitoring, occupational health and safety standards, changes to the vegetation and a rehabilitation bond.

A review of the 1991 *Draft Development Proposal and Environmental Management Plan* for Rallinga Mine has commenced. An assessment of the mining heritage on the Rallinga lease has been completed and was funded by the Rehabilitation Trust Fund and MRT.

Any renewal of the current Rallinga Mine lease (*Mineral Resources Development Act 1995*) by Mineral Resources Tasmania and renewal of the current residential lease for Peter and Barbara Willson (*Crown Lands Act 1976*) by PWS, both of which expire in August 2003, should be conducted at the same time.

Objective – Mineral Exploration and Mining

- To ensure mining at Melaleuca recognises and protects the sensitive environment of the area and is carried out at the current scale and type of operation.

Policies and Actions

- **As a priority, liaise with Mineral Resources Tasmania in the preparation and implementation of a revised environmental management plan for the Rallinga Mine lease area.**
- **Following the cessation of mining at Melaleuca, consider the inclusion of the Melaleuca – Cox Bight corridor of the SWCA into the SWNP.**

5.2 Marine Farming

As a result of a plan developed in co-operation with the inter-agency Marine Farm Management Committee, aquaculture is currently not permitted within the WHA because of conflicts with recreation and conservation values (WHAMP, 1999, 187 & 195).

Policies and Actions

- **In accordance with the WHAMP, 1999, no farming of marine or freshwater species will be permitted. (WHAMP, 1999, 187 and 195).**

5.3 Commercial and Recreational Fishing

Management of all commercial and recreational fishing vessels, must operate in accordance with the appropriate management plans and fisheries rules, under the *Living Marine Resources Management Act 1995*.

The Minister administering the *Living Marine Resources Management Act 1995* is authorised to exercise his/her powers under that Act in relation to the granting of licences to take fish, providing such taking does not involve physical disturbance of the sea floor and provided that no licence, permit or other authority shall be issued for marine farming within the WHA. This does not preclude commercial diving for shellfish and other organisms, rock lobster fishing, gill and seine netting, trap fishing or line fishing (WHAMP, 1999, 195).

5.3.1 Commercial Fishing

The outer part of Port Davey and the areas of exposed coast immediately outside Port Davey are important fishing locations, especially for rock lobster and abalone and particularly by fishers with smaller vessels. Some commercial fishing occurs around the Breaksea Islands and the entrance to Bathurst Channel, mainly for rock lobster and abalone, as well as low intensity gill netting. Most fishing boats seldom go beyond the Narrows or Claytons.

For the years 1995-2000 the "scalefish" (here, includes sharks, rays and cephalopods) catches in Port Davey were recorded separately. Very few fishers reported catches from these locations, although more fishers may have caught fish for personal consumption or for bait. The main species caught were two species of trumpeter followed by flounder.

5.3.2 Recreational Fishing

There are no figures available for recreational fishing in the area. A low level of recreational fishing is undertaken

in the area, mainly in inner and northern Port Davey rather than in outer Port Davey, and in Bathurst Channel/Bathurst Harbour. This, however, depends very much on where the weather permits recreational fishing. Yachts undertake some line fishing and occasionally put out nets. A commercial tourist operator has been known to occasionally set pots for rock lobsters. The Willsons set nets for fish for personal consumption.

Management Issues

It is important that Port Davey receives ongoing recognition as a vital bad weather shelter area for small vessels on the west and south coasts. The anchorages on the northern side of Port Davey are very important.

Many fishers have actively worked the Port Davey area over the past century. A strong sense of belonging to the area has been developed within these people.

During the time that the vessels are in the area, they will shelter overnight in the most appropriate anchorages, dependent on wave direction, wind direction, and most importantly where fresh water is available nearby. As most boats have a 'wet well' (where part of the hull is open to the seawater to keep the lobsters alive) or pump the water through lobster holding tanks, it is imperative that the water available to the captured lobster be fresh seawater, not fresh water. As the fresh water above the halocline will move from one side of Port Davey to the other (dependent on wave and wind action), it is not unusual for a boat to also move from one side to the other to avoid the fresh water (even several times in a night) if the conditions dictate this.

See Boating and Diving Access (Section 4.4.2) for restrictions on upriver access, and Facilities and Services – Recreation Zone (Section 4.5.3) for preferred boat anchorage sites.

One of the major recommendations of Graham Edgar, in his unpublished paper, *Hydrological and Ecological Survey of the*

Port Davey/Bathurst Harbour Estuary, 1988-89, was that gillnetting should be banned in Bathurst Harbour and Port Davey. He concluded that his fish survey illustrated dramatically the great effect of gillnetting on local fish stocks (Edgar, 1989, 73). Advice from Marine Resources, DPIWE, suggest that the issue of gillnetting in this area can be addressed through the development of a Scalefish Management Plan.

For information on the marine values of Port Davey – Bathurst Harbour see Port Davey – Bathurst Harbour Marine Ecosystems (Section 3.4).

Objective – Commercial and Recreational Fishing

- To provide for the continuation of sustainable commercial and recreational fishing in Port Davey – Bathurst Harbour subject to the protection of the area's natural and cultural values and the outcomes of any marine protected area dealt with in accordance with Government policy.

Policies and Actions

- **In accordance with the WHAMP, 1999 commercial fishing of freshwater eels, whitebait, lamprey or other freshwater or estuarine species will not be permitted in the WHA (WHAMP, 1999, 188).**

6. Involving the Community

Community support for the management of the area has been significant over the past 50 years, and continues to be so today. Several community groups and organisations, such as the Launceston Bushwalking Club, regularly visit or make use of the area, as do local residents. Commercial and recreational fishing interests visit Claytons, occasionally staying for up to a week during bad weather conditions.

Many members of walking clubs and boat clubs helped Deny King with the building of the bushwalkers' huts at Melaleuca. See Historic Heritage and Landscape, Exploration and Mining (Section 3.7.3) for further information on the walkers huts.

A Friends of Claytons Group was formed in late 2001 and carried out extensive maintenance work on Claytons House and garden.

Many fishers have been actively involved in the removal of marine debris from the shores of the waterways.

Management Issues

The area is remote from urban or small rural communities and access cannot always be guaranteed due to weather conditions.

The maintenance of facilities and historic heritage places in the area is a continuing issue. The PWS is limited in terms of money and resources, and is keen to involve the community in the management of the area.

Maintenance of culturally significant structures must provide for protection of heritage values. In some instances, conservation plans or strategies have been prepared to provide information or direction for undertaking maintenance works. In such matters, PWS will liaise

closely with the Tasmanian Heritage Office .

Objectives – Community Support

- To develop community appreciation of and support for the area's values.
- To promote a positive image of the area and its contribution to the community.
- Continue to encourage community involvement in the management of the area.

Policies and Actions

- **Facilitate existing community volunteers and encourage new volunteers to be involved in the management of the area.**
- **Partnerships will be developed with communities and groups that wish to be involved in the management of the area. This may include, but is not limited to, Wildcare, the Community Huts Partnership Program and the continuation of the Melaleuca – Port Davey Advisory Committee or similar committee.**
- **The PWS will liaise with Tasmanian Heritage Officer regarding the maintenance of facilities, sites and places where known or potential heritage values may exist.**

See Historic Heritage and Landscape (Section 3.7.3) for specific policy on the Claytons historic heritage site.

7 Administrative Matters

7.1 Public Safety and Risk Management

The PWS is concerned to protect visitors from undue, unnecessary and unreasonable hazards. Education aimed at promoting understanding of natural hazards and the possible consequences of disregarding them is a major part of how this is achieved.

Responsibility for search and rescue within the WHA and SWCA lies with the Tasmania Police and the State Emergency Service. The PWS assists the Police when called on to do so.

Management Issues

Until the proposed realignments of parts of the Old Port Davey Track and South Coast Track are completed (see Melaleuca Visitor Services Site (Section 4.5.4), signs should be installed where these tracks meet the Bathurst Harbour Landing Area to warn the public of potential hazards to their safety. No such signs currently exist.

Objective – Public Safety and Risk Management

- To protect visitors from unnecessary and unreasonable exposure to hazards without detracting from visitors' quality of experience.

Policies and Actions

- **Establish a risk management system that provides for regular identification, inspection, reporting and amelioration of existing and potential risks to public safety.**
- **Maintain and where necessary improve the existing asset management program to ensure the**

adequate maintenance of facilities and infrastructure and minimise the risk to public safety.

- **Take appropriate action to warn the public of potential hazards to visitors and appropriate ways of avoiding or minimising risks.**
- **As a temporary measure, install signs at the Bathurst Harbour Landing Area to warn the public of potential aircraft movement hazards to their safety.**

7.2 Staffing

Day to day management of the area is the responsibility of the Southern District, PWS, based at Huonville. Additional temporary staff eg. track construction workers, are regularly employed.

Due to current staffing numbers and budgets, there is no staff based permanently at Melaleuca over the busy summer period.

A hut, built in the late 1980s, is located at Melaleuca to accommodate PWS staff. It is also used on occasion to house the volunteers working on the Orange-bellied Parrot National Recovery Program.

Management Issues

It is suggested the area needs a full-time on-site presence and surveillance during the summer period by PWS. This will become more critical as visitor numbers increase, with subsequent use of facilities and services and impact on the environment.

Policies and Actions

- **As a priority investigate ways of staffing Melaleuca full-time during the summer period.**

Glossary and Abbreviations

Glossary

Biodiversity (biological diversity)

The variety of life forms: the different plants, animals and microorganisms, the genes they contain and the ecosystems they form. It is usually considered at four levels: genetic diversity, species diversity, ecosystem diversity and community diversity (*Australian Natural Heritage Charter*)

Bund

An embankment or wall which may form part or all of the perimeter of a compound. (*The Storage and handling of flammable and combustible liquids, AS 1940-1993, Standards Australia*)

Conservation

All the processes and actions of looking after a place so as to retain its natural and cultural significance and always includes protection, maintenance and monitoring.

Australian Natural Heritage Charter: Standards and Principles for the Conservation of Places of Natural Heritage Significance, 1997, Australian Heritage Commission and Burra Charter, Australia ICOMOS Inc., 1999)

Fuel Stove Only Area (FSOA)

A FSOA is an area where only fuel stoves may be used for cooking or warmth and where open campfires are not allowed. The only exceptions to this are:

- in emergencies where a fire is needed for survival reasons, and
- in designated fire sites (usually located in Visitor Services Zones or Sites with supplied fireplaces).

Geodiversity

The range of earth features including geological, geomorphological, palaeontological, soil, hydrological and atmospheric features, systems and earth processes. (*Australian Natural Heritage Charter*)

Introduced Species

A translocated or non-native species occurring at a place outside its historically known natural range as a result of intentional or accidental dispersal by human activities.

Threatened Species

A species listed in the Schedules of the *Threatened Species Protection Act 1995*.

Visitors

Generally speaking, there are three groups to consider.

- Shortstop visitors – who stay in the park/reserve for a short time and want to be in the natural setting as soon as they step from their car, bus or boat.
- Comfort seekers – who stay in the park longer than the shortstops and place more emphasis on being with family and friends.
- Getaways – who stay the longest time in the park and look for opportunities for adventure or challenge.

(Strategic Framework for Visitor Services in Tasmania’s Parks and Reserves, undated, PWS, DPIWE)

Watering Bay

Previously known as Waterfall Bay: Database of the Nomenclature Board.

Note: Refer to the Burra Charter (Australia ICOMOS Inc., 1999) and The Conservation Plan (Kerr, 2000) for definitions of historic heritage and cultural landscape terms.

Abbreviations

AMSA	Australian Maritime Safety Authority
CRIMP	Centre for Research on Introduced Marine Pests (part of CSIRO)
DPIWE	Department of Primary Industry, Water and Environment
DTPHA	Department of Tourism, Parks, Heritage and the Arts.
EMPCA	<i>Environmental Management and Pollution Control Act 1994</i>
EPBCA	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPP	Environmental Protection Policy (prepared under the <i>Environmental Management and Pollution Control Act 1994</i>)
FNA	Fly Neighbourly Advice guidelines
IUCN	International Union for the Conservation of Nature
MAC	Melaleuca Advisory Committee
MARPOL	<i>International Convention on Pollution from Ships</i> (known as the MARPOL Convention)
MAST	Marine and Safety Tasmania
MPAC	Melaleuca – Port Davey Advisory Committee
MRT	Mineral Resources Tasmania
NCB	Nature Conservation Branch (Resource Management Division, Department of Primary Industries, Water and Environment)
NPWA	<i>National Parks and Wildlife Act 1970</i>
OBP	Orange-bellied parrot
PEV’s	Protected Environmental Values (within the <i>State Policy on Water Quality Management</i> (1997))
PWS	Tasmanian Parks and Wildlife Service (part of the Department of Tourism, Parks, Heritage and the Arts).
RMC	Resource Management and Conservation Division (part of DPIWE)
TALC	Tasmanian Aboriginal Land Council
THO	Tasmanian Heritage Office (part of the Department of Tourism, Parks, Heritage and the Arts).
SWCA	Southwest Conservation Area
SWNP	Southwest National Park
TWWHA	Tasmanian Wilderness World Heritage Area
WHA	World Heritage Area
WHAMP	<i>Tasmanian Wilderness WHA Management Plan, 1999</i>

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Appendices

Appendix 1: Introduced Terrestrial Flora

Garden Species with a High Risk of Invading Native Vegetation

Species Identified for Removal	Species of Heritage Significance	Species not Assessed for Heritage Significance
<i>Berberis darwinii</i>	<i>Allium schoenoprasum</i>	<i>Ajuga reptans</i>
<i>Cytisus palmensis</i>	<i>Cotoneaster</i> sp.	<i>Digitalis purpurea</i>
<i>Equisetum</i> sp.	<i>Chamaecyparis lawsoniana</i>	<i>Fuchsia magellanica</i>
<i>Erica</i> sp.	<i>Fragaria</i> sp.	<i>Mentha</i> spp.
<i>Genista</i> sp.	<i>Prunus</i> sp. (cherry plum, purple leaf)	<i>Myosotis discolor</i>
<i>Muscari armeniacum</i>	<i>Rosa</i> sp. (rose, single salmon pink)	<i>Vicia faba</i>
<i>Rhododendron ponticum</i> ¹	<i>Sorbus aucuparia</i>	
<i>Tropaeolum majus</i>		

¹ The *Rhododendron* hybrids in the residents' gardens at Melaleuca and in the garden at Claytons pose no threat of escape or risk of invading native vegetation, and are of considerable cultural significance, so should be retained.

Introduced Species Observed in Natural Area Vegetation in the Area

High Priority for Eradication or Control	Not a Priority for Eradication or Control
<i>Euphorbia paralias</i> (sea spurge)	<i>Cakile edentula</i>
<i>Cirsium arvense</i>	<i>Cakile maritima</i>
<i>Cirsium vulgare</i>	<i>Chemopodium glaucum</i>
<i>Rubus fruticosus</i>	<i>Juncus articulatus</i>
	<i>Leontodon taraxacoides</i>
	<i>Poa annua</i>
	<i>Rumex brownii</i>
	<i>Sagina procumbens</i>

Ammophila arenaria would be a priority if it is found in the area.

Appendix 2: Fly Neighbourly Advice Tasmanian World Heritage Area and Mt Field National Park

1. INTRODUCTION

- 1.1. The Tasmanian Wilderness World Heritage Area (WHA) and Mt Field National Park area are administered by the Tasmania Parks and Wildlife Service (TPWS), Department of Primary Industries, Water and Environment. The WHA contains a number of Sensitive Areas (SAs).
- 1.2. The aim of Fly Neighbourly Advice (FNA) is to promote the harmonious relationship between aviation activities and environmental and conservation interests.

2. FLY NEIGHBOURLY ADVICE

- 2.1. There is an understanding between locally-based scenic flight and charter operators and the TPWS to operate in the WHA and Mt Field area in an agreed responsible manner. Other pilots undertaking sightseeing flights in the WHA or Mt Field area should obtain information on FNA areas, tracking details, operating altitudes, and specific areas to be avoided from:

The Director
Tasmania Parks and Wildlife Service
Department of Tourism, Parks, Heritage & The Arts
134 Macquarie St
HOBART TAS 7000
(contact: Planning Officer, World Heritage Area
Ph. 03 6233 2112 Fax: 03 6224 0884

- 2.2. Advice on operating in the WHA and Mt Field area is also available from most flying schools and charter operators based at Cambridge, Launceston, Devonport, Wynyard, and Strahan.
- 2.3. The FNA area is approximately bounded by the following (refer WAC 3556 – Tasmania):

Commencing South of Deloraine at Meander, then Miena – Derwent Bridge – Wayatinah – Westerway – Whale Head – then coastal to Low Rocky Point – Mt Sorell – Mt Beecroft – Meander.

- 2.4. The Sensitive Areas (SAs) are:

Cradle Valley, Traveller Range, Mt Ossa to Mt Rufus, Frenchmans Cap, Mt Anne Lake Judd area, Mt Orion and Arthur Range, and Federation Peak.

- 2.5 The general minimum overfly altitude for the WHA and Mt Field area is 4000FT AMSL, terrain permitting. To minimise the impact of noise:

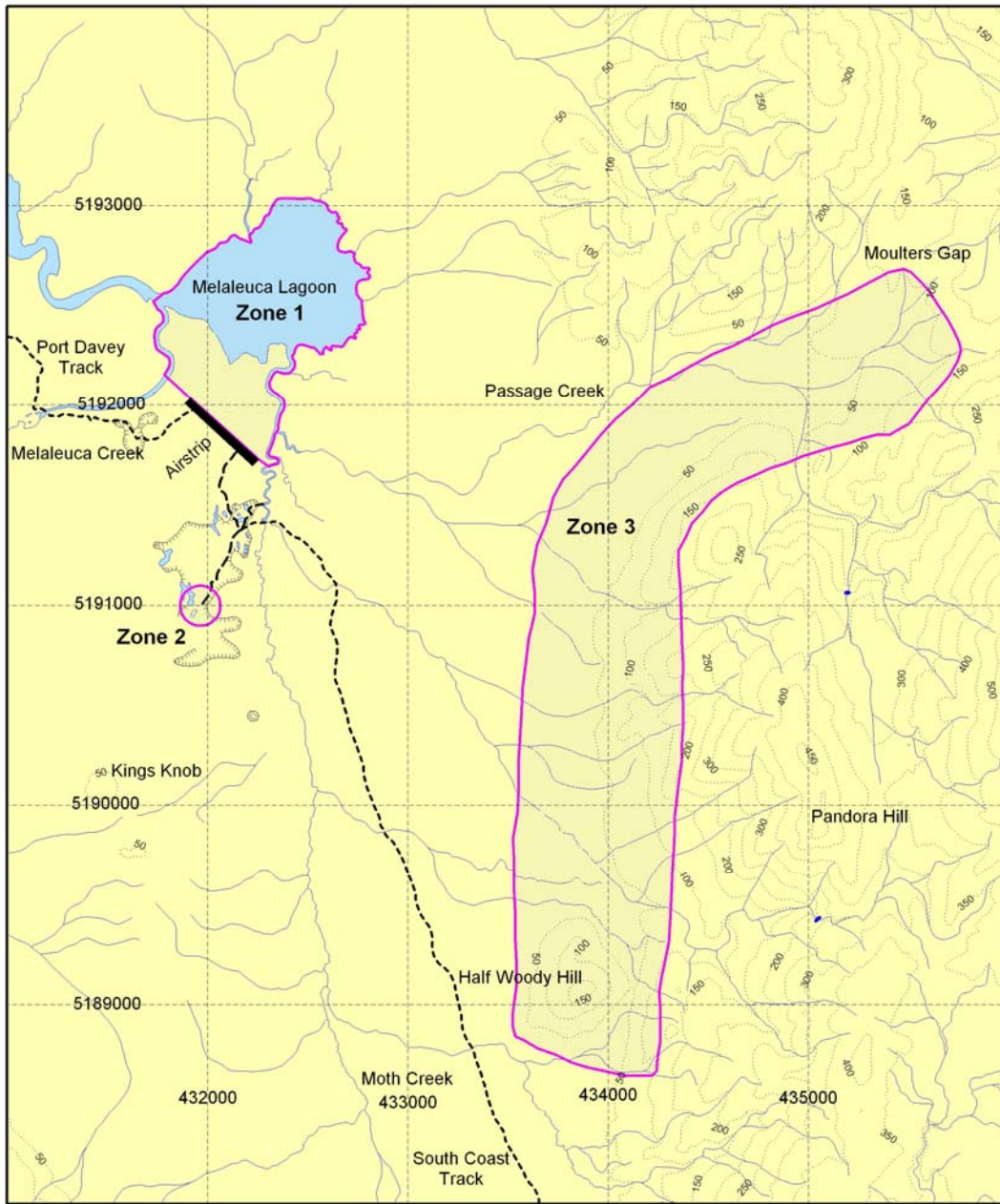
- a. operate aircraft at the highest possible altitude and lateral distance from the feature being observed that will allow satisfactory observation from the air;
 - b. in sensitive areas, avoid prolonged flight and sudden changes in engine management (safety permitting); and
 - c. endeavour to cross walking tracks and the Franklin River at right angles.
- 2.6. Flight in and through the SAs should be kept to a minimum, and aircraft should be operated at an altitude and configuration that will minimise noise and visual impact for ground observers.
- 2.7. Recommended operating altitudes in the WHA and Mt Field area do not apply if these altitudes would jeopardise the safe conduct of the flight.
- 2.8. **Melaleuca Area Zones.** Additional conditions apply during the nesting season of the Orange Bellied Parrot which breeds in the three Melaleuca Area zones located within the WHA:
- a. From 15 September to 30 April, pilots are requested to avoid:
 - (i) repeated passes or circuits above the zones;
 - (ii) landing helicopters within the zones; and
 - (iii) hovering helicopters above forested areas within the zones.
 - b. Information on zone areas and operating in this area can be obtained from:

Project Officer
Melaleuca Area
Tasmania Parks & Wildlife Service
Ph: 03 6233 6033

3. IMPLEMENTATION

- 3.1. The WHA Fly Neighbourly Advice (FNA) has been coordinated through the Tasmania Regional Airspace Users Advisory Committee (RAPAC) and the Tasmania Parks and Wildlife Service.

**Fly Neighbouring Advice (FNA)
Tasmanian Wilderness World Heritage Area (Melaleuca Area)**



- Sensitive Area Boundary
- Mine Workings
- Tracks

Projection/Datum - UTM/AGD66
21 February 2001
d:\work\mapinfo\planning\wha sensitive areas\sensitive areas melaleuca.wor

Appendix 3: Walking Track Management Strategy - Track Classification Categories

T1 – Track grade 1. Mostly <15o. “Boot” standard. May be rocky and uneven in places. Mostly clear of scrub across width of track.

T2 – Track grade 2. Mostly <20o. “Wet boot” standard. Stabilisation or hardening mainly for environmental purposes. Mostly clear of scrub across width of track.

T3 – Track grade 3. Maximum gradient is limited by environmental considerations only. Minimal surfacing and drainage done. Scrub clearance is sufficient to facilitate fairly easy navigation under normal conditions.

T4 – Track grade 4. Similar to T3, though scrub clearance is minimal. Markers should be low-key and tracks may be difficult to follow in places